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TEACHER THINKING AND TEACHER ACTIONS:

A STUDY OF SIX TEACHERS

A thesis

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of

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by

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ABSTRACT

This study is predicated on the assumption that teaching is an intentional behaviour and that a study of teaching therefore requires attention to teachers' thoughts as well as their observable actions. It is an attempt to describe and account for: (a) the cognitive activities involved in teacher planning; (b) the contrastive features of teachers' attention to and thoughts about elements of lessons; and (c) the relationship between planned and actual lessons. Data concerning these aspects of teaching were gathered from three experienced classroom teachers and three student teachers who were each asked to teach three small-group discussion lessons.

Several data collection and analysis procedures were developed to help the teachers report fully on the focus of their thoughts prior to and in the course of their lessons, and to allow the researcher to categorise accurately the content of their self-reports. Pre-lesson planning thoughts were captured by having teachers make a written 'stream of consciousness' record of emerging thoughts, and a 'stimulated-recall' procedure was used to help them identify incidents in the course of lessons during which their attention and thoughts had been consciously registered. Additional data about the planning undertaken for specific lessons were obtained from questionnaire responses, while a structured interview technique was used to identify teachers' perceptions of 'typical' features of their conscious experience of teaching.

A comprehensive system for categorizing these data was developed and, as a means of ensuring that teacher self-reports were accurately categorized, the researcher systematically discussed their meaning with the teachers who were asked to confirm, disconfirm and where necessary correct the researcher's interpretations.

The analysis of the data obtained revealed a number of significant similarities, differences, consistencies and inconsistencies in features of the teachers' pre-lesson planning, their within-lesson attention and thoughts and plan-reality relationships. In accounting for these contrastive features, a number of explanatory propositions were formulated. These highlighted: (a) reasons why planning is likely to be undertaken before lessons; (b) the problem-solving nature of the planning process; (c) the contribution that factors internal and external to teachers may make to the nature of the planning process and the content of their plans (e.g. tolerance for uncertainty, teaching theories, information-processing capabilities, availability of time and material resources);

(d) factors that influence the focus of teachers' within-lesson thoughts (e.g. the directive influence of plans, the 'press' of immediate events, significance and meaning attached to learner behaviours); and (e) the variables that influence teachers' efforts to monitor learner behaviour (e.g. the availability, ambiguity and objectivity of behavioural cues).

Educational implications that follow from these propositions centre on two recommendations. Firstly, those who wish to influence the actions of classroom teachers need to be aware of the manner in which the thoughts of teachers shape their overt behaviours, and to take account of factors that impose constraints on the capacity of teachers to attend to teaching situations in particular ways. Secondly, it is suggested that teachers will benefit from having opportunities to analyze, evaluate and experiment with a variety of ways of thinking about teaching situations.

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CHAPTER ONE

THE RESEARCH PROBLEM AND RELATED BACKGROUND

1.1 Purposes of the Study

Most research on teaching has been concerned with what might be termed the surface features of teacher behaviour - that is, behaviour that is amenable to observation and measurement by an outside observer. Such research generally appears to have been based on the assumption that the meanings attached by the observer to aspects of a teaching performance are invariably the same as those that the teacher and pupils would also have 'in mind'. Certainly, descriptions of teacher and learner thoughts are seldom evident in research on teaching, and few researchers appear to have raised the fundamental question - can one study teaching without relating an observed performance to a teacher's intentions?

The present researcher first recognized the importance of this question in the course of his earlier study of teacher expectancy (Haigh, 1974). Although this study was concerned primarily with teacher expectations, the research results showed that a discrepancy could exist between teacher intentions for a particular lesson and what occurred as that lesson proceeded. Thus, for example, five out of a sample of six teachers in the study did not fulfil their intentions regarding spread of pupil participation during class discussion. All five teachers stated that they intended to facilitate equal participation by all pupils, yet they interacted more frequently with those pupils for whom they held high achievement expectations. In addition, all five teachers were unaware of this mis-match between their intentions and their actual actions until it was pointed out to them by the researcher. These findings suggested that there could be a discrepancy between the intentions that teachers say lie behind their actions (e.g. equal participation by pupils) and the intentions that an observer-researcher might ascribe to these same actions (e.g. unequal participation by pupils). As observers of teacher behaviour, too, pupils could conceivably attribute intentions to a teacher that might differ from those which the teacher had in mind (e.g. "The teacher doesn't want to hear my ideas", or, "The teacher wants to hear my ideas, but not those of other children.").

These findings indicated that much could be learned about teaching from an examination of the relationship between teacher intentions and teaching performance. They also led the researcher to adopt the position that teaching necessarily represented a set of attributes of

thought as well as action, and that an understanding of the phenomenon of teaching could not be achieved, therefore, if researcher attention was limited to either teacher thoughts alone or to observable teacher acts alone. A conceptualization of teaching that took this assumption into account was then formulated.

Teaching was defined as intentional behaviour: that is, behaviour which is associated with thoughts about (a) particular end-states (new learnings) that it is hoped to facilitate in someone, and (b) a particular course of action that might allow these end-states to be achieved. It was assumed that unless teachers had such intentions in mind (or at least implicitly so), then they could not be said to be teaching but to be engaged in some other kind of activity (e.g. administration or custodial). The teachers' thoughts, then, were considered to delineate the meaning of their overt actions, and thus demanded the attention of research. From this perspective, teaching was seen to include five major kinds of activity:

(i) Taking account of the conditions that it is believed might influence one's ability to facilitate particular pupil learnings.

(ii) Deciding on the learnings that would be appropriate pupil goals, given these conditions above.

(iii) Formulating a plan of action specifying how conditions might be arranged in order to facilitate the desired pupil learnings.

(iv) Implementing teaching plans, sometimes with modifications to original intentions.

(v) Monitoring and evaluating the extent to which intentions that are reflected in teaching plans are implemented and realised.

As a result of this conceptualization of teaching, the following research questions were considered to be of particular importance for the present study:

1. In the course of planning ahead for lessons, what types of learnings do teachers envisage facilitating, and what conditions do they contemplate arranging in order to facilitate those learnings?
2. To what extent are teachers' actions consciously formulated either prior to or in the course of lessons, and to what extent do they represent routine responses

that are automatically implemented?

3. What aspects of on-going lessons do teachers consciously monitor?
4. What are the characteristics of the responses that teachers consciously experience or make to aspects of on-going lessons?
5. How readily and frequently do teachers modify pre-lesson plans during lessons?
6. Are these modifications consciously formulated, or are they relatively automatic changes?
7. What conditions within lessons do teachers identify as reasons for the relative success of their efforts to facilitate particular pupil learnings?
8. What are the implicit or explicit theories of teaching that are evidenced in teachers' own explanations of (i) the manner in which their thoughts influence their teaching effectiveness, and (ii) the relationship between their perceptions of conditions in particular teaching-learning situations and the pupil learnings and plan of action that they believe are appropriate when such conditions exist?

These questions determined the direction of the initial stages of the study. However, as the researcher further explored theoretical issues, developed data collection and analysis procedures, and evaluated the significance of the data being gathered, it became apparent that additional research questions should be asked about the phenomenon of teacher thinking. These included:

9. What cognitive activities are involved in teacher thinking which occurs prior to and in the course of discussion lessons?
10. Do teachers direct their attention to particular elements of lessons in a random or a 'systematic' manner?
11. What factors internal and external to individual teachers might account for similarities and differences between teachers in respect to their attention and thoughts prior to and in the course of lessons?
12. What internal and external factors might account for the consistencies and inconsistencies in individual

teacher's attention and thoughts from one lesson to another?

Clearly, to answer these questions the researcher had to gain access to what might be termed the 'mental life' of the teacher (Jackson, 1968). It was apparent also that reliance would have to be placed upon teacher self-reports about their thoughts. This raised additional questions concerning the procedures and criteria that might be used to ensure validity for self-reported 'mental life' data. For example, it appeared that the validity of data gathered on teachers' intentions could not be established simply by examining the degree of congruence that was reached by independent outside observers about the thought categories represented in teachers' self-reports. Rather, it seemed essential that the teachers, who were after all the authors of the reports, be asked to confirm that the researcher had accurately categorized their thoughts. In effect, then, participating teachers would be required to take on the role of co-researchers who helped ensure that the researcher gained an accurate understanding of the meaning of their accounts of their own thoughts and actions. An attempt was made in the present study, therefore, to develop and evaluate a set of procedures that were designed (a) to help teachers report fully and honestly on their teaching thoughts, and (b) to allow the meaning of such thoughts to be accurately portrayed.

1.2 Significance of the Topic

At least four advantages may accrue from research which views teaching as intentional behaviour and which gives centrality to teacher thinking:

(i) Some of the factors that help, hinder or thwart adaptive thinking by teachers during the pre-active, interactive and post-active phases of the teaching process might be identified. Thus, the researcher might uncover valuable information about (a) the actual opportunities available to teachers for reflection upon their own teaching within and outside of lessons; (b) the preparedness and ability of teachers to deviate from lesson plans and to generate alternatives once a lesson is underway; and (c) the effectiveness of strategies adopted by teachers to cope with the information load inherent in particular teaching situations. As a result of

this kind of information, those interested in the outcomes of school learning experiences might develop realistic expectations of teachers.

(ii) Procedures developed to enable the mental life of teachers to be studied might provide, subsequently, a means whereby classroom practitioners could better monitor and evaluate their own teaching effectiveness. Thus, teachers could be led to examine: (a) the extent to which their actions are based on rational decision-making as opposed to being intuitive and/or routinized; (b) the congruence between their intentions and the reality of the actions and conditions that eventuate as lessons proceed; and (c) the teaching theories they hold and perhaps which they believe actually shape their teaching behaviour.

(iii) The research procedures might also provide a means of monitoring the influence on teachers of specific teacher education programmes. If such programmes are indeed effective, one might expect some elements from them to be incorporated in teacher thoughts as well as overt action patterns.

(iv) Presented in suitable form, research findings about the mental life of teachers could provide other practitioners with systematic information that might well stimulate them to reflect upon and possibly extend or modify their own repertoire of teaching behaviours.

1.3 The Research Context

As outlined above, until recently the predominant focus in research on teaching has been the teacher's overt behaviours. Consequently, the goals of the present study represent a departure from mainstream research. In what may be described as the first major and comprehensive review of research on teaching, Dunkin and Biddle (1974) identified what they considered to be studies that did or did not represent 'research on teaching'. Under their non-examples category, these reviewers included:

> ...observations of teacher or pupil behaviour in non-classroom contexts, investigations in which teachers, pupils, school principal, or others are asked to report or rate classroom events which they saw - but the

investigators did not.

(p.3)

In contrast, Dunkin and Biddle stated that, in concerning themselves with the actual activities of classroom teaching,

> ...we mean to focus attention on all of the observable behaviours of teachers and pupils rather than upon only those that are productive of pupil growth or upon intangible or unobservable relationships between teachers and pupils.
>
> (p.44)

In taking this position they noted also that they differed from those who defined teaching as those activities undertaken with the intention that pupils will learn something:

> We find it difficult to distinguish classroom events in terms of the teacher's "intent" and are quite as interested in classroom events that are unintended or that occur when the teacher has non-learning goals in mind.
>
> (p.44)

Having adopted this orientation, it is interesting that Dunkin and Biddle failed to offer a definition that would allow teaching behaviour to be distinguished from non-teaching behaviour.

In commenting on methodological problems in classroom research, Dunkin and Biddle referred briefly to what they called the problem of 'conceptual posture'.

> What should be observed - the intent of behaviour, its objective characteristics, or its effects?
>
> (p.77)

Their own contention was that the coding of the objective characteristics of the teaching process was the most appropriate practice for researchers to follow. This was likely to involve fewer inferences by observer-coders and lead to more reliable data as well as less biased interpretations about teacher behaviour.

Such a position appears to be based on the assumption that teaching behaviours have an inherent meaning which can be readily and reliably discerned by independent outside observers. At the same time, however, Dunkin and Biddle indicated that inference might be involved in the coding of so-called objective characteristics of some teaching behaviour. For example, an observer may infer that what on the surface appears to be an instance of teacher praise is in fact intended by the teacher as sarcasm. If characteristics <u>are</u> described as objective, one would have to assume they would be directly open to systematic observation and description, and that inference of meaning would not in fact be necessary.

Such issues were only briefly acknowledged by Dunkin and Biddle and they continued to adhere to the view that all teaching behaviour could be studied without examining the meanings for that behaviour that teachers and learners might have in mind.

It will be apparent from the preceding commentary that Dunkin and Biddle did not see teaching behaviour as encompassing such 'actual activities' as thinking about a forthcoming lesson (planning), or, in the course of a lesson, consciously contemplating the next teacher or learner action. The fact that such activities were not amenable to direct observation, and in the case of the former frequently took place outside of classroom contexts, did not allow their criteria for 'teaching' behaviour to be fulfilled. While not all researchers have accepted the stringent criteria that Dunkin and Biddle proposed for categorizing instances of research on teaching, an over-riding concern with the observable features of teaching was clearly evident in the majority of studies on teaching at that time. This conformed with the prevailing view that 'good' research should focus on data that is directly open to scrutiny from an external perspective.

An appraisal of the research available, then, suggested that many researchers had unduly limited the parameters of the subject matter they were interested in: they had not fully explored issues concerned with either the assignment of meaning to behaviour, or the possible benefits and limitations inherent in methods of data collection that allowed data to be interpreted from the point of view of the actual participants in a teaching-learning situation. A careful examination of these issues appeared to be a necessary component of the present study.

Notwithstanding this position, the bulk of studies that had been undertaken within these 'constraints' did have an immediate and significant input into the present study. In particular, these studies highlighted the repertoire of overt behaviours that teachers might think about and choose to engage in when they set out to facilitate learning. On the other hand, the limited number of studies in which the thinking of teachers was of central concern provided the researcher with an initial source of information and propositions about teacher's mental lives, as well as the alternative methods of data collection and analysis that might need to be employed when studying unobservable aspects of teaching behaviour. In particular, studies by Jackson (1968), and Smith and Geoffrey (1968), provided convincing evidence of the potential value of a more holistic approach to the study of teaching behaviour. These studies focussed attention on both covert and observable teaching

behaviours and concurrently considered a variety of contextual factors that might influence both teachers' and learners' behaviours. In addition, they employed methods of data collection that were at times more representative of those used by an anthropologist than those typically adopted by the majority of teaching researchers. A particular feature of these methods was the acceptance of teachers' self-reports of their own behaviours as a credible and important source of data. Both studies pointed up:

(i) the 'probabilistic' as opposed to 'cause-effect' nature of the relationship between teacher and learner actions;

(ii) the potential number of conditions, and the complexity of the relationships between conditions, that might account for particular instances of children learning or not learning in classrooms; and

(iii) the necessity of formulating new concepts to characterize previously unconsidered features of teachers' mental lives.

Only two other studies that incorporated a central concern with teacher thinking were on hand when the present study was first envisaged. In part a product of the then current interest in the specification of learning objective as a component of the planning process, these studies by Taylor (1970) and Zahorik (1970) examined aspects of teacher planning. Both studies provided some preliminary information for the researcher about possible features and effects of teachers' thoughts, as well as about methods that might be used to study them.

1.4 Phases of the Study

The research programme reported in this study incorporated three broad phases.

The Exploratory Phase (1975-77): In this first phase, the researcher set out to devise a set of procedures that would provide a means of:

(a) gaining access to teacher thoughts;

(b) analyzing the content of those thoughts;

(c) describing processes by which teacher thoughts might come to exercise an influence on actual teacher actions; and

(d) identifying the relationship between the thoughts

teachers had about their teaching behaviour and the reality of their actual actions.

A necessary accompaniment of this activity was the formulation of a general model of teaching-learning situations that would delineate the elements of intentions that teachers might decide on, factors that teachers might take into account when making these decisions, and the outcomes of those intentions in terms of actual actions, events and conditions within a lesson.

The Fieldwork Phase (1978): In the second phase, data collection and analysis procedures developed in the first phase were employed as information was gathered about the thoughts and actions of a group of 18 teachers (nine experienced classroom teachers, nine student teachers) who were asked to plan for and take three small group discussion lessons on an assigned topic.

The Progressive Analysis Phase (1979-80): In the final phase, additional data analysis procedures were designed and data obtained from fieldwork were further analysed. A set of case studies was prepared and these were subsequently compared and contrasted as answers were sought to the research questions noted earlier.

These three phases were not in fact mutually exclusive. Thus, the full range of possible data collection and analysis procedures were explored during both the second and third phases. Given the relative novelty of the research questions, it was not possible to prescribe these procedures in finite terms at the outset of the fieldwork phase. A number of new possibilities became evident and were employed during both the second and third phases. It was possible, for example, to introduce additional questions into interviews of the teachers over the three lessons, and the content of a final structured interview was partly shaped by the emerging data. A portion of the content analysis system, which was developed to categorize teachers' within-lesson thoughts, was also developed after rather than prior to the fieldwork phase.

* * * *

The following chapters describe the research within the chronological framework outlined above, and then take up particular issues by drawing on the contrastive findings of individual case studies.

CHAPTER TWO

THE EXPLORATORY PHASE OF THE STUDY

As indicated in the Introduction, the researcher's earlier study of teacher expectancy lead him to formulate a number of research questions that focussed attention on teacher thinking and its relationship with actual teacher actions. Before the researcher could make a systematic study of teachers so that these questions might be answered, it was necessary to explore several conceptual and methodological concerns. Four research activities were subsequently undertaken in this exploratory phase of the study:

(i) A review was made of literature having a bearing on both the subject matter and the methodology of the proposed study;

(ii) a model of the elements of a teaching-learning situation was developed from a conceptual analysis of teaching as an intentional behaviour;

(iii) several data collection and analysis procedures were designed, trialled and evaluated; and

(iv) a category system was developed that could be used to code (a) teachers' pre-lesson and within-lesson thoughts, and (b) actions, events and conditions observed during actual lessons.

The present chapter discusses these four developments in the research, as well as describing additional data analysis procedures that were developed later in the progressive analysis phase. The events involved in the development of the conceptual model, the data collection and analysis procedures, and the category system, are reported in some detail and in a chronological sequence, in order to highlight several important conceptual issues and methodological problems that were confronted during this phase.

2.1 Review of Related Research

2.1.1 Theory and Research on Teaching: General Trends

In 1974, the United States National Institute of Education called together a group of prominent educational practitioners, researchers, and administrators who were assigned the task of preparing a possible agenda for future research on teaching. Within the conference a number of panels were established, each charged with the responsibility of identi-

fying objectives, approaches and potential programmes for research that was directed to some aspect of or perspective on teaching. In the report prepared by the panel who considered Teaching as Clinical Information Processing, the following research objective was identified:

> To develop an understanding of the mental life of teachers, a research-based conception of the cognitive processes that characterised that mental life, their antecedents, and their consequences for teaching and student performance (Report of the NIE Conference on Studies in Teaching: Panel 6, 1975, p.1).

In support of this objective, the panel contended that:

> Though it is possible, and even popular, to talk about teacher behaviour, it is obvious that what teachers do is directed in no small measure by what they think. Moreover, it will be necessary for any innovations in the context, practices, and technology of teaching to be mediated through the minds and motives of teachers. To the extent that observed or intended teacher behaviour is "thoughtless", it makes no use of the human teacher's most unique attributes. In so doing, it becomes mechanical and might well be done by a machine. If, however, teaching is done, and in all likelihood will continue to be done by human teachers, the question of the relationships between thought and action becomes crucial (p.1).

These assumptions were seen by the panel as being consistent not only with the realities of classroom life, but also with contemporary developments in social science research. In considering methodology, the panel expressed the view that a wide range of forms of enquiry might well be appropriate, but given the research objectives, teacher self-reports "of how he or she constructs the reality of his classroom, of what was done and why, of whom the students are, and how he or she feels about them" (p.3), would necessarily represent a vital and valuable source of data.

This panel's report represented an important indicator of some significant developments that were just then becoming visible in the arena of research on teaching. These developments involved new concepts and propositions about teaching, learning, and the nature of the teaching-learning relationship, as well as a set of implications for both subject matter and modes of enquiry in research on teaching. To highlight these developments, it is necessary to offer a brief account of the perspectives and practices that characterised the 'main-stream' of research on teaching through the 1960's and the early 1970's. It must be acknowledged that to some extent a caricature of the predominant forms of research may be the result of such a brief summation. It is clear,

however, that there were concepts and methodologies that did tend to characterise a greater proportion of the research during this period.

The dominant research objective in those years was the identification of teacher attributes that could be demonstrated to have a significant and consistent relationship with learners' achievements. Explanation, prediction, and ultimately control of such relationships were assumed to be tenable objectives for research on teaching, and they rested on an assumption that the nature of the teaching-learning relationship allowed for the existence of 'lawful' cause - effect relationship between particular teacher behaviours and those of learners. These objectives were associated with positivism, a philosophical movement, "the distinguishing feature of which is the attempt to apply to the affairs of man the methods and principles of the natural sciences" (Heather, 1976, p.3). The scientific method that was associated with the natural sciences, and deemed appropriate to the study of human action, was based on assumptions that:

(a) people live in a knowable, real world that has an objective reality which is not the creation of individual minds;
(b) causal links can be established between events, and there is constancy in particular phenomena and regularity about the way events are determined by other circumstances (i.e. determinism); and
(c) the only kind of reliable knowledge is that which depends on evidence which is verifiable by direct observation (i.e. empiricism).

From the positivist stance, people should not be credited with the ability to be causes of their own behaviour. Behaviour occurred when something happened to the person, and thoughts the person might have about future circumstances were held to constitute behaviour that followed from particular events rather than represent a category of event that might 'call forth' particular behaviours. Consequently, thoughts about future events were not deemed necessary explanatory concepts for behaviour. In addition, as thoughts did not represent phenomena that could be directly sensed and classified, they were unlikely to be accepted as legitimate data. For researchers on teaching who undertook research within the constraints of these assumptions, the proposition that elements of teachers' mental lives might represent explanatory antecedents for their actions was not likely to be contemplated.

In attempting to explain, predict and control causal links between events (including teaching-learning), researchers operating within this framework were required to fulfill certain criteria for their research to be 'good'. For example, if they claimed that causal relationships did exist between the behaviours of teachers and learners, they were expected to demonstrate that change in dependent variables (learning behaviours) occurred as a consequence of the independent variables they nominated, and were not due to other variables. Thus, control of variables was an over-riding concern for researchers, and as an ideal they were required to provide evidence that they had tried to identify, take into account and, where possible, directly control all of the variables that might plausibly influence the dependent variable. Various techniques (e.g. random sampling, control groups, standardization, statistical control) were specified as means of eliminating ever-present threats to the validity of research (e.g. maturation, history, selection, instrumentation).

A perusal of texts on educational research which were available at the time the present study was begun (e.g. Travers, 1969; Wiersma, 1969; Best, 1970), indicated that these positivistic assumptions and associated research criteria were generally accepted as appropriate in the context of this area of the social sciences. The authors of such texts were likely to make a point, however, of noting particular difficulties that researchers might confront in fulfilling these criteria. Van Dalen (1973), for example, noted four problems that he considered might make it difficult to explain, predict and control social as opposed to natural phenomena. These concerned the more complex nature of social science phenomena, the greater difficulty of making direct observations of phenomena, the less repeatable quality of social phenomena, and the "incalculable element" of human free will which constantly changes the nature of social phenomena (pp.30-34). Having noted the latter, Van Dalen did not choose to query whether or not the objectives of prediction and control were tenable objectives in the context of all human behaviour.

2.1.2 Assumptions Reappraised

Researchers in education could not, however, remain immune from forces for change in social science research that were evident during the late 1960's and the 1970's. In particular, an increasing number of philosophers and social scientists began to suggest that conceptual premises and modes of inquiry that were largely borrowed from the natural sciences might not be appropriate when we attempt to understand the actions of people in social contexts such as classrooms. Some of the

challenges offered to the assumptions noted above are now considered.

First, the general premise was queried that it was possible to identify cause-effect relationships between the behaviours of people that would consistently hold up across differing contexts of situation and time (Harré and Secord, 1972; Thomas, 1972; Shotter, 1975; Heather, 1976; Magoon, 1977). As an alternative to the associated assumption that people could be viewed as 'objects' or 'reactors' whose actions were essentially determined by conditions and events that they could not in principle control, it was proposed (a) that people were in many contexts the agent of their own actions, and (b) that their thoughts about circumstances that they would wish to bring about in the future could be viewed as explanatory antecedents for their subsequent actions.

> Thus people's actions are not to be explained causally, as sequences of objective events linked by causal principles, but intentionally. That is, in general, people's actions are to be explained as attempts to help in the realization of projects, goals, enterprises or ideals which they have invented amongst themselves. And it is in this respect, its direction towards the realization of ends that do not as yet exist, the way that it brings into existence things entirely new, that human action must be considered as essentially constructive (Shotter, 1975, p.91).

Thus, such constructs as intention, purpose and plans were claimed to be necessary ingredients of explanations offered for at least some domains of human behaviour.

Second, associated with this view was the proposition that human behaviour could be described as rule-governed as well as law-governed. In circumstances where behaviour was described as rule-governed, regularities in behaviour followed from conventions (rules) which had been constructed, negotiated, or accepted by the person and which specified goals and actions that would be appropriate when particular situations were encountered. Such rules might be broken or amended at any time and the relationships they described were, therefore, probabilistic. In contrast, law-governed behaviour defined instances of behaviour in which a person could not voluntarily choose to engage. The occurrence of particular circumstances would consistently and invariably evoke certain behaviour. It was contended that:

> ...the psychologist must concern himself with rule following because an individual person is by definition, responsible for his actions; in other words, he forms plans and executes them according to rules (Heather, 1976, p.23).

Third, the proposition that there is an objective, external reality which will be experienced and interpreted identically by all observers was challenged by the proposition that people actively construct a personal, subjective view of reality. This meant that people might have similar or dissimilar constructions (meanings) for phenomena they experienced, and it was proposed (e.g. Harré and Secord, 1971; Magoon, 1977) that study of these shared and dissimilar meanings be a central task in a science of human behaviour. Thus Harré and Secord contended that since the "giving and grasping of meanings" are the basic activities that underlie much social interaction, "greater precision of the delineation of meanings is what corresponds in the social sciences to the development of greater accuracy of measurement of parameters in the physical sciences" (p.132). Indicating the significance of this proposition for the research process, Magoon noted that "the constructed worlds of both the researcher and the observed human subjects need to be accounted for in any scientific explanation" (p.686).

This concern that subjects' constructions of reality be taken into account necessitated a reappraisal of prevailing views regarding the likely reliability of objective and subjective data. Researchers operating within the positivistic stance were unlikely to accept subjects' reports of their behaviours, particularly their covert thoughts and feelings, as a reliable or trustworthy source of data. The opposing view claimed that if certain procedures and precautions were used, subjects' self reports could or should be accepted as an accurate, as well as a necessary, source of data. Scriven (1972), for example, argued:

> If we can test someone's claim on a very large number of occasions and find him extremely reliable, we have good reason to believe him on other occasions when he testifies about events of a kind that we know to exist even though we cannot check them directly ourselves, that is, unless we know of some pervasive source of error about such testimony by him that over-rides the prima facie case we can build up from his usual reliability. (p.96)

In addition, it was suggested by some (e.g. Heather, 1976, p.27) that if the requirement that observations be truly objective was taken to its logical conclusion, the observer could only report physical characteristics of behaviours. To provide 'intelligible' accounts of the behaviours of people, was likely to require the observer to take into account their inferred or reported thoughts and feelings. Shotter (1975) observed also that if behaviour were studied solely from the perspective

of an external observer, no distinction was possible between behaviour for which people are responsible and behaviour,

> which merely happens irrespective of our agency. In other words, we ourselves do not do all that we may be observed to do, and although this may be apparent to us it is not apparent to merely external observers (although it can be apparent as we shall see to those who more than merely observing involve themselves in exchanges with us).
>
> (p.85)

2.1.3 Departure from the Mainstream

Two researchers, Jackson (1968), and Smith and Geoffrey (1968), set the scene for research on teaching that incorporated some of the 'new' conceptual premises and modes of inquiry that have been briefly outlined above. In the context of the present study, the studies they undertook provided convincing evidence of the appropriateness of a research interest in teacher intentions and decision-making. They pointed up the nature and potential value of the 'understandings' that could be gained when the thoughts, as well as the observable behaviours, of teachers were accepted as legitimate and essential data. In addition, both the Jackson and Smith and Geoffrey studies provided guidelines for developing a research methodology appropriate for the collection and analysis of such information.

In his book, Life in Classrooms, Jackson reported on an extended study he had made into everyday events in classes. He described this report as a "melange", indicating that it incorporated "descriptions of empirical studies", "speculative asides", "tabular materials", and "unquantifiable assertions". His research methodology reflected the belief that:

> classroom life...is too complex an affair to be talked about on any single perspective...we must not hesitate to use all means of knowing at our disposal. This means we must read, look, and listen, and talk to people, and even muse introspectively over the memories of our own childhood.
>
> (p.vi)

Concerned that researchers should attempt to understand the realities of classroom life before attempting to change them, Jackson advocated in particular, more observation in classrooms by both non-participants and participants (teachers, pupils, administrators) who had the ability to step back from their own experiences, to view them analytically and to talk articulately about them.

The subject matter of Jackson's study was wide ranging, encom-

passing the thoughts, feelings and actions of teachers and learners, as well as the physical and social environment of the classroom that influenced these behavioural aspects. While admittedly 'speculative' and 'unquantified', and thus requiring further study, the following observations and propositions from Jackson's report had significance in terms of the present study:

(a) Activities assumed to be representative of 'rational' decision making (identification of alternative courses of action, conscious deliberation over choices, weighting of evidence, evaluation of outcomes) appeared evident prior to and after lessons (the pre-active and post-active phases). During the moment-by-moment, face-to-face events of lessons (the interactive phase), however, teacher actions frequently seemed to be unaccompanied by such 'rational thought processes'.

(b) Spontaneity, immediacy, uncertainty or unpredictability of conditions and events frequently seemed to characterize interactive teaching situations. Teachers had to take account of such conditions when formulating plans, and accept the fact that opportunities for reflection, conscious deliberation and choice during interactive teaching would often be limited. Teaching, of necessity, often represented an 'opportunistic' process.

(c) Under such 'opportunistic' conditions, teachers appeared more likely - particularly in the interactive phase - to focus attention on the learning activities in which they hoped pupils would become involved, rather than on the precise learning outcomes or achievements that might follow from those activities. Whilst a teacher obviously would understand the relationship between his/her own and the pupils' actions, and the achievement of particular new learnings, the processes and products of learning were likely to be "at the periphery of his attention, rather than the focus of vision" (Jackson, 1968, p.162). Given the realities of classroom conditions, Jackson believed that it was difficult to see how teachers could be very precise about where they were going, or

how to get there during each instructional moment. Thus, "he may have a vague notion of what he hoped to achieve, but it is unreasonable to expect him to sustain an alert awareness of how each of his students is progressing towards each of a dozen or so curricular objectives" (p.165).

(d) The complexity of contingencies or consequences that potentially surrounded most decisions, was also considered to place constraints on the extent to which teachers could fulfill the criteria by which decision-making might be assessed as truly rational. The teacher, in effect, had to learn to tolerate his own irrationality and the necessity, at times, to 'play it by ear'.

(e) Whilst teachers appeared to be unwilling or unable to be precise in specifying behavioural objectives, they were likely to be constantly attentive to, and concerned with, the concrete behaviour of their pupils. This behaviour provided clues, of varying subtlety, as to the success or otherwise of the teachers' actions. The realities of classroom life are unlikely, however, to allow the teacher to gain more than a superficial knowledge and understanding of individual pupils.

In contrast to Jackson's study, the study undertaken by Smith and Geoffrey was an extensive investigation of aspects of the overt and covert life of the teacher and pupils in a single classroom over the course of one year. Adopting the stance that "Teaching must be seen as an intellectual, cognitive process. What goes on in the head of the teacher is a critical antecedent of what he does" (p.96), the researchers

> made a self-conscious attempt to explore the classroom from the point of view of the teacher. Whilst we included many accounts of what the children said and thought, we continually returned to the impact this had on the teacher, his intentions, plans and alternatives.
>
> (p.vi)

Smith and Geoffrey saw their task, overall, as the description of a small social system, and they employed a methodology they subsequently termed micro-ethnography. With Smith acting as a non-participant observer, and Geoffrey the classroom teacher as participant observer, 'inside' as well as 'outside' perspectives on classroom phenomena were

obtained. Both observers were seen to have 'privileged' viewpoints on particular elements of the situation ("what was going on and why it was going on"), and the integration of these viewpoints was considered to allow for a more complete and accurate description of the existing realities. The study provided the researchers with an opportunity to explore the assets, difficulties, and limitations of such a methodology. There was acknowledgement, for example, of the difficulties both observers experienced in maintaining a non-evaluative orientation and establishing and maintaining reciprocally supportive roles. It was recognized also that whilst both observers had privileged viewpoints, these were also necessarily limited and potentially open to distortion and inaccuracy.

As in the Jackson study, the researchers' attention was drawn to particular conditions within the classroom and the teachers' thoughts and actions that represented a response to those conditions. A key proposition that emerged from the data was the view that teaching could be described in terms of a model of decision-making: teachers had to engage in 'choice behaviour' regarding alternative learning end-states and the means by which these might be facilitated. Relationships between teacher and learner actions were considered to represent "subjective probabilities" as teacher actions could potentially facilitate a range of consequences that could not always be anticipated. The relative value or priority that teachers attached to alternative consequences was seen as being inevitably idiosyncratic and subject to change momentarily or over longer periods of time.

As an outcome of their own study, Smith and Geoffrey highlighted a number of features of classroom life that reflected the model. Believing that some of these features could not be subsumed under existing social-psychological constructs, they presented a number of new concepts using a language system that they considered more appropriate to a description of classroom life. These concepts included "awareness", "provisional try", "ringmastership", "continuity", "sequential smoothness", "pacing", "teaching-in-motion", "shaping", "autonomy", "skirmishing". A specific proposal for implementing the model in the context of research in classrooms provided the basic framework for the research design of the present study:

> If we select a single lesson in a subject such as geography we can illustrate further. The model requires that the teacher be quizzed via questionnaires or interviews concerning his goals (the value system) and the means (the prediction system) for reaching the goals in the geography lesson. An alternative, which has the beauty of objectivity

> and ease of access, is to make the age-old "lesson plan" into a functioning research tool. In Mr Geoffrey's case, as with many experienced teachers, the lesson plans in geography lay in his head, in the text and in assignments registered in his plan book, which all teachers were supposed to keep up to date. After selecting the unit and obtaining quantifiable statements of plans and intentions, the third step, careful observation of the lesson - with a move toward reliable quantifiable schedules - would then occur. Fourth, post lesson interviews or questionnaires concerning altered goals and means and cues that suggested to the teacher the need for alterations could be obtained. As a number of teachers in varying situations are studied, verifiable principles should be generated (Jackson, 1968, p.92).

Prior to 1970, only two other studies were undertaken that incorporated a central concern with teacher thinking. By Taylor (1970) and Zahorik (1970), both of these studies focussed on teacher planning and were prompted, in part, by the then current interest in specification of learning objectives as a component of the planning process (Mager, 1962; Popham and Baker, 1970). For example, in association with their advocacy of specification of objectives in performance or behavioural terms, Popham and Baker presented a 'rational ends-means' model of the planning process. As components of that model they proposed that four steps should ideally occur in the course of planning. The teacher should: (i) specify objectives in performance terms; (ii) select learning activities; (iii) organize learning activities; and then (iv) specify evaluation procedures. Both the Taylor and Zahorik studies were, in part, designed to explore the extent to which this model was represented in teachers' planning practices.

Taylor's work concentrated on the planning practices of teachers in British secondary schools. Analysing data obtained from group discussions with teachers, course syllabi, and questionnaire responses, he attempted to identify teacher perceptions of the purpose of planning, principles and issues that they believed should be taken into account in the planning process, and their most frequent and important planning 'pre-occupations'. The plans in this study were those developed in preparing an overall course programme, rather than those that might be formulated for specific lessons, or even units within such a course. The results of the study suggested:

(a) that teachers perceived the planning process as serving to direct their attention to material and time resources, to organisation of subject matter in terms of aims, content and method, and to

attributes of the pupils being taught;

(b) that teachers believed the attributes of pupils to be the most important factor overall governing decisions about learning situations; and

(c) that teachers saw their general planning pre-occupations as being concerned with, in order of importance, elements of the teaching context (e.g. materials, time, ordering of subject matter), the relationship between pupil attributes and elements of the learning situation, the general purposes and justifications for the course, and evaluation.

Acknowledging the need for caution regarding the analysis procedures employed, Taylor suggested that in the actual planning process teachers were likely to be concerned, in turn, with the context of teaching, followed by the kind of learning situation likely to interest and involve their pupils, and only after this with the purpose which their teaching is to serve and perhaps criteria and procedures for evaluating the effectiveness of their teaching. He observed that this sequence represented an inversion of the planning process as conceptualized in the rational planning model of such people as Popham and Baker (1970). The data Taylor obtained, however, dealt only with teachers' perceptions of the likely importance and frequency of such concerns as they planned. It may be premature, therefore, to draw a direct association between teachers' perceptions of the relative importance of their planning concerns and the order in which they were likely to be considered during actual planning. Furthermore, there was no attempt to establish whether teachers' perceptions of their planning concerns and practices were congruent with their actual concerns and practices. Despite these limitations, Taylor's work did raise the issue of match between theory and practice in the domain of teacher planning, and as an application of his findings he proposed a "methodology for curriculum planning" that was intended to take these into account. Thus, he proposed that decisions regarding subject matter and teaching method might appropriately precede, rather than follow, consideration of learning outcomes.

In a study that represented the first systematic attempt to explore the relationship of pre-active planning to interactive teaching behaviour, Zahorik focussed his attention on the outcomes of a teacher having a simple plan, as opposed to having no plan prior to a lesson. The outcomes investigated were teaching behaviours during the lesson that

were "sensitive" to pupils (i.e. "verbal acts that permit, encourage, and develop pupil ideas, thoughts and actions"). Teachers in the study were either given a partial lesson plan (included content behavioural objectives and a detailed outline of content) that they were free to elaborate, or were given no opportunity to plan for the lesson. The plan was modelled on the 'typical' (i.e. rational ends-means) planning model then advocated by many educationalists. Results suggested that teachers who had a plan and opportunity for planning, made less honest or "authentic" use of pupil ideas and, rather than attempt to understand and extend such ideas, they were more likely to use moves that would either close them out or 're-make' them to resemble the teacher's.

Zahorik conjectured that where the typical planning model is used,

> Planning makes the teacher's thinking rigid and puts him on a track that is nearly de-rail proof...Once the teacher decides what outcomes he wants from the lesson and how he will achieve them, he sets out to produce these outcomes regardless of what pupils introduce into the teaching-learning situation. Pupils' ideas and remarks are words to be heard, not thoughts to be dealt with. If the teacher sincerely reacts to the pupil's thinking, he runs the risk of not achieving the goals he has identified (Zahorik, 1970, p.150-151).

To overcome the apparent deficiencies of the goals-experience-evaluation planning model, which represented a "plan for pupil learning", Zahorik suggested that inclusion of plans for specific teaching actions would help ensure that these would be 'conscious, purposeful, and controlled'.

As with the studies by Jackson, and Smith and Geoffrey, the findings of the Taylor and Zahorik studies pointed up the need for research directed to aspects of teacher thoughts and actions. In particular, the scale and nature of the discrepancy that could exist between educational theorists' and practitioners' planning models, as well as the influence of planning on subsequent teacher and learner behaviour clearly merited further attention. Whilst the case for such studies might have seemed to have been convincingly made by the work of Jackson, Smith and Geoffrey, and then Zahorik and Taylor, only a limited number of researchers appeared to have immediately taken up the task at this time. It can only be conjectured that the covert nature of the planning process, and thus the difficulties of exploring its processes and products using existing modes of inquiry, were factors that slowed or hindered a more rapid development of a substantial research effort.

2.1.4 Teaching, Decision-Making and Information Processing

Although there was a paucity of research studies of the mental life of teachers at this time, educators were not completely unconcerned with this aspect of teaching. Unlike the researchers cited, however, their interest lay mainly in conceptualizing the nature of teacher thinking rather than in undertaking studies that might substantiate those conceptions. One important conception was the view of teaching as a decision-making activity. McDonald (1965), for example, proposed a cybernetic model of teacher decision-making which included the following features:

(a) Plans include decisions about learning outcomes, evaluation, and instructional conditions and activities.

(b) Decision-making involves the teacher in selecting among alternatives, considering the consequences of selecting a particular alternative, and estimating a probability that a particular consequence would occur.

(c) The accuracy of decision-making depends on the relative objectivity - subjectivity of the information on which decisions are based.

(d) Assessment of the consequences of alternatives requires value judgements regarding their desirability.

(e) Plans may or may not be 'deliberately conceived', and they are open to modification in the light of feedback a teacher receives about the effects of a plan when implemented.

McDonald also proposed that decision-making was a learned behaviour and that consistencies in decision-making followed from the fact that "Each teacher has some theory of human behaviour, some conception of how humans learn, and some notions of the functions and purposes of a teacher" (McDonald, 1965, p.61). Each plan, in effect, represented "a small theory about how to produce learning" (p.46). This model was presented in isolation from empirical research that might substantiate its basic premises, or indicate the constraints on its application.

Sensitivity to the possibility that much teacher behaviour could not be characterized in terms of such a rational choice model was evident in the views of some writers. Farr and Brown (1971), for

example, suggested that

> most instructional decisions are made by forfeit; that is, by not recognizing that a decision can be made or by not being aware of possible alternatives. The usual forfeit "decision" involves continuation of a practice whether or not it is the most appropriate procedure for the situation.
>
> (p.341)

Contributing to this emergent view of teaching as decision-making, Shavelson (1973) published a paper entitled "What is the Basic Teaching Skill?", in which he expressed the opinion that most, if not all, teaching is based on decisions made by the teacher after complex cognitive processing of available information. The view that decision-making did in fact represent the basic teaching skill, was enlarged on in a subsequent paper (1976) when he identified a number of elements of a rational model of teacher decision-making:

> In conceiving of teaching as decision-making, we assume that teachers have a number of strategies (for example teaching acts, teaching methods) available to help their students attain a goal or set of goals. In choosing a particular strategy, teachers attempt to achieve a desired outcome by matching events - both within the student (for example, attention, learning, motivation) and within the classroom (for example, distractions, facilities) - with a particular teaching strategy. Since these events, called states of nature, are not certain but occur with some probability, the teacher must subjectively estimate the probability of a particular state. Information about alternative teaching strategies, states of nature and their probabilities, and outcomes resulting from pairing a single strategy with a particular state of nature is used to make pedagogical decisions (Shavelson, 1976, p.412).

Shavelson believed that this model could adequately characterize decision-making that occurred during pre-active lesson planning. Here, conditions were more likely to be optimal for careful consideration of factors bearing on the choice of a course of action. During interactive teaching, conditions were less likely to allow opportunities for such rational consideration and choice. Poor decisions were more likely because the information, outcomes and options considered were likely to be less accurate and less complete. This accorded with Jackson's (1968) views on the applicability of such 'rational' models of teacher decision-making.

Noting the negligible incidence of systematic empirical study that had followed from previous descriptions of teaching from a decision-making perspective, Shavelson acknowledged that his own analysis at that

time must be viewed essentially as a heuristic for future research. Existing research findings on judgement and decision-making allowed for some predictions of teacher decision-making behaviour as delineated by the model, but these required evaluation in the context of classroom rather than laboratory settings. The possible methodology that might be employed was not, however, systematically explored by Shavelson in this presentation.

The final paper on the theme of teacher thinking that was available, and which made a significant contribution to the researcher's ideas during the initial exploratory phase of the present study, was that by Shulman and Elstein (1975). Observing at the outset that "Research typically slights the problem of how teachers think about their pupils and instructional problems: it concentrates instead on how teachers act or perform in the classroom" (p.3), the authors unabashedly set out to encourage their educational colleagues to pursue research on the former. A series of representative studies and theoretical proposals on thinking, human judgement and decision-making were reviewed as a means of identifying and highlighting concepts, modes of inquiry and issues that they believed had both relevance to and implications for research on teaching. Shulman and Elstein contended that much of the thinking evidenced in these studies could be characterized as 'clinical information processing', and this form of behaviour was also likely to be evident in much of the teacher's work.

In respect of methodology, Shulman and Elstein described a number of studies that employed what were termed 'process tracing' techniques (e.g. thinking aloud, stimulated recall). Such procedures were designed to allow the researcher to 'observe' covert processes and products of thinking, in a manner that would, it was hoped, provide minimal distortion to the 'natural' character of thinking. The researchers making use of these procedures accepted, as a basic assumption, that verbal self-reports were legitimate data. Shulman and Elstein noted that not all researchers interested in these cognitive activities, however, were prepared to accept such data. In particular, researchers who had shown a specific interest in human judgement (e.g. Kahneman and Tversky, 1972, 1973), and as a consequence were aware of the 'limitations, pitfalls, deceptions, errors, oversights' that characterized that process, were less trustful of subjects' verbal reports. The case was made, however, that acceptance of the significance of the subject matter of thought as well as action, necessitated the development, use, and evaluation of data collection and analysis procedures such as those reviewed. Shulman and

Elstein's paper, then, helped direct the present researcher's attention to a number of relatively new areas of theory and research as well as associated research methodology. It documented findings whose possible significance in the context of teaching thought and action clearly required confirmation and further study.

2.1.5 Summary

As indicated in the preceding review, the literature available provided a number of inputs during the first phase of the study.

(a) Support was found for the present researcher's intuitive beliefs regarding the significance of information about teachers' thoughts. These had been based at the outset upon limited research findings and reflections upon personal experience.

(b) The research literature provided tentative information and propositions about some features of teachers' mental lives, and indicated possible ways of characterizing the attributes and effects of teachers' thoughts.

(c) The necessity for, and legitimacy of, data collection procedures that employed variants of teacher self-report of their own thoughts and actions was also confirmed.

It should also be noted here that a body of literature, not as yet discussed, was also turned to in the course of exploratory fieldwork with data collection and procedures. Problems encountered at this time made it apparent that the key concept of 'intention' needed to be defined with care and precision. As a consequence, both the researcher and a colleague examined literature on the concept and attempted a conceptual analysis of the term and its significance in relation to teaching. The outcome of that review and analysis is presented in a paper by Freyberg (1980), and is summarized in a later section of this chapter (p.56).

In the latter stages of this exploratory work, a relatively limited number of studies that shared a similar subject matter focus and methodology to the present study also began to be reported. The procedures that were being designed and trialled by this researcher, however, were largely being developed without knowledge of this concurrent work. Only a few reports available had a direct input into the design of procedures. These reports are acknowledged in the next section of this chapter. When the reports of similar studies appeared, they essentially provided

some confirmation of the appropriateness of the approach being adopted. The latter set of studies are reviewed in Chapter Three.

2.2 An Initial Model of Teaching

The research questions of the study concerned both the phenomena of teacher thought and actual actions, and the methodology that might be used to study those phenomena. It was apparent that before the specific procedures that would comprise the methodology could be developed, it would be necessary to formulate a model of the possible elements and relationships between teacher intentions and actual circumstances and actions within a lesson.

At the outset of the study, a general model of teaching was postulated. An appraisal of the literature had suggested that it was appropriate to view decision-making as the fundamental mental activity that underlay the formation and implementation of teaching intentions. This model represented a first attempt to delineate the elements of intentions which teachers might decide upon, factors that teachers might perceive and take into account when making these decisions, and the outcomes of those intentions in terms of actual conditions, events, and actions within a lesson.

The components of this model were derived largely from a definition of teaching that the researcher subscribed to, as well as from an earlier model of teacher teaching-learning situations developed by a colleague and the present researcher (see FIGURE 1, p.28). The definition was as follows:

> Teaching is arranging conditions with the intention of facilitating learning in someone.

The conditions referred to were defined as any factors that might increase or decrease the probability of learning occurring. Two categories of condition were distinguished. Internal conditions were states within the learner, most of which the teacher could not directly control or arrange (e.g. intelligence, physical traits). External conditions were factors, outside of the learner. Some of these factors were seen as being impossible or extremely difficult to control (e.g. weather, syllabus, classroom architecture), whilst others were seen as being more or less open to some direct control or influence by the teacher (e.g. teaching actions, materials, seating arrangements).

In the context of this model, teaching intentions were held to represent thoughts that teachers might have about:

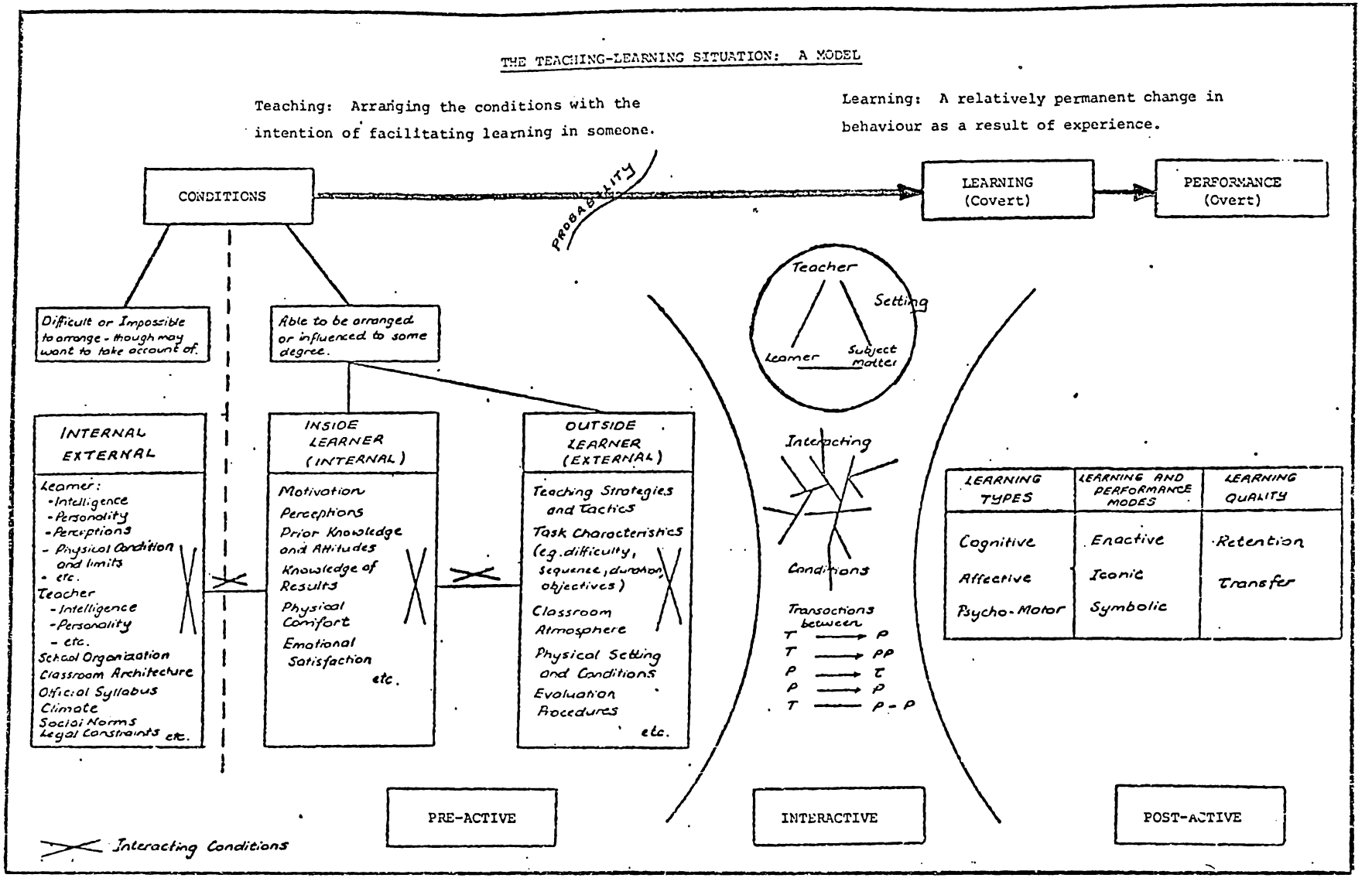


FIGURE 1: The Teaching-Learning Situation : A Model

(a) learning achievements they hoped to facilitate; and

(b) those external conditions that they could envisage directly arranging in some manner to facilitate those learnings.

For the purpose of the present study, these two concerns were further analyzed and incorporated in another model of teaching that was intended to highlight the covert as well as overt features of teaching (see FIGURE 2, p.30). The following features of this model should be noted:

(i) Two broad components of teaching intentions are delineated - learning achievements that the teacher hopes to facilitate, and external conditions of learning that the teacher considers arranging directly. Learning achievements and external conditions are differentiated into several general sub-categories.

(ii) A number of 'inputs' that might influence the content of teacher intentions are also identified (e.g. syllabus, teacher perceptions of the learner, physical and material conditions/constraints). It is acknowledged that these inputs can operate as the teacher sets about implementing intentions formed in the pre-active phase of a teaching episode, and that they might sometimes lead to modification of existing intentions or the formation of new intentions as the lesson is actually underway.

(iii) Responsiveness to feedback regarding actual conditions and outcomes is emphasized in the model, and evaluation of the extent to which intentions are realized is seen as potentially occurring in both the interactive and post-active phases of a lesson. In the latter case, evaluations made might then become an input when decisions are arrived at about teaching intentions for subsequent lessons.

As will be discussed later in this chapter, this model did not prove to be entirely sound: it did, however, influence both the form and content of the first set of data collection procedures that were developed and trialled.

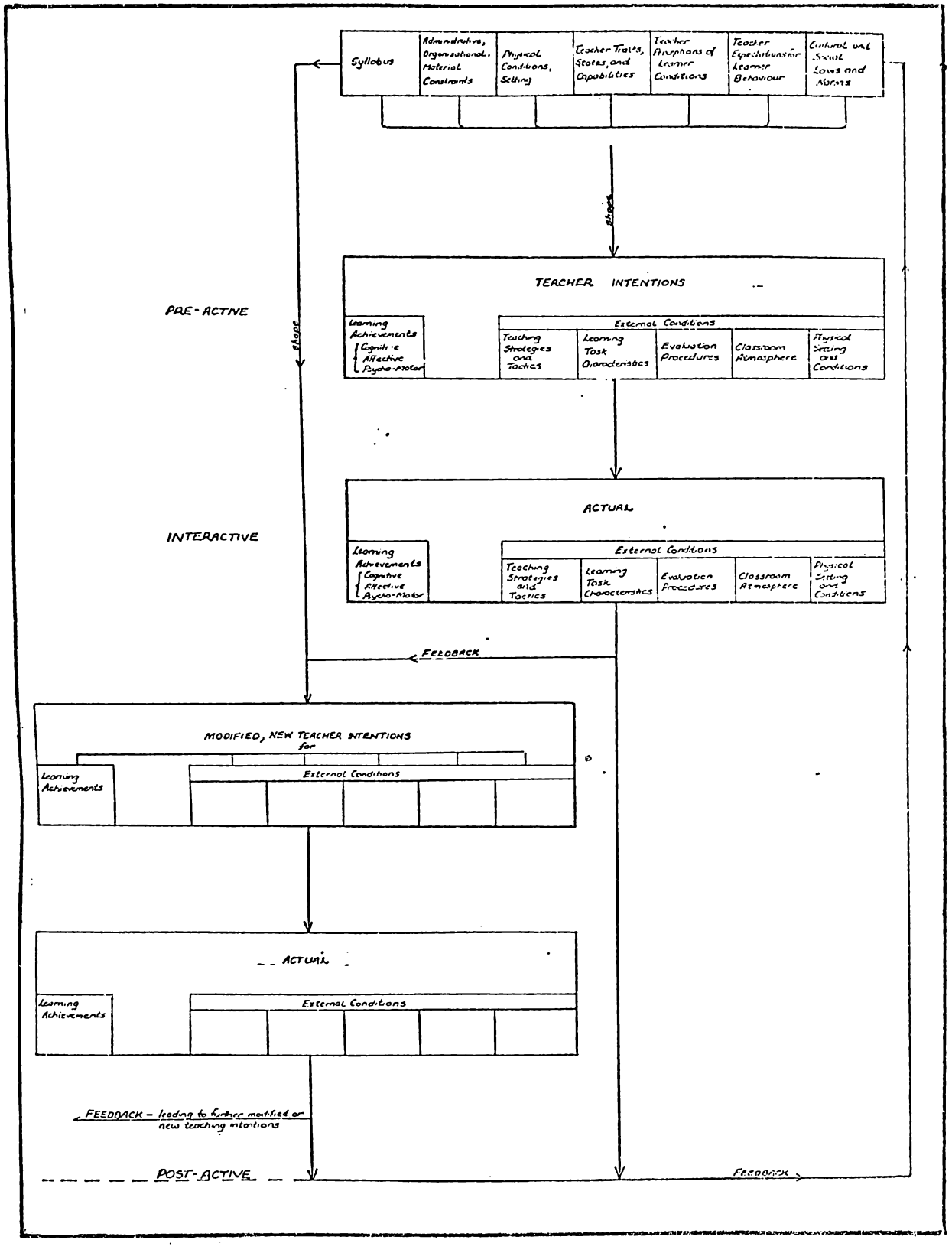


FIGURE 2: Teacher Intentions and Decision-Making : A Model

2.3 Data Collection Procedures: Development and Evaluation

In the initial phase of the study, several data collection procedures were developed, evaluated, and modified where necessary. The succession of events involved in the development of these procedures are reported in some detail so that reasons why particular procedures were abandoned, modified or adopted will become clear. Again, it should be noted that these procedures were developed somewhat 'intuitively' initially, only limited detail on appropriate methodology being available in the literature at that time. When such information became available, or was uncovered, it generally served to point up the likely basis for problems or difficulties being encountered, to confirm the necessity for modifications, or to indicate that other researchers engaged in the same activity at the same time had chosen to adopt procedures similar to those being developed.

It should also be noted that the field-testing of the data collection and analysis procedures developed during this phase was undertaken with the assistance of approximately thirty experienced classroom teachers, and forty student teachers who were attending the Hamilton Teachers College. The researcher had had previous contact with the majority of these teachers through their involvement in courses he was teaching at the University of Waikato. The level of involvement of each teacher in the field-testing programme varied considerably. Thus, for example, while some teachers were asked to make a written record of their planning thoughts for one lesson, other teachers were asked to recall their pre-lesson and within-lesson thoughts for several lessons.

2.3.1 Initial Data Collection Procedures

The research questions already outlined, as well as the conceptualization of teaching as an intentional behaviour, determined that the present study should focus upon teacher thinking in the pre-active, interactive and post-active phases of teaching episodes. Accordingly, the researcher set about developing procedures that might be appropriate for collecting data from each phase - data which took into account elements of the model above on teaching.

Pre-Lesson Teaching Intentions: It was recognised at the outset that the written plans that teachers might produce as an outcome of pre-lesson planning were likely to represent an incomplete record of the thoughts that they had had in advance of lessons. Some other means of obtaining information was required. It was decided, therefore, to see what data might be obtained when teachers were asked to respond to a set

of written questions about their pre-lesson intentions immediately prior to lessons being taken as part of their normal programme. The questions asked included:

(i) Could you indicate what the objectives for this lesson are?

(ii) What in particular, then, are you hoping the pupils in the class will learn as a result of this lesson?

(iii) What general or specific teaching approach do you intend to use during this lesson?

(iv) Where did your intentions or objectives for this lesson come from?

(v) Are there any particular management or procedural arrangements that you have taken into account at this stage?

(vi) Are there any other matters or needs that you have been conscious of when preparing for this lesson?

Teachers' Perceptions of Implementation of and Modification to Teaching Intentions: Two alternative procedures were developed as a potential means of examining teachers' post-lesson perceptions of the extent to which their pre-lesson intentions had been realised, as well as the form and reasons for any changes made to these intentions as lessons were underway. One procedure required teachers to provide written responses to a series of questions that mirrored those asked in advance of the lessons.

You will remember that at the beginning of the lesson I asked you to comment on your general or specific intentions or objectives for the lesson. I would like to just go briefly back to these, and ask:

1. Firstly, whether you felt that your objectives as regards what you hoped the pupils would learn were in fact realized? Were these objectives modified in any way as the lesson proceeded?

   If you do recall feeling that it was necessary to modify these objectives, could you tell me why you made these changes, and what the change or changes were?

2. Secondly, did you find that your original intentions about the teaching approach or strategy that you would use turned out to be suitable for the lesson?

   If you did find it was necessary to change or modify your teaching approach or strategy, could you indicate what change(s) you made and why you felt these were necessary?

(Cont'd over)

3. Thirdly, did you find that you had to make any particular changes to the management or procedural arrangements that you had originally taken into account when preparing the lesson?

4. Have you any additional comments as to how you felt the lesson itself matched your original intentions or plans?

The other procedure required teachers to respond to a single direction:

You will remember at the beginning of the lesson I asked you to comment on your intentions or objectives for the lesson. I would like you to just comment on how you feel your objectives or intentions matched up to what occurred.

It was recognised that these pre-scripted questions for which written answers were required might lead the teachers to note aspects of a lesson that had not been considered, or had not occurred. That is, teachers might read into the questions an expectancy that the aspects alluded to should ideally have been considered, or should have taken place whenever lessons were planned for, taught, or reviewed. In the light of this possible limitation, an alternative procedure was sought for identifying intentions that were formulated or modified as lessons were actually underway. The procedure subsequently trialled was a modification of one initially developed by Bloom (1953). He set out to systematically sample and categorize the thoughts of students in class periods in which lecture and discussion methods of teaching were used. A class period was audio-taped with students being unaware that they would be asked to recall, at a later time, their thoughts during the class. Within a period of 48 hours, the tapes were played back to the students as an audio-prompt to facilitate their recall of their thoughts at specific points in the lectures or discussions. This procedure was subsequently improved on by Siegel *et al* (1963), who reduced the time lag between student thoughts and their prompted recall to 45 minutes. In addition, video-tape rather than audio-tape was used, and students observed the playback of the teachers' actions from the same seats in exactly the same environment as the original lesson.

In field work in the exploratory phase of the present study, it was decided to have a group of teachers review a video-tape record of their lessons and recall the thoughts they had had as it was underway.

These might account for any discrepancy between their pre-lesson intentions and actual teaching actions. The directions given to teachers (see below) indicate something of the form and underlying rationale for this task. It should be noted here that the teachers were not informed of the actual purpose of the study. They were told that a data-bank of video-tapes of a variety of classroom teaching situations was being assembled for unspecified research uses.[1] The written directions prepared for this task included the following statements.

> As I suggested at the outset, for this tape to be of real value we need to know something about your initial intentions and the thoughts that you had about the lesson as it was underway. The information that can probably give us the best insight into this lesson when it is subsequently reviewed would concern the decisions that you made prior to and during the lesson.
>
> During any lesson, one role that a teacher inevitably assumes is that of a decision-maker. In that capacity, as you will be well aware, s/he may make decisions about innumerable things.
>
> - changing his overall teaching strategy
> - involving different pupils
> - correcting pupils
> - modifying some of his original objectives
> - encouraging pupils
> - giving directions
> - giving praise
> - evaluating pupil's understanding
> - beginning a new sub-topic
> - summarizing discussion
> - controlling pupil behaviour and so on.
>
> These are obviously but a few of the things that s/he consciously or perhaps unconsciously makes decisions about.
>
> What I would like you to do, then, is to think back on the lesson you have just taken, and try to recall those aspects of the way that it was developing that you were particularly aware of. What were the things that you were conscious of responding and reacting to as the lesson proceeded?
>
> It can be difficult to recall such things, so have a look (listen) to the tape that has been taken. It may help you remember more easily.
>
> As you view (listen to) the tape, note down (or record on the tape) the things you can recall, being
>
> (Cont'd over)

1 At this time, the researcher had not recognized the possible benefits of creating a research setting in which the teacher was fully briefed on the actual purpose of the research work and assumed, in effect, the role of co-researcher.

aware of and that influenced the course of events in the lesson. Don't worry how trivial, inappropriate or unimportant these thoughts might seem to be on looking back now at the lesson. (For example, the fact that you suddenly realized that some pupil was 'playing up' at the back of the room, that you glanced at the clock and decided that you would have to shorten the next section or leave some points out, that that was a surprisingly good answer from John and worth some praise...). They occurred at the time, and they do help make the tape more meaningful for someone who is viewing it six or twelve months later.

The other point that I should make is this. Resist the temptation to record things about the lesson that you notice for the first time as a result of viewing the tape. It's inevitable that you will see things on the tape that you weren't aware of at the time (personal mannerisms, the odd child doing things that you missed seeing, some pupil's answer that you overlooked, and so on). Whilst they may give you some new insights, they don't really contribute to our knowledge of the lesson as it actually occurred.

2.3.2 Data Collection Procedures: An Evaluation

In the course of exploratory work with the procedures described above, it became apparent that each had particular strengths, limitations and weaknesses. These are now reviewed.

Scripted Questions - Written Responses:

(a) There was ambiguity or a lack of clarity in teachers' written responses on occasions. This could be attributed to two factors. First, not all of the questions asked were particularly well-framed, and teachers appeared to attach different meanings to some of the terms used (e.g. 'teaching approach', 'teaching strategy', 'intentions', 'procedural arrangements'). Whether this did in fact occur could only be established if follow-up interviews were undertaken to check on whether teachers had associated identical meanings with such terms. For example, it became apparent that one teacher used the term 'discussion' to refer to an extended question-answer sequence in which children were asked to recall information they had learned previously. The term the researcher had in mind for such a method was 'review'. The term 'procedural arrangements' was seen by some teachers to refer to the order in which various elements of a lesson were planned to occur, whereas others considered the term to refer to such concerns as the distribution and collection of materials, the movement and location of pupils, and

classroom 'housekeeping'. Instances such as these also led the researcher to recognize that the meanings he would personally attach to such terms had not been adequately clarified and then communicated to the teachers. Second, the teachers' answers might also contain terminology for which the researcher's associated meanings did not match those that the teacher had in mind. Consider, for example, the following teacher written responses which contain potentially ambiguous terms:

> *"I decided to use the first half of the lesson for the meat and then taper off with film and slides"*
>
> *"Moving smoothly from one phase to another"*
>
> *"I'm wanting to integrate the lesson with previous work"*
>
> *"I'm planning to control the questioning so that continuity of ideas is not destroyed for the majority"*

(b) When teachers were interviewed in order to clarify the meaning of particular written responses, it became apparent that at times they had not in fact provided a complete record of their pre-lesson or within-lesson decisions. Prompted by interview dialogue, they sometimes spontaneously referred to a variety of aspects that they had consciously considered, but had not reported when originally answering the questions. The realities of classroom life obviously did not always facilitate complete and accurate recall of thoughts that may have occurred some time previously.

(c) The teachers' written responses did not allow a ready distinction between intentions that had been consciously formulated in advance of or during lessons, and those that had been automatically adopted for lessons. It was apparent, for example, that teachers could recognise and report that they were likely to quite automatically employ particular patterns of teaching behaviour in a lesson. Thus, one teacher reported having planned to begin a lesson with discussion of a particular topic. Not reported at the time, but revealed in a subsequent interview was the fact that discussion for this teacher was invariably (as it was in this instance) a teacher-led, whole-class discussion. Another teacher noted that in the course of a lesson, she had decided to follow up several topics that had been suggested by children's answers to her questions. Again, it became apparent during discussion that the decisions to do this had not been consciously registered. The follow-up response had occurred as an automatic reaction.

(d) The possibility that the questions would lead teachers to note aspects of a lesson that they had not in fact considered could not be completely discounted.

(e) In terms of pre-lesson intentions, the responses to the questions did not allow data to be obtained about aspects of the lesson that might have been considered, but were finally rejected as possible components of a plan. The data refers only to aspects of the plan as finally formulated.

(f) Finally, the process by which these intentions were formulated was not revealed in teachers' answers to questions. For example, there was no information obtained about the order in which particular aspects of lessons were considered during planning.

It became apparent at this stage, that without a clearer conceptualization of the central constructs of intention and decision-making, as well as the possible content of teaching thoughts, it could not be claimed that appropriate questions were in fact being asked of teachers.

The Stimulated Recall Record: Data from exploratory field work with the stimulated recall task suggested that some of the difficulties of uncovering teacher thoughts noted above could be overcome by such a procedure (See FIGURE 3, p.38 for sample of preliminary data):

(a) The procedure seemed to minimise the possible limitations in teachers' ability to completely and accurately recall their thoughts some time after they were experienced. The teachers reported that the process of reviewing the tape prompted quite vivid recall of the mental experience of teaching. As they were free to nominate and describe points in the video record that they recalled having been associated with instances of thought and decision-making, the possible 'leading' effects of researcher questions was also reduced.

(b) When trial data were reviewed, it soon became apparent, however, that follow-up discussion between researcher and teacher was necessary to clarify and confirm the meaning of teachers' notes on their within-lesson thoughts. As in the case of statements regarding their pre-lesson intentions, the teachers' notes could be unclear or ambiguous in meaning. In addition, whilst the directions emphasized recall of decision-making points associated with instances of conscious attention, reflection and deliberation, teachers at times spontaneously offered comments about various other features of the lesson. Many of these observations represented explanations for actions which they indicated were a standard, habitual response to certain events or situations. They were often prefaced by such statements as, "I've found that the only way to deal with...", or "When this happens, I usually do..." and so on. In offering these comments, essentially teachers seemed to be describing some of the pro-

VIDEO-TAPE OBSERVATION RECORD

T.6.

Reminders:

1. Note down the things that you can recall being aware of and that influenced the course of events in the lesson. Wherever possible, note the REASONS for decisions made.
2. Don't worry how trivial, inappropriate or unimportant these thoughts might seem to be on looking back now at the lesson.
3. Resist the temptation to record things about the lesson that you notice for the first time as a result of viewing the tape (e.g. personal mannerisms, pupil behaviours or answers overlooked, etc.).

Remember: Whilst they may give you some insights they don't really contribute to our knowledge of the lesson as it actually occurred.

Rev. Counter	Comments
556	Planned - Chn. to do differing buildings - decided not to go ahead - let them choose.
557	Chn. to use any source for building rather than transparency only.
563	Chn. moved to left of classroom rather than planned bench. - Cricket gear in the way - camera - Individual spaces on side better.
564	Management
567	Counting to divide remainder into groups - Decision which group to do each of the activities
572	House - section correction was planned.
573	Management - one at the time -
575	~~Corr~~ Management - "please" means "don't do that"
577	'No', they asked could they do a picture.
579	Decided around table preferable to desks - get them away from House plan group - Bring your chair so I wouldn't have sitting on desks etc ? Worked?
583	'No' to Lincoln - could he do picture.
581	"Come on Keith," off desk - join group
586	"I want" about 6 times - waiting for attention.
588	Chn. to do writing - had planned all make list but move at 579 forget paper pencil. Had spare sheet of cartridge; thought that would be preferable to individual lists - display sheet (Asked child to get marker pen)
589	Following decision - 1 list - How to get some order about it.
596	Writing (by pupil) too small for display - demonstrating.
601	Requested Ross turn off overhead projector. 2nd request - because I remembered Ross' leg in (plaster but Ross wanted to go. To another child

FIGURE 3: Sample of Preliminary Stimulated Recall Data

positions that constituted their own theory of teaching. They were describing their beliefs about the appropriateness or necessity for particular categories of ends or actions when certain things occurred, or became evident as a lesson proceeded. As well as this type of observation, some teachers obviously felt impelled at times to provide explanatory comments about the outcomes that they were hoping would follow from particular actions, or simply to indicate that a phase of a lesson corresponded with a segment of the plan or intentions that had previously been discussed. Close questioning was necessary, then, in order to reliably determine whether statements were concerned with actions the teacher undertook as an automatic or habitual response, or those that followed from instances of conscious consideration, deliberation or decision-making.

2.3.3 Data Collection Procedures: Modifications

The results of the initial field work with the stimulated recall procedure for tapping teachers' within-lesson thoughts were positive enough to encourage the researcher to further refine the procedure. In contrast, it became apparent that the procedure of asking scripted written questions of teachers in order to gather information about their pre-lesson thoughts presented a number of methodological and validity problems (see above), and an alternative procedure was, therefore, required. A description follows of (a) the refinements made to the stimulated recall procedure, and (b) a 'stream of consciousness' procedure that was designed to provide a more complete and accurate record of teachers' pre-lesson thoughts.

The Stimulated Recall Procedure: A Final Version:

(a) While a video record of lessons was used in initial trials of the procedure, an audio-tape record was subsequently trialled and adopted. There were several reasons for this choice: the possibility, already noted, that a visual record would be more likely to distract the teacher from the review task; the possible effects of seeing a visual perspective that was different from that actually experienced by the teacher; logistical problems in deploying the equipment; the expense of video-tapes; and the time required to provide video familiarization experiences. In using the audio record, it was acknowledged that there was a likelihood that the lack of visual cues might lead to an incomplete recall of certain aspects of the lessons. Teachers reported in the course of field work, however, that the audio record generally prompted a clear visual image of the events that had just occurred in the lesson. Such perceptions as the expressions on pupils' faces could be recalled quite vividly.

(b) The following directions were finally adopted for the written

briefing notes teachers received before participating in the procedure:

> THE AFTER LESSON REVIEW
>
> This will involve you in responding to the following directions:
>
> As the tape is played:
>
> I will ask you to indicate how you actually set about implementing your plan during the lesson.
>
> I will also ask you to look back on the lesson (using the tape as a memory prompt) and try to recall those aspects of the situation that you were involved in that you were conscious of attending to and making decisions about. Don't worry how trivial or unimportant some of these decisions might seem to you when you look back at the lesson (for example, the fact that you looked at the clock and decided that you would have to shorten the next section; that that was a surprisingly good answer from Terry and worth special praise; that you would have to give them the answer as they couldn't seem to come up with it themselves; that you would have to reprimand John because he was continuing to kick Helen's leg). Such decisions occurred at the time, and knowledge of them will help me appreciate the reality of your experience of teaching the lesson. Where you do refer to such decisions, I will ask you to tell me, if possible, the reasons and purpose for them.

(c) These written directions were supplemented by further oral instructions given to the teachers immediately prior to the first review session in which they were to be involved. Emphasized at that time was the fact that they should report all instances where they could recall their thoughts and feelings, regardless of how trivial or insignificant they might seem to be. The distinction between conscious and unconscious teaching behaviours was also discussed with teachers. This was illustrated by analogy to the experience of driving a car: whilst many driving behaviours would occur without the accompaniment of conscious attention to elements of the situation and task, there would be likely to be incidents that would stand out where these behaviours were associated with consciously registered thoughts and feelings. Finally, the teachers were told that they were to indicate points at which the tape should be stopped. As a measure designed to ensure that the teacher was continuing to concentrate on the task, the researcher also stopped the tape on occasions and asked for confirmation that there were no instances of recallable thoughts or feelings for the preceding portion of the lesson.

(d) Field work using the procedure emphasized the need to reliably establish during the review that teachers were in fact re-

porting thoughts that were consciously registered, and to confirm that the researcher had made an accurate interpretation of teacher statements about those thoughts.[1]

A 'Stream of Consciousness' Procedure: Pre-Lesson Thoughts: The experience of using the stimulated-recall procedure, which was in part designed to reduce the time interval between actual thoughts and their subsequent recall, led the researcher to consider whether there might be some procedure that would reduce that interval to the greatest extent possible when pre-lesson planning thoughts were of concern. In a process termed 'consciousness sampling', this interval had been minimized by researchers interested in the content of peoples' thoughts in the course of everyday pursuits, as well as in more specific contexts such as classrooms (e.g. Cameron *et al*, 1968; Schoen, 1970).

Schoen described "consciousness sampling" in the following terms:

> this technique is consciousness sampling whereby subjects are caught by surprise and asked in effect, "What was it you were thinking about in the split second before I surprised you?". If a subject's response is immediately noted, we then have a record from immediate memory of a conscious thought. Since the record is made at an instant following the thought itself, it is about as close as we can come to accuracy in reproducing human thought samples provided, of course, that the subject is candid and capable of verbalizing his thought.
>
> (p.387)

In a study Schoen made of "consciousness content" when exposed to different teaching-learning methods, a bell was used to signal students that they should report the content of their thoughts immediately prior to the bell ring. This procedure was not appropriate for the present study, but it did suggest a procedure that would allow a record to be made of teachers' planning thoughts at the time they actually emerged.

It was decided to ask teachers to make a written record of their planning thoughts whenever they emerged into consciousness. FIGURE 4 (p.43) provides an illustration of how one teacher subject in the

1 It was believed, prior to the use of the review procedure in the main fieldwork phase of the study, that final categorization of all reported thoughts could safely be left until after the data had been gathered, as long as this 'confirmation' strategy was used. At that time, a content analysis system for categorizing planning thoughts had been developed, but a comparable system for categorizing 'other' factors that teachers might consciously attend to during lessons had not been finalized. As will be noted later (p.83), the actual experience of developing a further section of the content analysis system once the main data collection phase was completed led the researcher to view the practice of 'post hoc' creation and use of such systems with some reservations.

exploratory phase of the study used this technique. Such response was encouraged by the record form that was developed, as well as by a standardized set of briefing notes for teacher subjects (see below).

INFORMATION FOR TEACHERS

As part of the Teacher Education Research Project at the University of Waikato, we are interested in gaining some insights into the concerns of teachers when they are preparing to take typical class lessons. In other words, what are the sorts of things that teachers think about when they are deciding how a particular lesson should be taken. It is clear that only the classroom teacher can be the source of this basic information about teaching and you will be able to help in our studies by contributing some information about this aspect of your own teaching.

How would you go about collecting this information for us?

We would ask you to make a record of the things you consciously consider and think about as you decide to teach several lessons that are occurring as part of your normal teaching programme, or that are assigned by the researcher.

We are not asking you to provide a set of carefully constructed statements that have to be organised in some systematic way. You would just jot down notes or comments about aspects of the lessons that you find yourself consciously thinking and making decisions about, as they come to mind. Teachers undertaking this task for us previously have found that generally the easiest way to reliably record their planning thoughts is to make a written record as they are actually in the process of planning the lesson. As ideas come to mind, are considered, accepted, rejected, modified, etc., they jot them down in a simple annotated or abbreviated form. At the end of the actual planning, they go back and fill out, reword or rewrite comments or notes that they feel may be unclear or illegible. If this approach is followed, we are able to follow the actual sequence in which your planning thoughts occurred.

The alternative approach is to allow the planning process to go on in your mind, and then once it is completed, to recall and record the things considered and decisions made. A major limitation of this procedure is that it depends on your ability to immediately and reliably recall in sequence all of the thoughts that you did actually have about the lesson. We would accordingly ask you to try the first procedure.

To provide additional data on the time and duration of instances of planning, teachers were asked to note on their planning record the

LESSON NO. THREE	DIRECTIONS: Please record your planning thoughts below. As ideas come to mind, are considered, accepted, rejected, modified etc., note them down in column one in a simple annotated or abbreviated form. At the end of the actual planning, go back and fill out, reword or rewrite notes that you feel may be unclear in meaning or illegible. Use column two for this.
SHERRYL	

FIRST NOTES	REVISED NOTES	PLANNING TIME
Is advertising a good thing? Ask question - Is there anything that you have seen advertised that you would like to buy/go to etc. Can you obtain that thing? [If children can't - why not? And would they want it if you had not seen it advertised?] Could also get chart of ads and ask whether there is anything on chart that children might want? May be best to define advertising again - at beg. of lesson. and then get children to ~~help~~ tell of times when advertising has helped. ie tries when it has led to a purchase. Discuss purchase and whether it would have been made if there had not been an advert. [Are adverts always helpful, always a good thing?] ↳ think of other times when adverts help people (blood donors, ~~tax~~, work as a deterrent against smoking etc.) (chart could come in handy here.		Mon. 16th Oct. 5.00 – 5.20pm

FIGURE 4: Sample Planning Record Sheet

date and time of day at which planning occurred and the length of time each instance of planning lasted. As planning thoughts might be experienced at times when the recording sheet was not on hand (e.g. driving to work, in the middle of another lesson), it was decided to direct teachers to record such thoughts at the most immediate convenient time.

As well as detailing how the task was to be undertaken, the briefing information was also intended to indicate to teachers that the researcher was familiar with the 'realities' of classroom life and the conditions that might make it more or less difficult for them to put the time and effort into planning that they might ideally wish. Thus, it was hoped that in the light of the following statements, teachers would not deviate appreciably from their normal planning practices.

> In asking you to make this review of your own before-lesson thinking and decision-making, we have been conscious of the fact that you may understandably want to comment on only those lessons that you have put more than average thought and planning into. However, we think that you will agree that particularly as we become more experienced as teachers, many of the things that we do in any teaching situation become relatively routine and automatic, and we don't always have to think well ahead about them. Sometimes the topic of a lesson, the teaching approach used or the time available can also make it unnecessary or difficult for us to spend a considerable period of time considering and making decisions about the coming lesson. For some lessons then, we may actually spend little time consciously forming a plan of action before the lesson begins. At the other extreme, many hours of careful thought and planning may have occurred before some lessons get underway.
>
> If most of the teachers who record information about their own teaching for us choose to comment only on the latter type of lesson, we will of course not gain a very accurate or balanced impression about this aspect of teaching. Bearing these thoughts in mind, we would ask you to plan the lessons nominated in a 'normal' way, and report as honestly as possible about the various aspects that you consider.

2.3.4 The Stream of Consciousness Record: An Evaluation

(a) Teachers participating in exploratory fieldwork with this procedure were asked whether the stream of consciousness recording process produced changes in their normal planning practices. No significant effects were noted by the teachers. A number of teachers observed that they tended to make similar abbreviated notes of their ideas as they planned.

(b) As in the case of questionnaire data, it was initially envisaged that the teachers' written notes could be used directly as a data source for analysis. As can be noted in the directions, it was recognised that recording of thoughts might be facilitated if teachers recorded them in abbreviated form. Consequently, they were also asked to review and clarify their notes when planning was completed. However, it soon became apparent that, as in the case of written questionnaire responses, these could not be categorized accurately without the assistance of the teacher. Where coding problems were encountered, these could most appropriately be resolved not by recourse to a set of arbitrarily defined ground rules, but by a request of the teacher that s/he clarify the meaning of unclear or ambiguous statements, and confirm or disconfirm the researcher's perceptions of their meaning.

(c) It was also found to be a prudent step to check the meaning of <u>all</u> of the notes the teachers had made when attempting to record the substance of their thoughts. Despite instructions, it was found that teachers' written records were on occasions incomplete. Reasons for this included the obvious difficulty of immediately recording thoughts that emerged unexpectedly and in 'difficult' contexts (e.g. whilst under the shower), failure to record thoughts that were momentary and transitory, and a tendency to fail to record thoughts about aspects that were considered very briefly, but were rejected as a component of the final plan.

(d) Teachers varied in the detail they supplied in the notes they made. In some instances, a single word might cue recall of a cluster of thoughts that another teacher might have attempted to detail more fully in the recording process. The interview process was likely, then, to prompt teachers to recall at least some of the thoughts that may not have been captured in the original record, and to detail a cluster of thoughts that were not reported in full. It allowed the possibility of ensuring that such unrecorded thoughts did enter the data pool.

(e) The interview associated with the planning notes was audiotaped. This material was also supplemented on occasions by information obtained during the review of written-lesson thoughts. At that time, prompted by the record of the actual events of the lesson, teachers sometimes recalled further planning thoughts.

(f) The possibility that teachers might either consciously or unconsciously distort their accounts of thoughts had to be acknowledged, and no procedures could be developed that would enable the researcher to

reliably determine the conpleteness and accuracy of teacher self-reports. In the course of exploratory trials with the procedure, however, it became apparent that one of the conditions that was most likely to influence the 'honesty' of teacher self-reports was the quality of the researcher-teacher relationship. The researcher had more confidence that reports were complete and accurate when the working relationship was in all respects open and co-operative. Openness seemed more likely to be ensured when the teacher had a full and clear appreciation of both the objectives of the research and the rationale for the procedures s/he might be involved in. This was confirmed by the experience in earlier fieldwork when the researcher attempted to 'disguise' the objectives of the research work. This created conditions that hindered easy and honest dialogue from both parties, and made it more difficult to pinpoint any limitations in the manner in which teachers were briefed on the task requirements, as well as any inherent difficulties in the procedures.

2.3.5 Additional Data Collection Procedures

Two further procedures were developed during the exploratory phase to provide information on teachers' perceptions of a number of aspects of their own teaching thoughts and actions. These procedures were a Plan Questionnaire and a Structured Interview.

The Plan Questionnaire: This involved teachers in answering a brief written questionnaire immediately after they felt they had completed their pre-lesson planning. The questions were designed to provide information about the planning experience that would not necessarily be revealed within the 'stream of consciousness record' of pre-lesson thoughts. (See FIGURE 5, p.47 for sample plan questionnaire).

The questions included:

1. Looking back over your planning record, what aspects of the lesson did you find easiest/most difficult to make decisions about?
2. Looking ahead to the actual lesson, what aspects of your lesson do you consider will be most likely/least likely to occur as planned?
3. What teaching skill that you have made plans to use, do you think you will find easiest/most difficult to use successfully in the lesson?

   Modified after fieldwork, to -

   What aspect of your plan of action do you think you will find easiest/most difficult to implement successfully?

QUESTIONNAIRE: BEFORE LESSON PLANNING Please respond to the following questions. Remember to be as specific as possible in your answers.

1. Looking back over your planning record, what aspects of your lesson did you find easiest/most difficult to make decisions about?

EASIEST	MOST DIFFICULT
To include the definition in - it was a good idea so that the children can remember what the purpose of advertising is. and then try and decide if advertising still ~~appt~~ abides by this definition.	The actual phrasing of the questions And a sequence that would help the children to get to the point of the lesson - a sequence that developed their thinking appropriately.

2. Looking ahead to the actual lesson, what aspects of your lesson do you consider will be most likely/least likely to occur exactly as planned?

MOST LIKELY	LEAST LIKELY
The recall of the definition of advertising + they should remember it easily enough.	I'm not too sure how the children will answer any of the questions and so I don't know how well the ~~qu~~ lesson will go. The particular questions that may cause trouble are ones which ask the ~~qu~~ children to determine whether or not advertising is always good.

3. What aspect of your plan of action do you think you will find easiest/most difficult to implement successfully?

EASIEST	MOST DIFFICULT
The recall of the definition of advertising.	The sequence of questions— so much depends on the answers the children give.

FIGURE 5: Sample Plan Questionnaire

Again, exploratory fieldwork with this questionnaire procedure pointed up the need to discuss with teachers' their written responses, as these could be unclear or ambiguous in meaning.

The Structured Interview: This procedure involved a comprehensive interview with teachers in which their perceptions of, and beliefs about, aspects of their own day-to-day conscious experience of teaching were discussed. Topics touched on included current attitudes towards teaching, pre-lesson planning practices, modification of plans, cues for monitoring lesson outcomes, and learner behaviours that 'satisfy' and 'annoy' (See APPENDIX A, p. 325).

Data from this interview allowed some assessment to be made of the match between the teachers' beliefs about, and perceptions of, their own teaching behaviour, and what actually occurred as they planned and implemented their plans. Also able to be examined was the extent to which the teachers' actions were shaped by a set of deliberately formulated propositions about teaching and learning, as well as the accuracy of their perceptions of their actual teaching behaviour.

The interview was initially designed as a written questionnaire. Data collected from this instrument only served to confirm the difficulty of producing questions that would reliably elicit the desired information. The interview approach allowed for variation in question format and the use of follow-up questions. Because the content of the interview was not finalized during the exploratory phase of the study, it was possible to formulate additional questions during the main period of data collection.

2.3.6 Associated Conceptual and Methodological Concerns

Two general issues, not previously discussed in depth or comprehensively, emerged during the exploratory work associated with the development of data collection and data analysis procedures. The first concerned distinctions between conscious and non-conscious thoughts, and the question of whether teachers could in fact be conscious of the cognitive processes that underlay their thoughts. The second concerned the validity of information acquired through the use of the research procedures that were developed.

Levels of Consciousness: Awareness of Cognitive Products and Processes: It has been argued previously that an adequate description and explanation of teaching demands that the theorist and researcher take account of teacher thoughts and thinking. In order to

gain insight into those products and processes of cognition, however, the researcher is reliant on some form of teacher introspection or self-report. This represents the only means by which teachers can make public for the researcher's benefit, whatever information they are conscious of.

Accompanying the resurgence of 'cognitive' psychology has been an acceptance of the necessity for and legitimacy of self report procedures, and a range of variations of the process have been developed. Klinger (1978) for example, distinguishes the following procedures, developed as a means of obtaining subjects' reports of conscious experience; questionnaires, thinking out aloud, thought sampling (assessed descriptively or using ratings), and event recording. At the same time, there has been debate, somewhat predictably, over the extent to which people are in fact able to directly observe their own thoughts and thinking. Thus, Nisbett and Wilson (1977) argue that whilst there may be introspective access to the products of cognitive processes, "there may be little or no direct introspective access to higher order cognitive processes". They summarize their arguments as follows:

> Subjects are sometimes (a) unaware of the existence of a stimulus that importantly influenced a response, (b) unaware of the existence of the response, and (c) unaware that the stimulus has affected the response. It is proposed that when people attempt to report on their cognitive processes, that is, on the processes mediating the effects of a stimulus on a response, they do not do so on the basis of any true introspection. Instead, their reports are based on a priori, implicit causal theories, or judgements about the extent to which a particular stimulus is a plausible cause of a given response. This suggests that though people may not be able to observe directly their cognitive processes, they will sometimes be able to report accurately about them. Accurate reports will occur when influential stimuli are salient and are plausible causes of the response they produce, and will not occur when stimuli are not salient or are not plausible causes (Nisbett and Wilson, 1977, p.231).

More recently, such views have been challenged. Smith and Miller (1978), for example, have argued convincingly that subjects may be aware of at least some of their cognitive processes. They believe that Nisbett and Wilson's claims regarding inaccessibility of such processes are sound in their application to many situations, but that their contention that such self-report is almost never possible is overstated. Their arguments are based on challenges to both conceptual premises, and analyses and interpretations of the research data that are advanced by Nisbett and Wilson in support of their position. They also discuss

dimensions of experience that they believe may facilitate consciousness of and accurate self-report of cognitive products and processes:

> This dimension is the degree to which the subject is asked to report on tasks that are novel and of interest. Tasks that are novel and engaging for subjects, such as choosing a college, of solving challenging problems, often seem to evoke accurate introspective awareness of process. Tasks that are, on the other hand, over-learned, routine, or of minimal interest may well be "run off" in such a way that subjects can not report on intervening processes. Several studies have supported the claim that 'mindlessness' predominates in the performance of routine tasks, and that many familiar behaviours are carried out by following scripts that require minimal attention (Smith and Miller, 1978, p.361).

In addition, Smith and Miller suggested that access to processes and associated products may also be a function of the speed at which the processing takes place. The more accessible may be those that are performed or produced more slowly. Familiar, overlearned, automatic, routine and frequently occurring actions may be more likely to be associated with rapid and thus "veiled" (Shiffrin and Schneider, 1977, p.159) cognitive processing. Conversely, unfamiliar, newly-learned, controlled, novel and infrequently occurring actions may require cognitive processing that proceeds more slowly and is consciously monitored.

The fact that information is accessible in consciousness provides no certainty, however, that it will be accurately reported. Nisbett and Wilson clearly point up some of the factors that may influence accuracy (e.g. period of time between occurrence of thoughts/thinking and solicited recall; mechanics of judgement factors such as serial ordering effects, position effects, contrast effects, anchoring effects; context, etc.), and Smith and Miller take cognizance of this issue, stating in their conclusion;

> Methodological problems in the study of awareness do need to be overcome. Influences on the accuracy of verbal reports (such as instructional set or the sorts of questions asked) as well as alternative measures (such as decision reaction times or the degree of distractibility of the subject) need to be investigated... Better measures of mental process will facilitate the drawing of much stronger conclusions regarding introspection (Smith and Miller, 1978, p.361).

The stance taken in this study is that individuals can have access to both cognitive products and cognitive processes via consciousness. It is accepted, however, that access to processes may be limited. This position is based on an evaluation of current views on this issue, and data from teachers' self-reports obtained in exploratory fieldwork in the present

study. As an instance of the latter, teachers will sometimes report having deliberately mentally 'rehearsed' a forthcoming lesson, by imagining (in the form of clear, imagery) the scenario that should unfold when they implement their plan for a lesson. On other occasions, a possible element of a plan may be assessed for its suitability by being 'imaged' in the context of the likely conditions and events of the forthcoming lesson. This again involves a deliberate process of projection of visual imagery, which may be 'rotated' and 'moved' so that a situation may be examined from several perspectives.

Based on the preceding discussion, two key conceptual distinctions were established for reference in data collection and analysis:

(a) Conscious Thoughts and Thinking: The individual attends to information regarding cognitive products and processes that is represented in consciousness. This information may be deliberately retrieved from memory or is deliberately constructed; it may emerge 'spontaneously' and 'unexpectedly' from memory or as a new construction (e.g. insight); or may be brought forward from memory as meaning is attached to stimuli that have been attended to.

(b) Non-Conscious Thoughts and Thinking: The mental processes of the individual may register, process or generate information that may influence behaviour, but this information is not at the same time registered in consciousness. Some of this information may, however, enter consciousness under appropriate conditions (e.g. hypnosis). This information may be termed Subconscious. Other information may not be open to conscious attention under any condition. Its presence can only be inferred. This information may be termed unconscious.

In the present study, the focus is on conscious thoughts and thinking.

Validity: The validity of information acquired through use of the research procedures outlined previously rests on steps undertaken to ensure that the information gathered (a) is in fact relevant to the purpose of the study (e.g. teachers report on conscious thoughts), and (b) represents an accurate description of actual conditions, events, thoughts or actions, within a teaching-learning situation.

In a recent paper on validity, Dawson (1979) outlined three broad

categories of validation methods that have been proposed for and used in studies such as the present that incorporate qualitative data:

(a) The researcher endeavours to confirm or disconfirm perceptions and interpretation of data.

(b) The researcher attempts to rule out potential sources of invalidity.

(c) The researcher endeavours to establish conditions under which it is most likely that valid information will be collected.

Within the present study, methods incorporating each of these three approaches were developed in the course of the exploratory phase of the study. Most of these have been noted in preceding commentary, but a summary of them is now presented for the convenience of the reader.

(i) A 'confirmation - disconfirmation' strategy was developed to establish the appropriateness of meanings and interpretations attached to teachers' statements.

(ii) 'Investigator' and 'methodological' triangulation was employed so that a number of perspectives were obtained on a common set of data (i.e. teacher perceptions of thoughts and actions, researcher observation of teacher actions; teacher 'stream of consciousness' self-reports, teacher questionnaire self-reports, teacher 'stimulated recall' self-reports, teacher structured interview self-reports, observed (audio-taped) teacher actions.

(iii) Data collection procedures were designed to ensure that there was minimal delay between the time thoughts were registered in consciousness, and the time they were recorded or recalled. Where recall was of necessity delayed, a memory 'prompt' was used to facilitate more accurate recall. These conditions were intended to overcome some of the inevitable limitations or vagaries of memory.

(iv) Teachers were asked to refrain from putting more than usual time and effort into aspects of their teaching. To encourage this, the researcher indicated that he was familiar with the conditions within school teaching-learning situations that could limit their opportunity or capacity to undertake teaching

activities as they might ideally wish. The researcher pointed out that he was interested in the 'normal', everyday realities of teaching.

(v) Teachers were told that no item of information that they might be able to offer about the aspects of teaching being considered, was likely to be irrelevant, trivial or insignificant. Thus, the researcher had no preconceptions about the relative value of particular types of information.

(vi) Teachers were assured that information was not being collected in order to make judgements about the relative effectiveness of their teaching. The researcher attempted to avoid making statements that might suggest an evaluation of any aspect of their teaching and the reasons why a non-judgemental stance was adopted were briefly discussed with teachers.

(vii) Finally, the researcher endeavoured to ensure that an open, co-operative and relaxed relationship was established and maintained with teachers. Steps taken to facilitate this included: careful selection of participating teachers; briefing teachers fully on all aspects of study; and adopting an informal, but hopefully not a casual, approach in all interview situations.

As Dawson points out,

> Of the three broad categories of validation approaches — confirming (or attempting to disconfirm) findings, ruling out sources of invalidity, and creating research conditions which are favorable for validity — confirmation is clearly the most direct strategy for learning about validity. The deliberate ruling out of potential sources of invalidity is much less direct. It does not indicate that research information, in part or in whole, has been judged valid by anyone; it only indicates that selected potential threats to validity were not present. Similarly, the existence of research conditions which are considered favorable for validity does not necessarily lead to research findings which are valid; rather, it increases the probability that they will be valid (Dawson, 1979, p.7).

Each of the respective approaches, and the specific methods associated with them, inevitably has limitations. Again, some of the potential limitations of those developed for use in this study have been

referred to in previous discussion of the development of research procedures. These limitations, and others, are now summarized:

(i) Teachers may unwittingly provide inaccurate confirmation or disconfirmation of the researcher's interpretation of data.

(ii) Teachers may choose to inaccurately confirm or disconfirm the researcher's interpretation of data.

(iii) Teachers may wittingly or unwittingly fail to alert the researcher to significant information that s/he overlooked.

(iv) Where data gathered from multiple perspectives and methods is conflicting, it may be difficult to establish which parts of the data are valid, and which are invalid.

(v) Where an attempt is made to rule out possible threats to validity (e.g. 'unnatural' teaching action, selective reporting of information), there can be no absolute certainty that this objective is achieved.

(vi) Potential threats to validity may be overlooked.

(vii) The conditions seen as favourable to the research may not be successfully established. They can provide no certainty of valid information, and researcher judgements about the favourability may have been incorrect.

Whilst these potential limitations cannot be ruled out, the reader is asked to take into account the fact that a range of methods were deliberately developed in an attempt to maximize the validity of data gathered in the main fieldwork phase of the study. Where limitations were evident to the researcher, these are acknowledged and pointed up in the reporting of data.

2.4 The Analysis of Teaching Decisions: First Efforts

With data on hand from the exploratory fieldwork, a start was made on developing a content analysis system that might be used to categorize the decisions teachers made both before and during lessons. First efforts were shaped by the model of teaching already outlined (see FIGURE 2, p.30), and by an exhaustive review of existing classroom category systems. The objective was to develop a system that was truly comprehensive in the sense that it would allow all teaching decisions,

as well as the actual actions, events or conditions within lessons to be categorized. As tentative categories of decision were identified from these sources, the data were examined to see if actual instances could be located in teachers' reports of their decisions. In addition, the data were carefully scrutinized to see if teachers had reported categories of decision that had not been suggested by other sources.

From these first efforts, a number of general and specific categories were identified. The general categories of teacher decision-making included:

A.	GOALS
B.	TEACHER v PUPIL DECISION-MAKING
C.	INSTRUCTIONAL STRATEGY
D.	TEACHER TACTICS - COGNITIVE
E.	TEACHER TACTICS - AFFECTIVE
F.	TEACHER TACTICS - BEHAVIOUR MANAGEMENT
G.	TEACHER TACTICS - PROCEDURAL MANAGEMENT
H.	COMPOSITION OF TEACHING GROUPS
I.	INDIVIDUAL DIFFERENCES
J.	TEACHER/PUPIL ROLE
K.	PERSON/MATERIAL RESOURCES
L.	PHYSICAL RESOURCES

Fieldwork soon revealed a number of inadequacies in this tentative system. These resulted essentially from the fact that there was no coherent conceptual framework underlying the set of categories that had been formulated. Some of the weaknesses that became evident merit noting at this point. It was apparent, for example, that teachers' thoughts quite often turned to the end-states they might wish to bring about without there being concurrent attention to teaching actions that might help them realise those ends (e.g. *"Then I thought they could classify the things they've collected and then think of labels."*). Similarly, particular teaching actions could be contemplated without associated attention to the immediate end-states that they might facilitate (e.g. *"I think I'll ask some questions at the end"*). The categories available (e.g. Encourage pupil expression of feeling) did not always clearly differentiate ends from means, and means from ends.

One broad category was described as 'Goals'. As initially defined, this allowed only for categorization of learning behaviours that the teacher envisaged facilitating. It was clear, once fieldwork data was examined, that teachers could envisage many other end-states for their actions in the context of teaching-learning situations. These were not clearly and discretely delineated in the system.

Such limitations as these led the researcher and a colleague to undertake a systematic conceptual analysis of teaching as an intentional

behaviour. This, in turn, led to the development of a modified system for categorizing the elements of teaching-learning situations.

2.5 Teaching: A Revised Conceptualization

2.5.1 The Activity of Teaching

A central assumption in the present study is that teaching is an intentional behaviour:[1] that is, it is behaviour associated with thoughts about particular learnings that the teacher hopes to facilitate in someone else and how those ends might be achieved. The word facilitate is used advisedly: the relationship between teaching and learning is necessarily probabilistic as the prospective learners can, on their own volition, give or withhold their consent to engage in the behaviours that the teacher believes might lead to certain new learnings. In addition, the teacher is unlikely to be able to arrange or directly control all of the conditions that might conceivably determine whether the hoped-for learnings eventuate.

To have teaching intentions nevertheless requires that the teacher has a belief, even if mistaken, that it is possible to facilitate certain learnings. Teaching therefore involves more than pious hopes. It requires the teacher to have some plan in mind for how these objectives might be realized.

2.5.2 Teaching Plans

Teaching plans may be consciously formulated or selected, or plans used in the past may be quite unconsciously reverted to. In the latter instance, the selection and expression of intentions is quite automatic and routinized. Whilst teaching can involve such automatic routines of behaviour ('habits'), if we are to accept that what people are doing is teaching, then they should be able to specify both the learnings they are hoping someone will acquire (their purpose), and their ideas as to how they should attempt to facilitate those ends (their action plan). Teaching behaviour can never just happen. Its antecedents must lie in teacher thoughts.

Plans consciously formulated by teachers in advance of particular teaching-learning situations are likely to be as varied in character as their authors and the contexts in which they are to be employed. The following are some of their possible features. First, plans may be

1 A more extensive discussion of some of the views presented here can be found in a paper by Freyberg (1980).

expected to contain specifications for the learnings teachers would like learners to acquire (these learnings are the ultimate end-state of a teaching-learning episode). The research findings cited in Chapter Three (page 100) draw attention to the fact that explicit identification of these ends is not an invariant feature of teacher planning. As already pointed out, however, if teachers can not explain their purpose in these terms, even minimally, then it might be questioned whether what is planned to occur is teaching. Purpose must at least be implicit in other plan specifications (e.g. learning task behaviours that the teacher believes are likely to lead to particular learning achievements) and be immediately identifiable by the teacher. New learnings may be categorized within three general domains of behaviour - Cognitive, Affective, Psychomotor. Teachers may at times describe learning achievements in terms of relatively discrete categories of behaviour (*"I want them to be able to remember the names of the six islands"* - Cognitive Domain; *"I was thinking there about how I wanted them to feel interested in the topic right from the start"* - Affective Domain). On other occasions they may be described in relatively generic terms. For example, they may be specified in terms of a role (leader, recorder) that incorporates a cluster of cognitive, affective and/or psychomotor behaviours (*"I want them to learn how to chair a meeting"*).

Second, teachers generally will also plan to try to bring about a variety of other sorts of end-states, as pre-requisites to those learnings. These intermediate end-states may involve learner behaviour, teacher behaviour, the behaviour of other people, material means and physical conditions. For example, teachers may plan (a) to have learners engage in classificatory behaviour, collect a work sheet, be aware of how long a lesson is intended to run, make decisions about a topic for study, pin a picture to the wall; (b) to have a guest speaker describe the greeting ceremony; (c) to find out for their own information what topic a pupil has chosen to work on; (d) to arrange the chairs in a semi-circle; or (e) to prepare a wall chart. Such intermediate end-states will vary in their level of generality, and their contribution to ultimate learning achievements will follow from inter-relationships between them that may be cumulative or interactive, simple or complex.

Third, plans may contain specifications for actions that the teachers envisage undertaking to achieve the end-states in mind. Again, it needs to be remembered that teachers may consciously envisage particular teaching actions without bringing to mind associated immediate ends. Similarly, some end-states may be envisaged without there being concurrent attention to teaching actions that might facilitate them.

Fourth, plans may incorporate specifications for a variety of other features of the proposed teaching-learning situation that constitute conditions associated with teacher and learner actions (e.g. teaching-learning mode, teaching-learning method, topics, timing, duration, material means, participation). These are broadly categorized as action conditions.

Finally, teachers may specify the criteria that must be fulfilled before intentions can be judged to have been successfully realized or implemented - evaluative criteria.

The specifications contained in plans are characterized by features other than the categories of lesson elements to which they refer. Thus, some specifications are conditional rather than categorical. That is, whether they will ultimately be implemented will depend on the presence of certain conditions during the lesson (e.g. *"If I find that the children cannot remember, then I will explain it to them again"*). Conditional specifications are likely to be a feature where teachers are unsure of the appropriateness, necessity for or feasibility of the intentions they have in mind. Specifications can also be assessed in terms of their comprehensiveness and detail. Teachers may consciously consider specifications for many elements of a forthcoming lesson or may choose to go into the lesson having thought about relatively few. Detailed specifications may be formulated for an element (e.g. a sequence of teacher questions is scripted) on one occasion, but not on another.

2.5.3 Implementing Teaching Plans

The course of events in teaching-learning situations is always unpredictable to some extent, and modification of plans is often likely when they are being implemented. As teachers take account of feedback about the reality they encounter when teaching, inadequacies, deficiencies or redundancies in a plan may become evident. Teachers may also decide that personal capabilities or other conditions make it impossible for them to implement an otherwise feasible plan. Changes may occur then to the meanings the teachers attach to experiences while teaching, the end-states they choose to bring about or facilitate, actions undertaken, adjunct conditions established, and evaluative criteria employed.

Teachers are likely to vary in terms of the ease and frequency with which they change their plans in the course of lessons. Their preparedness to change, the conditions that may provoke change, the types of changes typically made, and the extent to which change follows from 'reflex or reflection', are also likely to differ for individual teachers.

2.5.4 Teaching Theories

Teachers develop beliefs about the appropriateness of particular teaching intentions in certain situations (e.g. *"I believe that when they pass the level six test, they should be allowed to select their own words to learn and use whatever learning activities they like."*). When these beliefs become relatively stable, the underlying propositions together constitute a theory of teaching. These propositions provide teachers with cognitive and affective dispositions to act in a consistent way in particular situations, and they also allow responses to such situations to be made automatically. Thus, meaning can be immediately attributed to particular experiences, appropriate end-states readily brought to mind, and complex action patterns undertaken without the need for conscious planning in advance of such acts.

Theories of teaching have a number of features beyond the content of their propositions. First, the propositions may be derived from several sources. These include cultural norms regarding the desirable ends of education and the means of obtaining them, prescriptions for effective teaching propounded by teacher educators, observations of other teachers and learners, and personal experiences in teaching-learning situations as both learner and teacher. Whilst a mix of sources is likely, some teachers' theories may incorporate propositions that have come largely from 'academic' theory and research findings. On the other hand, some theories may be based predominantly on personal experiences in teaching-learning situations and what might be claimed to be a common-sense view of the world.

Second, some teachers have deliberately or 'thoughtfully' formulated theories, whereas others have somewhat 'hazy' theories. For the former, the constituent propositions are clearly defined and readily identified. For the latter, propositions arising out of instances of reflection and deliberation are few and are not readily identified. These teachers may not always be sure why they act in one way rather than another, and may claim that they teach on the basis of 'intuition' rather than theory.

Finally, some teachers may rarely review and modify the propositions of their theory. They may be quite resistant to change. Other teachers may continually reassess and modify propositions. Their theory may be dynamic rather than static.

2.6 Teacher Planning Thoughts: A Content Analysis System

2.6.1 Introduction

The conceptual analysis of teaching outlined above, provided the researcher with a coherent framework on which could be based a revised system for categorizing the elements of planned and actual teaching-learning situations.

Four broad categories of elements were identified in the analysis:

1	End States
2	Teacher Actions
3	Action Conditions
4	Evaluative Criteria

A detailed set of sub-categories of elements subsumed by these aspects was then established. The sources used in deriving these specific categories were the same as those used in the previous attempt to develop an analysis system. They were derived from further conceptual analysis, scrutiny of existing analysis systems, and examination of the data available from previous and on-going fieldwork. During the latter, teacher planning records and plan reviews were carefully examined to see if instances of tentative categories could be identified and to uncover further categories not already made evident.

2.6.2 The Content Analysis System

A complete summary of the categories identified is now presented. In this presentation, each of the four general aspects (End-States, Teacher Actions, Action Conditions, Evaluative Criteria) is considered in turn. Specific elements of a teaching-learning situation that are subsumed by each of these aspects are identified and defined, and teachers' self-reports that may be illustrative of their conscious attention to these same elements are also provided. The words 'may be' are used advisedly here as the researcher's impression of the meaning of teacher statements may not always accord with the meaning that the teacher had in mind. The researcher is required to confirm the assuracy of his interpretation by interview with the teacher.

FIGURE 6 (p.61) presents a summary of the category system that was developed for the analysis of teacher planning thoughts. In the detailed description of the system provided below, category numbers used in

1. END STATES	2. TEACHER ACTIONS	3. ACTION CONDITIONS	4. EVALUATIVE CRITERIA
1.1 The Learner - acquires new learnings - engages in learning task behaviour - has knowledge of intended/actual elements of teaching-learning episodes. - makes decisions about elements of teaching-learning episodes. - engages in non-learning behaviours 1.2 The Teacher - has knowledge of learner behaviour. - has knowledge of learner knowledge of intended/actual elements of teaching-learning episodes. - has knowledge of learner decisions re elements of teaching-learning episodes. - has knowledge of other teaching-learning conditions. 1.3 Other Person - acquires knowledge - engages in overt behaviour 1.4 Material Means - made, modified 1.5 Physical Conditions - created, modified	2.1 Inform 2.2 Question 2.3 Direct 2.4 Suggest 2.5 Record 2.6 Enact 2.7 Show 2.8 Distribute 2.9 Collect 2.10 Read 2.11 Wait	3.1 Mode 3.2 Method 3.3 Topic Focus 3.4 Means 3.5 Data Source 3.6 Timing 3.7 Duration 3.8 Location 3.9 Class-Group Size 3.10 Grouping 3.11 Participation 3.12 Group Membership	4.1 Evaluative Criteria - End-States 4.2 Evaluative Criteria - Teacher Actions 4.3 Evaluative Criteria - Action Conditions

FIGURE 6 : Elements of Teaching Plans and Actual Teaching Learning Situations

this figure are maintained to assist the reader's comprehension of the place of specific categories in the overall system.

CATEGORIES

(1) End States: The teacher envisages a particular state of affairs s/he hopes to facilitate. Two broad categories of end-state can be distinguished: (a) Ultimate End-states, and (b) Intermediate End-states.

(a) Ultimate End-States: The teacher brings to mind new learnings (learning achievements) that s/he would like to facilitate in someone. Ultimate end-states are identified and categorized where possible according to the DOMAIN and associated LEVEL of behaviour. The three domains and the levels of behaviour that may be identified within each domain are summarized below, and teacher statements illustrative of attention to this element are then presented.

Cognitive Domain	-	The learner acquires, recalls, processes, or evaluates information
Cognitive Levels	-	Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation (Bloom, 1956)
Affective Domain	-	The learner experiences and expresses feelings
Affective Levels	-	Receiving, Responding, Valuing, Organization, Characterization (Krathwohl *et al*, 1967)
Psychomotor Domain	-	The learner performs proprioceptive, motor or perceptual behaviours
Psychomotor Levels	-	Reflex Movements, Basic Fundamental Movements, Perceptual Ability, Physical Ability, Skilled Movements, Non-Discussive Communication (Harrow, 1972).

Teacher Self Report of Thoughts	Category of Thought
"I thought, well I want them to be able to remember those four steps."	Cognitive Domain Knowledge Level
"The objective was for them to design a new adventure play-ground that would meet the safety guidelines we had decided on."	Cognitive Domain Synthesis Level
"As a long-term aim, I would like them to become more open-minded and more prepared to take account of others' view-	Affective Domain Valuing Level

(Cont'd over)

points when considering cultural differences."	
"By the end of next week, I'm hoping they will all have mastered the two folk dances for the gala."	Psychomotor Domain Skilled Movements Level

Specification of behaviour in these terms is not always feasible, however. This is particularly the case where the behaviour in mind is described in generic terms and actually incorporates a cluster of specific behaviours from more than one domain and level. The fusion of particular cognitive, affective and psychomotor behaviours may be so thorough that distinctions become rather artificial, and are unlikely to be clearly represented in the teachers' conceptualization of the learning achievement (e.g. *"I want them to learn how to write a business letter."*).

At the same time as possible learning achievements are identified, the teacher may consider the manner in which new learnings may be overtly expressed. Three Learning Performance Modes may be distinguished:

Enactive Response Mode:	The learner represents and expresses learnings through physical action.
Iconic Response Mode:	The learner represents and expresses learnings through imagery.
Symbolic Response Mode:	The learner represents and expresses learnings through symbols (Oral/Written).

Teacher Self Report of Thoughts	Category of Thought
"So I decided to get them to write out a list of the steps in the process."	Overt Response - Symbolic Response Mode Written
"Then they'd draw a diagram showing the steps in the process."	Overt Response Iconic Response Mode

It should be noted that these teacher statements provide evidence of thoughts about categories of elements of a lesson other than those specifically pointed up here. For example, in both statements the teachers also referred to evaluative criteria for the content of acceptable learner responses (i.e. "steps in the process").

(b) Intermediate End-States: The teacher brings to mind end-states that s/he will try to facilitate or bring about on the way to ultimate end-states. Intermediate end-states may involve:

(1.1) learner knowledge and behaviour;

(1.2) teacher knowledge;

(1.3) other person's knowledge and behaviour;

(1.4) material means; and

(1.5) physical conditions.

More specific categories of intermediate end-states and teacher self-reports that represent confirmed evidence of conscious attention to these end-states are now summarized.

(1.1) Learner Knowledge and Behaviour: Five sub-categories of learner knowledge and behaviour can be distinguished. The learner

- engages in learning task behaviour. This is behaviour already within the learner's behavioural repertoire that the teacher and/or learner believe will have a probability of directly leading to particular learning achievements. More detailed categorization of such behaviours takes the same form as that for learning achievements, and where a learner overt response is envisaged in relation to such behaviour, the response mode may be similarly classified.

  "I decided that I'd get them to group the advertisements according to the techniques they used."

- acquires knowledge of elements of intended teaching-learning episodes. The learner may acquire knowledge of elements (e.g. end-states, topics, teacher actions, duration, materials, evaluative criteria) that the teacher envisages or hopes will occur or exist within a forthcoming teaching-learning episode.

  "Yes, I wanted them to know in advance that we'd be discussing these four topics in that order, over the next two lessons, and we'd be spending about thirty minutes on each one."

- acquires knowledge of elements of actual teaching-learning episodes. The learner may acquire knowledge of elements of a teaching-learning episode that:

  (a) actually exist or are occurring at that time; or

  (b) have existed or occurred at some earlier time in the present or a previous teaching-learning episode.

  "I decided I would make a chart record during the lessons so that they could see what topics we cover and the ideas they come up with in the lessons."

- makes decisions about elements of teaching-learning episodes.

  "I felt that they should decide for themselves whether they would work independently or in groups, and as well as that, whether they'd make an oral or written presentation."

- engages in non-learning behaviours. The learner undertakes actions that the teacher does not conceive of as either learning achievements or learning task behaviours.

  "That reminded me that I must get them to clean out their desks on Friday. Some of them were a proper mess."

  Some non-learning behaviours may lead to changes in particular conditions that will influence the likelihood of desired learning behaviours occurring (e.g. opening a window, switching on a light).

(1.2) Teacher Knowledge: Four sub-categories of teacher knowledge can be distinguished. The teacher

- acquires knowledge of learner behaviour. The teacher may aquire knowledge of the extent to which the learner is capable of demonstrating particular behaviours. This is an end-state that is likely to be implicitly associated with many teacher actions. The teacher may, however, explicitly report conscious concern with this end-state.

  "At the start I must find out how much they can remember from last week's session. Then I can decide whether to work through that material again or go on to the next topic."

- acquires knowledge of learner knowledge of intended or actual elements of teacher-learning episodes.

  The teacher may acquire knowledge of learner knowledge and understanding of elements of teaching-learning episodes that:

  (a) are intended to exist or occur within a forthcoming episode; or

  (b) have or should be existing or occurring in past or on-going episodes.

  "I thought then that I'll need to check whether they still remember the directions for the project. If not, I'll have to go over them again."

- acquires knowledge of learner decisions re elements of teaching-learning episodes.

"I decided that I'd need to find out how many had decided to work either in groups or individually before assigning the topics."

- acquires knowledge of other conditions that may influence teaching-learning episodes.

"I thought I'd better check what was laid down in syllabus first."

(1.3) Other Person's Knowledge and Behaviour: The teacher attempts to bring about changes in the knowledge and behaviour of someone other than the learner(s) or herself with the intention of facilitating learning behaviour in the learner(s).

"Get Mr Karetu to describe the greeting ceremony to them first."

(1.4) Material Means: The teacher makes or modifies materials that are to be used as an adjunct to teacher and/or learner actions during a teaching-learning episode.

"I decided to make some charts up beforehand that they could paste their poems on."

(1.5) Physical Conditions: The teacher creates or modifies the physical conditions that exist during a teaching-learning episode.

"I thought that it would be better to re-arrange the seating so that Mary's group could do their play in the classroom rather than the library."

(2) Teacher Actions: The teacher envisages particular actions that s/he will undertake in attempting to facilitate or bring about particular end-states.

Specific categories of teacher action are identified and defined below, together with teacher self-reports that represent confirmed evidence of conscious attention to these actions.

(2.1) Inform: The teacher makes a statement that conveys information about something.

"I decided to tell them that one was comedy and one was satire, rather than try to get them to come up with the distinction."

(2.2) Question: The teacher makes a statement that is intended to elicit an informatory statement from someone.

"Then these were four questions that came to mind. What was likely to happen if the plot was not discovered?..."

(2.3) Direct: The teacher makes a statement that is intended to indicate the actions that someone should undertake or goals they are expected to attain. The statement implies that compliance is expected.

"I worked out a set of directions then for the task. They covered..."

(2.4) Suggest: The teacher makes a statement that is intended to indicate possible actions that someone might choose to undertake, or goals they might seek to attain. By providing for one or more alternatives, or allowing for refusal, the statement implies that the person's compliance is not necessarily expected.

"I decided to suggest how they might make up their display - but I wanted to leave it basically up to them."

(2.5) Record: The teacher makes a record of someone's behaviour.

"Yes - this is where I thought, well I'd keep a running record of their answers on a chart."

(2.6) Enact: The teacher performs a physical act that illustrates the attributes of a specified act.

"And then I'd go on and demonstrate the grip and position of the feet."

(2.7) Show: The teacher displays an object so that someone might attend to it, or by using a gesture indicates the presence of some phenomenon.

"Right, and I'll show them the four lenses inside the turret. That was my next thought."

(2.8) Distribute: The teacher distributes material means for someone's use in the course of a teaching-learning sequence.

"I thought I'd better pass them out myself. They're a bit fragile."

(2.9) Collect: The teacher collects materials used by someone in the course of a teaching-learning sequence.

"That was just a mental note to remember to collect up the sets of slides."

(2.10) Read: The teacher reads a written statement to someone.

"The next thing I decided was to read Jonathon's story."

(2.11) Wait: Following a teacher statement to the learner, or a learner

response to a teacher statement, the teacher deliberately waits for a period of time before making any subsequent statement.

> *"I've been tending to rush the answers so it actually went through my mind, I'll use a bit of wait time."*

(3) Action Conditions: The teacher envisages other elements of a teaching-learning episode that may be controlled or influenced by the teacher, and that are associated with teacher and/or learner actions.

(3.1) Teaching-Learning Mode: The teacher makes a decision as to:

(a) the extent to which decisions about the elements within a teaching-learning sequence are to be made by the teacher, learner, or teacher and learner; and
(b) the types of decisions that are to be made by teacher and learner.

The extent to which decisions are made by teacher and/or learner is best represented on a continuum. i.e.

HIGH Teacher Responsibility for Decision Making LOW

LOW Learner Responsibility for Decision Making HIGH

Whilst recognizing the 'continuous' nature of this factor, it is possible to identify four general teaching modes, that are characterized by (a) variations in the extent to which responsibility for decision making rests with the teacher and/or the learner, and (b) differences in the categories of decisions made by teacher and learner.

- Reception Learning: The teacher arranges conditions so that the subject matter is presented directly to the learner in its final form. Decisions about learning objectives, selection and organization of subject matter, teacher and learner actions, use of material or person resources, are made by the teacher. As the subject matter is being presented, it is intended that the learner assimilate or accommodate it within his existing 'cognitive structure'. The learner's actions are predominantly covert.

- Guided Learning: The teacher arranges conditions so that the learner is lead through a carefully planned sequence of learning activities. The teacher selects learning objectives, subject matter, and the characteristics of the learning activities or tasks. The learner's activities are directed by the teacher through the use of oral or written statements (i.e. directions,

questions etc.). The learner is intended to undertake overt as well as covert actions in the course of the teaching-learning sequence.

- Guided Discovery: The teacher arranges conditions so that the learner has knowledge of the learning objectives and subject matter, and is provided with materials to work with, and given suggestions and guidelines as to the actions she might undertake to achieve the objectives. It is intended that the learner will come upon the new learnings as a result of undertaking actions that she has had some responsibility for making decisions about.

- Pure Discovery: The teacher arranges conditions so that the learner is given or selects for himself learning objectives and subject matter that he will attempt to achieve with a minimum of guidelines or suggestions by the teacher. It is intended that the learner come on the new learnings as a result of undertaking actions that he has full responsibility for making decisions about.

> *"I decided that I wanted them to have some responsibility for the way they were to go about the project. I wanted to leave it up to them to..."*
>
> *"They hadn't made much headway working on their own, so I decided it would be more efficient in terms of time, to simply give them the information. They obviously weren't really capable of locating and organising it for themselves."*

(3.2) Teaching-Learning Method: The teacher envisages using a combination of teaching actions that together are intended to facilitate particular learning behaviours. Specific methods are characterized by (a) particular categories and patterns of teacher actions; and (b) the categories of learner behaviour they may be intended to facilitate.

Teaching-learning methods may include:

- Telling: The teacher orally communicates knowledge about subject-matter directly or indirectly (e.g. audio-tape presentation) to the learner in its final form.

- Study: The learner reads written statements that communicate knowledge about subject matter directly to the learner in its final form, or undertakes specific tasks or exercises that require the learner to recall, practise, or apply previous learnings. The written statements, tasks or exercises may be selected or prepared by the teacher or learner. The learner may undertake these activities in response to teacher directions or suggestions,

or of his own volition.

- Demonstration-Modelling: The teacher shows the learner how a particular action or series of actions should be undertaken, and/or what the consequences of particular actions may be. The teacher may model the actions himself, have another person do so, or employ a symbolic representation of the act(ions) (e.g. film, textbook, diagrams).

- Demonstration-Showing: The teacher directs the learner to observe particular objects, persons, events or actions. The learner may observe things:

  (a) naturally - within or outside the classroom; or
  (b) vicariously - as in the instance of observation of a movie or slide presentation.

- Drill: Using questions and/or directions, the teacher endeavours to have pupils repeatedly recall, recognize or reproduce basic items of information or psychomotor acts.

- Review: Using a series of questions and/or directions, the teacher endeavours to have pupils recall subject matter content, or past personal experience.

- Discussion: In response to a series of questions, the learner thinks about particular subject matter (e.g. comprehends, analyses, evaluates). The teacher may or may not take part in the discussion. Where he does take part, he may ask a series of prepared questions and exercise control over all aspects of the discussion, or may allow the learner to control aspects of it (e.g. the learner may ask questions of the teacher or other learners, make evaluations).

- Project-Laboratory: The learner undertakes a task or series of tasks that requires him to systematically collect, analyse, interpret and report on data about a particular phenomenon. The learner may make decisions about the procedures he will use to attain particular learning objectives, or will follow the directions, guidelines or suggestions of the teacher.

- Simulation-Gaming: The teacher presents a problem situation to the learner, who is required to assume the role of one of the actors in the situation and make decisions that would help the resolution of the problem. The learner may make decisions about the decision-making behaviour he engages in, or follow directions, guidelines or suggestions of the teacher.

- Simulation-Role Playing: The learner acts out behaviours that are associated with a particular role. Enactment of the role behaviours is not directed towards resolution of a problem. The learner may independently make decisions about the role behaviour he engages in, or follow directions, guidelines or suggestions of the teacher.

  "Then we'll spend about fifteen minutes just discussing each project sheet."

  "I thought it would be best to begin with a review of last week's work."

  "That's when the possibility of having them do a sort of role play occurred to me."

(3.3) Topic Focus: The teacher envisages the topic or topics that may be considered during a teaching-learning episode.

"Yes, these were topics that we'd cover. I wanted to start with the source of the drugs, look at the chemical constituents, and then go on to their effects on the body."

(3.4) Means: The teacher envisages the means (material or person) that may be used as an adjunct to particular teacher and/or learner actions.

"I was hoping to be able to find some coloured posters - these were some of the types I thought I mught be able to get hold of - Travel posters, motorbike ones from the dealers,..."

(3.5) Data Source: The teacher envisages the source of information that is to be considered by the learner(s).

"I wasn't sure there whether I should give my own opinions and see how they reacted to them, or let them keep on discussing their own."

(3.6) Timing: The teacher envisages the time when particular teacher or learner actions should occur. The teacher may decide that particular actions should begin or finish:

(a) at a particular time;

(b) when particular end-states have been realized;

(c) when particular evaluative criteria have been fulfilled; and

(d) when particular actions have been complete.

"This would be my opening question, and I thought from there I'd go on to these two - in that order."

(3.7) Duration: The teacher envisages the length of time that will be

allocated to some aspect of a teaching-learning episode.

"I was unsure there how much time I should allow for the group discussions. I didn't want to run out of time for each to report back to the others."

(3.8) Location: The teacher envisages the location in which a teaching-learning episode will take place.

"I remembered, I'd better book the library for the lesson, as I couldn't run the projector in my room."

(3.9) Class/Group Size: The teacher envisages the number of learners who will be members of a class or group during a teaching-learning episode.

"I thought that I wouldn't have more than four to a group."

(3.10) Grouping: The teacher envisages groups of learners (within the class) interacting together to achieve particular learning objectives.

"So I decided to have five groups doing different themes."

(3.11) Participation: The teacher envisages the identity of the learner(s) whom it is hoped will respond to questions, directions or suggestions.

"I thought I've got to make a conscious effort to involve Helen and Stewart this time."

(3.12) Group Membership: The teacher envisages the identity of the learners who will interact in a group, to achieve particular learning objectives.

"I decided on Keith, Roger, Ross and Bev for the last group."

(4) Evaluative Criteria: The teacher envisages specific quantitative and/or qualitative features of elements of a teaching-learning episode. These features represent criteria that may be employed when the teacher evaluates whether specific intentions have been successfully realized or implemented. Such criteria may be envisaged for teacher actions, action conditions and end-states.

(4.1) Evaluative Criteria - End-States

"These were the ideas I wanted them to be able to come up with. Firstly, not all advertising was bad. Secondly..."

"Unless they got eight out of ten, they wouldn't be allowed to go on to the next chapter."

"I wanted the final copies to be free of all spelling errors."

(4.2) Evaluative Criteria - Teacher Actions

"I decided that I must make an effort and try to stop this habit of repeating their answers word for word. I wanted to get more variety in my feedback."

"I've been noticing that some of the ones down the back don't always seem to hear my directions. That's something I thought I must make sure I do - speak more loudly and clearly. I'm a bit quiet."

(4.3) Evaluative Criteria - Action Conditions

"I felt that I need a spacious, uncluttered area with good lighting."

"I decided that one of the criteria for deciding who should be in each group, was how well they got on with each other."

2.7 Teacher Within Lesson Attention and Thoughts: A Content Analysis System

2.7.1 Introduction

Analysis of the data contained in stimulated recall records required an extension of the content analysis system outlined in the previous section. It was recognized that one feature of teachers' within-lesson thoughts could be conscious on-the-spot planning which might change, extend or abandon specifications contained in a pre-lesson plan. The content analysis system already developed could be used to categorize those thoughts. It was clear, however, that teachers' attention and thoughts might be consciously focussed on a number of other concerns as lessons proceeded. For this reason, an additional set of categories was required for an accurate analysis of teacher thinking. FIGURE 7, (p.74) presents a summary of these additional categories for studying teachers' attention and thoughts within lessons.

2.7.2 Additional Categories of Attention and Thought

The categories developed were derived, in part, from an existing category system ("System for the Analysis of Interactive Thought" - SATIT, Marland, 1977), and systematic examination of the data on hand. One of the distinctions introduced in SATIT was that between teacher thoughts directed to past, present and future aspects of the immediate lesson or other teaching-learning situations. In the present system, the 'time frame' for teachers' thoughts was similarly identified and categorized.

1. REFLECTIONS	2. PERCEPTIONS	3. ANTICIPATIONS	4. JUDGEMENTS
The focus of the teacher's thoughts is on information s/he already has in mind.	The focus of the teacher's attention and thoughts is directed to immediate conditions, events or actions within the lesson.	The focus of the teacher's thoughts is on circumstances (unplanned) that may eventuate at some future point in the current lesson or future lessons.	The focus of the teacher's thoughts is on opinion, estimate, evaluation or conclusion.
The teacher reflects on: 1.1 planned actions, action conditions, end-states, evaluative criteria. 1.2 actual actions, action conditions, end-states, evaluative criteria. 1.3 existing information about the attributes of learners. 1.4 other information.	The teacher perceives: 2.1 learner behaviour - Class/Group/Individual - Verbal Behaviour-Substance - Verbal Behaviour-Other - Occurrence-Non Occurrence - Non-verbal Behaviour 2.2 teacher actions 2.3 teacher affective state 2.4 another person's behaviour 2.5 material means 2.6 physical conditions 2.7 time	The teacher anticipates: 3.1 teacher actions 3.2 action conditions 3.3 end-states 3.4 evaluative criteria	The teacher'judges': 4.1 the appropriateness of planned or actual specifications for lesson elements. 4.2 the extent to which evaluative criteria for teaching intentions have been fulfilled. 4.3 the ability of the learner(s) to undertake or accomplish learning tasks or learning achievements. 4.4 the 'meaning' of learning behaviour.

FIGURE 7 : Additional Categories of Within-Lesson Attention and Thought

These three time-frame categories, as well as the associated categories for factors that might be attended to within each frame, are defined below. Teacher self-reports that provide illustrative evidence of such instances of thought are also presented.

CATEGORIES

(1) Reflections: The focus of the teacher's thoughts is on information that s/he already has in mind.

> *"That stop was there because I was thinking is that what we did last week. I couldn't remember, well, what we'd actually done."*
>
> *"But then in the back of my mind I keep thinking, look I introduced it so its not something he's being stupid about. Although when he gets hold of it he gets a bit stupid."*
>
> *"They were getting stuck on the bad and forgetting about the good things they advertise. And I thought that might be because of what we'd written down already."*

The teacher reflects on:

(1.1) planned actions, action conditions, end-states, evaluative criteria.

> *"At that point I was actually trying to remember the other two topics that I'd planned to discuss."*

(1.2) actual actions, action conditions, end-states, evaluative criteria that have occurred, or have been implemented or facilitated.

> *"It went through my mind that she had only offerred one answer earlier, and that had been completely irrelevant really."*

(1.3) existing information about the attributes of the learner(s).

> *"I remembered then that Mary has quite an interest in gymnastics, so I thought I must suggest to her that she do a project on its history."*

(1.4) other information.

> *"I found myself thinking about last week's confrontation with Karen's mother."*

(2) Perceptions: The focus of the teacher's attention and thoughts is directed to immediate conditions, events on actions within the lesson.

> *"This is another point, part,where we'd got the colour business that it was good and sometimes it's not necessary, this sort of thing. And now she goes on about the words so I thought, well we'll pick this up and say that sometimes it's a good idea to have small words, because as she was saying this, Susan was over the other side of me, and she was actually going close to look at it. So I thought, right, we'll grab that while she's actually doing it."*

The teacher perceives:

(2.1) learner behaviour;

"I thought I heard Kim say sky-writing."

(2.2) teacher actions;

"I was aware, as I was saying that, it wasn't really what I'd intended to say. I had trouble finding the right words."

(2.3) teacher affective state;

"I really felt pleased with that answer. Not what I expected, but very good."

(2.4) another person's behaviour;

"I could see the librarian was having trouble with a group of children."

(2.5) material means;

"For some reason I glanced down then and noticed four more pictures that I'd forgotten to show them."

(2.6) physical conditions;

"I noticed how cold it had become."

(2.7) time.

"I heard the twelve o'clock bell ring."

Several more specific aspects of the teacher's perceptions of learner behaviour may also be concurrently categorized.

The teacher's attention is directed to the behaviour of:

- the class;

  "They all put their hands up, so..."

- a group of learners;

  "I could see that Brian's group had finished writing."

- an individual learner;

  "I noticed that Jim was trying to say something."

The teacher's attention is directed to learner:

- verbal behaviour - Substance;

  "And then I thought I heard him say the right answer."

- verbal behaviour - Other;

"...and they were laughing and chattering."

- behaviour - Occurrence/Non-Occurrence;

  "I was aware that John and Vicky didn't say anything at that point."

- non-verbal behaviour.

  "Out of the corner of my eye I could see David prodding Steven in the ribs."

(3) Anticipations: The focus of the teacher's thoughts is on circumstances (unplanned) that may eventuate at some future point in the current lesson or subsequent lessons.

"I was wondering how they would react if I was to show them that one. Some of them are inclined to get a bit silly if you show them pictures like that."

"I was thinking there, what would the other children think if they missed out on the film. I had the feeling they mightn't be too happy."

The teacher anticipates:

(3.1) teacher actions;

"I was wondering what I might be doing this time next week when I took over the modern-dance group."

(3.2) action conditions;

"At that point I was thinking about our beach trip - whether there would be reasonable weather for it."

(3.3) end-states;

"For some reason, I found myself imagining what Kerry might do if I gave him the captain's position."

(3.4) evaluative criteria.

"That's when I thought ahead to the term test, and the standards that might be expected of the kids."

The other additional main category of teacher within-lesson thought that was identified was Judgement.

(4) Judgement: The focus of the teacher's thoughts is on an opinion, estimate, evaluation or conclusion. Judgements may be associated with several aspects of a teaching-learning episode. They include:

(4.1) the appropriateness of planned or implemented specifications for elements of a teaching-learning episode, in the light of a theory of teaching or the reality of an actual condition or event.

"I began to feel that I had set unrealistic objectives. The kids couldn't solve these sorts of problems yet."

(4.2) the extent to which evaluative criteria for teaching intentions have been fulfilled.

"I weighed it up for quite a while there before deciding that it was an acceptable answer."

(4.3) the ability of the learner(s) to undertake or accomplish learning tasks or learning achievements.

"It went through my mind, they're not going to be able to get it. It's outside their experience."

(4.4) the 'meaning' of learner behaviour (where meaning is not immediately evident).

"I couldn't understand why Tim kept wriggling in his chair. He's not usually a restless sort of kid. But then it dawned on me. He's reacting to Kim's nudges."

2.8 Teaching: A Final Model

Once a complete set of categories for the analysis of teacher attention and thoughts had been identified, a model of the relationship between teacher thinking and the elements of actual teaching-learning episodes was formulated (see FIGURE 8, p.79). Several features of this model should be noted:

(a) Given the limitations of human information-processing capabilities, only a limited number of the stimuli that exist and that potentially may be attended to will receive the teacher's attention at any moment.

(b) All categories of teacher thought may emerge into consciousness during any phase of a teaching-learning episode (pre-active, interactive, post-active).

(c) Specifications for elements of a teaching-learning episode may be broadly categorized as either <u>considered</u> or <u>habitual</u>. Considered specifications are those that have been consciously envisaged by the teacher before being implemented or facilitated. In contrast, habitual specifications are the product of the teacher's automatic (unconscious) response to particular circumstances.

(d) Perceptions, reflections, anticipations and judgements do not invariably lead to either the conscious formu-

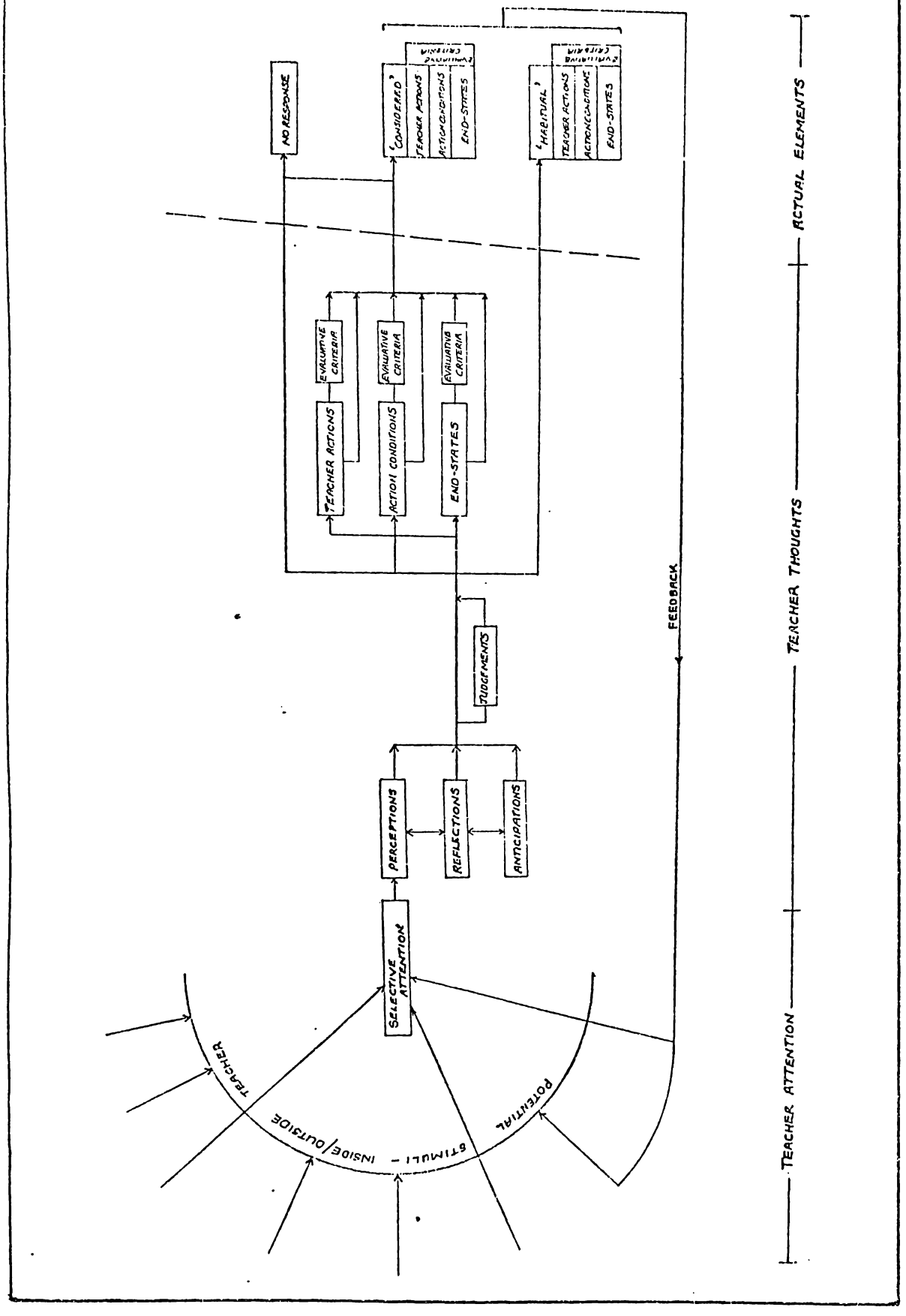


FIGURE 8 : Categories, Patterns and Interrelationships of Teacher Attention, Teacher Thoughts and Actual Elements in Teaching-Learning Situations

lation of further specifications for elements of a teaching-learning episode or some habitual response.

(e) The time interval between the formulation and implementation of specifications for elements of a teaching-learning episode is extremely variable. Thus, specifications may be immediately implemented following their formulation or they may be formulated days, months or even years in advance of their implementation.

(f) When specifications have been consciously formulated, they are not always subsequently implemented. They may be abandoned, rejected or forgotten.

2.9 Data Analysis Procedures

This section discusses the procedures that were developed for the analysis of data obtained about (a) teachers' pre-lesson thoughts, and (b) teachers' within-lesson attention and thoughts.

2.9.1 Data Analysis: Pre-Lesson Thoughts

As noted in earlier discussion of the development of data collection procedures, it became apparent that teachers' written self-reports of their thoughts did not constitute a source of data that, alone, would allow for accurate categorization of the focus of those thoughts. It was clearly necessary to involve teachers in the categorization process in order to ensure that meanings the researcher attached to their statements were, in fact, those that the teachers originally had in mind. This effectively meant that categorization of the teachers' planning thoughts would take place when the written planning notes were reviewed with the teacher. At that time, each written statement could be discussed to establish and confirm the meaning the teacher wished to attach to it. In general terms, this procedure required that the researcher first endeavour to 'recognize' the category(ies) of thought that the teacher stated s/he had in mind. This possible categorization would then be discussed with the teacher who was requested to indicate whether or not it was accurate.

Several more specific features of the categorization procedure as finally developed are now considered:

(a) The unit of analysis is a word, phrase or sentence that explicitly makes reference to a consciously envisaged specification for an element of a prospective teaching-learning episode. A 'complete' oral or written teacher statement may provide evidence of consideration of (i) a single element; or (ii) a set of interrelated elements.

Examples:

(a) Single Element Statements	Category(ies)
"10 minutes	- Duration
"I thought we'd work in the library"	- Location
"Four groups"	- Grouping
"I decided then I'd get them to give oral reports"	- Overt Response Mode
(b) Multiple Element Statements	**Categories**
"After this, ask John why this form of advertising might have been banned."	Teacher Action Action Conditions - Timing - Topic - Participation
"Make sure they know what topics we'll be discussing and when."	End-State - Learner knowledge of Intended - Topics - Method - Timing Teacher Action - Unspecified

(b) In reviewing written planning notes, the researcher should initially read through the complete planning record 'mentally' marking off words, phrases, or sentences that appear to refer to specific elements of the lesson that the teacher has consciously considered. In subsequent discussion with the teacher, each of the statements that has been assigned a provisional category or categories is reviewed to establish whether the researcher has accurately identified the elements the teacher has recorded having considered. Where written notes are abbreviated or unclear, it is necessary to ask the teacher to clarify the meaning before any attempt at interpretation is made. An example of this review, clarification and confirmation process is presented in FIGURE 9, p.82).

(c) Many references teachers make to their teaching actions may seem to be associated relatively unequivocally with certain end-states, even though the latter do not appear (on the basis of the planning notes and the associated review) to have been explicitly brought to mind. For example, in relation to the first multiple element statement noted above, the researcher may feel that it is safe to conjecture that the teacher planned to have John engage in learning behaviour - Cognitive Domain, Comprehension Level. This may, in fact, be an end-state that the teacher would concur she was hoping to facilitate. She could conceivably however, have had other 'less obvious' ends in mind also.

Planning Record Notes	Plan Interview
- Share ideas - group labels into diff type of ads	R "Share .. So this is, you want the kids to present the ideas they've come up with from their group work. T Yes. R Group labels into different types of ads. The group as a whole to suggest labels? Or the kids who generated the groupings back here. Perhaps you need to clarify that. T I'm wondering what I meant myself. Oh yeah, I think what I had there, was when they came back with their labels, they'd go off and write their labels, individual ideas for each thing, right. Now if they'd all come back with, as it was, as happened in the lesson. If someone comes back with a group called entertainment and someone came back with one called entertainment and movies, these were merged into one pile. They came from two separate pairs. These were merged into one pile. R But essentially this is really just sequence. The group would label initially and then there would be a sharing of ideas after that.
- Message - or common theme	T Is there a message or common theme to all these advertisements? They are all trying to say something or to solicit a particular response. They are all trying to - they all have the intention of selling. R At this point are you really considering a topic that is to come out of this discussion? T That there was written because I was aware that I was going to come up with a definition of advertising, and that was a finishing point and a starting point of my lesson. T Then I started that. Used that as data for the definition which was the main idea. And a good Brunnerian approach R This is a point to come out, and at this stage there is no indication as to whether you're going to make this point, or you're going to solicit it from the kids. T Oh R Or is this something you want to solicit T No, it means a question. R It essentially means a question T Right. It means, is there a message or is there a common theme. R I was about to suggest that, but I thought I'd let you otherwise I might put words in your mouth. T We're trying to be inductive.
- Cats of ads What is advertising?	R Categories of ads. What is advertising. How does, this picks up the point you have just made in terms of sequence? T Right. This will give rise to, from this we hope to get various categories of advertisements, and from that come to a definition of what is advertising. These were some of my first jottings. It means, it really means me talking about a similiar sort of thing. I think means .. the children will arrive or come to or produce, sorry, various categories of advertisements, and this be a preliminary to putting this question R So in a sense there's a timing, sort of sequencing decision wrapped up in this as well. You seem to be saying there are two major topics for the discussion. Categories of advertising. What advertising is .. and did you have a question in mind at this point? You'd actually ask the kids, what is advertising? T Yes.
- 2 gps do this	R Two groups do this T Oh yes, well there was the possibility of splitting them into two groups. The possibility of that question, what is advertising, being discussed with two groups of say four, and coming back and sharing. Righto, which leads on to
- Will pupils arrive at a genuine group discussion or will the more vocal dominate others and press their definition on the group	T Will pupils.. If I had two groups, splitting the 8 into 2 groups of four to go and find, to arrive at their idea of what is advertising - in their groups of four, would I then get a definition from the most vocal member as the group response - the so-called group response. In fact it was one guys ideas, the others sort of adopted, accept, or are brainwashed into a which is a great concern. R Now at that point, was this concern sufficient for you to reject that as a possibility, or were you still just leaving it hanging.

FIGURE 9 : Categorizing Pre-Lesson Planning Thoughts: Review, Clarification and Confirmation Procedure

For example, she may have:

(i) felt that she needed to have knowledge herself of John's ability to answer the question correctly before she proceeded to introduce a further discussion topic (*"because I'll need to know whether he can answer that before I move on"* - End-State: Teacher Knowledge of Learner Behaviour); or

(ii) wanted to pose a question that John would be unable to answer and that would lead to his embarrassment in front of other class members (*"I wanted to put him in his place. He was becoming a know-all. He mightn't feel so cocky."* End-State: Learner Behaviour, Affective Domain).

The point to be made here is that it is somewhat hazardous to infer intended end-states in the absence of explicit evidence that those ends have in fact been contemplated. The content analysis system is used to categorize those elements of a plan that have unequivocally received conscious attention.

(d) Words or phrases that suggest teachers' consideration of their own teaching actions must also be checked with some rigour. The teacher may refer to possible actions with varying levels of generality. For example, s/he may record a decision to *"make sure that the children know that their reports must be free of all spelling errors."* In such an instance, follow-up discussion may reveal that the teacher had actually envisaged giving information (Teacher Action - Inform) to the children about this matter, or had considered that s/he would wish the children to have this information (End-State - Learner Knowledge of Intended Evaluative Criteria) without concurrently considering teacher action that might facilitate this end-state.

The researcher also needs to establish whether the teacher had in mind a script for planned teaching actions. At times a written planning record may contain notes that strongly suggest that the teacher has envisaged making statements using the exact or almost exact set of words contained in the record.

e.g. Why is this an effective technique?
Are all techniques desirable?
What techniques might appeal to children?
(Planning Record Notes).

It became apparent during exploratory fieldwork, however, that such notes do not invariably provide evidence of this degree of scripting. When asked to comment on such possible scripting the teacher may, for example, state that *"those were the words I actually planned to use"*, or alternatively *"my questions would be roughly along those lines, but I wouldn't necessarily use those words."* Examples of teacher-researcher dialogue concerned with the interpretation of these aspects of planning records are included in FIGURE 9, p.82).

In the course of a review, the researcher checks whether the possible elements that the teacher had envisaged:

(a) became part of the final plan (Adopted)

(b) represented a conditional element of the final plan (i.e. would be implemented or sought if particular conditions existed during the actual lesson) (Conditional)

(c) were rejected as an element of the final plan (Rejected).

Where the teacher indicates that a particular element is conditional, the teacher is asked to describe the circumstances that will determine whether it will be implemented or not.

Example: The planning record contained the following notes:

"Subliminal perception - tell about - perhaps"

Asked to clarify the statement, the teacher stated that she had thought she might tell the children about this process and the way it had been made use of in cinema advertising. She would only do this, however, if there was time available towards the end of the lesson. It did not have the priority of other topics.

(e) The researcher also checks whether the elements of the plan as finally formulated were, from the teacher's point of view, implemented or not implemented. Where the teacher indicates that a specific element was not implemented, the teacher is asked to identify, if possible, the reasons for this.

2.9.2 Data Analysis: Within-Lesson Attention and Thoughts

The within-lesson review was audio-taped. The tape contained a record of the lesson itself, interspersed with a record of the teacher-researcher discussion of incidents. A transcript was made of the dialogue for each incident, and this was entered onto an 'incident' sheet. An

analysis was subsequently made of the content of the teacher's and researcher's statements, to identify the focus of the teachers' recalled attention and thoughts. (See FIGURE 10, p.86 for sample Incident Coding Sheets.)

Data Analysis Difficulties: As previously noted, parts of the content analysis system and associated procedures for categorizing teachers' within-lesson thinking were developed following data collection in the main fieldwork phase of the study. The experience of developing these components of the analysis procedures pointed up some of the difficulties that may follow from the design of procedures at this stage in such a study. Several of the specific difficulties that were encountered are now discussed.

(a) One word used quite frequently in the interview dialogue associated with the stimulated-recall procedure, highlighted again the hazard of not clearly establishing the meaning that might be attached to key terms used by both the researcher and the teachers. The word in this instance was 'decision'. Thus, when seemingly reporting their thoughts, teachers noted at times that they had 'decided' to follow some course of action:

e.g. *"I decided to move on to the next topic."*
"That was when I decided I would speed things up a bit."

It became apparent when examining such statements, that it was not always possible to infer unequivocally that the reported decisions had followed from instances of conscious planning, and had not occurred as an automatic and routinized response to particular circumstances during the lesson. If the latter was the case, the teachers' statements would indicate that they had recognized in hindsight that their behaviour had been governed by an established rule that led them to automatically adopt a particular course of action in those circumstances.

In a limited number of stimulated-recall incidents from the fieldwork phase of the study, the content of the teachers' self-reports did not allow the researcher to subsequently establish reliably the meaning of the term, from the teachers' point of view.

(b) A further ambiguity in the meaning of 'decision' also became apparent during the development and use of these procedures. On the one hand, the word 'decision' may be used to describe a cognitive act that involves consideration of and choice between alternative specifications

TEACHER LESSON NO. INCIDENT NO. 5

R Were you aiming for a higher-order classification?
T Yes. Now this was a decision I had not planned on. They seemed..Their groupings seem to split themselves initially into two clear groups.
R That was your impression of what they'd ended up with?
T Yes. I decided..that would be a conscious decision..by golly, let's try this one..I'll try to get them to come up with these two, because it would solve two problems. I made it to solve the problem of a lot of product sub-categories that needn't have been discrete categories at all actually.
R The same sort of problem as Aaron and Harley had?
T Yes. They had fire-places, shower, electric shaver ads and so on. So we initially..I decided, well, we'll put those into a larger group, larger groups, and that would solve that problem..and also the second purpose was that there were some there that were difficult to fit in anywhere. Would they be a separate larger group on their own, or..and in the end, I didn't. One set there about, oh the political broadcast, the political meeting for Mr Muldoon, and the one about the church services, stayed towards the non-productive, entertainment ones. Away from the..sorry..towards entertainment and away from the products. You'll hear the discussion about that one.
R Now can I just check this off again. As you were getting these groupings laid out it looked to you as if they were falling into two broad categories. Products and entertainment. And the 'different' group too. That was in your mind?
T Right.
R So you decided to see whether the kids could recognize those groupings?
T Exactly it.
R And the problem of all those overlapping sub-categories - that was something that you'd thought about, been concerned about at the same time?
T Mmhm.
R Good. I've got that clear now.

REFLECTIONS
PLN | ACT | INF | OIN
 | ✓ | | |

PERCEPTIONS
LSE | TRC | TRF | OFB | MMN | PCO | TIM | CI | GP | IN
✓ | | | | ✓ | | | ✓ | |
 | | | | | | | VB 50 | | ANB
 | | | | | | | S | OCC | ✓

ANTICIPATIONS
TRC | ACC | RST | CYC
 | | |

JUDGEMENTS
APP | ECF | JAB | MNG
 | ✓ | |

TEACHER ACTIONS
Unspecified - "I'll try to get them.."

ACTION CONDITIONS

END STATES
Learner Behaviour
"Come up with these two"

EVALUATIVE CRITERIA
Learner Behaviour
(Categories sought)

FIGURE 10 : Sample Stimulated Recall 'Incident' Recording Sheet

for elements of a teaching-learning episode. As used in many contexts by the teachers, however, it was used to refer to the act of selecting specifications without concurrent identification and choice between alternatives.

If both of these possible ambiguities in meaning had been fully appreciated prior to data collection during the fieldwork phase, some coding difficulties might have been eliminated or at least reduced. This could have been achieved had the possible meanings of this key term been discussed with teachers in the initial briefing session prior to the first stimulated-recall session, or whenever the term was used by teachers when reporting particular incidents.

(c) Finally, it became apparent during data collection and analysis that teachers might sometimes experience difficulty in recalling, with certainty, the focus of their within-lesson thoughts. This difficulty was associated with the fact that thoughts might be registered in consciousness only momentarily. When this occurred, teachers were more likely to find it difficult in a delayed-recall situation to decide that thoughts had in fact been consciously registered. The difficulty was likely to be heightened when thoughts emerged into consciousness 'out of the blue', and did not subsequently result in changes to actual teacher behaviour. Definitive coding of teachers' self-reports was clearly impossible when teachers had expressed uncertainty about the content of their thoughts.

CHAPTER THREE

FURTHER RESEARCH ISSUES

Chapter One indicated (p. 1) that there was little comment on teacher thinking, let alone empirical evidence, when the exploratory phase of the present study began. As that phase proceeded, a burgeoning interest in teacher purposive behaviour became obvious. Because some of the research reported in the period 1975-80 affected, in particular, the research design for the fieldwork phase of the study, as well as the analysis and interpretation of data obtained during that phase, it will be reviewed in this chapter. The design and procedures of the second and main part of the study are discussed in Chapter Four.

Research on teacher thinking during the period 1975-80 reflected varying views about the nature of teaching and used a variety of research methodologies. As a group, these research studies focussed on one or more of the following themes:

(i) Teacher Pre-Active Planning,
(ii) Teacher Interactive Thoughts,
(iii) Teacher Judgements,
(iv) Teacher Theories.

3.1 Teacher Pre-Active Planning

Zahorik (1975), following up his earlier study of teacher planning (Zahorik, 1970), investigated the nature of teachers' pre-lesson planning concerns. A group of 194 teachers were asked to write a list of the decisions that they believed they typically made prior to lessons, and to indicate the order in which they felt they were likely to turn their attention to these concerns. Zahorik concluded that the results indicated that learning objectives were not a particularly important category of planning concern when frequency of reported concern was used as a criterion of importance, and that planning decisions were not likely to follow from an initial specification of learning objectives for the majority of teachers. Thus, a rational ends-means model of planning did not seem to underlie the planning activities of the majority of teachers. It appeared also that an 'integrated ends-means model' (MacDonald, 1965) was not represented. To illustrate, while selection of pupil learning activities was the most frequently mentioned planning decision, it was rarely reported as an initial planning concern. In fact, content to be taught was considered one of the most important

planning decisions by teachers in terms of both the frequency with which it was reported and the frequency with which it was reported as a first decision.

It is important to note that such data represented teachers' perceptions of their likely planning practices. Zahorik did not examine whether those perceptions did, in fact, accord with the teachers' actual planning practices. It is also possible that the teachers' planning concerns varied significantly across different contexts. The degree of stability of these concerns was not studied, however.

Exploring a wider range of features of teachers' planning behaviour than Zahorik, and adopting a different method of data collection, Morine-Dersheimer (1977) examined the written plans produced by teachers who were asked to teach two lessons in mathematics and reading to a group of students within their own classrooms. The written plans were examined for their (a) specificity; (b) general format; (c) source of goal statements; (d) statement of goals; (e) attention to pupil background and preparation; (f) identification of evaluation procedures; and (g) indication of possible alternative procedures. This analysis suggested that the plans were fairly specific, typically used an outline format, and gave little attention to behavioural goals, diagnosis of student needs, evaluation procedures, or alternative courses of action. Whilst these findings had close parallels with those from Zahorik's study, there were several possible limitations in the data collection procedures. For example, written plans may not reveal the full array of the teachers' thoughts and decisions during the planning process: not all teachers regularly make written planning notes as a product of their mental planning, and where such notes are made, they may not clearly and completely reflect the final plan that a teacher carries in mind. At the end of the planning process teachers may record those planning thoughts and decisions that are most salient in memory at that time and, for some teachers, written plans may essentially contain information that they recognize they are more prone to forget. Also, such plans are unlikely to provide a record of the specifications that were considered, but which are ultimately rejected during planning. Morine-Dersheimer found, in fact, that while teachers agreed to write lesson plans and submit them to interviewers, they indicated that such activity was not representative of their normal pattern of lesson preparation.

Peterson, Marx and Clark (1978) overcame some of these methodological limitations in their study of teacher planning practices by having

teachers think aloud as they formulated a teaching plan. Given a list of objectives, 12 experienced teachers had 90 minutes to plan for a social studies lesson that was subsequently taken with three groups of junior high school students. Re-planning of the lesson was possible between the three lessons. A 'Teacher Planning Coding System' was developed for the categorization of five planning concerns: objectives, the learner, materials, subject matter, instructional processes and learner activities. Confirming the pattern of findings from other studies, overall the smallest proportion of teachers' 'think aloud' statements was focussed on objectives. The largest proportion was concerned with the content that was to be taught (e.g. facts, concepts or principles). Instructional process featured as the second most frequent concern, materials and the learner somewhat less. Of particular significance was the finding that teachers varied widely in the proportion of statements that could be associated with particular planning categories. While the finding was somewhat tentative, the data did suggest that these individual differences could in part be attributed to differences in the teachers' information processing styles and abilities.

The 'think aloud' procedure used in the Peterson, Marx and Clark study was not free of limitations. First, it was not possible to ensure that teachers did confine their planning to the allocated 90 minutes period. Second, planning sessions may well have lacked ecological validity: (a) thinking aloud might have distorted the normal mental process of planning; (b) planning had to take place in a single period of time, which could well have been an atypical circumstance for at least some of the teacher subjects (planning can sometimes occur on a number of occasions as opportunities offer); and (c) the attempt to assess planning stability by having teachers plan and re-plan for the same learning objectives in three sessions was certainly an unlikely event in the ordinary teaching situation.

While Peterson, Marx and Clark's findings revealed significant individual differences in teacher planning practices, the five general categories in their planning analysis system may have subsumed too many significant sub-categories to capture the comprehensiveness and specificity of teachers' planning concerns. For example, the category of instructional processes subsumed both student activities and teacher actions and strategies. Again, the weighting of teacher concern with a particular element of a lesson was assessed on the basis of the number of discrete statements that indicated attention directed to that element. But frequency count data like this does not necessarily provide a reliable

indication of the priority that teachers have for particular planning concerns.

The possible distortion effects on data of 'unnatural' research conditions was taken into account in a study by Yinger (1977). This researcher made an intensive study of the planning practices of one teacher over a five month period in order to obtain answers to three general research questions:

(a) What does teacher planning look like as it occurs naturally in a classroom over long periods of time?
(b) What types of problem-solving and decision-making processes are involved in teacher planning?
(c) What models can be developed of actual planning behaviour in natural settings?

The study was intended to be a source of descriptive data on planning, and to permit the formulation of models and theoretical propositions regarding the planning process. The methodology incorporated a wide range of non-participant observation, participant observation and process-tracing techniques. Data was collected in normal teaching situations, in the course of a simulated teacher planning task, and during three judgement tasks, while analysis and interpretation of data was based on the 'grounded theory' approach used in earlier qualitative research by Becker (1958) and Smith and Geoffrey (1968). Two central aspects of planning that were identified in Yinger's study were (a) planning for instructional activities, and (b) the use of teaching routines. Activities were described as 'behaviour settings' that could be planned for, and subsequently created and controlled by the teacher. Seven basic features of such settings were distinguished: location; structure and sequence; duration; participants; criteria for acceptable student behaviour; instructional moves; and content and materials. Routines represented established methods that teachers employed on a consistent, and at times automatic, basis during all phases of teaching. The availability of such routines reduced the time and energy that teachers were required to invest in planning, and also increased the predictability of lesson events for students. Four types of routines were identified: activity routines; instructional routines; management routines; and executive planning routines. In terms of the latter, these routines represented "established thought patterns set off by specific planning tasks", which activated and guided the focus of the planning process.

Features of the cognitive activities involved in planning were sum-

marized in a process model of teacher planning. It was noted that because of the complex, immediate and unpredictable quality of teaching-learning situations, planning was generally necessary. Planning, however, was seen as more typically incorporating processes of purposeful problem-solving rather than rational choice between alternatives for teacher and learner actions. Three main phases were represented in this problem-solving model:

(a) Problem solving: becoming aware of a potential instructional idea that requires further planning deliberation.
(b) Problem formulation and solution: development of an instructional idea through a planning cycle involving elaboration, investigation and adoption of possible elements of a solution.
(c) Final solution: evaluating and taking account of feedback from plan implementation for future planning.

Yinger also proposed a structural model of planning that differentiated four dimensions of planning in the context of yearly, term, unit, weekly and daily planning. These dimensions were (a) planning goals, (b) information sources, (c) the form of plan, and (d) criteria employed for judging planning effectiveness.

The data from Yinger's own case study, as well as that available from other studies (Zahorik, 1970; Peterson, Marx and Clark, 1978), suggested that behavioural objectives were not likely to be a central planning concern; further, that there was little evidence of teachers operating on a rational-choice model since alternatives were infrequently envisaged. The process of planning was, however, seen as a purposeful activity that was directed by teachers' goal conceptions. Such conceptions might incorporate anticipations of what effective teaching might need to be for particular students, as well as somewhat vague intuitions, dispositions, and attitudes towards teaching.

Yinger's study was of particular significance because it marked the first systematic and comprehensive attempt to identify the cognitive processes that might underlie the formulation of plans by classroom teachers. The study is also noteworthy for its demonstration of the potential gains to be made from use of a methodology that:

(a) takes into account the complementary and competing perspectives that a researcher and the classroom

teacher as co-researcher are likely to have when viewing the planning process; and

(b) recognizes the necessity for an extended period of data collection to help avoid premature conceptualization of elements of the process in the course of model building, as well as to provide some indication of the stability of the planning process across different contexts.

It is clear, however, that in order to assess the validity of the elements and propositions in Yinger's model, they need to be set against data from additional studies in which both teacher and contextual variables are varied. It would be certainly premature to conclude that the rational ends-means model is inevitably an invalid representation of teacher planning.

Clark and Yinger (1979) collaborated in a project on teacher planning that incorporated three studies intended to validate and elaborate elements of Yinger's structural and process models. The first study, involved a survey of teacher planning practices and was intended to provide descriptive information about plans that teachers had actually implemented in their classrooms, as well as concerns, considerations and constraints that they believed influenced their planning on those occasions (e.g. source of initial planning ideas, reason for planning, factors taken into account, resources, form of plan, criteria for evaluating the effectiveness of plans). Data on the time and duration of planning, as well as variations in planning for different subject areas, were also gathered. Major findings from this study were: (a) learning objectives were seldom reported as an initial planning concern; (b) teachers tended to limit their search for ideas to material and person resources that were immediately on hand; (c) teacher planning was more explicit and involved a longer lead time in team teaching situations than in self-contained classrooms; (d) many teachers reported that the majority of planning was done mentally and never committed to paper; and (e) planning seemed to operate not only as a means of organising instruction, but also as a source of psychological benefits for the teacher. In general, teachers reported that plans gave them direction, security and confidence.

In their second study, Clark and Yinger set out to compile a longitudinal case history of teaching plans from their initial inception through to their implementation and evaluation. Each of the six participant teachers in this study kept a journal that documented in

detail his or her planning thoughts and actions. This data was supplemented by that obtained from interviews of the teachers and observation within the classroom. Features of the life histories essentially provided confirmation of the cyclic planning process proposed in Yinger's process model. At the same time, individual differences were apparent in how teachers followed this general process. A distinction was made, for example, between 'incremental planners' and 'comprehensive planners'. In planning for a two-week writing unit, the former, having identified an activity or set of activities to get the unit underway, preferred to move in a series of short planning steps in which succeeding lessons were planned for in the light of feedback from the actual classroom experience of attempting to implement previous plans. Teachers adopting this approach were likely to value spontaneity and the matching of plans to immediate learner needs and states. In contrast, comprehensive planners were likely to design one detailed, long-range plan. These teachers carried into lessons a relatively complete picture or set of predictions as to what might eventuate, and trying out of components of the plan would be done mentally in advance of the unit rather than as the unit was actually underway.

Clark and Yinger's third study focussed attention on teachers' judgement policies when selecting language activities for prospective lessons. This study is discussed in a later section in this chapter (p.110).

Toomey's (1977) study also showed that teachers tended to adopt consistent, albeit not necessarily the same, approaches to planning. Toomey investigated some of the differences that existed in the actual planning practices of four teachers. Observers (advisory teachers and school administrators judged two of these teachers to plan by first stating their objectives and then using these statements as criteria for subsequently selecting experiences and content. The other two teachers "used principles for the selection of content and experiences in the curriculum, which were not dependent on the existence of a specification of objectives" (p.122). Detailed interviews with the teachers established the procedures that they perceived themselves to be using in their social studies planning, while information about their actual planning practices was obtained by having them plan a social science unit for their Grade 11 classes. The criteria the teachers used for making judgements about the suitability of supplied and self-selected materials were identified, and the categories and order of decisions evident in the planning sessions were monitored.

The results of the data analysis in this study highlighted the idiosyncratic quality of teacher planning. For example, each of the teachers had quite dissimilar perceptions of the appropriateness of particular materials, on how the elements of an instructional sequence might be ordered, and on what might be suitable for individuals or groups within the class. In respect to learning objectives, two teachers considered that these should be stated quite specifically because they provided criteria for the subsequent selection of both content and experiences, and against which the actual events of the lesson could be weighed. However, while these objectives were actually established in the opening phase of planning and influenced subsequent selection of experiences and content, planning was not entirely linear. In addition, criteria other than appropriateness in terms of objectives were taken into account by these two teachers in their planning (e.g. features of material available, needs of individual learners).

The other two teachers in the Toomey study expressed objectives in relatively general terms, and did not at any point attempt to refine or delineate these in more precise terms. They appeared to see their teaching as structured according to a set of procedural criteria which represented desired classroom management procedures that imposed constraints on other decisions about content, use of materials and associated learner activities. However, these procedural criteria were also likely to include other intentions (e.g. *"I wanted a number of things to happen - the whole group to do some talking together - the kids to share their knowledge"*).

Individual approaches to planning among these four teachers were accounted for by Toomey in terms of the differences in teacher perceptions of three aspects of teaching-learning situations: (a) teacher-learner responsibility for decision-making; (b) the appropriate attributes of content and materials (e.g. familiar, factual, difficult); and (c) the nature of appropriate instructional processes (e.g. tightly planned and conducted, and evaluated in a controlled manner; or relatively loosely planned, and open to change in the light of emergent interest and needs). The latter appears to be a comparable conceptualization to the incremental versus comprehensive distinction made by Clark and Yinger (1979).

More recently, studies of teacher planning have been undertaken by Mintz (1979), McCutcheon and Kyle (1979) and Smith and Sendelbach (1979). Mintz described aspects of the planning behaviour of a group of 75 elementary teachers in a simulated teaching-learning situation. The

teachers were asked to plan a reading instruction programme for 10 children unfamiliar to them as though it were the start of the school year in their own classroom. The aspects of the teachers' planning examined included the sources of information referred to, materials used during planning, the place of objectives, content and evaluation procedures in teachers' written lesson plans, the level of specificity of planning for activities, and attention to student needs.

Mintz's findings were generally supportive of those from earlier studies. For example, little attention was given by teachers to objectives in their written plans. Thus, the researcher concluded that consideration of objectives was not part of typical planning procedures, and suggested that major objectives could be internalized to such an extent that they were "taken for granted" (p.15). Plan specifications for content and activities were generally specific, but there was little attention paid to management and organisational concerns apart from consideration of grouping and teachers tended to ignore evaluation procedures in their planning. At least two conditions need to be taken into account in assessing these findings. One is that the research used a simulated, rather than a naturally occurring teaching-learning situation as a context for data collection. Consequently, planning for a simulation task could proceed without the day-to-day conditions and constraints that might well facilitate or hinder planning in normal classroom situations. The second feature of the methodology was the use of written plans as the primary data source. The possible limitations of this approach have been discussed above (p.89). Although Mintz acknowledged some of these limitations, she proceeded to place complete reliance on this procedure for generating her research data.

In a study of teacher planning by McCutcheon and Kyle (1979), cognizance was taken of the possible limitations of relying on written planning records as data sources. In their exploration of the curriculum planning of 12 teachers, the researchers made use of classroom observations and discussions with the collaborating teachers to complement the analysis of plan books, text book guides, and children's daily work. An open-ended approach to the data collection was adopted, such that pre-determined questions and inquiry strategies were supplemented by emergent questions and strategies. Because the research was team-based, multiple external perspectives on the planning process were obtained, and an examination of planning across a range of settings was possible. The rich assortment of findings included the following:

(a) Teachers' mental planning revealed a detailed richness in planning concerns that was not revealed in their written plans. Teachers' written plans were idiosyncratic in format and content, and generally served as an external memory aid to ensure that certain things were done in the course of lessons.

(b) Planning occupied a great deal of teachers' time and attention, and was a feature of much of teachers' out-of-school as well as their classroom life.

(c) The process of mental planning appeared to increase teachers' confidence about lessons since they could envisage, try out and rehearse aspects of the plans before implementing them.

(d) Teachers were unlikely to plan for more than a week because they seemed to feel that unpredictable intervening factors (schedule changes, unexpected interruptions, need for re-teaching) were likely to make such planning unrealizable. Long-term planning did occur, however, to allow for future scheduling of materials and time. Teachers attributed their emphasis on lesson planning rather than unit or long-term planning on such an emphasis in their teacher education programmes.

(e) A number of constraints on both the process and products of planning were identified by teachers. These included administrative policies regarding subject emphases, time-tabling, and availability of materials.

(f) The researchers noted that teachers seemed unlikely to draw on the ideas and experiences of fellow teachers in the course of planning.

(g) As in previous studies, objectives did not represent an essential feature of planning.

This study by McCutcheon and Kyle focussed attention largely on the products of the planning process, contextual factors that might influence both the quantity and quality of these products, and the pay-off of planning. Less attention was directed to the actual processes underlying planning behaviour. As with preceding studies, the findings served to illustrate graphically the largely untouched parameters of research on this aspect of teaching behaviour.

Finally, in a study that illustrates the likely benefits of a more

'holistic' examination of any teaching-learning situation, Smith and Sendelbach (1979), set out to examine the relationship between literal programme intentions, the teacher's intended approach to the teaching of the programme, the teacher's actual classroom approach, and actual learning outcomes. Match and mis-match may exist between all four of these components, the reasons for which clearly merit attention in the context of curriculum innovation. In an initial report of progress in the study, Smith and Sendelbach described their tentative findings from an investigation of the relationship between a literal programme approach and a teacher's intended approach. A set of procedures were developed initially for the analysis of both programme intentions and teacher intentions. The former required an analysis that would allow a characterization of what instruction would be like if the recommendations or suggestions within the instructional materials were followed literally. Video-tape recordings of teachers' overt activity during planning sessions allowed for use of the stimulated recall procedure to uncover teachers' thoughts, feelings and actions as they formulated their own intentions.

Acknowledging the exploratory nature of the research, the researchers presented a number of findings from this phase of the study:

(a) Teachers developed a surprising detailed awareness of what they intended. Intentions were represented in specifications for the activities that students would engage in while anticipated student responses and actions were also frequently envisaged. Although explicit reference to objectives was infrequent, the researchers suggested that teachers may, in fact, be quite aware of the propositional and procedural knowledge that is intended, despite the fact that it is not consciously distinguished from activity description.

(b) The four teachers could be clearly differentiated according to the match between goals they appeared to have in mind, and those of the literal programme. Similarly, selection and sequencing of teacher and learner activities showed varying levels of deviation from that specified or suggested by the literal programme.

(c) The organization of plans had an episodic quality and this was considered to provide the teachers with a "temporally organized representation of what is expected to happen" (p.11).

(d) The bulk of plans were not documented in written form. Both written notes and materials actually on hand appeared to represent external cues for the retrieval of elements of the plan in memory.

In a second phase of the Smith and Sendelbach study, one teacher's intentions were explored in somewhat more depth in natural classroom circumstances. Findings from this phase indicated that planning associated with a particular teaching episode might occur at different levels on a time scale, and the substance of planning and outcomes varied across these temporal contexts. Deviation from programme intentions was evident in the teacher's plans, and these departures could occur at different levels (e.g. outcomes for activities, form of learner activity), and be intended or unintended. In the latter case, this might follow from the manner in which information was presented in the literal programme, the subject matter knowledge of the teacher, or some combination of these factors.

Although incomplete, progress reports by Smith and Sendelbach on their study provide evidence again of the growing awareness by researchers that an episode of teaching represents an on-going stream of thought and action, and that the source and shifts in the direction of this stream can only be traced by longitudinal investigations of teacher behaviour.

The relationship between teacher pre-lesson plans and interactive thoughts has received specific attention in several studies not reviewed in this section. Given the more holistic approach evident in these studies, their data on teacher planning is best considered in the interactive context. Accordingly, they are treated in the section that follows.

3.1.1 Some Conclusions

Despite the paucity of studies on teacher pre-active planning, a number of significant findings have emerged and these, along with an assessment of the research procedures employed, are summarized at this point.

Methodology: The wide range of data collection procedures used has included questionnaire surveys, teacher recall of planning practices, analysis of teachers' written plans, and participant and non-participant observation of teachers' on-going planning in natural classroom settings. Multiple perspectives and procedures may well be necessary if researchers are to gain an accurate understanding of teachers' planning processes

and products. Possible limitations in planning studies to date include: (i) the use of written plans as a sole data source - they may simply be a memory device; (ii) categorizing planning thoughts at a level of generality that may mask subtle and important features of individual practices; (iii) unqualified use of frequency counts of teachers' statements in written planning records as a basis for inferring the relative importance or difficulty of planning concerns; (iv) lack of ecological validity and possible distortion of usual planning practices where simulated planning tasks are used; (v) insufficient attention to individual differences in planning approaches; and (vi) an overall lack of monitoring and evaluation of data collection procedures.

General Findings:

(a) While ends-means models for teacher planning predominate in the research and teacher education literature, such models do not necessarily match what most typically occurs in real teaching.

(b) Although more research is required, the learner end-states that teachers seem to envisage most frequently are learning task behaviours or activities, rather than the actual learning achievements that may follow from those activities. Apparently, teachers may find it easier to begin planning with a consideration of the possible learning activities that are already within the learners' competencies, and having then established these boundaries, identify the learning achievements that might conceivably follow from them.

(c) The planning of what and how to teach might best be characterized as a problem-solving rather than a decision-making process (Yinger, 1977; Clark and Yinger, 1979). Where elements of a lesson are established routines, they are less likely to be a conscious concern during this problem-solving and can be retrieved from memory with minimal effort.

(d) The planning process itself may become routinized through a series of established procedures that steer the form and focus of planning. Routinized or not, planning appears to give the teacher an opportunity to try out 'in mind' possible specifications for elements of a proposed lesson and to mentally rehearse those specifications that are adopted as a part of the final teaching plan. As a result, teacher confidence to cope with the inherent unpredictability of lessons may be increased.

(e) Despite the points summarized here, planning styles, and the ends to which planning is directed can be quite varied (Clark and Yinger, 1979; Toomey, 1977). The issue of individual differences in planning clearly merits much more attention.

3.2 Teacher Interactive Thinking

The first reported study of teacher thinking within lessons was undertaken by Peterson and Clark (1978). Twelve teachers viewed brief (two to three minutes) video-taped segments of their teaching and responded to a series of questions concerned with their cognitive processes during those episodes. The researchers sought information about what the teacher was actually doing, what was being noticed about the students, whether alternative actions or strategies were being envisaged, and whether any student reactions led the teacher to act differently from the manner planned. The data indicated that the 'path' of conditions and events most frequently represented in segments was one of 'business as usual'. That is, student behaviour was perceived as being inside the tolerance limits of acceptability, and alternative actions or strategies were not being considered. In the second most frequent 'path', the learner's behaviour was considered to be outside of tolerance levels, alternatives were considered, and a decision was made to act differently. Judgement that learner behaviour was not within tolerance limits, followed by consideration of alternatives, and then no subsequent decision to act differently, represented the least frequent path. The findings suggested that the latter was a more likely occurrence where a teacher had in mind and was presumably committed to particular objectives that had been established during pre-lesson planning. These tentative findings closely parallel those reported by Zahorik (1970). In other words, teachers who have done extensive planning may be less flexible in the course of interactive teaching than teachers who have had no opportunity to plan.

Peterson and Clark reported also that there was a moderate correlation between the paths teachers were likely to take and their cognitive aptitudes. It appeared that some paths demanded more complex sequences of cognitive processing and were thus more likely to be followed by teachers operating at higher conceptual levels. These findings, however, were extremely tentative. It should be noted that teachers viewed only a limited number of brief segments from their actual lesson, and selection of these segments was made by the researchers. On this basis, it was not really possible to establish whether teachers were more likely to follow particular 'paths' through an entire lesson sequence. Review of the complete lesson and identification of decision-making or plan modification points by the teachers themselves would have been essential to achieve that end. Where incidents are researcher-selected and teachers are then asked to respond to predetermined questions, the possibility of 'leading' the

teacher may also be heightened.

In one component of the California Beginning Teacher Evaluation Study, Morine-Dersheimer and Vallance (1976) examined the types of decisions made by second and fifth grade teachers who had been previously classified as more or less effective. In this instance, the entire video-tape of a lesson was replayed and teachers themselves identified decision-making points. The researchers found three basic types of decisions: decisions relating to instantaneous verbal interaction (interchanges); decisions related to other decisions made prior to the lesson (planned activities); and decisions to include activities not previously envisaged in pre-lesson planning (unplanned activities). The data indicated that the number of decision-making points and the number of alternatives actually considered at such points were not as high as anticipated (9.6 - 13.9 decisions per lesson, 2.2 - 3.7 alternatives considered). The majority of decisions that teachers made represented interchange or planned decisions, and the decisions were more likely to be concerned with cognitive than with affective aspects of a lesson. No significant relationship was found between weightings for individual teacher's interactive decisions and differences in pupil gain scores.

One of the most intensive studies of interactive thinking undertaken to date was that reported by McKay and Marland (1978). On this occasion, an investigation was made of the kinds of information teachers processed during instruction and the ways in which the information was processed. Video-taped recordings were made of six teachers, each over two one-hour periods in the classroom. Prior to the actual teaching sessions, the teachers were interviewed to establish what goals and plan of action they had in mind. Then, researcher-selected segments of the video recordings (totalling 20 to 30 minutes) were shown to the teachers in order to stimulate their recall of interactive thoughts and feelings. In the review session, teachers were directed to indicate points within the lesson where they could recall thoughts, feelings, moment-by-moment reactions, conscious choices, the alternatives considered before such choices, and the reasons for making particular choices. An eleven category content analysis system was developed to categorize 'thought units' according to their focus or the associated cognitive process.

Although generalizations were precluded by the small sample size and the limited number of lessons from which data had been obtained, this study indicated the richness and inter-relatedness of data that can be uncovered given an appropriate methodology. Some of the tentative findings were:

(a) Nearly 50 percent of all teacher thoughts focussed on tactics that might be employed next and about the events that had already occurred in the lesson.

(b) Decision-making (i.e. choice between alternatives) was not as evident as the researchers had expected. The range of decisions reported per lesson was 3-11, with a mean of 6.8, and the number of alternatives considered on such occasions rarely exceeded two or three. Where alternatives were considered, these seemed to emerge into mind spontaneously, and the propriety of alternatives was rarely considered.

(c) The number of teacher actions planned without consideration of alternatives was somewhat greater. On an average of 21.5 times per lesson, teachers reported planning a tactic to be used without considering alternatives. As the researchers themselves point out, these findings add weight to Phillip Jackson's (1968) observation that the nature of the classroom task environment may allow the teacher to do little more than react to keep up, as opposed to making carefully considered decisions. Thus, McKay and Marland suggested that both the limitations of human information-processing and the constraints imposed by the task environment reduced the applicability of a rational decision-making model for a description of teaching.

(d) There was minimal evidence of teachers monitoring their own actions. In fewer than 3 percent of teachers' thoughts was there reflection on what they themselves had done in the lesson, or on the impact of those actions upon the class. Commenting on this finding - which runs counter to the often stated principle that teachers should take responsibility for monitoring and evaluating their own actions - the researchers noted that "the classroom scene, which presents to the teachers senses such a rapidly changing kaleidoscope of events, prevents the teacher from seeing a clear, stable image of self" (p.10).

(e) The teachers had available, and brought to mind on occasions, an extensive inventory of information about

particular students. Teacher commentary also indicated that they adopted "automatized treatment patterns" when interacting with some of their students on the basis of this store of information. Teachers' interpretations of learners' current cognitive and affective states appeared to be generally based on observations of gross and clearly observable behaviours, rather than upon more subtle and less obvious cues such as facial expressions, gestures and verbal emphases. Interpretations also appeared to be arrived at directly without any associated checking or confirmation of their accuracy or appropriateness.

(f) Conscious attention to pre-lesson plans was minimal in all but one instance. Plans were only likely to intrude into interactive thoughts when deviations that occurred in the course of the lesson threatened plan implementation. The teachers did not appear to consciously bring to mind the components of their plans that provided specifications for the next phase of the lesson. The researchers suggested, therefore, that the planning process effectively programmed a teacher to act in a predetermined way that did not require conscious review of the plan as the lesson was underway. Interactive decisions were more likely to be concerned with relatively specific issues that could not be anticipated, or planned for, in advance of the lesson. Only a very small number of the interactive decisions reported actually represented modifications to pre-lesson plans, and there was virtually no extension or addition to plans.

As well as pointing up these features of teacher interactive thinking, the study indicated that aspects of the mental life of teachers cannot be partialled out and studied as discrete components. Thus, the purpose of interactive thought cannot be appreciated without reference to teachers' pre-lesson thoughts.

This circumstance was noted by Morine-Dersheimer (1979) in an investigation that was one component in the South Bay studies undertaken by Joyce *et al* (1979). Reporting on her study of five primary teachers, Morine-Dersheimer reviewed the relationship between pre-lesson plans and classroom reality. She distinguished shifts in information-processing and decision-

making behaviours that appeared to follow from variations in the extent of discrepancy between plans and the realities that teachers recognized as lessons proceeded. For example, if a minor discrepancy between plan and reality existed, teacher information-processing was described as "reality oriented". A relatively narrow range of information about immediate observable behaviours was attended to as opposed to established images of pupil behaviour patterns. The plan in mind tended to direct the teacher's attention and decisions were made "in flight" without obvious attempts to gather additional information. When discrepancy between plan and reality was more extensive, the teacher's information processing was described as "problem oriented" since in these circumstances the teacher made a deliberate search for a greater range of immediate information about pupils. These observations were not clearly focussed by the plan in mind and decisions might consequently be postponed beyond the point of initial recognition of discrepancy until opportunity for more reflective consideration was possible. In circumstances where the teacher perceived little or no discrepancy between plan and reality, information-processing was described as "image oriented". In these circumstances, pre-formed images of both the lesson (plan) and the pupil's behaviour were likely to result in the use of established, unconscious routines to handle emergent conditions and events. Relatively few on-the-spot decisions would be required.

McNair and Joyce (1978), also took account of the relationship between the quality of the visible acts of teaching and teacher thinking that was concurrent with those actions in their 'South Bay' study. Ten teachers were observed at regular intervals over nine months, the majority of these observations being of their teaching of reading (data was collected from a limited number of other lessons to allow for subject-matter comparisons). Categorization of verbal communications allowed for the identification of "stylistic variations" that could be associated with particular models of teaching and their associated strategies. Overall, the results indicated that a recitation style of teaching most frequently occurred.

Stimulated recall interviews were conducted with each of the teachers for six reading lessons. Two lessons were video-taped in the morning and afternoon of a particular day, and were then reviewed and discussed at the end of the teaching day. The teachers were directed to indicate points in the tape where they could recall thinking while they were teaching, and where they were conscious of making a specific decision about what to do next in the lesson. At the indicated points, the researcher asked a series of questions to seek information from the teacher as to

what was being thought, what was being noticed that prompted particular thoughts, what was decided, whether alternatives were considered but decided against, and what alternatives were considered. Five general categories of teacher concern were identified: pupil concerns, lesson content, procedures, time, and materials. Each of these categories incorporated several sub-categories (e.g. time-pacing, time-block restriction, time-related goal).

The resultant data indicated that teachers varied considerably in the number of concerns that they reported in the course of interviews, and there was also some variation in the number reported over the three interviews. Whether this variation was simply an artefact of the research method, or followed from teacher familiarity with students or other factors, could not be reliably determined. The most frequent focus for teachers' interactive concerns was the pupil and most decisions followed from an assessment of individual students' learning. In descending order of reported concern were the appropriateness of learning tasks, the facts and ideas being considered, and the appropriateness of pupil attitudes, procedural directions, instructional systems and pupil behaviour respectively. Overall, the teachers shared a common set of concerns and attributed a similar priority to them. When the effects of student ability on teacher thoughts were examined, however, teachers appeared to be more concerned with pupil behaviour, the effectiveness of their directions, and the appropriateness of concepts and pupil attitudes when teaching lower ability groups. In contrast, there seemed to be more concern with the appropriateness of the task and with pupil learning in the context of higher ability students. The researchers concluded that the kinds of things the teachers did report noticing and making decisions about were pertinent to, and directed towards, maintenance of a recitation model of teaching. It appeared that teachers had a "reference model" which provided criteria for assessing the appropriateness of learner behaviour and the task at hand, and for judging the necessity for decisions. From the teachers' statements, it did not appear that the model was particularly complex, or likely to be based on a specific theory of teaching. The researchers also noted that their own conception of teacher thinking underwent a shift in the course of this study. A process of "fine tuning" rather than decision-making seemed to be a more accurate description of teacher cognitive activity. This fine tuning process typically involved monitoring of pupil behaviour to assess engagement in activities and adjustment of these activities to maintain engagement, clarification of content, and maintenance of an orderly

classroom.

In respect of methodology, the researchers appropriately acknowledged that it was difficult to determine whether the teachers did recall and report all of their interactive concerns, and that variations in teachers' productivity might be attributed to a number of 'other' factors. The latter included teacher shyness, teacher uncertainty about task requirements, teacher difficulty in clearly describing personal thoughts and actions, and the extent to which teaching actions had become routinized. It should be noted also that the stimulated recall sessions did not take place until the end of the school day, and that the recency of the two lessons to that time and intervention of other pressing concerns were additional factors that could have influenced recall.

The findings of the inter-related studies comprising the South Bay study, together with those from other studies of teaching thinking, provided the basis for a set of specific concepts and propositions about teacher thinking (Joyce, 1979). The research team proposed that several broad phases were represented in teachers' interactive information-processing. These included selective attention to a variable proportion of the flow of cues from students, initial interpretation of meaning (likely to vary in accuracy), judgement of relevance to immediate teacher concerns, and the implementation of either automatic reaction routines or conscious decision-making to act in particular ways if relevance was established. It was proposed that teachers established boundaries or a "problem frame" for these phases of information-processing by establishing teaching and learning activities that generated particular patterns of behaviour, by building classroom social systems that defined the legitimacy of particular behaviour, and by regulating the pace and diversity of patterns of interaction. More specifically, this frame helped alert teachers to particular stimuli, and provided the criteria against which the relevance and appropriateness of stimuli and routine or planned actions might be judged.

It was contended that once such a frame had been set in pre-lesson planning, teacher information-processing during implementation of the plan would be directed towards fine tuning. Although the nature of such fine tuning would vary from teacher to teacher, the frames of individual teachers were unlikely to be substantially modified or abandoned within or across lessons. Joyce suggested, for example, that the predominance of the recitation model in the context of reading, the routinized nature of many of the teachers' actions within the model, and the on-going monitoring to ensure that the model was adhered to, indicated that relatively

strong normative pressures existed within the society and schools to prevent radical departure from the model and the problem frames it established. Finally, it was proposed that most of the important preactive decisions by teachers had a long-term rather than a single lesson focus. Thus, early in a school year decisions might be made about a series of conditions that would significantly shape subsequent decision-making. Decisions about preferred teaching-learning methods, specifications for a classroom social system, and identification of objectives for the overall learning programme, for example, may mean that these aspects are not typically reconsidered on a lesson-by-lesson basis.

3.2.1 Some Conclusions

(a) Studies of teachers' interactive thinking have been as limited in quantity as those concerned with preactive planning. As with the planning studies, however, they have provided sufficient informative data to suggest that the actual mental experience of interactive teaching does not entirely correspond with the reality portrayed or prescribed by many educational theorists and teacher educators. In particular, the view that the teacher can be realistically described as a reflective and rational decision-maker is challenged by the findings of several studies. It appears that the conditions within many lessons, together with the inherent limitations in human information-processing capabilities, are likely to reduce opportunities for the teacher to consciously reflect, deliberate and decide on past, present or future elements of a lesson. In addition, the majority of a teachers' actions are likely to be pre-programmed as a consequence of pre-lesson planning, or occur as established routines that can be implemented automatically. The incidence of decision-making that involves choice between alternatives may be low.

(b) Pre-lesson plans may not be significantly modified as a consequence of interactive thoughts. Rather, such thoughts seem more likely to be directed towards ensuring that pre-lesson plans and established norms for learner behaviour are adhered to. Learner behaviour clearly represents one of the most unpredictable aspects of a lesson and thoughts associated with the monitoring

and modification of this behaviour are most frequently registered.

(c) Both the frequency and the focus of interactive thoughts appear in part to follow from the discrepancies that the teacher may perceive between pre-lesson plans and the reality of lessons. Individual differences in interactive thinking may also be associated with such factors as the comprehensiveness of pre-lesson plans, preferences for particular teaching-learning methods, rules for learner social behaviour, and the teachers' cognitive abilities.

(d) All studies of teachers' interactive mental lives have made use of stimulated-recall procedures. The completeness and accuracy of the data obtained using this procedure is always open to question. There is clearly a need for researchers to examine more rigorously the possible problems and limitations of the particular kind of stimulated recall procedure that they choose to use.

3.3 Teacher Judgements

Both the commonsense viewpoint and several of the research studies previously reviewed confirm that teachers are constantly confronted with the task of making judgements. These may be associated with almost every condition or outcome of a planned or actual teaching-learning episode. In the studies by Yinger (1977) and Joyce *et al* (1979), teacher judgement was studied as one of a cluster of interrelated cognitive processes. In other studies, however, judgement is the central concern of the researchers. Several of these studies that have direct relevance to the present study are reviewed here.

In one component of the Beginning Teacher Evaluation Study, Morine-Dersheimer (1976) examined the judgements made by teachers about the appropriateness of teaching moves that they observed other teachers make in various kinds of situations. Teachers viewed video-tapes of other teachers taking lessons that included content that they themselves had just taught. In interviews they were asked to comment on such features as the observed teachers' general approach to the lesson and the specific teaching procedures that seemed particularly inappropriate and appropriate to them, as well as to make judgements about the relative success and interest of the lessons, the teachers' actual reactions to pupil errors,

efforts to deal with pupil feelings, and the manner in which lessons were personalized. The teachers had previously been differentiated according to their ability to facilitate pupil achievement in special two week units in reading and mathematics. In general terms, the findings indicated that the teachers varied quite significantly in their attribution of quality to particular lessons and the elements about which they took particular note within lessons. The researcher concluded that "what is beautiful to one teacher may not be beautiful to another" (p.50).

The Morine-Dersheimer study focussed on judgements that teachers made when viewing other teachers at work. Whether these teachers would have attended to similar features of lessons, and made similar judgements when evaluating aspects of their own teaching was not established. A more direct approach was evident in a study undertaken by Clark and Yinger (1979), who attempted to capture the "policies" that teachers used themselves when selecting language activities for forthcoming lessons. In the first phase of the study, 'think aloud' protocols were collected from teachers as they selected activities. The criteria used by the teachers in the process were then identified. Activity features related to student behaviour - in particular, those to do with their motivation and involvement-inducing potential - proved to be the most frequently used criteria. Other criteria frequently identified included integration difficulty, fit between purpose and process, and demand on the teacher. A series of descriptions of language activities were subsequently developed that varied systematically on these five features. Teachers were asked to rate these descriptions according to their attractiveness, appropriateness, probability of use, and effectiveness. The results indicated that the five manipulated features contributed differing proportions of the variance in teaching ratings of the activities (0-50%); that teachers varied in terms of the number of these features represented in their judgement policies; and that student involvement (followed by integration difficulty, purpose-process fit and demand on teacher) was the most frequent predictor of teacher judgements. A process-tracing analysis suggested that teachers engaged in a four-step process when making judgements about these activities. First, the teacher tried to understand the activity. Second, s/he imagined using it in the classroom. In the third step, the teacher thought of ways to modify or adapt the activity to avoid problems foreseen in step two. Finally, the teacher created a mental image of the revised version of the activity. Teachers seemed to be judging this mental version when assessing whether each activity fulfilled the selection criteria. This analysis provided confirmation

of elements in Yinger's planning model.

Two other studies have confirmed the apparent importance of anticipated and perceived levels of student involvement and participation as a cue underlying teacher judgements. In a study of the judgements that teachers made when they predicted learners' cognitive and affective achievements, Marx (1978) found that the most frequently used basis for judgements was student participation. The teachers did not, however, identify the specific behaviours which provided indicators for them of level of participation. Joyce, Morine-Dersheimer and McNair (1977), found that level of involvement, along with student personality, were the most frequently used categories for sorting pupils into groups. In descending order of importance, other categories used were student ability and achievement, peer relationships, performance in a particular activity, and student progress.

Shavelson and colleagues have followed up a somewhat different aspect of the judgement process: the judgements that teachers make of learners' "states of mind". On the basis of an initial review of the available literature on this issue, Shavelson and Attwood (1977) identified a number of research questions regarding the occurrence of estimates of learner states of mind, their accuracy, the extent and appropriateness of revisions of estimates as new information became available, and the likelihood that choice of teaching strategy would vary if information was more accurate. In a subsequent study, Shavelson, Cadwell and Izu (1977) examined teachers' sensitivity to the reliability of information when making attributions of causality (ability, effort, exam difficulty, luck) for students' academic successes. A total of 164 subjects read one of 16 different scenarios describing a fictitious student. The information contained in the scenarios varied in terms of reliability and positive or negative value. Subjects rated the extent to which the students' described academic success was likely to be due to one or more of the four possible causal factors. The findings indicated that when the information available about the student was all plausible and positive, (ability, effort) teachers were more likely to discount luck as a contributing factor. When negative information (lack of ability and effort) was presented, luck was attributed more significance. In respect to the reliability of the information, this influenced the likelihood of attribution of performance to ability, but did not appear to affect teachers' preparedness to attribute performance to luck or task difficulty. Whilst acknowledging several limitations in the study (e.g. laboratory context), the researchers suggested that the study demon-

strated a need for teachers to be given the opportunity to examine their beliefs about their own judgement policies, as well as the relationship of those beliefs with policies that they actually used in classroom practice.

3.3.1 Some Conclusions

(a) The findings of studies that include a concern with teacher judgement suggest that teachers may make judgements about the appropriateness, value or acceptability of elements of a lesson on the basis of relatively stable criteria. As yet, however, the extent to which criteria might shift across different contexts and their stability over time have not been extensively investigated.

(b) The limited research evidence available suggests that such gross, surface features of learner behaviour as apparent involvement and participation appear likely to be used as important cues by teachers when judgements about student ability and attitude are made.

(c) For judgements to be described as rational, teachers might be expected to follow up and confirm the accuracy of inferences based on such cues, as above. It appears, however, that constraints of time and opportunity may make such rationality difficult to achieve as a lesson is underway. There is clearly a need for further studies that will provide information regarding the nature and weighting of cues and criteria associated with judgements made during lessons, and to identify the constraints on rational judgement.

(d) The conditions under which pre-lesson planning takes place may allow more rationality in the making of judgements. Certainly, it has been easier for researchers to trace steps that may occur within the judgement process and to identify criteria that may be used in selection of elements of a lesson during the pre-active as opposed to the interactive phase. Again, however, one can only point to the limited quantity of data available, and thus the necessity for further research in this area also.

3.4 Teacher Theories

Almost all studies of teacher thinking have revealed some of the propositions that may characterize teachers' theories of teaching. In the context of teacher planning, for example, the studies by Clark and Yinger (1979) and Toomey (1977) revealed consistencies in teacher planning practices that were accounted for by teachers in terms of their beliefs about effective planning. As Clark and Yinger, delineating an incremental approach to planning observed, "one of our incremental planners explained that she had had unpleasant experiences in the past with making elaborate and detailed plans that 'bombed' because these elaborate plans were inconsistent with student needs at the moment" (p.19). In the studies of McKay and Marland (1978) and Joyce *et al* (1979), propositions that might account for teaching actions that had become established as habitual routines were also identified. Thus, in McKay and Marland's study, the teachers volunteered information about five principles that might shape their behaviour in interactive situations: (a) "compensation of the have-nots"; (b) "strategic leniency"; (c) "power sharing"; (d) "progressive checking"; and (e) "suppression of emotions" (pp.20-23) Joyce (1979) concluded that while the teachers of the South Bay study rarely made reference to particular academic teaching theories when accounting for their interactive concerns and decisions, the consistency of their concerns suggested that they acted within the constraints of some reference frame that established boundaries within which their information-processing occurred. A recitation model appeared to provide such a frame in the context of reading instruction.

Several studies have addressed the issue of whether teachers' beliefs and classroom practises necessarily coincide. For example, Bussis, Chittenden and Amarel (1976) interviewed 60 teachers attempting to implement an 'open education' philosophy of teaching and learning. Some of the questions concerned the extent to which the teachers successfully implemented their beliefs. The researchers concluded that teachers who were more aware of connections between their teaching priorities (beliefs) and planned activities (practice) were better able to implement their beliefs. This conclusion, however, was based solely on the teachers' self-reports of their classroom practices, and the ability of teachers to accurately report their actual classroom practices is open to question (Hook and Rosenshine, 1979). Beck (1976) avoided this limitation in a study of the relationship between teachers' goals and practices. Using information gained from teacher interviews and specimen records of children's behaviours, she examined the beliefs

and behaviour of teachers participating in five early-childhood programmes. She concluded that teachers who were able to state their beliefs or goals clearly were better able to implement those beliefs. In a more recent study, Ross (1979) used a variety of anthropological techniques to identify the beliefs, intents and classroom practices of three kindergarten teachers. The researcher reported that the three teachers differed significantly in their ability to implement their beliefs and these differences could be attributed to at least four factors. Two of these factors were those previously identified by Beck (1976) and Bussis *et al* (1976) - clarity of beliefs and ability to perceive a connection between beliefs and practices. The other two factors were (a) an awareness and thorough understanding of possible alternative practices, and (b) the congruence of the teachers' perceptions of the beliefs of other educators (e.g. school principal, fellow teachers) with the teachers' own beliefs.

In an on-going study (Barr and Duffy, 1978), an investigation was made of teachers' beliefs about the teaching and learning of reading in the classroom, and the relationship between these beliefs, instructional practices and the reading growth of pupils. At the outset of the study, a variety of procedures (propositional sort test, role concept repertory test, observation and interviews) were used to obtain information about teachers' beliefs and practices. Findings from this phase suggested (a) that teachers varied in the explicitness and stability of their beliefs; (b) teachers' beliefs could not invariably be associated with academic theories regarding the teaching and learning of reading; and (c) the degree of match evident between beliefs and practices varied. These findings led the researchers to shift from an approach of attempting to characterize teachers' beliefs and practices in terms of existing academic theories, to one of <u>discovering</u> the beliefs and activity patterns that teachers actually followed. This required the researchers to employ case study and ethnographic methods. Findings that emerged from the revised approach included:

(i) teachers' beliefs about reading may be applied to learners in general or may be differentiated according to particular attributes of learners (e.g. ability, class level);

(ii) opportunities to implement beliefs may be facilitated or curtailed by such factors as school policy and the availability of resources;

(iii) teachers vary in the extent to which they are pre-

pared to adhere to the conceptions of reading implicit in particular instructional programmes that they are mandated to teach.

3.4.1 Some Conclusions

While the number of studies of teacher theories is limited, a start has been made on gathering information about the manner in which the actions of teachers may be shaped by their theories of teaching and learning.

(a) In some studies, examples of specific teacher beliefs have been uncovered, and the possible similarities and differences between teachers on dimensions of these beliefs have been highlighted.

(b) In other studies, some of the general features of teacher theories and their relationship with actual teacher behaviour have been delineated. The features studied include the source of beliefs; the clarity and stability of beliefs; the match between beliefs and actual practices; factors that constrain or enhance the implementation of beliefs; teachers' perceptions of the links between their beliefs and practices, and their actual teaching behaviour; the congruence teachers perceive between their own beliefs and those of others; and the preparedness of teachers to compromise their own beliefs when implementing assigned instructional approaches or programmes.

It is apparent, however, that this research has done little more than point up prospective research issues and associated questions. Given the pervasive influence that teaching theories may have on teacher actions and on the behaviour of learners, the need for a much more substantial research effort is clear.

CHAPTER FOUR

FIELDWORK DESIGN

In the second major phase of the study, the data collection and analysis procedures developed in the exploratory phase were used to gather information about the thoughts and actions of a group of teachers who were asked to plan for and teach three lessons. Details of the research design for this fieldwork are now outlined.

4.1 Sample

The researcher was interested (a) in identifying common and idiosyncratic features in teacher thinking, and (b) in exploring the possible relationship between length of classroom teaching experience and teacher thinking. It was decided, therefore, to select a sample of teachers comprising nine classroom teachers with varying years of teaching experience, and nine student teachers in the final year of their three-year teacher education course. The experienced classroom teachers taught Standard 3 and/or Standard 4 classes (approximate age range of pupils: 9 - 11 years), and were Associate Teachers with whom the Teachers College students were placed for an eight-week period of practice teaching.

The total number of subjects used was determined by several factors. First, the researcher wished to gather data from a teacher group of sufficient size to allow, if appropriate, generalizations to be made about teacher thinking. Second, data was to be gathered for each teacher from several teaching episodes so that the degree of stability for patterns of teacher thinking could be assessed. Third, the researcher was required to take into account both the quantity of data that could be gathered during the period of teaching practice, and an initial estimate of the time required for data analysis.

Permission to negotiate with the experienced teachers was obtained from the regional Education Board, and with student teachers from the Teachers College. The Principals of the schools in which the experienced teachers taught were fully briefed on the study. With the co-operation of the Teaching Practice Co-ordinator at the Teachers College, the researcher identified a group of associate teachers with whom he had had previous professional or social contact. It was hoped that the previous contact with these teachers would help to establish and maintain the open and co-operative relationship that was seen as a necessary ingredient of the research programme. To facilitate data

collection, teachers were selected who were employed in schools either within or in the immediate vicinity of Hamilton.

Each potential teacher participant was contacted individually, given an outline of the purpose and procedures of the proposed study, and invited to take part. All indicated their willingness to participate, without reservation. Once the experienced teacher sample was confirmed, the researcher approached each of the student teachers who had been assigned to their classrooms for the practice teaching block. The students were assigned to these teachers by Teachers College staff and the researcher had no control over this selection. All of the students, however, had been members of a course that the researcher had shared responsibility for teaching, and had therefore had some contact with him. The briefing-invitation procedure with these students followed the pattern used with the experienced teacher sample.

Since the research was to be undertaken during a period when the student teachers' teaching performance was to be assessed by college lecturers, considerable care was taken in explaining to student teachers that no attempt would be made by the researcher to compare or make judgements about their decision-making behaviour. If they had any reservations at all, they were invited to refrain from participating. All indicated their readiness to contribute to the study.

In written briefing notes subsequently given to all of the research subjects, the following statements were made:

> As part of the Teacher Education Research Project at the University of Waikato, I am interested in gaining some insights into the concerns of teachers when they are planning for and taking lessons. In other words, what are the things teachers attend to, think about, feel, make decisions about and actually do in the course of teaching? It is clear that only the teacher can be the source of much of this basic information about teaching, and you will be able to help in our studies by contributing some information about these aspects of your teaching.
>
> I must emphasize that no attempt will be made in the course of this study to compare in a judgemental way, the decision-making behaviours of the 18 participant teachers. To attempt to do so would be presumptuous on my part, for there are no firmly established empirical grounds on which I could base such judgements. My objective is simply to attempt to <u>understand</u> the reality of the conscious experience of teaching for a small group of teachers - each of whom will be a unique person, and all of whom will be teaching pupils who are similarly unique.

The researcher also indicated that participants would hopefully find the experience both interesting and useful.

> The procedures that I am asking you to become involved in have been used previously with a number of other teachers. These teachers have found the experience of involvement in research on this aspect of teaching both interesting and useful. In terms of the latter, all the teachers have commented specifically on the fact that they found themselves becoming sensitized to aspects of their own decision-making behaviour that they had previously been unaware of, and they considered this was beneficial to their own teaching. I hope this is an outcome of your own participation.

4.2 Teaching Tasks

In defining the nature and number of the lessons that would be taken by the teachers, the researcher attempted to fulfill several conditions. First, specifications for some elements of the lessons would need to be prescribed so that it would be possible to examine contrastive features of the teachers' thoughts and thinking about (a) the meaning of particular specifications (e.g. discussion method, 'critical evaluation' learning behaviour); and (b) the appropriate or necessary response to those specifications. The specifications would need to concern only those elements of the lessons that in normal circumstances might well be derived from formal curricula, or be fixed ('routinized') by established organizational and instructional policies (e.g. learning end-states, topics, teaching methods, lesson duration, number of pupils in the teaching group). Within these constraints, the teachers would be free to formulate their own lesson plans.

Second, data would need to be collected for each teacher from more than one teaching episode, so that the degree of stability of patterns of thought across contexts could be examined. The constraints of time available for observation and analysis, as well as the number of teachers in the sample, would allow data to be collected from three lessons only for each teacher.

Third, the specifications for the lessons would need to represent conditions and circumstances that would be typical of those that the teachers might envisage for lessons undertaken in the course of normal classroom events or teaching practice experiences.

Fourth, the prescribed learning objectives and topics for each lesson would need to be appropriate in terms of the children's abilities,

knowledge, experiences and interests. The prescribed specifications are now presented:

4.2.1 Learning End-States and Topics

The directions given to teachers in respect to these aspects of the lessons were as follows:

> In the three lessons that you have been asked to plan and teach, the topic for discussion is 'ADVERTISING'.
>
> The following aspects of the topic should be dealt with in each lesson:
>
> | | |
> |---|---|
> | LESSON ONE | You are to have the children define 'advertising', and distinguish and categorize some of the different types of advertisements that they are likely to be familiar with. |
> | LESSON TWO | You are to have the children identify techniques that the advertiser may use to attract attention to advertisements (e.g. pictures, headlines, jingles) and persuade us that we should buy particular goods or services, or do something (e.g. appeal to needs and feelings, testimonials from the 'man in the street'). |
> | LESSON THREE | You are to have the children critically evaluate the contention that "Advertising is always a good thing". |

The objectives and topics for the three lessons were given to teachers one week prior to the first lesson. Whilst there was a common theme to the lessons, teachers were directed to refrain from planning for lesson two until lesson one had been taken, and similarly for lesson three.

4.2.2 Teaching-Learning Method

Teachers were asked to use a discussion method. The teaching-learning mode however, was not prescribed. There was no condition, for example, that the discussions should be completely teacher-led.

4.2.3 Duration of Lessons

The teachers were directed to plan for a lesson that would last approximately 20 minutes. It was indicated, however, that once underway, lessons should not be arbitrarily stopped when exactly 20 minutes had passed. Lessons were to end at what the teachers felt was an appropriate point.

4.2.4 Teaching Group

The teaching groups taught by the research subjects were restricted to 8 pupils. There was no systematic attempt to match children across the groups according to pre-determined variables. The classroom teachers were, however, asked to select teaching groups for themselves and the student teachers so that each group contained a cross-section in terms of general school learning ability. To provide some confirmation that this criterion had been adhered to, teachers were asked to provide an estimate (using the 1 - 5 point scale) of each child's learning ability, as well as scores for each child on the PAT reading tests.

4.2.5 Resource Materials

Some resource materials on the specified subject matter of advertising were made available to subjects. These materials could be used either as a basis for planning, or as teaching aids within the actual lessons. There was no requirement that these had to be used, and teachers were free to make use of other materials if they wished.

4.3 Research Tasks for Teachers

For each lesson taken, teachers were required to:

(a) make a 'stream of consciousness' written record of their before-lesson planning thoughts;
(b) respond to three written questions about their before-lesson planning;
(c) teach the lesson; and
(d) review and discuss with the researcher, the content of the pre-lesson planning record, the plan questionnaire, and an audio-tape of the actual lesson.

The final procedure in which teachers were involved was a structured interview. This was undertaken when all three lessons had been completed.

It should be noted that the total period of time required for a review of the plan, questionnaire and lesson was a minimum of 1½ hours. Several teachers, particularly those working in afternoon sessions, remarked that they were surprised to find how tiring the sessons were. With a demanding data collection schedule, the researcher also found the sessions quite fatiguing, and had to reduce attempts to keep up with the transcription of tapes (originally, it had been hoped that it would be possible to transcribe the tapes of researcher - teacher discussions daily, so that the thoroughness and adequacy of the interviews could be

immediately checked and any uncertainties resolved by a follow-up discussion with the teacher).

4.4 Researcher Tasks

For each subject, the researcher undertook the following tasks:

(a) Prior to each lesson, an audio-tape recorder was set up in the teaching room (e.g. library, classroom, resource room). It was hoped initially that teachers could work with a wireless microphone so that their physical movement would not be constrained. Technical difficulties, however, meant that a standard microphone had to be used. The researcher did not remain in the room during the course of the lesson. As soon as the teacher had completed the lesson, the children returned to the classroom and the researcher and teacher then reviewed and discussed the pre-lesson planning record, the plan questionnaire and tape-recorded lesson using the procedures outlined above. A second tape-recorder was used to record this interview.

(b) Structured interviews were held with the teachers during the two weeks following the teaching practice section.

(c) Following data collection, one case study was prepared. This required final development of the content analysis procedures and a format for summarizing and reporting the data and conclusions for each case. The steps finally adopted for the preparation and presentation of cases are described in the following chapter.

4.5 Data Collection Schedule

A period of seven weeks was available for data collection. The length of the teaching practice section was eight weeks. Teaching sessions were not scheduled until the second week to allow the student teachers to familiarize themselves with the classes to which they had been assigned. Because the lessons were scheduled to be taken at two-week intervals, this left one week clear to accommodate any lessons that needed to be re-scheduled.

Data collection was facilitated by the fact that experienced teachers

and student teachers were being worked with in the same setting. Thus, it was possible to work with a student teacher in the morning, and then to work with the associate teacher in the afternoon, at which time the student teacher could take control of the remainder of the class. This arrangement allowed the time interval between the actual lesson and the review of an audio-tape record of the lesson to be minimized.

CHAPTER FIVE

CASE STUDY OF DAVID

5.1 Introduction

As outlined in the previous chapter, a complete set of data was gathered from 18 teachers. It soon became apparent, however, that the time required for audio-tape transcriptions, data analysis and interpretation, and the preparation of summary statements would be considerably longer than had been originally estimated. Consequently, the data and findings from six cases only are presented in this report.

The first case (David) was selected on the basis of impressions formed during data collection that some features of David's thoughts and consequent actions seemed to provide a contrast to those reported for teachers in other studies (e.g. his planning thoughts were directed to categories of learning behaviour, and were significantly influenced by explicit commitment to propositions of particular 'academic' teaching and learning theories). Subsequent cases were chosen on the basis of their apparent degree of dissimilarity with those already considered. Thus, after each case had been exhaustively analysed and interpretations and conclusions made, a case that appeared to incorporate additional or different features was selected. In effect, the researcher set out to 'test' tentative conclusions from cases already reviewed, by selecting further cases that were likely to disconfirm or reveal limitations in those conclusions.

To fully detail and discuss each of the six case reports poses presentation problems. Accordingly, the following format has been adopted:

(i) In order to point up the richness and idiosyncratic nature of the research data obtained, the case studies of David and Susan are presented in much greater detail than for the other four research participants. The present chapter offers a detailed and complete report on David, which serves to illustrate: (a) the nature of the research data obtained; (b) the analysis procedures used; (c) the manner in which concepts and propositions were derived from the research data; and (d) the format used for the presentation of the case report.

(ii) Chapter Six reports the case study of Susan in somewhat less complete form, yet offering sufficient data to substantiate the validity of the interpretations and propositions that were derived.

(iii) Chapter Seven then discusses the idiosyncratic and common features in the teaching of David and Susan.

(iv) The features so identified were considered subsequently in relation to data derived from studying the remaining four cases. Although the latter data are not reported in full, Chapter Eight focusses on the major findings that emerged from the serial comparative process of studying cases 1 with 2, then cases 1 and 2 along with cases 3 through 6.

5.2 David: Case Study Format

The description and discussion of the data obtained for David's case falls into four main sections:

(i) Pre-Lesson Planning
(ii) Within-Lesson Attention and Thoughts
(iii) Plan-Reality Relationships
(iv) Methodological Problems

Each of the first three sections first describes the procedures used in the analysis and summary of the relevant data, and then discusses the major research findings. The fourth section discusses methodological issues that need to be taken into account when assessing the 'validity' of case study data.

5.3 David: A Brief Portrait

Deputy Principal of a large city primary school, David had had fourteen years of teaching experience. On one occasion he held a position as a temporary lecturer in Education in a teacher education institution. In the year prior to the study, he completed a Master of Education degree.

David's responsibilities within his school included oversight of all curriculum areas (with the exception of science) for Standard Three and Four classes. In this connection he had "written a philosophy and a programme for teaching language skills, functional language skills, social studies, reading" (Structured Interview - S.I.).

When asked to indicate the level of satisfaction he currently experienced in respect to the day-to-day experience of teaching, David

described himself as *"More dissatisfied than satisfied"* (S.I.). Contributing in particular to that assessment was the *"inability for me to use my own initiative, breathing space, professional breathing space if you like, or make decisions, implement programmes on a school-wide basis"* (S.I.). From David's point of view, this 'inability' resulted from the school principal's resistance to accepting and implementing initiatives in school policy and programming that David had proposed. This source of personal frustration was offset to some degree, however, by the fact that:

> *when I'm in a classroom, when I'm in front of, when I'm teaching kids in the classroom, then I rate as very satisfied...*
>
> *In my case, there's a classroom teaching role; a syndicate role like when I'm in other rooms with other teachers in my Standard Three and Four area; an administrative role of the senior school, administrative role of the whole school. But then of course, school policy and liaison with outside bodies role. And that would be the descending sort of satisfaction.*
>
> (S.I.)

In contrast to his frustrations over school policy matters, David's classroom teaching role gave him decision-making satisfactions:

> *...decision-making is not interfered with or answerable... you've got the instant feedback...you can obviously, on a smaller scale...initiate, generate, initiate ideas and see them flourish.*
>
> (S.I.)

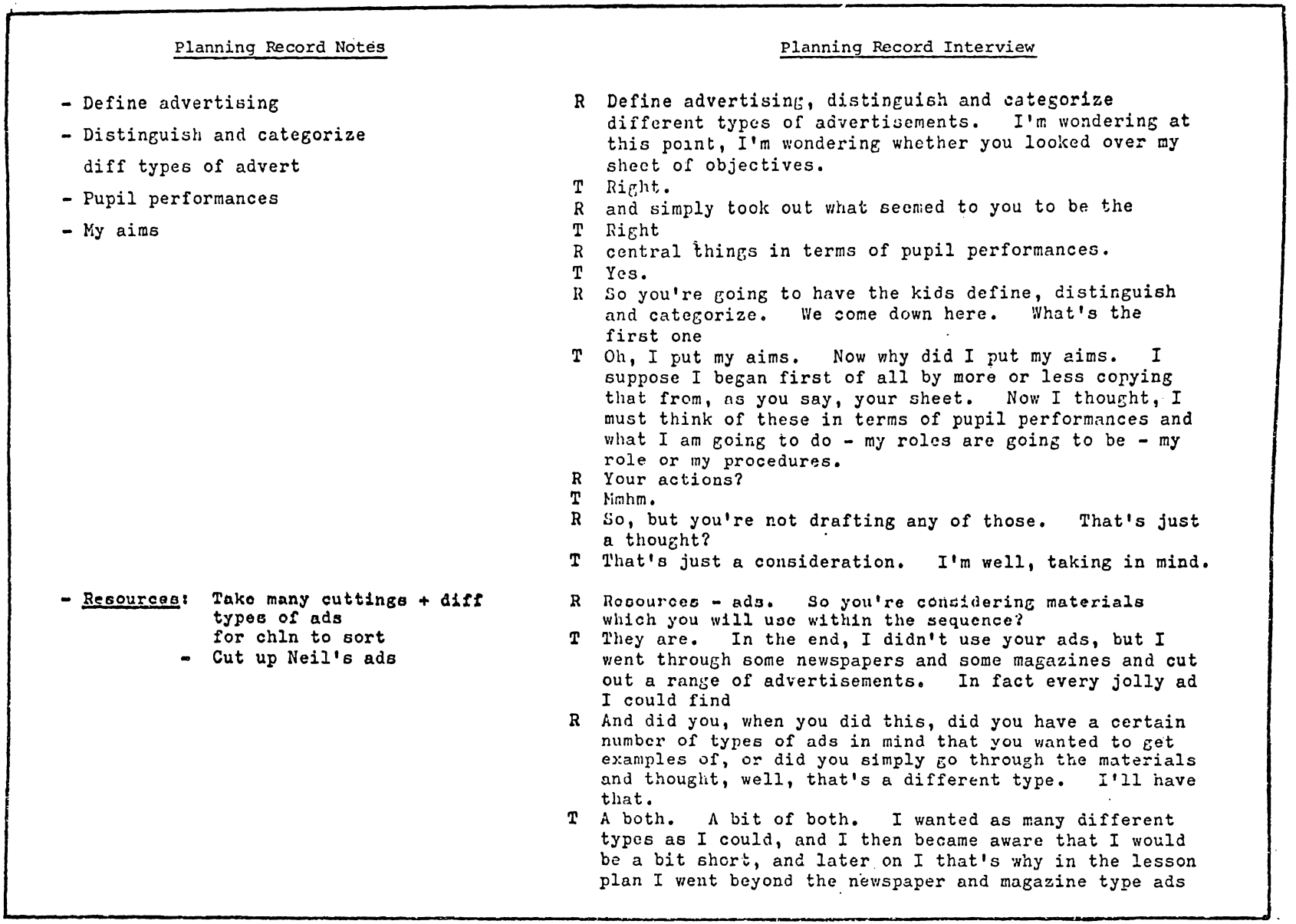
5.4 Pre-Lesson Planning

5.4.1 Data Presentation

Five steps were involved in the summarizing of planning data gathered for each teacher.

(i) The audio-tape record of pre-lesson plan interviews was transcribed, and a written record of the original planning record notes and the associated interview dialogue was prepared using the format shown in FIGURE 11 (p.126). The same procedure and format was used for the plan questionnaire responses and the associated interview (see FIGURE 12, p.127).

(ii) A descriptive summary of the planning experience for each lesson was then written. This provided a convenient means of detailing both the categories of thought evident in David's self-report statements, and the variety of qualitative features that may be associated with those



Planning Record Notes

- Define advertising
- Distinguish and categorize diff types of advert
- Pupil performances
- My aims

- Resources: Take many cuttings + diff types of ads for chln to sort
  - Cut up Neil's ads

Planning Record Interview

R Define advertising, distinguish and categorize different types of advertisements. I'm wondering at this point, I'm wondering whether you looked over my sheet of objectives.
T Right.
R and simply took out what seemed to you to be the
T Right
R central things in terms of pupil performances.
T Yes.
R So you're going to have the kids define, distinguish and categorize. We come down here. What's the first one
T Oh, I put my aims. Now why did I put my aims. I suppose I began first of all by more or less copying that from, as you say, your sheet. Now I thought, I must think of these in terms of pupil performances and what I am going to do - my roles are going to be - my role or my procedures.
R Your actions?
T Mmhm.
R So, but you're not drafting any of those. That's just a thought?
T That's just a consideration. I'm well, taking in mind.

R Resources - ads. So you're considering materials which you will use within the sequence?
T They are. In the end, I didn't use your ads, but I went through some newspapers and some magazines and cut out a range of advertisements. In fact every jolly ad I could find
R And did you, when you did this, did you have a certain number of types of ads in mind that you wanted to get examples of, or did you simply go through the materials and thought, well, that's a different type. I'll have that.
T A both. A bit of both. I wanted as many different types as I could, and I then became aware that I would be a bit short, and later on I that's why in the lesson plan I went beyond the newspaper and magazine type ads

FIGURE 11 : Format for Recording Planning Record Notes and Associated Planning Record Interviews

1. Easiest Planning Decisions:

    1. Once resources found planning

R Once resources...?
T I was uptight about the resources that were involved here. The idea of the relative techniques. I thought, well, we're dealing with an abstract form which I want exemplified in a, in a sort of a labelled or a concrete manner. Now this is, I was uptight about getting advertisements that would show this.
R Clearly?
T Pretty clearly. Yes, that's why I used that little folder, because it's set out there. They obviously pre-selected those as examples of particular techniques. And I thought now, if I get a Woman's Weekly and take a page out of there...
R More at risk?
T Yeah. More at risk because there might be a dozen techniques embodied in one advertisement. And I'd rather pick out ones that, that obviously had one technique at a time, where possible. That's why I chose that book. I was limited to that sort of resource...(indistinct)...a successful strategy and in my first couple of days involved within...would be the use of a suitable resource.
R And then one you had it, then it fell into place relatively easily?
T Yeah. That was easy. Yes. This was all laid out handy. Very easy, easy.

2. Most Difficult Planning Decisions:

    1. Finding evidence of techniques - concrete resource materials for use

    2. Structure - How directive to be

T But that, the most difficult. That was awkward. I wanted to clearly show the techniques.
R You're saying the whole thing revolved around the selection of appropriate materials.
T Yes. That is what bugged me. You know. So I don't feel anyway apologetic. This time yesterday was the first time I got on to this because lunch time and after school the previous days I was as I say wandering around and seeing what we had and asking people. Because I wanted to get, as you say, an advertisement that showed a great strong muscle man that clearly portrayed the beautiful body image without a whole lot of other attributes as well. Now this one here I thought would be most difficult. How directive to be. Now there's no specific question sequence in there, but the point how directive to be worried me.
R You actually, what, go in feeling that you would try to be as non-directive as possible, or did you go in thinking, well, given the materials I'm probably going to have to direct it, or was it a matter of wait and see. I'll wait and see what happens in terms of their responses to the material?
T Right. That exactly. I, I think I said to you before the lesson, I think I made the facetious comment about the question sequences and so on...this was bugging me that so much of it relied on, sorry,...given the children's answers, I knew I was confident that I could be able to handle that with questioning.

FIGURE 12 : Format for Recording Plan Questionnaire Notes and Associated Plan Questionnaire Interview

categories and the planning process. For example, as well as noting that materials had been a category of concern at some point, the record may refer to the exact nature of the materials being considered, feelings associated with this consideration, the length of time spent considering materials, the teacher's views about availability of materials, and the teacher's personal beliefs about materials as an element in teaching-learning situations. It also included a verbatim record of selected teacher statements that the researcher felt were potentially significant and/or illustrative (see FIGURE 13, p.129for an example of a descriptive summary).

(iii) A written summary was then prepared of key features of the plan questionnaire responses for each lesson (see p.141).

(iv) Next, summary charts were developed to graphically display:

(a) the sequence in which elements of the lesson were registered as a conscious and at times recurrent concern; and

(b) the number of occasions on which the teacher turned attention to particular elements.

(v) A transcript of the audio-taped structured interview was prepared.

The data relevant to (iv) above was obtained from the descriptive summaries described in Step (iii), and is illustrated in FIGURES 14 and 15 (pp.130,131).

FIGURE 14 displays the sequence in which categories of thought emerged. Movement from left to right across the grid represents movement on a time line. Where clusters of elements are considered within a common time period, they are recorded in the same column.

	Categories of Plan Elements (Recorded in Same Column)
e.g. *"Then I thought I would ask Tony why this occurred"*	- Teacher Action, Question - Topic Focus - Timing - Participation

Significant intervals of time between periods of planning (e.g. half an hour later, two days after) are demarcated by a hatched column, and the length of time prior to the lesson that particular periods of planning

Lesson Two

David's first planning thoughts were focussed on Materials. He wished to use a different set (Evaluative Criteria - Materials) to those used in lesson one.

> *"I was really hung up on my resources. I didn't want to come back with my newspapers and glossy magazines again. I thought I'd find something different..."*
>
> (PRI - 2)

Conscious concern with this aspect extended over several days prior to the main instance of deliberate planning that proceeded the lesson.

> *"This time yesterday was the first time I got on to this, because lunch time and after school the previous days, I was as I say, wandering around and seeing what we had, and asking people."*
>
> (PRI - 2)

In this period, several options were considered. David talked with colleagues, checked material in a personal language text, and examined materials held in the school library. Several Evaluative Criteria - Materials in his mind dictated and guided this search for suitable resources, and as will be enlarged on later, he was "uptight" about this aspect of the lesson.

> *"I was uptight about resources that were involved here. The idea of the relative techniques. I thought, well, we're dealing with an abstract form which I want exemplified in a sort of labelled or concrete manner."*

The day before the lesson, in a single period of deliberate planning, he formulated an overall plan for the lesson. The prescribed Learning Behaviours were brought to mind, and the possible Response Mode considered (*"list oral or written"* - PR - 2). No decision on response mode was made at this point. Two books that would provide Materials for the lesson as well as a Data Source for planning ideas were then finally decided on. David had not completed the planning previously because of the indecision about material resources that he had been experiencing. The indecision was largely resolved when he came across a package of materials that fulfilled the evaluative criteria in mind.

> *"They obviously preselected those as examples of particular techniques. And I thought now, if I get a Woman's Weekly, and take a page out of there,...more at risk because there might be a dozen techniques embodied in one advertisement. And I'd rather pick out ones that obviously had one technique at a time where possible. That's why I chose that book. I was limited to that sort of thing."*
>
> (PRI - 2)

FIGURE 13 : Sample Descriptive Summary of Planning Experience

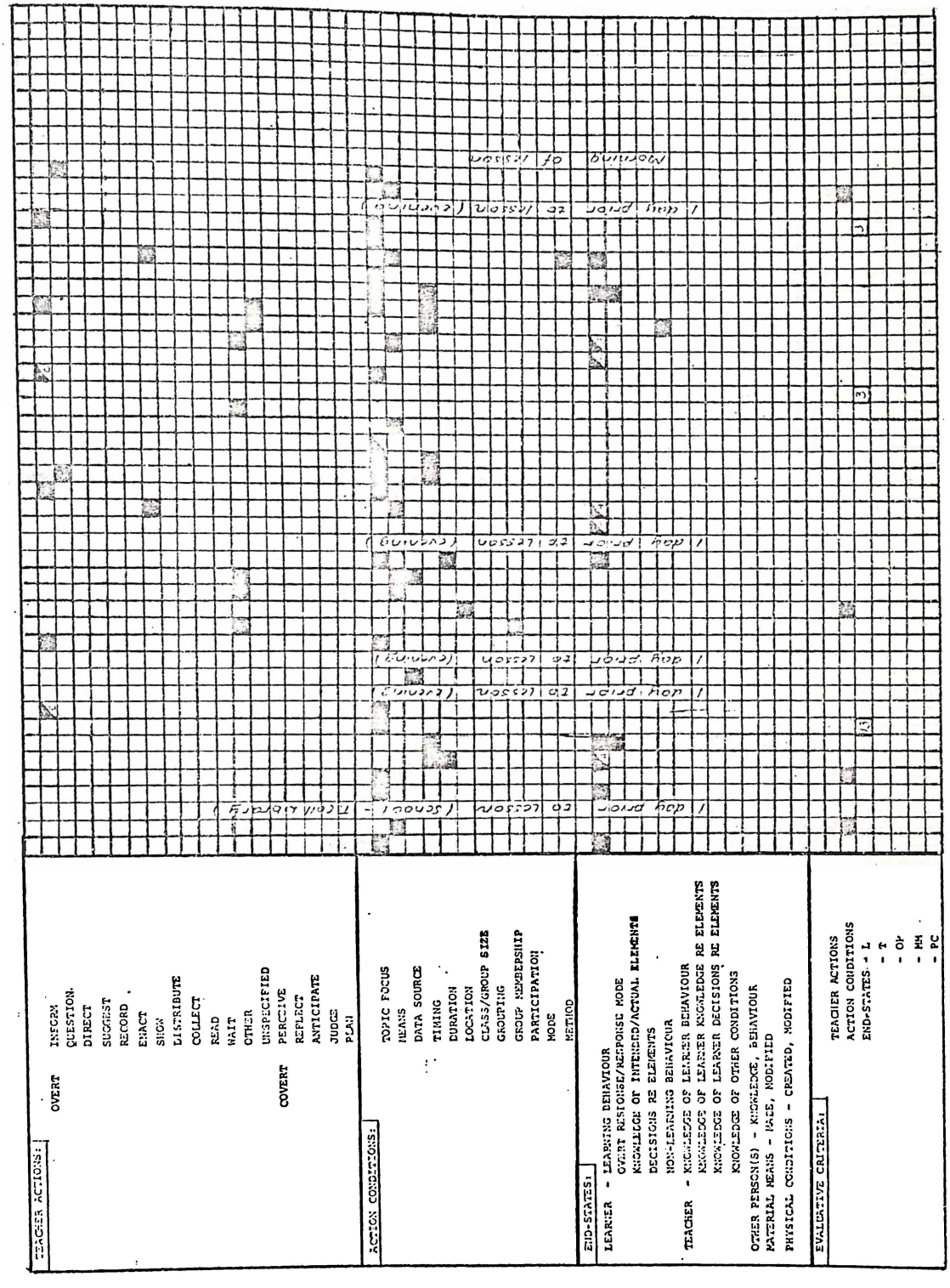


FIGURE 14 : Sample of Chart Recording Sequence of Elements Considered

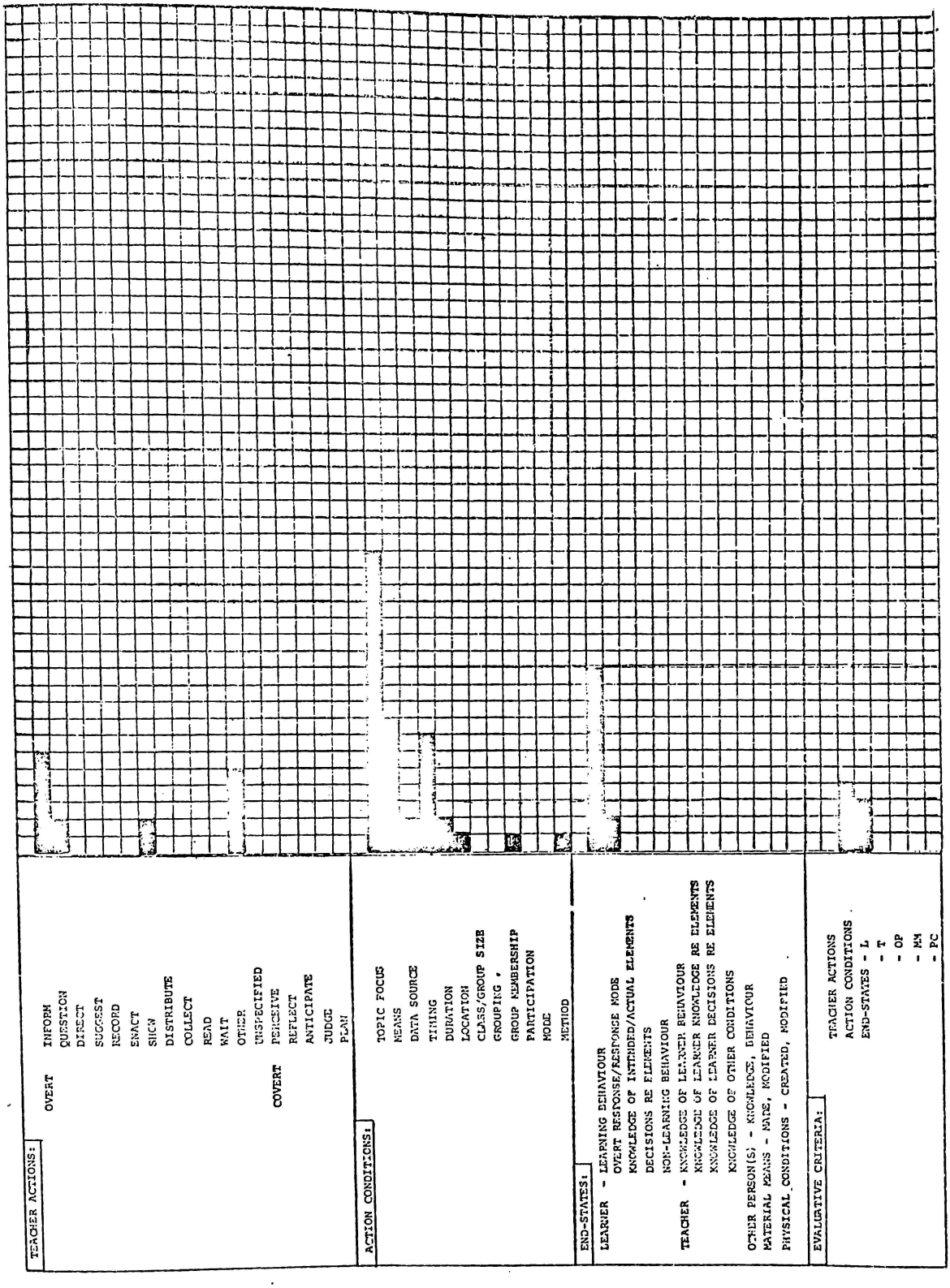
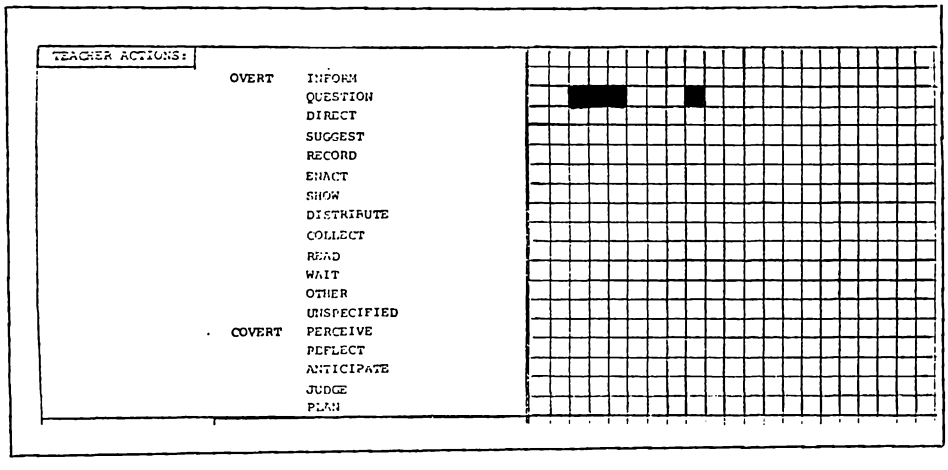


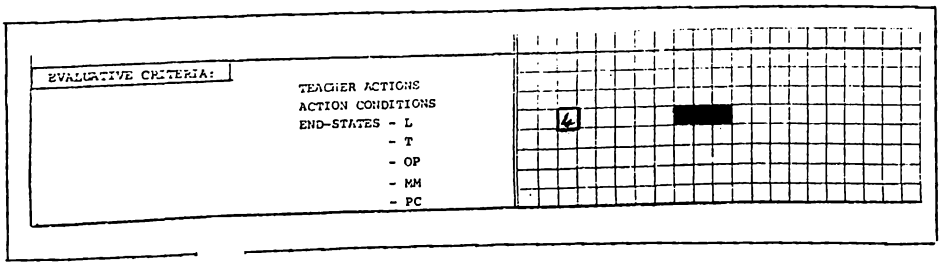
FIGURE 15 : Sample of Chart Recording Frequency of Elements Considered

occurred is also recorded (e.g. two days before lesson).

Two additional conventions have been adopted in recording data in these two charts. First, where a number of questions have been successively considered, the elements attended to in each instance (e.g. Teacher Action, Topic Focus, Timing) are recorded in separate columns in the sequence chart. Thus, this chart provides a record of the number of occasions on which attention was directed to specific questions and associated action conditions. In the example below, the teacher has considered questions on two occasions: on the first, three sequenced questions were scripted; and on the second, one question was envisaged.



Second, where the teacher's attention has been focussed on the content of learner responses s/he hopes to obtain, and specifications for several responses have been brought to mind, the fact that the teacher has attended to this element is recorded only once if there has been no concurrent consideration of other lesson elements (e.g. the order in which the responses were to be elicited has not been concurrently considered). The number of responses considered at that point in the planning process is indicated, however, by a number placed in the square recording attention to the element (e.g. 4). This convention is also applied to occasions where a number of possible topics are successively brought to mind, but the timing for their introduction has not been concurrently envisaged. Thus, in the example below, the teacher on one occasion brought to mind four possible learner responses, and then later, three further responses were formulated.



Similar sequence and frequency charts were prepared for each lesson, as well as a frequency chart to combine data from the three lessons as a group.

It should be noted that these charts indicate only the particular instances where the teacher turned attention to a specific element. This means that the presence and relative frequency of instances cannot be used as a conclusive indicator of the importance of an element, of the difficulty of associated selection or decision-making, or of the time allocated to deliberation. To ascertain these qualities of the teacher's planning thoughts and the planning process, other data records need to be examined.

Note: A complete set of data for this case is presented in the Appendix. Relevant to this section are planning records for Lessons Two and Three, plan questionnaires and plan questionnaire interviews, and the structured interview.

5.4.2 Features of David's Pre-Lesson Planning

This section summarizes features of David's pre-lesson planning. First, a full descriptive summary of his planning for Lesson One is presented to highlight, in detail, some of those features. Second, data contained in the plan questionnaires for the three lessons are summarized. Third, significant commonalities and differences in the content of David's plans and the planning process are discussed across all three lessons.

The contrastive features of David's planning for Lessons Two and Three are documented in the descriptive summaries prepared for those lessons (see APPENDIX D, p.p.374-381), and FIGURES 16 and 17 (pp.134,135).

Lesson One - An Illustration: David reported that his first act of conscious attention to the forthcoming lesson occurred six days prior to the lesson, as he scanned the background notes made available by the researcher. He did not make a written record of his thoughts at that time, but these were 'uncovered' and recalled in the planning record interview. At that time, he noted the prescribed objectives for the lesson (LEARNING BEHAVIOUR),[1] and became aware of some of the possible categories of advertising that might be discussed in the lesson (TOPIC FOCUS).

> (T)[2] *...scanning through the material that you had drew my attention to, sort of the, believe it or not, those little ads. The For Sale ads and so forth were one form of advertising that I thought of. By golly, I must think of those.*
> (Planning Record Interview, Lesson One: PRI - 1)

1 The researcher's categorizations of lesson elements considered by the teacher are indicated in capitals.

2 Teacher statements indicated by (T); Researcher statements indicated by (R).

FIGURE 16 : David: Sequence of Lesson Elements Considered

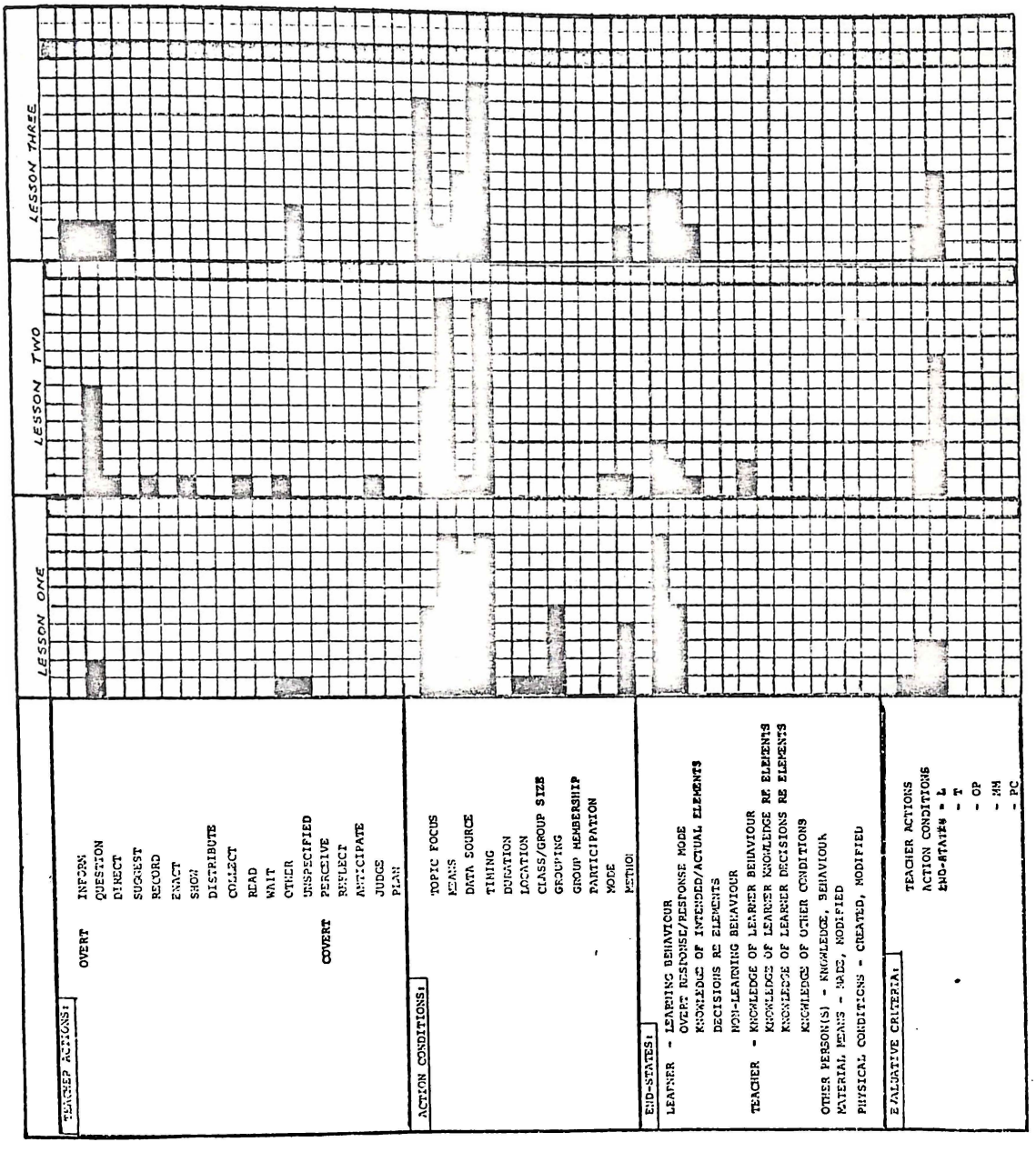


FIGURE 17 : David: Frequency of Lesson Elements Considered

In addition, he considered the possibility of using those notes both for MATERIALS, and as a DATA SOURCE for planning ideas. The latter, however, was rejected at this point.

(T) *...I saw in there it had a sort of suggested approach to advertising. A topic, a way of taking the topic, and I didn't particularly want to be influenced by that. And I left that because I could think of two or three resource books on my desk* (MATERIALS) *now that have got language units for children, advertising that I could have used.*

(R) *For planning ideas?*

(T) *Yes.* (DATA SOURCE)

(R) *You came to that conclusion on this first look at it?*

(T) *I did really.*

(PRI - 1)

A period of three days elapsed, during which he found himself at times considering the necessity to plan for the prospective lesson. Nevertheless, there was *"almost a suppression of ideas until I could put pencil to paper"* (PRI - 1).

(R) *Was it that ideas did occur and you were considering them, or were you finding yourself about to weigh up ideas, but said no, I can't really afford to?*

(T) *I deliberately, maliciously, rejected ideas because of the pressure of work until I could say, now I'll devote my time to this. And I had the security of knowing I would plan something that was suitable for me to teach, and not worrying about thinking about them until this stage, prior to writing them down, or not being prepared to write anything down.*

(PRI - 1)

It was not completely clear from the interview account whether David's thoughts did at times go beyond reflection on the fact that the lesson had yet to be planned for to a conscious consideration, however momentary, of possible elements of the lesson. There was some inconsistency in his responses on this point:

(R) *You found thoughts occurring, but you said, well down...*

(T) *They'll be OK, because when I get the time, when I get writing it out, they'll still be there. I'll be all right. I couldn't afford to. I didn't want to tackle that issue just at, until I'd got something down on paper.*

(PRI - 1)

He did comment that these events would *"...be typical of my under-pressure approach to it* [planning]." (PRI - 1).

David's actual plan for Lesson One was formulated two days prior to the lesson within a period of about 16 minutes. The planning process during this period fell into two phases. In phase one, a number of possible elements of the lesson were envisaged, some of which seemed to have been accepted as necessary or appropriate at the moment of consideration, while for others, no final decision on their adoption or rejection was made. There was some coherence to emerging thoughts in the sense that they were formulated in a sequence that reflected the likely course of events and conditions within the lesson. Thus, there was consideration of TIMING within this phase.

David's initial thoughts were directed to the LEARNING BEHAVIOURS (COGNITIVE) that he hoped to facilitate. Reviewing the researcher prescribed objectives for the lesson for a second time, he explicitly identified three categories of learner behaviour.

- Define advertising
- Distinguish and categorize diff types of advert

(Planning Record, Lesson One: PR - 1)

Thoughts about TEACHER ACTIONS (UNSPECIFIED) and EVALUATIVE CRITERIA for TEACHER ACTIONS were also registered at this point:

> *I must think of these* (OBJECTIVES) *in terms of pupil performance and what I am going to do, my roles are going to be, my role or my procedures...That's just a consideration I'm well, taking in mind.*
>
> (PR - 1)

David's attention then shifted to MATERIALS (sample advertisements) that might be used in the context of one of the learning behaviours. He also envisaged here, SELECTION CRITERIA for these materials ("many" and "different") and an associated TEACHER ACTION (OTHER) (*"Cut up Neil's ads"* PR - 1).

His attention reverted to a LEARNING BEHAVIOUR ("Categorizing") and he concurrently contemplated the possible GROUPING of children (*"Each child or pairs?"* PR - 1), EVALUATIVE CRITERIA - LEARNER BEHAVIOUR (*"discrete groups"* PR - 1), and RESPONSE MODE (*"orally or written labels"* PR - 1).

OVERT RESPONSES from the children were envisaged as the next possible feature of the lesson (TIMING). They would *"share ideas"* PR - 1 (DATA SOURCE), an activity that would return the children to a full group (GROUPING).

Continuing consciously to formulate successive lesson events (TIMING), a further LEARNING BEHAVIOUR ("group") was considered. Adjunct MATERIALS/

DATA SOURCE ("labels") and EVALUATIVE CRITERIA (*"into different types of ads"* PR - 1) for the task were associated thoughts.

A possible TEACHER ACTION (QUESTION) and associated TOPIC FOCUS were the next elements to which David turned his attention. The question in mind was not scripted. Mentally noting the general sequence implied by his preceding planning thoughts (TIMING), he formulated a further TEACHER ACTION (QUESTION) and TOPIC FOCUS (*"What is advertising?"* PR - 1). Further elements then considered by David included GROUPING, GROUP SIZE, LEARNER OVERT RESPONSES, and TEACHING-LEARNING METHOD (*"...the possibility of that question, what is advertising being discussed with two groups of say four, and coming back and sharing,"* PRI - 1). At this point he recorded his concern about the possible domination of the more vocal pupils (*"Would I then get a definition from the most vocal member as the group response - the so-called group response?"* PRI - 1). (Note ANTICIPATION).

David's thoughts then moved on to a possible TEACHING-LEARNING STRATEGY, and he recorded the fact that the strategy envisaged was an "inductive" one. In discussion he indicated that such terminology was a normal product of his planning thoughts.

The next planning record statement referred to *"Neil's expectations"* (PR - 1). David's comments on the meaning of that phrase merit reporting in full:

> *(T) Two or three things really. One that I would want to be teaching well. That would be important to me. That I be teaching well. Secondly, that I should be using a reasonable repertoire of teaching techniques. I thought my...I would be more conscious of questioning techniques than I might be otherwise, because it was for Neil. That, the third was that it should go off, because I'd let you down on a pilot thing like this, and that this time it was going to make the grade and you were going to get your goods because it was about time you did...Now that's, that by the way would be...other people's expections are always a consideration in my planning. Not just because it's Neil, but, the other peoples' plans I did in the weekend as well also.*
>
> *(R) You were sensitive to others who were going to be involved in whatever way?*
>
> *(T) Yes. Right.*
>
> (PRI - 1)

These comments suggest that David's teaching might have departed from 'normal' because of his research involvement. In terms of such specific elements as questioning, however, there was no obvious evidence of atypical concern with that aspect of teaching behaviour, at least in the planning phase. He subsequently recorded his feeling of being under pressure in

respect to the demands and pressures he was currently experiencing as a teacher, and his associated concern with *"doing justice"* (PRI - 1) to the lesson. Queried about the possibility that he did put more than usual time and effort into his planning, he responded, *"There is nothing very much out of the ordinary there"*. The reported pressures (*"Spent most of the weekend on school work"*) may have helped ensure that the time allocated to planning and preparation for the lesson was not 'out of the ordinary'. LOCATION and TIME for the lesson emerged as the final conscious concerns in this first phase. Final specifications for both aspects were not, however, made at this time.

In the second and final phase of this period of conscious deliberation on the lesson, David made a set of decisions that appeared to bring the embryonic plan to a state of maturity. He confirmed within the plan interview that a final review and drafting stage (*"But here I just drove through and mentally ordered this"* [referring to preceding planning thoughts], PRI - 1) was a typical step within the planning process.

His opening thoughts in this second phase were again centered on LEARNING BEHAVIOURS. These were now formulated in terms of learner performances:

1. Objectives:
   (i) Distinguish and categorize diff types of advertisements from selection given
   (ii) Having reviewed diff type of ads pupils will define advertising.

(PR - 1)

In the first phase, his thoughts had centered on objectives, and the necessity (in his mind) to *"think of these in terms of pupil performances"* (PRI - 1). In response to questioning regarding this repeated and now more detailed attention to learning end-states, David stated:

> *(T) That's* [OBJECTIVES] *always my starting point. It's always a starting point. I always come back to that.*
>
> (PRI - 1)

His attention moved to MATERIALS that would be used within the lesson, and then, under a heading of 'Procedures', he recorded his successive consideration of five LEARNING BEHAVIOURS, as well as a number of associated action conditions.

e.g. *Pupils individually to sort cuttings and write captions to label each category.*

Discuss and justify personal groupings.

(PR - 1)

The clusters of specific categories of lesson elements represented in this succession of thoughts were as follows:

- LEARNING BEHAVIOUR (COGNITIVE), GROUPING, OVERT RESPONSE, RESPONSE MODE ("write") MATERIALS/DATA SOURCE ("cuttings"), MATERIALS ("captions"), TIMING
- LEARNING BEHAVIOUR (AFFECTIVE), DATA SOURCE ("each others' groupings"), TIMING
- TEACHING-LEARNING METHOD ("discuss"), LEARNING BEHAVIOUR (COGNITIVE), DATA SOURCE, TOPIC FOCUS, TIMING
- LEARNING BEHAVIOUR (COGNITIVE), OVERT RESPONSE, RESPONSE MODE (Enactive), MATERIALS/DATA SOURCE ("labels"), GROUPING, TIMING
- TEACHING-LEARNING METHOD, MATERIALS/DATA SOURCE, EVALUATIVE CRITERIA (*"one agreed definition of advertising"* PR - 1), TIMING

This sequence of planning thoughts reflected the envisaged course of the lesson.

Commenting on one instance where he had considered overt responses and response mode David reported having a clear scenario in mind for the sequence of responses the children were intended to make.

> *(T) ...the first pair laid their's out in a line along the room, and when the next pair came in, if they had some that were the same label, they just put them on top of the pile of the cuttings with the label. Otherwise they added to this.*
>
> *(R) So the actual procedure you're describing, of the kids laying them out, and the others coming in and overlaying them, where necessary, was actually thought through?*
>
> *(T) Yes.*
>
> *(R) as part of that statement?*
>
> *(T) Yeah.*
>
> (PRI - 1)

Although he hoped that the children would be able to agree on an adequate definition, David did not have the content of that desired definition in mind. Once the five 'steps' for the lesson had been laid out, this period of planning ended.

Planning thoughts next occurred on the following day (one day before the lesson). At this time David implemented a previous planning decision: preparation of a set of MATERIALS (sample advertisements). Most of the thoughts that one may infer that he had during this period of activity were unfortunately not recorded. It appears, however, that there were SELECTION CRITERIA in mind to govern the choice of materials:

(R) *And did you, when you did this, did you have a certain number of types of ads in mind that you wanted to get examples of, or did you simply go through the materials and thought, well that's a different type...I'll have that?*

(T) *A bit of both. I wanted as many different types as I could and I then became aware that I would be a bit short, and later on I...that's why in the lesson plan I went beyond the newspaper and magazine type ads into other forms of advertising. But I wanted to get a wide range there.*

(PRI - 1)

In the interview, he also recalled having thought at that time that a "full span of advertising" might not have been represented in his "own knowledge", and the sample advertisements he had gathered.

(T) *I was thinking more there were forms that they probably wouldn't come up with from doing that that we could also discuss.*

(R) *I see. So in a sense you were thinking of another TOPIC, were you? Categories that weren't represented in those ads?*

(T) *Yes.*

This concern that a range of categories be discussed re-surfaced on the morning of the lesson when David felt that he should have *"some more sample advertisements on hand"* to get a *"range"* (PRI - 1). At the same time, it can be noted that he did not endeavour to bring to mind a number of categories of advertising that he would try to elicit from the children or present directly to them:

(T) *What would have been clearly in my mind at that stage would be that the children should categorize. That would be paramount*

(R) *Without weighing up...*

(T) *That I didn't have the complete classification of all ads didn't worry me.*

(PRI - 1)

He added, when making these comments, *"If I was teaching by an Ausubelian approach, I would have come in with a complete set."*

The Plan Questionnaire: When David had completed his planning for each lesson, he completed a questionnaire that focussed on the relative ease of his planning, his predictions of the likelihood that the lesson would go as planned, and his anticipations concerning the ease with which he would be able to implement the plan. His responses to the questionnaire are now summarized.

(i) Easiest Planning Decisions:

For Lesson One, the adoption of a teaching strategy ('inductive') was considered by David to be the easiest decision. This response was consistent with his expressed general commitment to use of such a strategy (see p. 146). In the context of Lesson Two, apart from the selection of material resources, planning of the overall lesson was seen as relatively easy since succeeding teacher and learner activities were largely shaped by the resources finally selected. In contrast, for Lesson Three the easiest decision-making was associated with material resources. In David's words: *"This* [lesson] *was going to be largely ideas"* (Planning Questionnaire Interview: PQI). These data suggest, then, that factors which may facilitate the planning process for David include the routinization of specifications that follows from commitment to particular teaching-learning theories, the availability of material resources that provide an immediate source of appropriate planning ideas, and the absence of a need to plan specification for material resources.

(ii) Most Difficult Planning Decisions:

There was no obvious consistency in the decisions which David reported finding most difficult. For Lesson One, no difficulties in fact were encountered. The actual time taken to formulate the main elements of the plan (approximately 16 minutes) seems to bear out the relative ease of planning on this occasion. Within the questionnaire, David did note that he had not been able to decide whether the children should work individually, in pairs, or as a complete group. Whilst not considered a difficulty (*"It didn't really matter to me which one it was"*), he observed *"I think I would have liked to have had it clear in my mind before I took the lesson"* (PQI). This may point to a preference for ensuring that final decisions are made in advance of the lesson when such alternatives have been envisaged. He also recorded again the 'personal tension' he experienced in undertaking the planning he felt the lesson demanded as well as meeting other demands on his time and effort; i.e. the more general difficulty of finding opportunities for planning. This observation raised the general issue of the adequacy of time available for planning, particularly where teachers are in positions of administrative and professional responsibility.

The 'difficulties' noted for Lessons Two and Three centered on several aspects: the selection of suitable material resources; how 'directive' to be; and the possible place two key words might be discussed so that the lesson topic and criteria for learner responses would be made clear to the

children. As already suggested, the availability of suitable material resources as well as the teacher's preparedness to seek them out may be key determinants of the relative ease of planning.

David spontaneously indicated that the planning of Lesson Three proved more difficult than for the preceding two lessons, and it can be noted that there was no obvious point during planning where a clearly delineated sequence of actions and conditions was 'mentally' laid out. Planning record notes suggest that both the 'level' of the specified learning behaviour ("evaluate"), as well as aspects of the general topic focus for this lesson, were factors that contributed to the greater difficulty experienced on this occasion.

(iii) Aspects of Lessons Most Likely to Go as Planned:

Overall, the aspects of the lessons identified as most likely to go as planned could be demarcated in terms of teaching-learning mode. The control of the lessons when these aspects were to be implemented or facilitated lay very much in David's hands and, as a consequence, there may have been more predictability in respect to the children's behaviour. For example, in Lesson Two David stated that aspects of the lesson in which he would necessarily be "directive" (e.g. giving directions) would be most likely to go as planned. In the aspect identified for Lesson One, one feature of David's actions was likely to be and did consist of directions to facilitate a key learning task (the children were to sort and categorize sample advertisements). Finally, for Lesson Three, he noted a phase of the lesson that involved teacher-directed review and discussion of the children's responses to a task they had completed prior to the lesson.

(iv) Aspects of Lessons Least Likely to Go as Planned:

Underlying the aspects identified for Lesson One and Two was uncertainty on David's part about likely learner responses. Thus, there was a concern in both about the labels or terms that might be used by the children when they categorized types or techniques of advertising. This concern was based on David's sensitivity to the fact that more than one term or label might be appropriate and there might be a difference between the terms that he had in mind and those offered by the children. In addition, for one lesson the likelihood of the children reaching an agreed definition was considered limited, as was the prospect of an uninterrupted lesson. The latter followed from the fact that the lesson was to be taken in the school library. For the remaining lesson, the least likely element at the time the questionnaire responses were recorded was the possibility (not finalized) of the children doing a role-play. Sub-

sequently, but prior to the lesson, David decided to suggest to the children that they could prepare a role-play in advance of the lesson. This pointed up the fact that an end-point to pre-lesson planning could not be readily anticipated by the teacher.

(v) Easiest Aspects of Plans for Teacher to Implement:

David anticipated that management of social and on-task behaviour would be the easiest aspect for him to undertake in the context of Lessons One and Two. As there were no planning thoughts specifically associated with this concern, his response really represented recognition that this was an aspect of the lessons that he could cope with without the necessity for pre-lesson planning. For Lesson Three, no aspect of the plan was noted as being more obviously easy to implement.

(vi) Most Difficult Aspects of Plans for Teacher to Implement:

Difficulties were predicted for the first two lessons. No aspects were envisaged as being necessarily more difficult for the final lesson. The difficulties noted by David included getting the children to reach a consensus on appropriate categories for sample advertisements if they used different labels to name similar groupings; having the children undertake an application task at the end of the lesson if their motivation proved low; handling the questioning (formulating "the right questions") associated with selected sample advertisements; and coping with the 'blanking' out of particular advertisements. Two general forms of difficulty can be distinguished here. The first two noted above were 'conditional' on the uncertain behaviour of the children and did not appear to have been linked in David's mind with specific teaching actions that he might need to undertake. There was a generalized expectancy of possible difficulty in acting effectively. In the case of the other two reported difficulties, David referred directly to his capacity to produce specific teacher actions. It can be noted, however, that anticipated difficulties in questioning were not associated with any additional attention to this element during planning, and a lesson interview comment indicated underlying confidence in his ability to formulate appropriate questions 'on the spot' - even when the children's responses could not be predicted.

> *I think I said to you before the lesson, I think I made the facetious comment about the question sequences and so on. This was bugging me that so much of it relied on...sorry. Given the children's answers I know I was confident that I could be able to handle that with questioning. But I needed badly to have first of all some children's answers, because I was relying on that.*

It is interesting to note that in commenting retrospectively on the actual lesson, David deemed question ing to have been a difficult aspect of the lesson to handle. As a difficulty, however, questioning involved adequately translating a planned question (*"What techniques is the advertiser using"*) into appropriate terms for the pupils, rather than formulating additional questions in the course of the lesson.

Content of Lesson Plans: Several summary observations about David's plans can now be presented. They are discussed in the context of other statements he made in the course of the structured interview when his 'typical' approach to planning was discussed.

David's concerns during planning as well as the content and form of the plans finally formulated, appear to have been particular influenced by four factors:

(a) Belief that the teacher should establish and specify with some clarity the learning end-states that he wishes to facilitate.
(b) Commitment to the propositions of a theoretically based teaching-learning strategy.
(c) The need for security within the moment-by-moment activity of interactive teaching.
(d) The view that 'justice' cannot be done to such teaching-learning situations without pre-lesson decisions about certain elements of a lesson.

Learning End-states were prominent in David's thoughts during planning: over the planning for his three lessons, he reported his attention being focussed on learning behaviour on 18 separate occasions. It is important to interpret this statistic, however, with several qualifications in mind. First, on each of the reported occasions, David's attention was directed to a varying number and range of categories of learning, for varying lengths of time. Second, the figure does not denote the degree of concern, difficulty, ease, or satisfaction that David experienced in considering learning behaviour on each occasion.

For each lesson, the prescribed learning behaviours were explicitly considered at the outset of David's attempts to develop a coherent plan for each lesson, and in a number of instances, these and additional behaviours represented the element demarcating succeeding phases of the lesson. The fact that the key learning behaviours for each lesson were prescribed by the researcher probably accounts for the fact that this element did not represent a 'difficult' planning concern for these lessons.

The response mode was also envisaged on occasions, and in Lesson Two in particular, the criteria for correct or acceptable learner responses were considered and specified. In the structured interview, David noted learning objectives ('child performance objectives') as one of the elements that he believed almost always received conscious consideration when he made plans for discussion lessons.

In commenting on features of the planning process and plans, David's statements indicate his knowledge of and intent to implement a teaching-learning strategy having a basis in learning and teaching theory that he became familiar with in the course of graduate study and the teaching of such subject matter during his period of secondment to the staff of a teacher education institution. In particular, the propositions of Taba's teaching-learning theory provided a basis for the selection and sequencing of learning and teacher actions. For example, when describing the pattern of planning he typically adopts for Social Studies lessons incorporating a discussion method, David noted:

> *I have a main idea, outcomes. I certainly list my data-gathering and processing, and possible generalization on a planning sheet.*
>
> (S.I.)

In the course of discussing the reasons for formulating particular questions prior to a lesson:

> *I think it's two-fold. One a belief in putting it on some sort of cognitive basis. I know it's an assumption, but all the same, the idea of shaping children's thinking. Not shaping, shaping the process, or controlling the process by ensuring the children have the data to work with first of all.*
>
> *(R) You're really saying there's a theoretical basis for what you do?*
>
> *(T) Oh, most certainly. Oh, heavens yes.*

and

> *(T) The discussion one, to me, almost inevitably means that the children will be presented with or directed toward a whole lot of data which they will process by means that I've pre-determined, to come to a certain generalization, or generalizations.*
>
> *(R) And that can operate in Social Studies, Science, across a range of subject areas really.*
>
> *(T) Yes, yes. But there are times when I teach social studies or science by some other method. There are times, but I'm not using discussion then.*

In association with these comments, he indicated that any questions generated prior to the lesson would usually fall into a pattern or sequence that is based on the Taba strategy.

Additional evidence that his planning is, in fact, considerably influenced by commitment to this model comes from the planning record sheets developed and used on an almost daily basis by the teacher. He described the one for Social Studies as being *"ruled up Taba-like"*. (See FIGURE 18, p.148).

Associated with the Taba model is preference for an inductive approach. Accepting such an approach means that in the course of discussion, learners are given the task of operating on a set of data (teacher or learner selected) and processing it according to teacher-defined operations. Apart from Lesson Two, the evaluative criteria for answers produced by the children carrying out these operations were not usually predetermined. Thus, in Lesson One David did not have in mind a set of categories of advertising that he wished the children to produce as responses. Similarly, for Lesson Three, a complete or finite set of good and bad aspects of advertising had not been envisaged in advance of the lesson. Several examples of good aspects had, however, been considered. David intended to give these himself as examples. For these two lessons, there is little evidence in the record of the planning process, of David deliberately reflecting on his own knowledge of the subject matter and bringing to mind a series of specific responses that would be sought or accepted from the pupils.

Discussing the fact that he had not drafted a set of categories of advertising to deliberately focus on or to attempt to elicit in Lesson One, David stated:

> *What would have been clearly in my mind at that stage would be that the children should categorize. That would be paramount.*
>
> (PRI - 1)

> *That I didn't have the complete classification of all ads didn't worry me in the slightest.*
>
> (PRI - 1)

> *But in this case it didn't matter. But what did matter was that children should categorize.*
>
> (PRI - 1)

In the course of discussing his pre-planning of questions, the following statements were made.

> (R) *...when you're actually going in there with that type of question in mind, have you in a sense worked out the answer?*
>
> (T) *Oh yes, except for. Yes. Yes, I think...*
>
> (R) *Or there may be in a sense a performance objective associated with that?*

	Focussing Question	Lesson	
OBJECTIVES	QUESTIONING SEQUENCES	LEARNING ACTIVITIES	LESSON MOVES
Knowledge: Attitudes: Skills:	Data Gathering: Data Processing: Generalising:		1. 2. 3. 4. 5. 6.

FIGURE 18: David:Social Studies Planning Record.

> *(T) Right. That children will come to this. Well, children will give an answer to the question, to the question 'Who will have power in 2078?' Now I can't envisage all their answers, but at least I have that in mind, so that they will offer some sort of generalization.*
>
> (S.I.)

David's perception of this aspect of his planning are borne out by the evidence of the plans constructed for Lessons One and Three.

In the context of Lesson Two, the situation is rather different. The data source for the discussion was primarily teacher-selected, and both the learner performances and the content of hoped-for learner responses were prescribed. Teaching-learning mode was, however, also a matter of concern. The decision was made to *"do it from an inductive approach"*. As is discussed in the more detailed review of this lesson, David considered that he could *"leave it more open to them generating the possibilities...or I can close it up tight"* (PRI - Lesson 2). Teaching-learning mode, strategy, and source of data were apparent, then, as factors likely to intrude into his consciousness in the course of planning, and to lead to some consistency in the format and content of the plans.

Prescription of teacher actions was mainly limited to a specification of questions that would initiate a shift in learner performances. The number of questions actually considered and formulated prior to each of the lessons was relatively limited. In Lesson One, two general categories of learner performance were to be facilitated in the course of the teacher-led discussion, and two questions were formulated. In Lesson Two, one key question that was formulated was to be repeated as a succession of materials were presented to the pupils. Four additional questions were also explicitly considered, and each of these correlated with a different category of learner task behaviour. In Lesson Three, only one question was considered prior to the lesson.

David commented on his use of questions within the lessons on a number of occasions. In the structured interview he indicated that questions were a further element of discussions that almost invariably received some attention. At the same time, in other comments he indicated some assurance about his ability to generate appropriate questions 'on the spot' as the lessons were underway.

> *given the children's answers, I knew, I was confident that I could be able to handle that with questioning...*

...now I thought, once I get started, I'll be able, my questioning techniques will be such that I'll be able to handle it.

(PQ1 - Lesson 2)

At least some of the difficulties encountered in the lessons, were, however, attributed by David to his inadequate attention to questions during pre-lesson planning. Referring to the social studies planning sheet (FIGURE 18) David also noted that he would typically have generated some questions in advance of 'discussion' lessons, and recorded these on this sheet. The sequence for the questions would represent a 'Taba" sequence.

A 'security' consideration was acknowledged as one reason for the planning of at least some questions. He elaborated on this factor in the following statement:

It gives me personal security. In the situation...that it's there. I know what my next move is likely to be, even if I do perhaps follow something else. And yes, yes. The other thing is too. If I just put in my work book, 'who has the power', and I'll think, so and so, if I did this after lunch, I don't feel...I'm scared that I'll (a) won't do justice to it, and secondly, that I'll live to regret it afterwards. You know, that I haven't thought of all the things that I could have said, or could have done. That's going to happen anyway, but all the same.

(S.I.)

David's thoughts about particular elements of the lessons were often concurrently associated with consideration of their timing. As will be discussed in more detail later, for each lesson he ultimately established a plan which provided a script for a sequence of actions (teacher and learner). It can also be noted here that on half of the 21 separate occasions on which prospective topics were envisaged, the topics were identified as a component of the specifications of teacher actions (particularly questions).

Resources were noted during the structured interview as a third likely concern in pre-lesson planning. In the lessons, material resources represented a source of data for the learning tasks and an adjunct to either teacher or learner actions (e.g. recording sheets, pens etc.). There is some contrast regarding thoughts about the use of such materials as a data source for Lessons One and Two. In Lesson One, materials were collected with no criteria in mind other than that they represented a varied range of advertisements from newspapers and magazines. In Lesson Two, a range of rather more specific criteria guided the selection of such materials. The selection of appropriate resources was considered the most difficult decision for this lesson. For Lesson Three, material resources constituted a recording sheet, the exact format of which was

decided on in advance. Resources thus featured as a conscious concern in each lesson, and the attention given to them was more than cursory and haphazard.

The final most likely planning concern noted by David was management. This seemed to embrace a range of concerns that were a necessary adjunct to decisions about objectives, resources, etc.

e.g. *Whose going to use the overhead projector? Have we got enough room in the reading bays for that?* (S.I.)

David considered that his planning of discussion lessons typical of those undertaken for this study could be rated as moderately comprehensive and detailed. As a basis of comparison, he cited the plans he would expect from a third-year teachers college student for a comparable lesson as extremely comprehensive and detailed. He was likely to prepare such a plan himself if the lesson was to be for demonstration purposes, or a plan was being prepared for use by other teachers. At the same time, he noted that more limited comprehensiveness and detail in plans for discussion lessons was a frequent occurrence. For example, as an almost daily feature of the class programme, he took a discussion for which only the topic focus was decided on in advance.

Factors that might influence the typical pattern of planning included time available and the novelty of the topic. He considered that the three research lessons may have been a little more comprehensive and detailed than usual because the topic that was prescribed was one that he had not dealt with previously. In all other aspects, the planning undertaken for the lessons was considered representative of that normally undertaken.

Teaching intentions formulated in respect to the learners were all directed to the learners as a class. No intentions appeared to have a focus that indicated that David had a particular group or individual in mind as planning proceeded. This is substantiated by the absence of reported thoughts that indicate David's consideration of the identity of children who might be involved in particular actions (i.e. PARTICIPATION).

Asked whether he ever planned separately for particular groups or individuals within the class, he commented:

I plan very much for the middle and top (of the class) because I mean, we've mentioned the word cognitive. But I'm wanting generalizing to come from a lot of my discussion, and the deaf and the thickies are not capable of it anyway at the time, and when they're capable of it, it's often a load of rubbish anyway. So I initially think of the middle

and the tops first of all. These are going to produce the goods first, and last how I'm going to accommodate the thickies.

(S.I.)

As significant as those elements of the lesson actually considered may be, those that received either minimal or no attention in the course of planning also demand comment. First, while learning behaviour was evident as an explicit planning concern, the learning behaviours considered included affective behaviours in only one instance. It is possible that David's preference for particular teaching methods, and his use and choice of particular material resources may in part be based on past experience that these are likely to facilitate positive affective behaviours. These end-states may not then be brought to mind on each occasion when those elements are contemplated.

Second, the duration of particular elements or phases of the lessons did not receive explicit attention. Again, one might suggest that David as an experienced teacher had acquired the ability to assess automatically the number of activities that may be completed in the time available for such a lesson. Third, on only two occasions did he record explicit concern with teacher end-states. On both, the use of a chart was intended to provide both the pupils and David with a record of the children's responses. Fourth, only two occasions were recorded when David explicitly envisaged as an end-state the children having information about intended elements of the lessons (e.g. learner activities, topic focus, timing). Both occasions occurred during the planning for Lesson Three, when the possibility of alerting the children to a potential topic was a matter of some concern. Finally, conscious attention was directed to covert teacher actions on two occasions, and evaluative criteria associated with teacher actions on only one.

The data presented and discussed above suggests that a degree of consistency might be expected in the plan specifications which David is likely to formulate for such discussion lessons. At the same time, it points up some of the differences in specifications, and reasons for those differences, which inevitably follow from different teaching intentions and the unique set of conditions that are associated with each lesson. Perhaps, however, the most significant features of this data were: (a) David's ready identification of the consistencies that he believed would characterize his plans; (b) the close match between his perceptions of these consistencies and features of the plans actually formulated for the three lessons; and (c) his firm and explicit commitment to a number of beliefs and propositions that underlay the consis-

tencies and differences both reported and evident in plan specifications. To some extent, similar features characterized the data that are presented concerning the planning process.

The Planning Process: David's process of planning appeared to have both similar and dissimilar features over his three lessons. These will now be discussed in the context of the general observations that he made on planning for these lessons, as well as on his approach to planning in general.

David indicated, that generally speaking, his long-term planning (unit planning) was done at home at six week intervals. The day-to-day planning tended to be done throughout the day as he was teaching. As thoughts about elements of forthcoming lessons occurred, these were frequently noted down on prepared planning sheets (see FIGURE 19, p.154).

The workbook, the day-to-day stuff is forever being done incidently...Today I took this maths and I think that group doesn't know very much about adding decimal fractions. Lift up the sheet on the Tuesday and write down 'check it'. That's my Maths planning for the next day. So I'm taking everything usually throughout the day. That's my daily planning.

(R) Sort of memo notes?

(T) Yeah.

(R) And at the same time as you're thinking, well I must take a bit more, a bit of additional follow-up with that group, you're also, what, possibly thinking about what you will in fact do? How you might set about it?

(T) Oh, heavens, yes.

(R) So you're written note is more than...it's only part of what you're thinking.

(T) Oh yes. (S.I.)

This 'on the spot' recording of planning thoughts parallels that used as a 'research procedure', and appears to serve some of the same ends. That is, it helps ensure that planning thoughts which do emerge in the course of lessons are not lost from memory because of the competing demands on David's attention. In addition, it represents a means of coping with the limits and constraints on time available for planning. David observed that he found it very difficult to find planning time. Time available before teaching began each day was used to *"set up the room, the equipment, the blackboard...After school there's a pile of duties"*. The problem of time was also highlighted in the context of Lesson One when he recalled his "suppression" of thoughts about the lesson (see p.136) because *"of the pressure of work"* (PRI). This may well be a feature of

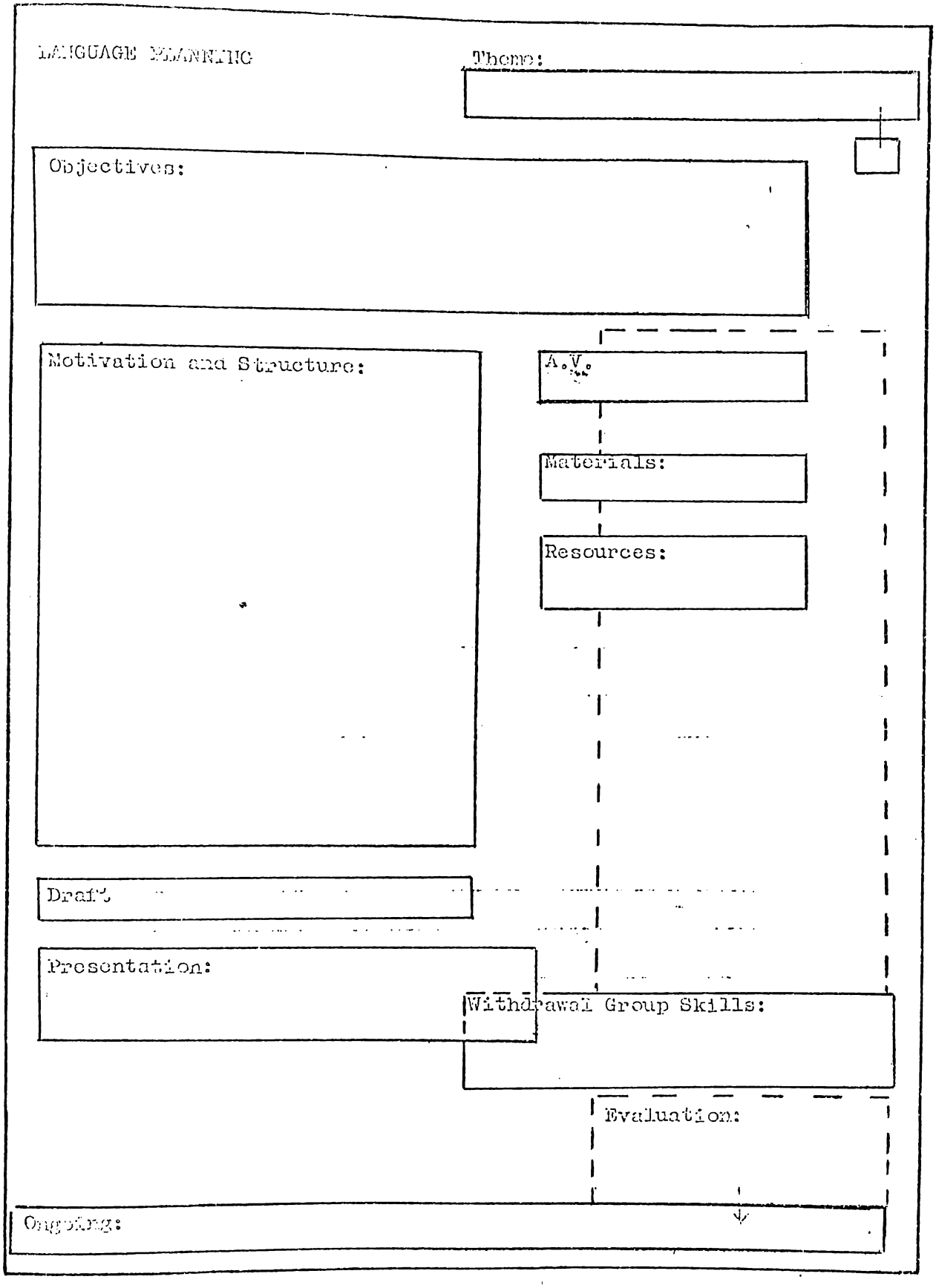


FIGURE 19: David:Example of Classroom Planning Record

the planning process when teachers are under considerable pressure in terms of time available, but find their attention spontaneously turning to prospective lessons. Suppression may not occur as frequently, however, if an effort is made by the teacher, as in this instance, to capture those thoughts on a written record. There is some certainty, then, that they can be retrieved and considered and/or implemented at a later time.

In both Lesson One and Three, David formulated what represented a tentative or 'embryonic' plan that was subsequently reviewed and a final 'mature' plan constructed from its ingredients. In the former, there was an underlying coherence to the evolving plan in the sense that a possible sequence of actions and outcomes was envisaged. However, within the associated planning thoughts, there were options or possibilities that had clearly not been decided on or accepted with any sense of finality. It can be noted that the succeeding planning thoughts tended to parallel the possible succeeding phases of the prospective lesson.

In the next phase, the previous planning thoughts were reviewed and David set about creating in his mind a plan that would provide a relatively clear and fixed set of specifications for certain learner and teacher actions as well as associated action conditions. In a sense, a script was prepared for the actions that he hoped would occur. The likely elements of the script have previously been discussed. Suffice to say here that David's recounting of the plan would enable a listener to envisage relatively clearly the likely scenario for the prospective lesson. The attention that David directed to specifications for learning behaviours at an early stage of this initial phase of the planning process confirmed the significance he attached to this element in the course of planning and points up the possibility that teachers can and may choose to act within the constraints of an ends-means planning model on at least some occasions.

In Lesson Two, there was a phase that preceded the final plan formulation noted above, but in this instance the scope of David's thoughts was more limited. Resources were of central concern. Once a decision about these had been made, the rest of the plan was apparently formulated with little difficulty. The specific learner responses being sought followed directly from the resources, and the sequence of learner and teacher actions was essentially pre-determined by a sequence inherent in the materials.

In all three lessons, some additional thoughts about the plan occurred after this main period of deliberation. The extent and significance of

these additions or amendments varied, but represented 'fine tuning' rather than major re-drafting of the plan.

The majority of elements that David envisaged were adopted as components of the final plan. In particular, the learning outcomes that were envisaged at any time were accepted and incorporated within the final plan almost automatically. The most obvious exceptions to this included the rejection of tentative decisions about a pre-lesson task for Lesson Three, the consideration of and rejection of a number of potential material resources for Lesson Two, and changes to the timing of elements in Lesson Three.

There were no conditional decisions formulated, apart from the indication in Lesson Two of David's anticipation that he might need to shift the teaching-learning mode according to the responsiveness of the pupils. On the basis of the plans, David seemed to be committed to a single course of action. Some flexibility, however, was allowed for by the lack of detailed specification of teaching actions.

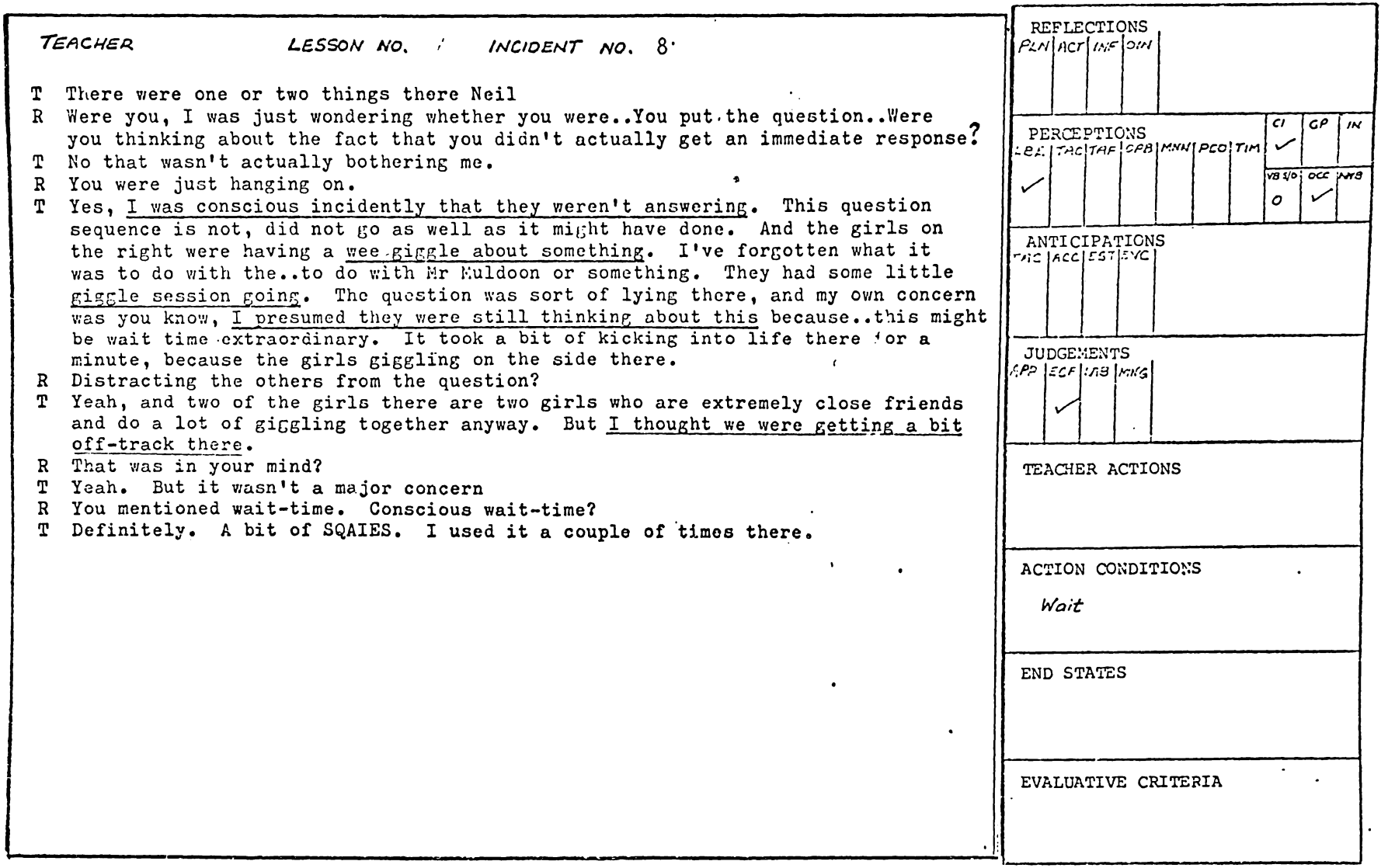
Overall, the data provided support for the view that planning is essentially a problem-solving process in which decision-making does not necessarily feature as a key activity. There was little evidence of alternatives being concurrently envisaged, weighed against particular criteria and then chosen from. It was clear, however, that specifications might be selected in a process that involved their being 'checked off' against criteria that had been established for the current lesson or criteria that had been established in the past and had more general applicability. The limited evidence of decision-making and the inclusion of conditional specifications might also be attributed to David's stated commitment to a particular teaching-learning strategy, as well as lack of time to consider an array of alternatives.

5.5 Within-Lesson Attention and Thoughts

5.5.1 Data Presentation

Three steps were involved in the summarizing of the data concerning each teacher's within-lesson attention and thoughts.

(i) Working from the audio-tape made of the stimulated recall interview, a transcript of each incident was entered onto an 'incident' sheet, and the focus of David's reported attentions and thoughts were categorized and recorded. (See FIGURE 20, p. 157).



TEACHER LESSON NO. 1 INCIDENT NO. 8

T There were one or two things there Neil
R Were you, I was just wondering whether you were..You put the question..Were you thinking about the fact that you didn't actually get an immediate response?
T No that wasn't actually bothering me.
R You were just hanging on.
T Yes, I was conscious incidently that they weren't answering. This question sequence is not, did not go as well as it might have done. And the girls on the right were having a wee giggle about something. I've forgotten what it was to do with the..to do with Mr Muldoon or something. They had some little giggle session going. The question was sort of lying there, and my own concern was you know, I presumed they were still thinking about this because..this might be wait time extraordinary. It took a bit of kicking into life there for a minute, because the girls giggling on the side there.
R Distracting the others from the question?
T Yeah, and two of the girls there are two girls who are extremely close friends and do a lot of giggling together anyway. But I thought we were getting a bit off-track there.
R That was in your mind?
T Yeah. But it wasn't a major concern
R You mentioned wait-time. Conscious wait-time?
T Definitely. A bit of SQAIES. I used it a couple of times there.

REFLECTIONS
PLN | ACT | INF | OTH

PERCEPTIONS
LBE | TAC | TAF | CPB | MNN | PCO | TIM | CI ✓ | GP | IN
VB I/O 0 | OCC ✓ | MNB

ANTICIPATIONS
TAC | ACC | EST | EVC

JUDGEMENTS
APP | ECF ✓ | MAB | MNG

TEACHER ACTIONS

ACTION CONDITIONS
Wait

END STATES

EVALUATIVE CRITERIA

FIGURE 20: Sample Coded Record of Reported Within-Lesson Attention and Thoughts

TEACHER DAVID	LESSON NO. THREE		
FOCUS OF ATTENTION AND THOUGHTS		NO. OF INCIDENTS	TEACHER STATEMENTS
MAJOR CATEGORY	SUB-CATEGORY		
REFLECTIONS	PLAN	7	T ...I thought, let's go to this stage here (indicates in plan), and rewrite, giving an odd example. R And you're aware that this is the point in the plan that you want to, that you have to get to. T Right. I had to take the plunge.
	ACTUALITY	6	T Well, they had given me an example of a good advertisement and a bad advertisement, and when I'm relating it, that's actually... Well, we'd worked through some data on the good and bad features - they, we had to...I wasn't sure whether we'd covered enough data for...
	LEARNER INFORMATION	5	T Yes, and what was going through my mind there was that this age-group would not be as much influenced by fear advertising or coercive advertising in terms of joining the group.
PERCEPTIONS	LEARNER BEHAVIOUR - Individual - Verbal-Substance	1	T Nothing except that...and we're off the point.
	LEARNER BEHAVIOUR - Individual - Verbal-Substance	2	R But the wondering what he was talking about, you can recall that being in your mind? T Yes. Certainly.
	LEARNER BEHAVIOUR - Individual - Verbal-Substance	3	T And that really surprised me, from that fellow. .....I thought they're making some sort of distinction between entertainment and advertising.
	- Group - Verbal-Substance - Class - Verbal-Substance (N.B. PXR)	6	T ...I've still got the gap between what we're dealing with (includes learner responses). ...we'd worked through some data on the good and bad features.

FIGURE 21: Sample Summary of Teacher Statements Indicating Focus of Within-Lesson Attention and Thoughts

(ii) A record was then made of statements within incidents that were accepted as evidence of specific categories of attention and thought. This facilitated a subsequent summary of the frequency of occurrence of these categories, and also provided a convenient record for further analysis of qualitative features of thoughts, as well as a source of illustrative examples. (See FIGURE 21, p.158).

(iii) Tables were next prepared of (a) the frequency of incidents in which specific categories were recalled for each lesson (see VOL.2, pp.293-295), and (b) the total number of incidents including a focus on specific categories. (See TABLE 2, p.161).

5.5.2 Features of David's Within-Lesson Attention and Thoughts

In this section, a detailed description of both quantitative and qualitative aspects of the data associated with each of the categories of teacher attention and thought is first presented. This is followed by a commentary on the relationship between this data and David's perceptions of the likely focus of his attention and thoughts.

David identified 29 occasions over the three lessons where he could recall having consciously attended to, considered and made decisions about aspects of the lessons.

TABLE 1: David: Total Number of Lesson Review Incidents

Lesson Number	1	2	3	1 - 3
No. of Incidents	12	9	8	29
Length of Lesson (mins)	27	21	28	76

When the duration of each lesson is taken into account there is equivalence between these figures for Lessons One and Two, whilst the number declines for Lesson Three.

As noted in the commentary on pre-lesson thoughts, when considering the significance of such 'quantified' data, it should be remembered that there are significant qualitative differences between specific incidents. These differences may include:

(a) the number and types of categories of thought represented in specific incidents;

(b) the length of time thoughts are registered in consciousness;

(c) the number of times particular thoughts occurred; and

(d) the salience or significance of thoughts in terms of their impact on the course of subsequent events.

Both the quantity and quality of teacher conscious thoughts are considered in the following discussion.

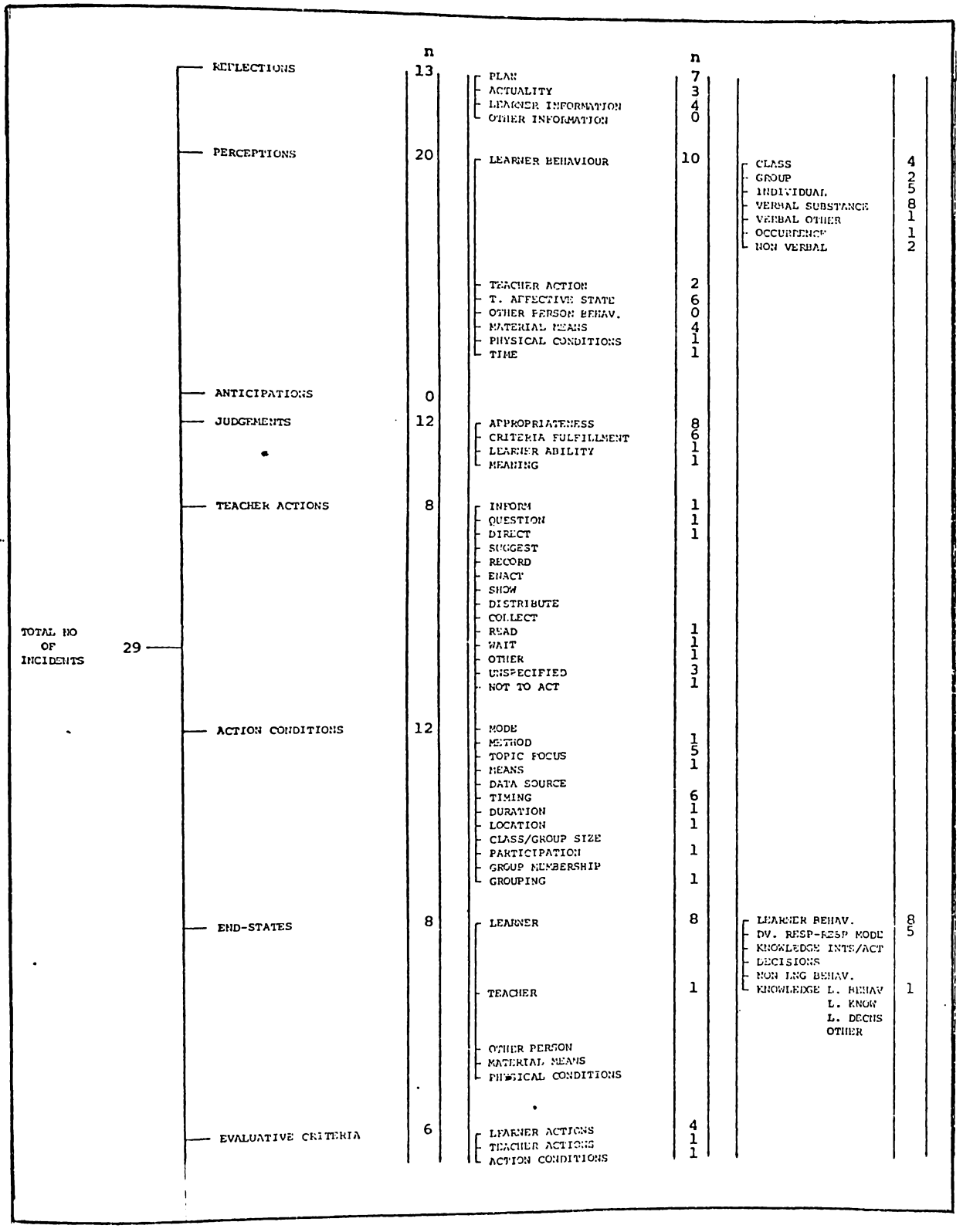
On the basis of the frequency of incidents alone, it appears that much of David's moment-by-moment teaching activity was unaccompanied by consciously registered thoughts. Several factors may be offered as possible explanations for this. First, David brought plans into each lesson that provided him with a relatively clear, temporally organised blue-print for actions and conditions to come. In the absence of any need to substantially amend or add to plan specifications (see later discussion of Plan-Reality match) the need for further deliberation on elements of the lesson may have been limited. Second, as an experienced teacher, David had an established repertoire of teaching actions that he felt he could generally employ without prior conscious consideration. His comments indicating assurance about his ability to handle questioning, in particular, have been referred to previously, and it can be noted that the formulation of specific teacher actions was never noted as a difficult aspect of pre-lesson planning.

Third, the 'press' of interactions occurring during the lessons may not have allowed David many opportunities for reflection and deliberation on the course of events as the lessons actually proceeded. Discussion as a method is likely to demand relatively constant attention and immediate reaction to the responses of the pupils. Time allocated to conscious formulation of intentions as the discussion is underway may disrupt effective dialogue. In only one of the lessons were there sustained periods of time in which David was not in direct verbal interaction with the children. On these occasions, as he monitored their work on a classification task, he had opportunity (as recalled) to perceive and reflect on features of the children's activity.

The total number and proportion of incidents in which David's thoughts included a focus on particular categories are summarized in TABLE 2 (p.161). Key features of this data are now outlined and discussed.

Reflections: David's attention turned to information already held in mind in almost half of the incidents. Elements of his pre-lesson plans received consideration on seven occasions over the three lessons. This

TABLE 2: David: Total Number of Lesson Review Incidents Including a Focus on Specific Categories of Attention and Thought



Note: Column totals will not equal 29 (i.e. Total No. of Incidents) as more than one category of attention and thought may be represented in a single incident.

suggests that for David, once plans for such lessons have been formulated, they can generally be implemented without there being a concurrent need to consciously monitor or check off progress through them. Stabilized in memory, the plans appear to unfold in a relatively automatic fashion that allows David to direct and maintain attention to immediate aspects of the lesson: in particular learner responses. If elements of the plan are uppermost in mind for a sustained interval of time, there may, in fact, be negative consequences. The possibility was evident in the second lesson, where in two incidents David recalled having in mind particular answers (planned for) that he wished to elicit from the pupils at that point. For this lesson, he had envisaged during planning the answers he hoped to obtain. At the same time, he made the prediction that the aspect of the plan least likely to occur as planned would be the children describing or labelling the techniques they identified using the same terms that he had in mind. This discrepancy seemed to have eventuated. As David noted himself, his over-riding concern with questions and answers that he had planned for and consequent lack of attention to the content of the children's actual answers meant that he made no allowance for what might have been quite appropriate answers.

> *(T) Look here are three examples in there of bad use of children's answers. Extremely bad, which I thought was not particularly like me. Because I know exactly what they're saying. Because I am two questions ahead, I couldn't wait to elicit the idea, what's the main idea behind this thing. I couldn't wait. I didn't even listen to the kids answers which were really worth building on.*
>
> (Lesson 2, Incident 5)

The directive and possibly constraining 'force' of a plan is further illustrated in a second incident.

> *(R) At a point like that, are you carrying 'humour' in your mind?*
>
> *(T) Mmhm. Yes. That's what I'm working on. Yeah.*
>
> *(R) And working towards it?*
>
> *(T) Yeah, hard. Hard. Yeah. No one else will get a word in edgewise. You notice. Working hard. My God. They'll say the word humour at all cost.*
>
> *(R) But we all do this at times don't we. Particularly in a situation where you've worked through the materials, and you've laid out for yourself what you would hope to get. And inevitably you go after it. That's what this* [the plan] *is for isn't it. Carry things...that you've got end-points in mind?*
>
> *(T) Yes, that's very much me. That the goods have to be produced. But I never realized it was at such a pace as this. There are some times when I make a conscious*

attempt not to. The sciences one, where we go all Brunnerian if you like, and the use of the data to come to your own recognition of what are the essential attributes for example...but here, today though, is you know, unfortunately...very much, what you're listening to now. They will say the word humour. And they're getting it. I wasn't expecting the answer at all in this bit. But that's what we're getting to. We do in the end.

(R) And does this occur for other ones?

(T) Certainly. You'll hear it.

(Lesson 2, Incident 6)

In two incidents in Lesson One, the plan surfaced when decisions about elements of the lesson that had been considered but not finalized previously were required to be made.

e.g. *(T) Now that was something again that I hadn't decided on before, hadn't made up my mind about. I knew we'd try to get one definition, but how we'd specifically go about that.*

(R) I'm just wondering. When...you've got the plan in your mind...does, are you conscious of the point you're at in the plan at a transition point like this?

(T) I suppose sometimes. I was here because, as I say, I hadn't really finished all I should have planned for that.

(Lesson 1, Incident 10)

In the remaining incident for that lesson, David recalled thoughts directed to the timing of an aspect of the plan. There was no obvious reason, however, why the associated 'move on' decision should have been consciously registered on this occasion when the majority of such moves did not seem to have been. The latter feature was discussed with David in the context of one incident in Lesson Three.

(R) Did you go to this phase because you thought you'd got all there was on the lists.

(T) Mmhm, yeah, on the good points. There were more good points than I thought that there would be available.

(R) Did you go on sort of automatically, or did, were you conscious of their lists...seem to have gone as far as they were going?

(T) I don't know. I must have presumed they had run out of good points.

(R) It seems you've done it automatically, because you haven't recalled...

(T) I just presumed, and that's the next stage.

(Lesson 1, Explanatory Incident a)

In contrast, a similar recalled decision in Lesson Three was prompted by a judgement that objectives for a phase of the lesson were not being

realized.

(T) *Very. I'm getting morose at this stage, and thinking, well, I have not, I'm not realizing my objectives as well as I thought I might. OK. Now we're going to make a big jump, feet and all, back to the statement. I thought let's go to this stage here* [indicates in plan] *and re-write, giving an odd example.*

(R) *Not realizing your objectives meaning not being able to get a good set of data on the good-bad features?*

(T) *Right. The whole thing was pretty messy somehow. They just didn't come up with the goods. I didn't know whether it was them or me.*

(R) *And you're aware that this is the point in the plan that that you want to, that you have to get to?*

(T) *Right. I had to take the plunge.*

(Lesson 3, Incident 7)

Finally, reflection on the plan was evident in an incident in Lesson Two in which David described his attention to specifications for the opening phase of the lesson. On this occasion, judgement concerning their appropriateness led to their modification.

David had in mind information about previous circumstances in three of the 13 'Reflection' incidents. In two of these, his awareness of the substance of a succession of learner responses during the preceding phase of the lesson prompted subsequent decisions. In the remaining incident,

that was one of the times when for some reason...I just remembered then that we'd seen an aircraft towing one of those advertising, advertising banners...

(Lesson 2, Incident 6)

Information about pupils was a further category of reflection evident in four incidents.

e.g. *I knew a couple of them had missed out on the break for two days running.*

(Lesson 1, Incident 12)

(T) *Another thought there while I was waiting. Some were likely to finish before the others.*

(R) *You thought?*

(T) *Well, I knew ones like Harley might take a while, and...*

(Lesson 1, Incident 11)

Perceptions: The initial focus of David's attention in incidents was most frequently directed to immediate aspects of the lesson, with learner behaviour, as might be anticipated, the predominant category of perception (10 out of 21 incidents). The substance of the children's verbal responses represented the most frequent aspect of the behaviour attended to.

The level of learner involvement in the lesson was not an apparent conscious concern. The occurrence/non-occurrence of responses from children was recalled as having been consciously noted on only one occasion.

> *I was conscious incidentally that they weren't answering but that wasn't actually bothering me.*
>
> (Lesson 1, Incident 8)

A review of the lesson transcripts indicates that there were relatively few occasions when he sought non-volunteered responses. The small group setting was a factor likely to reduce opportunities for pupil non-involvement as well as make it easier for him to ensure participation.

David turned his attention to his own immediate actions on only two occasions. On one of these, he was conscious of a question he was attempting to frame up so that it fulfilled particular criteria (*"in the children's terms"*). On the other, he *"wondered what I'm going on about Footrot Flats about"*. More frequently reported, particularly in Lesson Three, were his feelings about the course of events. In each of these incidents the affective state had a negative quality (e.g. *"on edge"*, *"something bugging me"*, *"getting morose"*). Perhaps these states associated with difficulties in implementing the plans are generally registered with more intensity than those that accompany their successful implementation. If so, they are more likely to be recalled.

Finally, the passage of time was clearly not a significant immediate concern for David as the lessons were underway. This may indicate that David's teaching experience allows him to accurately gauge the number of topics and learning tasks that could be dealt with in particular periods of time, and the amount of time that might be allocated to particular elements of lessons.

Anticipations: There were no incidents in which David reported having envisaged possible scenarios for some future point in the lessons.

Judgements: Judgements were a feature of David's thoughts in nearly half of the incidents. These were predominantly concerned with either of the following:

(i) Appropriateness of planned or actual actions, action conditions or end-states (7 incidents) e.g.

> *At the back of my mind I would have liked to have clarified it first rather than wait for it* (teacher question) *to spew out.*
>
> (Lesson 2, Incident 1)

> *Because I was thinking there, with children's fantasy, animals using knives and forks impact on...the impact*

made with the cartoons or the characters or whatever it is, to fantasize about, should appeal to them.

(Lesson 3, Incident 3)

I wasn't sure whether we'd covered enough data.

...and thinking, well I have not, I'm not realizing my objectives as well as I thought I might have.

(Lesson 3, Incident 6)

(ii) The relevance or worth of actual learner responses (6 incidents) e.g.

But I thought we were getting a bit off-track there.

(Lesson 1, Incident 8)

Because I saw what I thought were some discrete categories there that I thought should have been involved in categories they already had.

(Lesson 1, Incident 4)

The judgements evident were concerned with inappropriateness, lack of relevance or worth, rather than more 'positive' assessments. It seemed that David was more likely to consciously register the fact that the lesson was not going as planned, or that established evaluative criteria were not being fulfilled than the fact that they were being successfully realized. This is confirmed by the negative quality of the affective states David recalled experiencing.

Planning Thoughts: David reported his thoughts being directed to possible actions, action conditions or end-states in almost two-thirds of the reported incidents.

(i) Teacher Actions:

In the eight incidents in which he reported consciously considering his own immediate actions, questions were of concern on one occasion.

(T) I was thinking, look the question I've got to ask is "What's the key idea behind this advertisement".

(R) So you were actually carrying the question you wanted to ask in your mind?

(T) Yeah.

(Lesson 2, Incident 5)

As already noted, David on several occasions expressed his assurance about his ability to generate appropriate questions as needed. In this context, it can also be noted that his teaching experience in the Teachers College had included work on questioning skills through the medium of a micro-teaching programme on small-group discussion skills. The other specific categories of teacher action received conscious attention, only on one occasion in each instance. Two incidents involving informatory and

directive statements occurred at the same phase of the lesson, and followed from a judgement about the appropriateness of previous plans.

(T) *Yes, decision one there would have been to...actually to have them point to the picture. Ah, I had planned on "Let's look at these. Let's talk about them... talk about techniques." But the translation of the most obvious technique in children's terms was point to it. That was a decision I made in the lesson, that I'd do that rather than "Let's have a talk about it." Point to it and justify why for your point of view. Which was much better in terms of the children than say...that's what I want you to talk about. Techniques.*

In the third incident, David consciously employed 'wait time' having been aware of the children's lack of immediate response to a question (but apparent continued thought about it). His comments included reference to a teaching skill analysis system used in the micro-teaching programme previously noted.

(R) *You mentioned wait-time. Conscious wait-time?*

(T) *Definitely. A bit of SQAIES* [A system for coding classroom interaction]. *I used it a couple of times there.*

One incident involved a decision not to act, and in the remaining three, David's commentary indicated that he had contemplated the need to act without consciously formulating detailed specifications for his actions.

e.g. *I thought I'll need to sort that out with them.*

(Lesson 1, Incident 4)

(ii) Action Conditions:

A range of conditions were represented as a conscious concern in twelve incidents overall. Discussion topics and timing were the most frequently reported conditions: five and four incidents respectively. On two occasions, the topic in mind was one that had not been contemplated during planning. One of these was subsequently considered, whilst David decided that it would be inappropriate to consider the other.

(T) *I deliberately overlooked the one about being intelligent.*

(R) *So you actually consciously left that side of it?*

(T) *Surely.*

(Lesson 2, Incident 3)

In the other incidents, attention directed to topics already envisaged was concurrently associated with thoughts about their timing.

e.g. *Yes, and I've decided, let's go back to gala days.*

(Lesson 3, Incident 8)

Only in the sense that I was thinking...okay, time to shift to things they would be likely to react to.

(Lesson 2, Incident 9)

There's a conscious decision that comes in here...was to to that at that stage of the lesson.

(Lesson 1, Incident 7)

In the structured interview, David recorded his expectation that topics in addition to those planned for might, in fact, emerge.

I just know that while...if I'm covering data I can be sure that six or eight other points will come in at the same time, but under those processing questions that I have, that other points will come up as well. I just know it.

The data from these lessons suggests that these additional topics may be introduced or followed up relatively automatically.

Each of the other categories of action condition reported (method, materials, duration, location, grouping, participation) received conscious consideration on only one occasion. Method, duration and grouping were conditions specified by the researcher, and such conditions as topics, materials and timing had received attention and been specified in some detail during planning.

It appears that the process of selecting participants operated relatively automatically, as the identity of children who would participate at particular points in the lesson was not evident as a conscious concern either during pre-lesson planning or in the course of actual lessons. As previously indicated, there were no instances where David recalled awareness of the level of participation of individual children.

Teaching-learning mode was a further potential category of concern that was not recorded either before or during the lesson. The events of the lesson were largely shaped by David, although the ultimate unpredictability of children's behaviour was acknowledged on at least one occasion.

Given the children's answers, I know I was confident I would be able to handle that questioning, but I needed badly to have first of all some children's answers, because I was relying on that.

(PQI - 7)

In discussing his commitment to a particular teaching-learning model, he described a belief in the necessity for:

putting it on some sort of cognitive basis. I know it's an assumption, but all the same, the idea of <u>shaping</u> children's thinking. That shaping, <u>shaping the process</u> or <u>controlling the process</u> by assisting the children to

have the data to work with first of all, that we make use of this.

These statements suggest that David was likely to take most of the responsibility for decisions about key elements of lessons in which this model was operative, and that this responsibility was unlikely to be deliberately modified, particularly in the course of such lessons.

(iii) End States:

End-states, in particular learner end-states, were evident as a conscious concern in eight incidents over the three lessons.

e.g. *Yes, I decided...that would have been a conscious decision... by golly let's try this one...I'll try to get them to come up with these two.*

(Lesson 1, Incident 5)

I thought they can each write a definition down.

(Lesson 1, Incident 10)

Yes, decision one there would have been to...actually to have them point to the picture.

(Lesson 2, Incident 2)

The end-states brought to mind and subsequently sought represented additions to or slight modifications to those originally planned for. The latter were not abandoned for alternative ends. David's statements in the context of one incident suggested that he may have consciously considered a teacher end-state on one occasion. There is some uncertainty here, however.

(T) And I decided, let's go back to gala days. I'll give them an ad. Now let's evaluate that ad for its good and bad features.

(R) Again to check whether they can in fact...

(T) That's what I've done. So what I'm doing is just sort of bolstering my own certainty that they've got some idea what might be good and bad features.

This incident illustrates the difficulty that may be encountered in distinguishing teacher explanations of habitual routines from accounts of consciously established intentions.

(iv) Evaluative Criteria:

'Criteria' was a category of thought reported in six incidents overall. In the incidents concerned with criteria for learner actions, David had in mind the specific content of answers (not originally envisaged) that he was seeking,

I'll try to get them to come up with these two.

(Lesson 1, Incident 5)

or shared quality for answers.

> *I thought...each write a definition down, and...try to get some agreement on one.*
>
> (Lesson 1, Incident 10)

In two further incidents, the criteria "in their [the children's] terms" was a factor that shaped David's teaching actions,

> *I was generally conscious of what I would say to start them off. Putting it in their terms.*
>
> (Lesson 2, Incident 2)

and the timing for a topic.

> *Okay, time to shift...to things they would be likely to react to, in their terms.*
>
> (Lesson 2, Incident 9)

In the structured interview, David discussed the likely focus of his thoughts during discussion lessons. The match between these perceptions and the reality represented in the stimulated recall data for the three lessons is now considered. Asked what elements of such lessons he would be likely to be paying attention to and weighing up as they proceeded, he noted:

> (T) *Attending. On task. They are attending. They are looking. In short, that they are not obviously doing something else. This is, I think I'm very sensitive to this...I'm very concerned that everybody is attending to what is being done. So the non-verbals pretty strong there. I'm concerned with the, the quality of what's being said.*
>
> *I'm concerned that they have understood what the question meant. That their answers are answers to your question.*
>
> (R) *So you're getting relevant answers?*
>
> (T) *Yeah. Relevant thinking. I'm concerned once again about the end-products. I mean I don't want things to get too far away.*
>
> *I'm very conscious of where I'm going.*
>
> *And the only other one is that I'm always, resources one again. I often find myself thinking that was a good point. If I had a world map I could show them...*
>
> (R) *And options?*
>
> (T) *Yeah. Better ways of explaining my ideas or the kids' ideas. That's going on all the time.*
>
> (S.I.)

Factors identified, then, included evidence of pupil attention to the task; the relevance or match of answers to questions asked; consciousness of position in the plan and the end-products being sought; additional material that might provide an adjunct to actions; and consideration of alternative teacher actions to achieve the ends in mind.

David's statements suggest that learner attention is a particularly significant cue when he assesses the relative success of a lesson. This is confirmed by further statements in the course of the interview when he noted as a feature of a lesson going well that:

> *The children are attentive and alert, and are clearly on task,*

and,when

> *children obviously look involved and animated, enjoying what they're doing*

he was likely to feel satisfied or delighted with their behaviour.

In contrast, pupils who upset or annoyed were those who were inattentive, particularly when most of the class were seemingly involved and excited. He also observed, however, that when a lesson was 'turning into a disaster', inattentiveness would not necessarily be evident. In his own words:

> *that's not allowed...I'm also extremely sensitive to my needs, and my needs are that the kids will attend and that kids work. And so the old security comes home again.*
> (S.I.)

Finally, in discussing his level of concern with control of children's behaviour, he observed that while he was rarely concerned with social behaviour (*"I have very little problem with that"*), he was *"very concerned with children being on-task. Very concerned."* He described his interventions to maintain on-task behaviour as both indirect and direct (i.e. "redirect type of questions", "eye-movement", "the frown", "the non-verbal", "the leaping around the room"), and as occurring relatively automatically (*"the interventions I like to think are split second ones"*). Thus, David's feelings of security that plans are being satisfactorily implemented or realized appear to rest in particular on evidence that the children are attentive and involved. In the context of these lessons, the data suggests that from David's point of view the need for attentive, alert and on-task learners was met, and his 'security' was, therefore, not significantly threatened. The signs of attentiveness may understandably represent the most immediate indicators that the teacher's own actions have been responsible for facilitating changes in learner behaviour.

Given the fact that he reported his consciousness that children's answers and the topic being discussed were 'off-track' in only one incident, it can be conjectured that:

(a) there were few instances when their responses were, in fact, irrelevant; and/or

(b) the process of monitoring and ensuring relevance occurred relatively automatically.

As discussed earlier, David's consciousness of where he was going seemed most obviously manifest in Lesson Two. This sense of direction, however, was not apparent as a recurrent conscious concern throughout the lessons. As suggested earlier, attention directed to the plan is attention not directed to immediate circumstances within the lesson. To some extent then, the plan must prompt with a stage whisper rather than a shout that distracts.

Within the lessons, there was only one incident in which David reported some uncertainty about the substance or form of succeeding phases of the lesson:

> *And here I'm obviously thinking, shall I throw the role-play part in here.*

Uncertainty was evident, however, in Lesson Three when he reported his concern that planned objectives might not have been realized. In his description of pupil behaviours that were likely to delight and satisfy him, David noted that *"the children would be producing what I expect them to produce"*. In the context of this lesson he was uncertain whether his expectations were being fulfilled. One of his responses to these circumstances was to introduce an evaluation task not originally planned for:

> *Just sort of bolstering my own certainty that they've got some idea what might be good and bad features.*
>
> (Lesson 3, Incident 5)

He explained that this was *"a ploy that's always typical of me unfortunately..."*, to meet his frequent concern that learning objectives were only arrived at by a few children in the teaching group.

> *...this comes through. And I feel very keenly about it. Going through my mind at the moment is innumerable social studies situations where the high level generalization is arrived at, and I'm frightened that its only arrived at by very few children. Now, well I think. What about the rest...So away I go. We think this I say, knowing that its only one kid who thinks it. Look, this could apply here, here and here.*
>
> (Lesson 3, Explanatory Incident d)

This response was also identified by David when he discussed the likely features of a discussion that was turning into a disaster. Thus, when the lesson was *"falling apart and going badly because realizations are not being made"*, he observed that:

the old security thing comes out again. And they are told truths and given lots of examples and the discussion closes...that's my horseshoe again. I've gone over the top of the horseshoe. I'm now turning, and any further discussion is only because I say, here are examples, here's an example, here's an example. Any more. Bang. Bang. Bang.

(R) You've moved to a situation of answering all your own questions?

(T) Right. Yeah. The goods will be produced, Neil.
(S.I.)

To a limited degree, this situation and response to it was evident in Lesson Two. David reported being 'on edge' when responses he had in mind were not forthcoming from the pupils, and the transcript indicates that he did give terms that he had in mind to the children on several occasions. In his words, *"They'll say the word at all costs"*.

There were no instances of consideration of alternative resources in these lessons. David did, however, envisage "better ways" for both teacher and learner actions in the opening phase of Lesson Two.

As indicated in earlier commentary, the majority of reported incidents of within-lesson thoughts seemed to be associated with recognition of deviation from pre-lesson plans or established evaluative criteria for aspects of the lesson. When such deviations are not frequent, or of major importance, as appeared to be the case for Lessons One and Two, the number of incidents that may include the concerns that David identified may be relatively limited.

Overall, however, the data does indicate some match between David's perceptions of the likely focus of his within-lesson attention and thoughts and the reality for the three research lessons.

5.6 Plan-Reality Relationships

5.6.1 Data Presentation

Three elements of the lessons were considered in examining this relationship: teacher actions, topics, learner responses (hoped-for or anticipated). The steps followed in obtaining and summarizing the relevant data are now outlined.

(i) Information concerning planned teacher actions for each lesson was first entered on to a recording sheet (see FIGURE 22, p.174). This information included teacher statements that identified each action, an indication as to whether or not possible phrasing of

TEACHER ACTIONS - LESSON TWO

Planned	Act	SC	Actual	Imp	N-Imp
1. Show (sample advertisement)	Show		1. "If you look at that picture there for instance, could you... (show)	Imp	
2. Read.	Read		2. "Why, every sip of milk... (reads)	Imp	
3. Blank out.	Other		3.	Imp	
4. What (technique) is used here ("something along those lines")	Quest	SS	4. "What advertising technique have they used here?	Imp	
5. Record.			5.	Imp	
6. Ask children to scan it.	Direct		6. When I turn this around, I wonder if you'd scan this sheet.	Imp	
7. Which appeals.	Quest	SS	7. And once again point to the first thing that catches your eye.		N-Imp
8. Why (does that appeal)	Quest	SS	8. Why did you point to that?	Imp	
9. Now look ah, what is missing from the techniques we've seen here? What other techniques are used?	Quest	SS	9. "So now, what haven't they used on these ones we've been looking at."	Imp Mod	
10. Which of these techniques fit the other pictures in the book. Let's look at some of the other pictures we didn't pick out first of all and apply those.	Dir Quest	SS	10. Let's go back to the one we started with. Which one of those have they used there?	Imp Mod	

Analysis Sheet Codes

Act. Category of Teacher Action (e.g. Show, Read, Question, Direct)
SC Degree of scripting for specific teacher actions.
SC = Scripted : Teacher intends to use exact words envisaged during planning.
SS = Semi-scripted : Teacher intends to use words that approximate those envisaged during planning.

Imp Planned actions implemented during lesson.
N-Imp Planned actions not implemented during lesson.

FIGURE 22: Plan-Reality Relationships-Teacher Actions: Sample Record and Analysis Sheet

any verbal acts has been envisaged, and the category of act identified. The transcript of the actual lessons was then reviewed to establish whether or not the act had been implemented and, where appropriate, the exact phrasing used by the teacher. This information was entered onto the record.

(ii) Details of the topics that had been planned for the lessons were recorded on to a further summary sheet (see FIGURE 23, p.176). The lesson transcripts were then read carefully and each specific topic touched on by the teacher and pupils during their interaction was identified. Guiding this analysis was the question, "What is being talked about by the teacher and/or learner at this point?" The researcher endeavoured to discriminate topics at a very specific level. The level of analysis is illustrated in FIGURE 24 (p.177) which displays a sample lesson transcript and 'topic analysis'. A brief description of each topic was entered on the recording sheet together with the page number of the transcript and an indication as to whether or not it had been planned. Specific topics that were unplanned but able to be clearly subsumed under one of the planned topics were distinguished as well as those that were clearly irrelevant to the subject matter or other aspects of the immediate lesson.

(iii) Learner responses envisaged during planning were entered on the recording sheet shown in FIGURE 25, p.178). The audio-tape of the actual lesson was replayed and learner responses that had been directly solicited by the teacher and that were relevant to the planned subject matter were identified. A description of each response was recorded, the transcript page number noted, and whether or not they had been planned for indicated.

Note: See APPENDIX J (p.476) for the completed three data record sheets for this case.

(iv) Using the records just described, a written description of key features of the relationship between plans and reality for these elements was prepared for each lesson. This summary also contained a section describing incidents of recalled within-lesson thoughts that help account for the relationships.

TOPICS - LESSON TWO

PLANNED

1. Techniques to attract attention
2. Ads that appeal
3. Reason for appeal
4. Other techniques -
   - media
   - colour

Learner Responses/ Possible Topics

1. Techniques - Appeal to be healthy
   - Body Image
   - Femininity
   - Language
   - Luxurious Living
   - Popularity
   - Humour
   - Mis-spelling

ACTUAL

		PG	PL	UPL
1.	Lesson Topic	1		✓
2.	Advertisement catching eye		✓	
3.	Reason eye-catching		✓	
4.	Sports car ownership assns.			✓
5.	Reasons eye-catching		✓	
6.	Technique used		✓	
7.	T. example of technique	2	✓	
8.	Joke aside			✓
9.	Technique used		✓	
10.	Reason for aspect of ad			✓
11.	Learner affective response of ad			✓
12.	Rationale for technique		✓	
13.	Reason for aspect of ad		✓	
14.	Description of ad feature	3		✓
15.	Whether effective if modified			✓
16.	Reason for aspect of ad		✓	
17.	Key desc. feature of ad			✓
18.	Wants appealed to			
19.	Description of ad	4		✓
20.	Wants emotions appealed to		✓	
21.	Technique used	5	✓	
22.	Technique rationale		✓	
23.	Technique used		✓	
24.	Reason for response to ad			✓
25.	Technique used		✓	
26.	Instances of technique in ad			✓
27.	Learning task requirements			✓
28.	Reasons for attraction to ad	6	✓	
29.	Aspect of ad attracting attention		✓	
30.	Judgement ad T. attracted to			✓
31.	Reasons for T. attraction		✓	
32.	Learning Task Requts	6		✓
33.	Reasons for ad feature		✓	
34.	Harley's reaction	7	✓	
35.	Technique used		✓	
36.	Other techniques used		✓	
37.	Techniques reviewed		✓	
38.	Other techniques		✓	
39.	Colour technique discd.		✓	
40.	Other techniques		✓	
41.	Other techniques ad for children		✓	
42.	Technique likely to attract pupils attention			✓
43.	- Sonia	8		✓
44.	- Harley			✓
45.	- S.3 girls			✓
46.	Whether colour likely to be used			✓
47.	Type of picture that in ad			✓
48.	Whether aspect exciting			✓
49.	Techniques summary		✓	
50.	Techniques in selected example		✓	
51.	L.Task requirements	9		✓

FIGURE 23: Plan-Reality Relationships-Topics: Sample Record and Analysis Sheet

Analysis Sheet Codes
PG Page of lesson transcript where topic focussed on.
PL Actual topic was planned before lesson.
UnPl Actual topic was unplanned before lesson.

T	Right. Well, blow the price, but just the horse, the picture of the horse. OK Wouldn't you. Right	Technique likely to attract pupil's attention.
	What would you ah. What would you ah use Kathy if you were writing one for Sonia?	Technique likely to attract Sonia's attention.
P	guinea pig	
T	What. A bit picture of a guinea pig? Do you think that Sonia, that will catch her eye, will it.	
P	yes	
T	Yes. (A) What would you use AAron if you were writing one for Harley?	Technique likely to attract Harley's attention.
P	"	
T	A Penthouse magazine. (Laugh) Goodness me Harley. Well (IND) Well, I was thinking more in terms of that I'd make a smart skatebo ard picture, you see. Does Harley, Does Harley ska eboard?	
P	I skate boeard	
T	Alright (A) Does he. Alrighto Elizaboth. Righto Elizabeth. One for you. A smart skateboard there just catches your eye, to (Ind) What could you use Trudy? What would you do if you were writing a uhm , for the Standard three girls, to catch their eye?	Technique likely to attract S.3 girls attn.
P	"	
T	Books, would you (A) Would you use colour?	Whether colour likely to be used.
P		
T	If you had a picture in your..If you had a big picture in your advertisment, what would you uh make the picture of?	Type of picture included in ad.
P	exciting book	
T	What would you make the picture of?	
P	books	
T	Yeah, but, just any book, that would that would be exciting, would it.. just to have a book there	Whether aspect of ad is likely to be exciting
	That's alright then. Mhmm	
	Lets have a look at these uhm, these are the things that we use, regardless of what they're selling, because they believe that everybody would like to be like this.	Advertizing techniques summarized.
	Fit, be friendly, be healthy, be attractive, have lots of money, be very popular, humour, and we got on to other things that you mentioned here. Righto. Colour, horses and other thibgs that can catch you up there. So if you look at advertisments, you see probably one of those things being used. Now lets go back to the one we started with. Lets go back to the one we started with. Which one of those have they used there? Lets pick one we didn't choose, we didn't choose before. That one there.	Techniques evident in selected example
P	Sorry	

FIGURE 24: Sample Topic Analysis

LEARNER RESPONSES HOPED FOR/ANTICIPATED - LESSON TWO								
PLANNED		ACTUAL						
		PG	PL	UPL		PG	PL	UPL
1. (Appeal to be healthy		1						
2. (Body Image	health fitness		PL					
3. (Femininity	big muscles		✓					
4. (Language	T (rich, class, wealthy							
5. (Luxurious Living	attractive people)	2						
6. (Popularity	- feel like million dollars		✓					
7. (Humour	- rich		✓					
8. (Mis-spelling	- they're nice		✓					
	- that you could look		✓					
9. (media	like that	3						
10. (colour	- look fancy smart		✓					
	- the sex, attracts girls			UPL				
	- (t - popularity)	3/4	✓					
	- pictures of toys	5		UPL				
	- easy to get book token	6		UPL				
	- getting squashed		✓					
	- T (funny, gives humour							
	- T gives mis-spelling		✓					
	- attractive	6/7	✓					
	- T grp mbrship			UPL				
	- attractive		✓					
	- funny		✓					
	- colour	8	✓					
	- big letters			UPL				
	- personally appealing			UPL				
	pictures							
		9						

FIGURE 25: Plan-Reality Relationships-Learner Responses: Sample Record and Analysis Sheet

5.6.2 Features of Plan-Reality Relationships

In this section, the written summary of data for Lesson One is first presented to illustrate (a) the presentation format of the summary, and (b) some of the common features of the data for David. While the data concerning the relationship between planned and actual learner responses showed some variability across the three lessons, the data for teacher actions and topics showed a similar pattern in each lesson. This is followed by a general discussion of the plan-reality relationships evident in the three lessons, and David's perceptions of the likely relationships.

Lesson One - An Illustration:

(i) Teacher Actions:

In the planning for Lesson One, only three specific teacher actions were planned for. One reference concerns the actions required for the preparation of material resources prior to the lesson. The other two actions are questions for which the prospective phrasing had been envisaged. All planned actions were subsequently implemented, and there was a moderate match between the envisaged and actual phrasing of the questions, i.e.

Plan	Reality
Is there a message or common theme to these advertisements?	If you look at all these other sorts of advertisements you've seen, what are they all trying to do?
What is advertising?	I wonder if you could find define advertising by looking at these and what they're trying to do?
	Could you define what an advertisement is?
	What does advertising mean?

(ii) Topics:

Four broad topics were explicitly identified (e.g. categories of advertising, reasons for advertising). One additional topic essentially formed a sub-topic of one of the four. The sequence in which these were to be considered was established. All topics were subsequently considered in the planned sequence. A number of unplanned topics were considered during the lesson. At the outset, these focussed on aspects of the lesson that were peripheral to the subject matter itself (e.g. physical conditions, material resources, grouping). David also outlined the

specifications for learning task behaviour on several occasions in the course of the lesson.

Within the actual lesson, it was possible to identify several more specific topics that directly contributed to those planned for. During planning, David identified three possible learner responses (categories of advertising: classified, entertainment, product) and these represented further potential sub-topics if they were identified by either David or the pupils and then received further discussion. This did, in fact, occur. There was only one topic that might be considered irrelevant to the lesson theme. Library bookings were considered in a brief exchange between David and another teacher.

(iii) Learner Responses:

David did not go into the lesson with a set of specific answers that he hoped to elicit in mind. He was, however, sensitized when scanning resource materials to potential categories of advertising (e.g. subcategories of classified advertising, entertainment advertisements, product advertisements). Within the actual lesson, those categories that David had been alerted to did emerge as learner responses. In addition, some 18 other categories were identified by the children. Some of these were more specific categories, subsumed under the generic categories (e.g. product advertisements) already in the teacher's mind.

(iv) Associated Within-Lesson Thoughts:

Three incidents help account for the Plan-Reality relationship. In one, David's recognition that the children had grouped sample advertisements into two main classifications prompted him to seek these classifications from the children. These had been identified during planning, but no firm decision made to solicit them. A topic was introduced and a particular learner response sought, having been envisaged in a further incident. In the remaining incident, timing for a topic was consciously considered.

Commentary: The relatively limited number of specific teacher actions planned for each lesson were all implemented, and this occurred in the sequence originally envisaged. There was a variable degree of match between planned phrasing for some of the questions and that actually used.

Topics planned for each lesson were all implemented. Most of these topics were relatively general. Learner responses envisaged during planning represented potential topics if discussion ensued following their initial identification. This eventuated on some occasions. In each

lesson a number of unplanned topics could be identified. These mainly represented relatively specific topics that could be subsumed under the general ones already planned for. Others included information given to the pupils by David regarding intended elements of the lesson (in particular learning task requirements). Topics that were clearly irrelevant to either the subject matter or procedural-managerial aspects of the lesson were evident on only four occasions.

In only one lesson did David have clearly in mind a series of specific learner responses that he hoped to obtain from the children. Only one of these responses was not obtained, and the children went beyond those he had envisaged. In Lesson One, his planning sensitized him to three responses that might emerge, and two of these were subsequently solicited. In Lesson Three, three 'possible' responses and one 'definite' response were envisaged, subsequently sought and obtained.

David's plans were clearly not significantly modified in the course of their implementation. This finding is now considered in the context of David's interview statements concerning this issue. He noted that he found it fairly easy to make changes to pre-lesson plans once a lesson was underway, offering the following reasons:

> *(1) I have the security of my plan to return to (2) when in the situations that it is fairly easy, it's because something better, more dynamic, the teachable moment, something has occurred that's a damn sight more important than I was going to do, it's going to be probably better (3) the knowledge that I can always return to cover those, to those particular learning (objectives). But you see there are two changes. One is the sort of change that means a different route to those in that direction and the other sort of change is where the outcome is going to be quite different. Now in the case where you take a different route to the outcomes, fairly easy, and the other one as well. I've still got the security, I'm still going to do this eventually. But if it, if what is occurring in the classroom is more exciting and the children are motivated for some strange reason, that I didn't foresee, that I*
>
> *(R) Then you can depart quite radically?*
>
> *(T) Oh yes. Yeah.*
>
> *(R) Because the reasons for change are usually the kids have got carried away on some tangent*
>
> *(T) And you've seen that tangent is worthwhile pursuing.*

Enlarging on the situation where a pupil introduces an idea that may be worth pursuing, he commented:

> *(T) I think more often than not, I'll say 'Let's hold this one to last'. I tend to make a note in my workbook...*

one for me later, for another planning thing, and carry on where I was.

(R) But you...it's rarely taken up at this point?

(T) Mmhm. Yes.

and

(T) ...If you're asking children to generate ideas in a Taba method, let's say, and someone comes out with this, someone comes out with a particularly, uh, it depends how far down the sequence you are too doesn't it, and whether the idea is very much at the inventing, divergent and thinking, creating, generating level, or whether the idea is at the generalizing, the final bringing together of a lot of ideas level. But when you say readiness to change the plan, I think of that first and foremost in terms of the child performance objectives. I don't mind, I fairly easily do this [indicating change route on diagram].

(R) But you don't prejudice them [Objectives]

(T) I'll reconsider that [route]. *Reconsider that...don't mind doing that at all.*

It appears then that David infrequently departs from his plans to follow potential topics (ideas) implicit in the children's answers unless they fulfill one or more of the following criteria:

(a) are divergent or creative;

(b) anticipate the generalizations that he is hoping to elicit;

(c) do not come at a late point in the planned sequence; or

(d) will not reduce the likelihood that the already formulated learning objectives will be achieved.

In the present lessons, one may assume that ideas inherent in the pupils' answers did not fulfill the criteria. It is worth noting again his comments in the context of Lesson Two, regarding the fact that his thoughts at times were so focussed on elements of the plan (the question he wanted to ask, the response he wished to obtain) that he did not really 'listen' to the pupil answers. In this instance, the substance of the children's responses were unlikely to divert him from the course of action specified by the plan-in-mind. There are only two occasions where he recalled conscious consideration of topics other than those envisaged in pre-lesson plans.

Turning to frequency of plan changes, David rated the frequency as somewhere between sometimes and frequently. Commenting on the phase of the discussion where change was more likely to occur, he stated that this was usually before the 'data-processing stage' had been left. Categories of possible change noted included location, materials used by teacher or

or learners, changes in response mode within a task, change of question sequence, addition of questions, consideration of topics other than those planned for. Most of these occurred in a limited number of instances. He also indicated that he was less happy changing learner performances than his own actions, and change to the general 'Taba' sequence for the lesson was unlikely. The 'Taba' phases did appear to relatively inviolate.

5.7 Methodological Issues Arising from the Case Study of David

The data collection procedures were designed to reduce the likelihood of distortion to the teachers' normal mental life in the course of data collection, and to reduce or eliminate some of the inherent limitations of recall and self-report. In this section, the extent to which these objectives were realized in the context of David's case is assessed.

(a) The fidelity of David's teaching behaviour (thought and action) was discussed on several occasions during interviews. For example, when asked to comment on the time and effort he had put into his planning for Lesson One, he responded:

> *There is nothing very much out of the ordinary there*
> (PRI - Lesson 1)

and in the structured interview he noted of his planning:

> *process the same. Except that my planning sheets are a damn sight easier to work than yours because I have literally a box for certain types of decisions.*

These observations, together with information concerning time allocated to planning and the relationship between his perceptions of his typical planning practices and the reality for these lessons, suggests that David's teaching did not depart significantly from 'normal'.

(b) Several limitations in David's use of the pre-lesson planning record need to be acknowledged and taken into account. In Lesson One, it appeared that he had found himself contemplating the need to plan for this lesson on several occasions, but competing demands on his time meant that he had to 'suppress' ideas about lesson elements. Because David did not make a record of the fact that his thoughts had turned to the lesson on these occasions, it was not really possible to accurately and reliably establish what occurred during this suppression. For example, it was not clearly established whether he had actually envisaged possible elements for the lesson or had only been aware of the necessity to engage in planning at some time.

e.g. *(T) I can recall the planning process quite clearly. It goes in terms of I must get that planning done for this lesson. Without a great deal of thought beyond what sort of vague ideas, what I had in mind. But there was clearly almost a suppression of ideas until I actually could write them down. It was almost suppression of ideas until I could put pencil to paper...*

Yeah, I definitely, maliciously, rejected ideas because of the pressure of work, until I could say, now I'll devote my time to this. And I had the security of knowing I would plan something that was suitable for me to teach, and not worrying about thinking about them until this stage, prior to writing them down, or not being prepared to write anything down.

(PRI - Lesson 1)

David also indicated during the plan interview for this lesson that other thoughts had surfaced following the main period of planning, but had not been immediately recorded. In particular, he observed that he had experienced a concern about the adequacy of the range of sample advertisements that he had on hand. This concern was ultimately associated with recorded planning thoughts (decisions to introduce as a topic "other forms of advertising", and to have additional samples available) but did not appear to have been recorded when it first emerged and then reoccurred.

In Lesson Two, a key concern during planning was the selection of materials, but David's thoughts in relation to this element were not fully documented. Preceding the main sustained period of deliberate planning David spent time on several occasions 'looking for' a suitable set of basic resources. His first record of this concern was a note of the materials finally chosen. Fortunately, he was able to recall with seeming accuracy the content of his thoughts about resources and the criteria considered. The number of times this concern was registered was not, however, identified. Subsequently, David systematically went through one of these resources (a package of sample advertisements) selecting those that would be appropriate to the lesson. In the planning record, he noted details of the advertisements he decided to use as well as thoughts about associated teacher and/or learner actions. Unrecorded, however, were his thoughts about those advertisements considered, but rejected. In particular, the criteria that were used as a basis for these judgements were not noted. While David again was able to recall the criteria that he believed were in his mind at that time, the period of delay in recall meant that this information could not automatically be considered accurate. In addition, information about the sequence of specific thoughts that may have been associated with each judgement was

not available.

There appears to be several possible features of those thoughts that were not noted in the planning record. Such thoughts may have:

(a) received momentary or cursory attention;

(b) incorporated ideas about lesson elements that were rejected or considered to be only tentative 'possibilities'; and

(c) been associated with concerns not directly associated with the lesson being planned (e.g. recurrent feelings of being under pressure).

The omissions in the planning record may also be a consequence of lack of thoroughness in the briefing of the teacher, lack of teacher familiarization experiences, or reflect inherent practical difficulties in the task of keeping such a record.

In respect to David's recall of within-lesson thoughts, several incidents indicate a degree of uncertainty or tentativeness on his part at times in specifying whether or not certain thoughts had been consciously registered. David's statements suggest that thoughts were registered with a varying degree of 'intensity', as well as for varying lengths of time. It seems quite possible, therefore, that more thoughts were experienced than finally reported. Where these were of minimal salience and were registered only momentarily, they may not have made the transition from short-term to long-term memory.

Finally it became apparent in this case, as with others, that greater sensitivity to potential categories of within-lesson attention and thought may have enabled the researcher to establish more reliably and precisely their presence in the incidents David recalled. For example, with more thorough and directed discussion, the specific aspects of the children's behaviour that he attended and consciously responded to might have been established.

CHAPTER SIX

CASE STUDY OF SUSAN

6.1 Introduction

Susan was selected as the second teacher for intensive study on the basis of two criteria:

(i) she was a student teacher rather than an experienced teacher; and

(ii) the researcher formed the impression during data collection that there were a number of features of her teaching thoughts and actions that were significantly different from those associated with David's case.

In this chapter, a description and discussion of the key features of the data concerning Susan's thoughts and actions is presented. The format of this presentation is the same as that used in David's case. Thus, following a brief portrait of Susan, the succeeding sections of the chapter focus, in turn, on the content of her pre-lesson plans, her approach to the process of planning, aspects of her attention and thoughts during lessons, and the relationship between her pre-lesson plans and the reality of lessons.

6.2 Susan: A Brief Portrait

Susan was in her third year of a teacher education programme. For the teaching practice section during which her planning was studied, she was placed with an Associate Teacher who was Principal of a four teacher rural school.

She described herself as being 'very satisfied' with teaching as she had experienced it at this point in her career, and attributed this to the fact that:

> *I had a successful section, and nothing seemed to go wrong. Nothing major went wrong and I felt as if I was really teaching, and I gained an insight into what everyday teaching is like. I didn't mind it. I quite enjoyed it.*
>
> (S.I.)

Susan defined the experience of 'really teaching' as incorporating feelings of confidence. She had the impression that more was expected of her because of her status as a third-year student:

> *They expected certain types of things from you which, if they weren't expected of you, I don't think you'd give them. But somehow you seem to find them.*

Furthermore, she had confidence in her ability to "take over", to discipline or "be firm", and "to teach something without planning something". The latter involved situations where *"there's time to fill in, or the associate teacher had to go out or something like that"*, and situations where planning occurred without the requirement of *"having to write something down"*. Susan also observed:

> *Things that I didn't plan were things that didn't have to go right because they weren't college requirements, or there's no lecturer watching me. Even if I hadn't put enough time into it and hadn't planned sufficiently, it didn't matter because it didn't matter if things didn't go quite as they should have.*

One might interpret the final statement as implying that Susan found it possible to experiment with the effects of variation in her planning efforts in a way that was not possible - to her mind - when her teaching was subject to observation and assessment.

6.3 The Content of Susan's Pre-Lesson Plans

In this commentary on the content of Susan's pre-lesson plans, her planning concerns for the three lessons are outlined and discussed in the context of her perceptions of and explanations for the typical content of her plans. FIGURES 26 to 31 (pp.188-193) document the sequence and frequency of elements considered by Susan during her planning for the three lessons.

Clearly evident during all phases of Susan's planning was a concern with specifications for both teacher and learner actions. The actions of the learners were rarely specified in terms of particular categories of learning behaviour, however, and Susan did not identify such behaviours as a typical planning concern. Rather, in each lesson she tried to identify the content of likely or acceptable learner answers to the questions that she proposed to ask. These answers may represent the 'content' outcomes that she noted when commenting on her planning practices:

> *I always work through what I want to teach them. I don't think of them as objectives. I think of it as content.*
> (S.I.)

In Lesson Three, Susan found it difficult to 'predict' answers to key questions, and she registered her uncertainty about the likely course of events for this lesson on several occasions prior to the lesson:

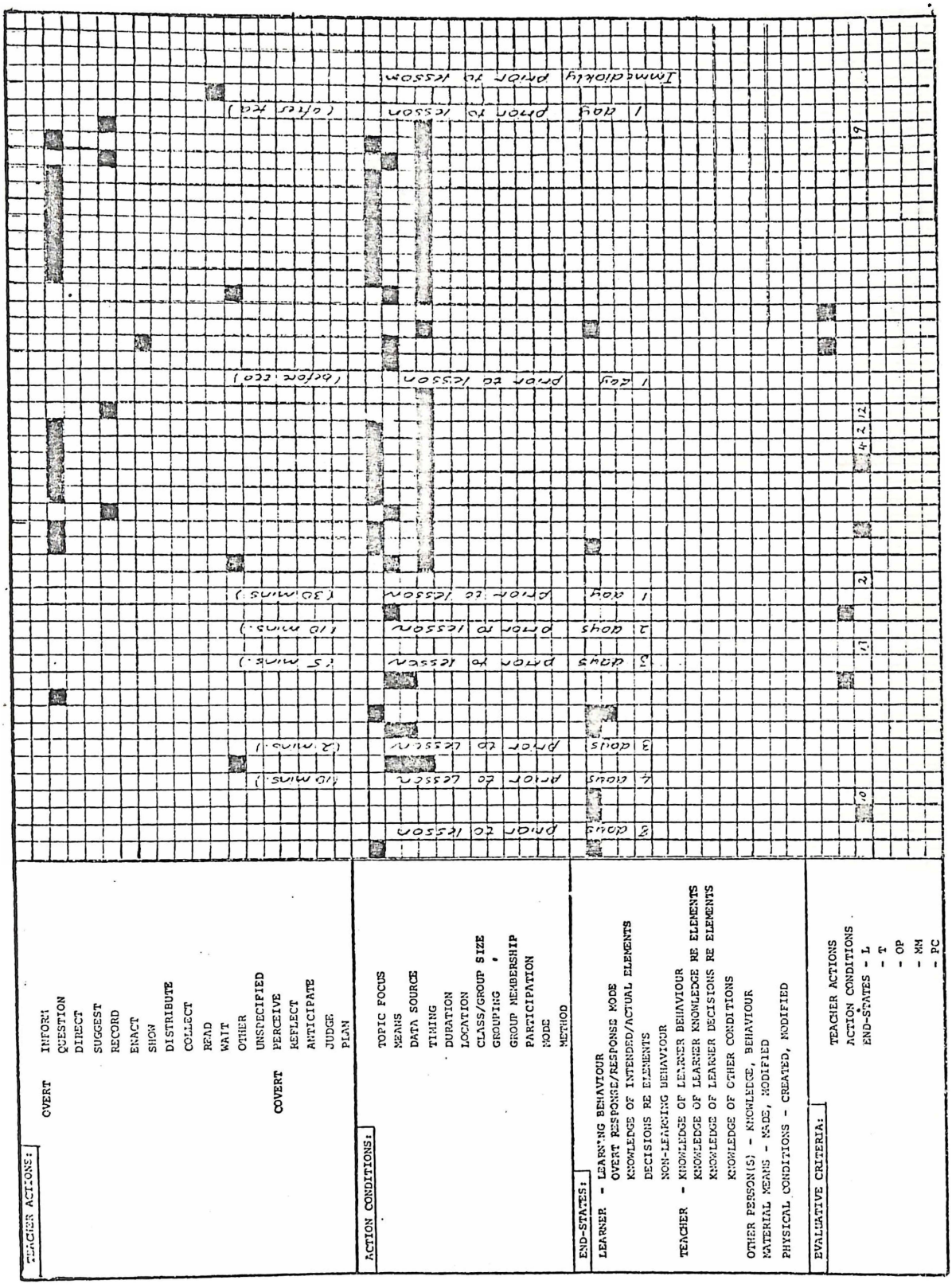


FIGURE 26: Susan: Sequence of Lesson Elements Considered-Lesson One

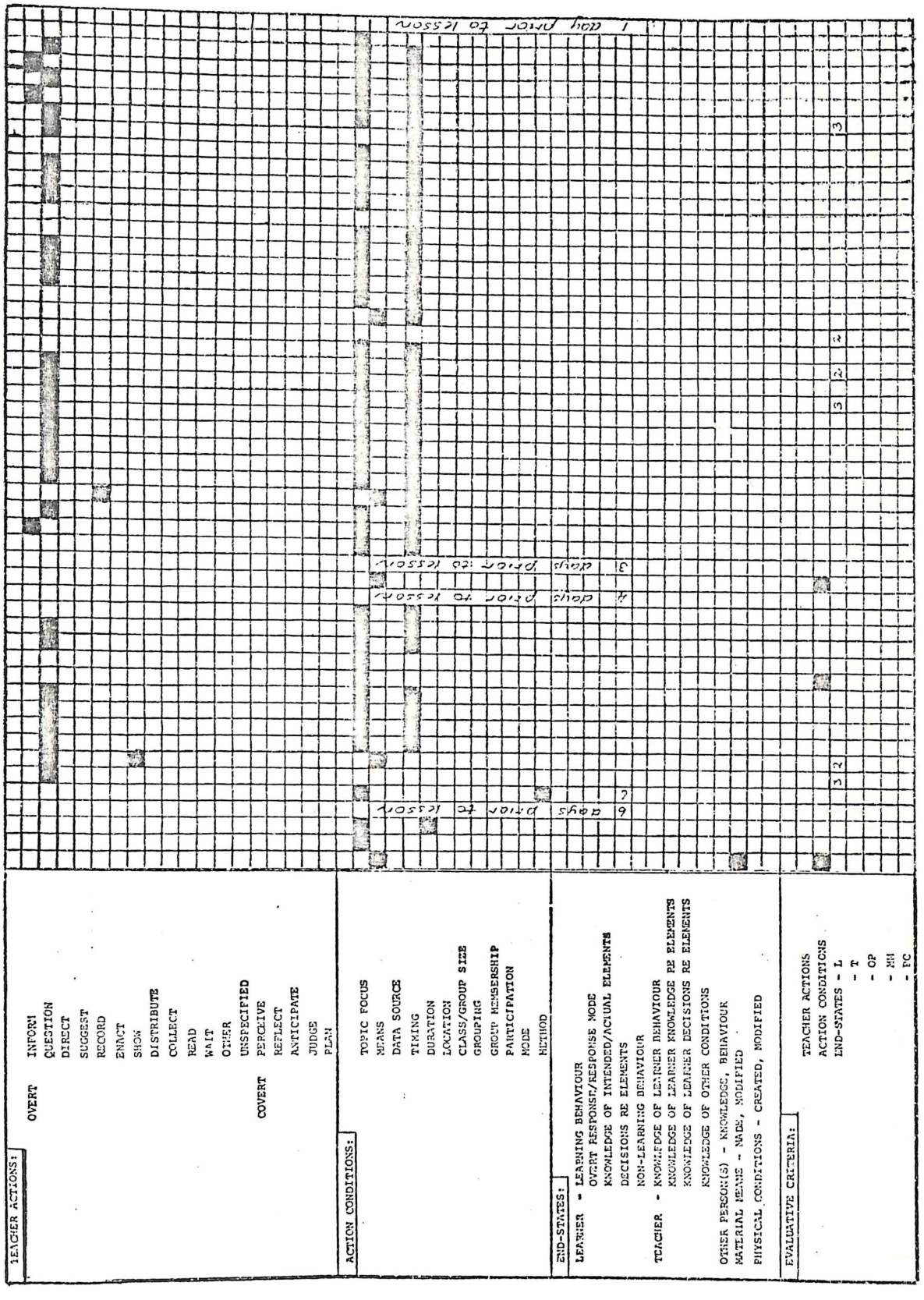


FIGURE 27: Susan: Sequence of Lesson Elements Considered-Lesson Two

FIGURE 28: Susan: Sequence of Lesson Elements Considered-Lesson Three

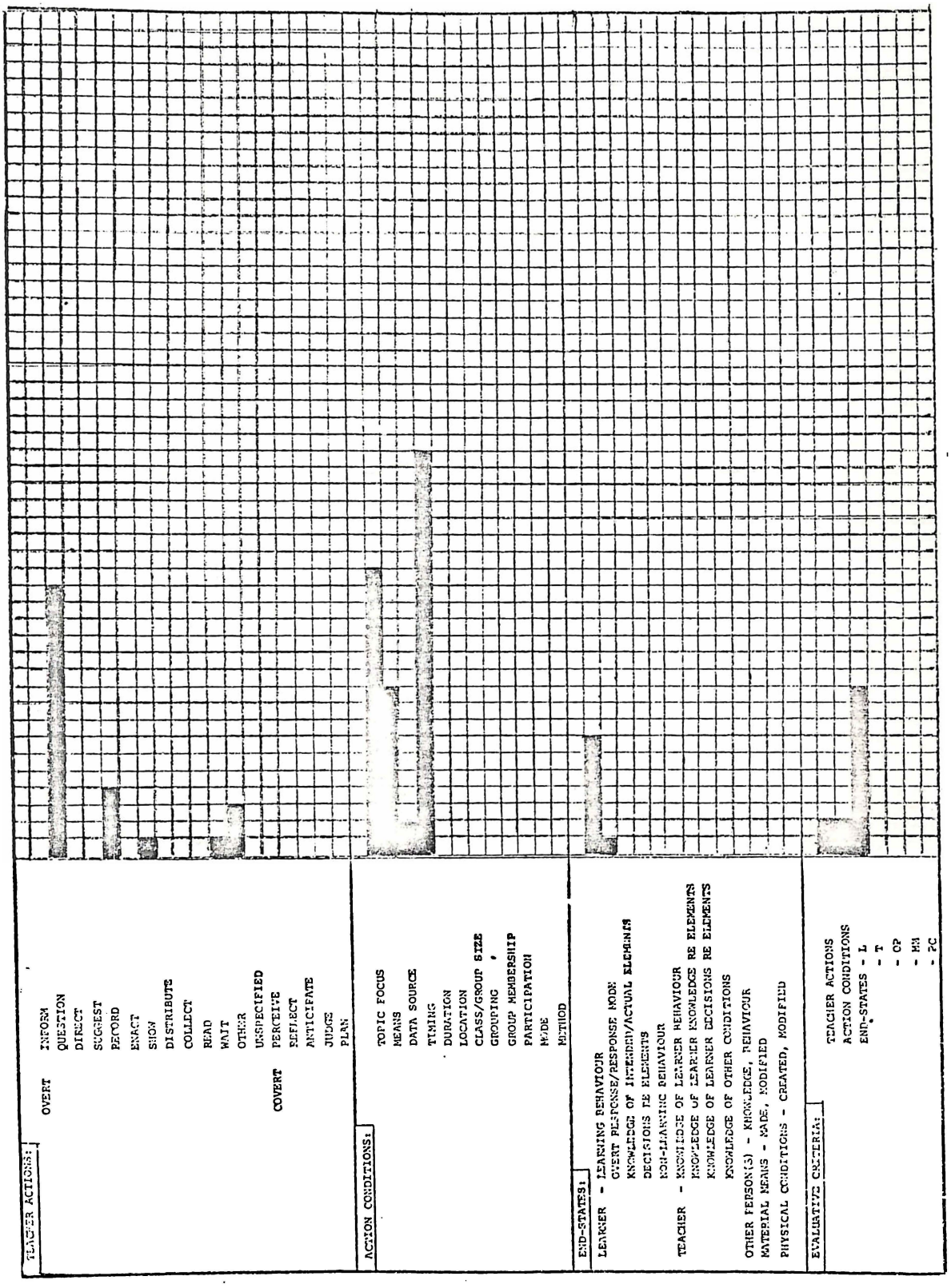


FIGURE 29: Susan: Frequency of Lesson Elements Considered-Lesson One

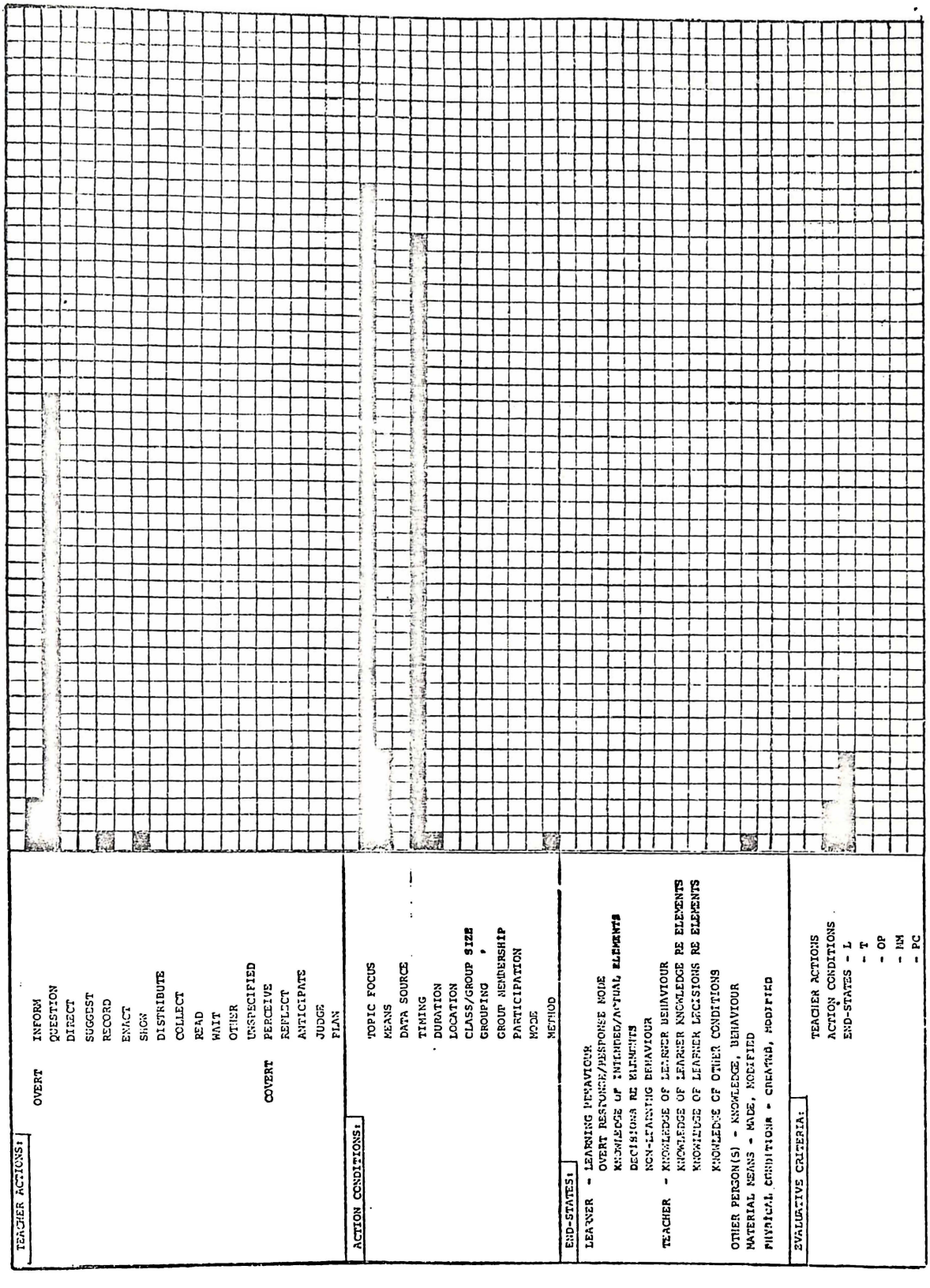


FIGURE 30: Susan: Frequency of Lesson Elements Considered-Lesson Two

FIGURE 31: Susan: Frequency of Lesson Elements Considered-Lesson Three

I didn't know how they were going to answer the question. Yet some you can really predict...and I just didn't know how they were going to answer any of the questions.

(PRI - 3)

This lesson will depend a lot on child responses - am not sure of the exact format or just what will happen.

(PR - 3)

I'm not too sure how the children will answer any of the questions, and so I don't know how well the lesson will go. The particular questions that may cause trouble are the ones which ask the children to determine whether or not advertising is always good.

(PQ - 3)

Susan's concern with this feature of the lesson is understandable when placed in the context of her observation that one reason for her typical planning practices was her need to *"know exactly where I'm going"*. One consequence of her uncertainty on this occasion was a decision to formulate a set of conditional teacher actions:

If they can't ask -

is advertising therefore always a good thing?

If they can ask again -

does that mean - advertising is not a good thing and we shouldn't have any?

and where do we draw the line?

(PR - 3)

Conditional specifications were not evident in the other two lessons. Susan's need to *"know exactly where I'm going"* clearly also encompassed her own actions as well as those of the learners. When asked to indicate the aspects of such lessons that she felt she would always consider during planning, she noted:

(T) The format of the questions, and the sequence of the questions.

(R) The format?

(T) The phrasing.

The data in TABLE 3 confirms the fact that teacher questions were a central planning concern.

TABLE 3 Susan: Number of Questions Planned and Scripted

Lesson	No. of Questions Planned	No. of Questions Scripted
1	10	7
2	17	17
3	10	10
1-3	37	34

Further confirmation of the attention Susan gave to phrasing comes from the planning records for Lessons One and Two where changes to the script of tentative questions were recorded, and from the Plan Questionnaire data which indicated that "the actual phrasing of the questions" was the most difficult aspect to plan for two lessons.

It can be noted here that in contemplating *"what...the question or the lesson should contain"* (S.I.), Susan gave attention to the topics for the lessons. Topics did not generally receive discrete consideration. Rather they could be identified as implicit in the specification for teacher actions or learner responses.

The timing (sequence) of prospective teacher and learner actions was specified for each lesson and the pre-determined sequence clearly helped increase the predictability of events. For Lesson One, this was shaped by the hierarchy of ideas that Susan had constructed and hoped to elicit from the children. This represented one instance where an academic teaching-learning theory was held in mind and directly influenced elements of the plan, including sequence:

> *(T) ...because Ausubel, you're meant to be familiar with everything else. Then you fit some new thing in, don't you. But this was just sort of making a whole, complete hierarchy up.* (PRI - 1)

In the Plan Questionnaire data, she recorded the fact that the most difficult part of the plan to formulate was "the discussion related to the hierarchy", or more specifically, "the sequence of questions so that I'd get it". Some seven questions were drafted in her first attempt to lay out a relatively thorough and detailed set of specifications for teacher actions, and modifications were made to a number of these when they were subsequently reviewed. Her indecision was also reflected in the changes she made to the content of the hierarchy itself. Susan recalled that she had experienced some difficulty on the previous occasion she had attempted to develop such a hierarchy in deciding "where to fit them in". In the other two lessons, there were no statements made that would point up an explicit rationale for her decisions concerning the timing of elements. She did note, however, that for Lesson Three one of the planning difficulties was formulating *"a sequence that would help the children get to the point of the lesson - a sequence that would develop their thinking appropriately"*. Generally, succeeding teacher questions initially emerged into mind in a sequence that reflected the intended sequence for the actual lessons.

A further aspect of lessons that Susan believed would almost always receive attention was the 'time factor':

> *How much time you should allow. And think how many questions you've got to ask in that time.*
>
> (S.I.)

This was recorded as an element of concern in Lesson Two in particular. In the Plan Questionnaire data the most difficult aspect of the lesson was described as:

> *the form of the lesson and what to include. I wanted to include all three media but did not know whether there would be time. I decided to risk it.*
>
> (PQ - 1)

Immediately prior to the lesson, however, Susan decided that the risk should not be taken, as the final recorded planning thought indicates:

> *I thought, I've got too much.*
>
> (PR - 1)

Her need to feel confident that she had 'got enough' was one of the reasons she saw for her currently very comprehensive and detailed planning. The skills of deciding on the pace at which curriculum will be moved through and the time that would need to be allocated for particular events are ones that the novice teacher may take some time to acquire. She expressed her belief that the task of making decisions about pacing and timing may occur *"more subconsciously with experience...whereas I think I would have to think about it"* (S.I.). Susan's teaching practice experience on this occasion appeared to have had some positive pay-off in terms of these skills. One of the general benefits she noted was *"learning to handle a whole class and teaching all day"*. The latter required the learning of "time factor" skills.

> *(T) If you want...want to get so much done in Maths, and you didn't get it done, are you going to leave it until tomorrow, or is it that important that you can shift it into the reading time or...*
>
> *(R) Being able to balance one thing against another?*
>
> *(T) Yes. And if for some reason you've got to miss out something in that day, because of some unexpected, some unexpected thing, can you know, what can you miss out? What is the thing that you can miss out?*

Susan identified one other likely feature of her plans in the course of the structured interview:

> *(T) And I think I always try to think of something a little bit different. Try and think of something...instead of just sitting and discussing something. I always consider other things that I could bring in like the tape or pictures. And sometimes, sometimes you wipe them*

because it may be better if you didn't introduce them. But I always consider something. Even if I don't use it in the end.

(R) *And what are those things intended to do?*

(T) *Oh, motivate them. Keep them interested.*

Plans were made for the use of materials in each lesson, and indecision in the planning process at times related to decisions as to what and how materials might best be used. Susan's statements suggest that their use was in part intended to facilitate the children's affective response to the lesson. Concern with learner motivation did not appear, however, to be a significant planning concern in the context of these lessons. There was only one occasion (Lesson One) where Susan recorded her conscious consideration of the children's affective responses. Here, one of the end-states associated with the playing of audio-taped samples of advertisements was intended to be the children's "surprise". On the basis of even limited previous teaching experience, it is possible that Susan automatically plans conditions to facilitate such outcomes ('motivation'). This remains a conjecture at this point, however.

Whilst Susan described her plans as most likely to be very comprehensive and detailed (*"that's partly because I feel I need to because of lack of experience and college demands it"*), she considered that some variation in these characteristics could occur. Factors that she identified as possible determinants of this feature of her plans included familiarity with the topic; the extent to which she was dependent on a discussion method to realise particular learning objectives (*"...in a purely discussion lesson, I think I spend more time planning that"*); the availability of 'prepared' syllabus or curriculum guidelines; whether the children were going to work in groups or as a whole class; and whether the specific lesson formed part of a 'unit' for which a major plan had already been formulated:

Well usually my unit plans are very detailed, and therefore I don't spend much time on individual lesson plans...The only thing I would go over would be types of questions. To formulate my questions so that I know exactly what type of question I'd ask. (S.I.)

Time available, and the characteristics of the children being taught were not factors that Susan believed were likely to influence her planning. It can be noted that in planning for the three lessons, her intentions were at all times formulated in terms of the children as a composite group rather than as individual learners. There were no instances where her attention was focussed on individual children as she planned ahead for these lessons.

It was not possible for Susan to recall instances where she taught lessons completely 'off the cuff'. She stated that she was unlikely to go into a lesson without having some thoughts about it previously:

> *I've usually thought about it the night before. I'll think about what I've got to do tomorrow and find something, and think about the process or the procedures that I'll, that I'll run the discussion with.*
>
> (S.I.)

Asked whether the visit of a Teachers College lecturer was likely to influence planning, she responded:

> *Yes, although I'm pretty thorough right the way through. I spend a lot more time thinking about those lessons when a lecturer came. There was more organisation than method planning.*
>
> (S.I.)

Several other features of Susan's plans merit comment. First, there were no occasions where Susan explicitly envisaged as an end-state, the children having information about intended or actual elements of the lessons. Second, the possibility of the children making decisions about elements of the lesson was not contemplated, and the extent to which the teacher and/or the children might have responsibility for determining or influencing the course of events (teaching-learning mode) was similarly not reported as a conscious concern. Susan seemed to assume that 'control' would automatically rest in her own hands. Third, in regard to her actions, Susan's planning thoughts did not include attention to any covert actions she might engage in during the lessons. Finally, there were also no instances evident in the planning record and associated interview where Susan reported having been aware of particular criteria for her own actions. As previously recorded, however, she did note in plan questionnaire data that she had been concerned with the phrasing of questions. It might be assumed that there were certain criteria that influenced decisions she did make about this aspect. These were apparently not consciously registered nor recorded.

6.4 Susan's Approach to the Planning Process

Three aspects of Susan's approach to the planning process are discussed in this section:

(a) phases observed in Susan's planning for the three lessons;

(b) Susan's perceptions of the activities that she typically undertakes during planning; and

(c) the match between Susan's perceptions of her general planning practices and the reality of those practices for the three lessons.

In Susan's planning for the first two lessons, three broad phases were evident. During the first, an array of 'possibilities' were brought to mind, but there was no attempt to formulate an overall coherent and detailed plan. Thus, while final decisions about specifications for some elements of the lessons were made during this phase, there were also instances of rejection and reformulation of the possibilities being considered.

In the second phase, a first draft of the prospective plan was assembled. At this time, Susan's attention was focussed on teacher questions in particular, as well as responses that she hoped might be facilitated by the questions she formulated. The sequence for all teacher actions was also envisaged.

In a subsequent phase, Susan reviewed this first draft and drew up a final version that incorporated some modifications or additions. As well as providing for a final 'editing' process, the review appeared to have helped Susan stabilise and delineate the plan in memory. It may also have provided a rehearsal opportunity. She noted in the context of Lesson One that the review of the plan allowed her to *"clarify my own thinking"*.

Susan also observed in the context of Lesson One, that the first instance in which she turned her attention to the lesson's prescribed teaching and learning objectives effectively provided her with a 'set to plan' that made her receptive and responsive to thoughts about the lesson to come:

> *Just so that if, like if you suddenly think of something, if I know what I had to do, and just, you know, anytime from then until I was taking the lesson I could have just thought of something, whereas it wouldn't have happened if I didn't know what I was meant to be thinking about. I just sort of thought, I'll read it through and then wait for any ideas to come.* (PRI - 1)

For Lesson Three, there were two phases of deliberate planning. Unlike the pattern of planning for the previous two lessons, Susan moved directly to a consideration of a possible sequence of teacher and learner actions and responses. The second phase matched the final phase for the previous two lessons.

Susan noted that planning thoughts had come to her 'spontaneously' on occasions. In her own words:

> ...*I wasn't actually planning. I just thought of things as I was doing it* (chart).

It is interesting to note that she did not describe these instances as 'planning'. From Susan's perspective, it appears that planning was something that occurred as a 'willed' or deliberate act. In the course of the interview, she also commented that she:

> *"didn't do any planning once my college requirements were finished on section. I didn't write anything down.*
>
> *(R) You didn't write anything down. But I suppose...*
>
> *(T) I thought about it. Yes I did think about it.*

The definition that Susan might attach to the notion of planning seemed likely, then, to also include reference to the production of some written document.

Commenting on her typical approach to planning in the course of the structured interview, Susan observed:

> *You work through. I always work through what I want to teach them. I don't think of them as objectives. I think of it as content. And then I go through and do my sequence. And then I go and work out, you know, take it from that...my objectives and all the rest of it...I usually think of an activity first. What we will do. There's only one time where I've planned from objectives first...I think sub-consciously I'm thinking...I'm aware you know, this resource would be good to meet this objective. I'm sub-consciously aware of <u>what I get at</u>, but I don't really define what I'm exactly going to do, to <u>try and reach</u> until the end. And also, lots of other skills and things are developed in your activities which aren't or theoretically would be part of your objectives at the top, unless you've already thought about your activities.*

Susan's perceptions of her own planning include, then, the view that she is unlikely to focus a lot of attention on her 'objectives', or what she is trying to 'get at' during the initial stages of plan formulation. Her attention is more likely to be directed to 'an activity' and 'what we will do'.

Susan appears to argue a case for allowing the planning process to proceed without premature final specification of objectives. Mentally surveying a range of possible subject matter, activities and materials may prompt thoughts about objectives that might be desirable or practically feasible. Certainly, if objectives are fixed at the outset of the planning process, the teacher may be prematurely blinkered as to alternatives and options in terms of objectives, or may find that personal or material resources make them difficult to facilitate.

In respect to the timing of consideration of new learnings, it might also be suggested that it is easier to bring to mind those activities that

both teacher and learner are definitely or likely to be capable of performing already, than to envisage those that have not been previously attempted. Under these circumstances, it may be easier to get planning underway by bringing to mind the known than the unknown. Both of these conjectures were not explored with the teacher during data collection and remain unvalidated.

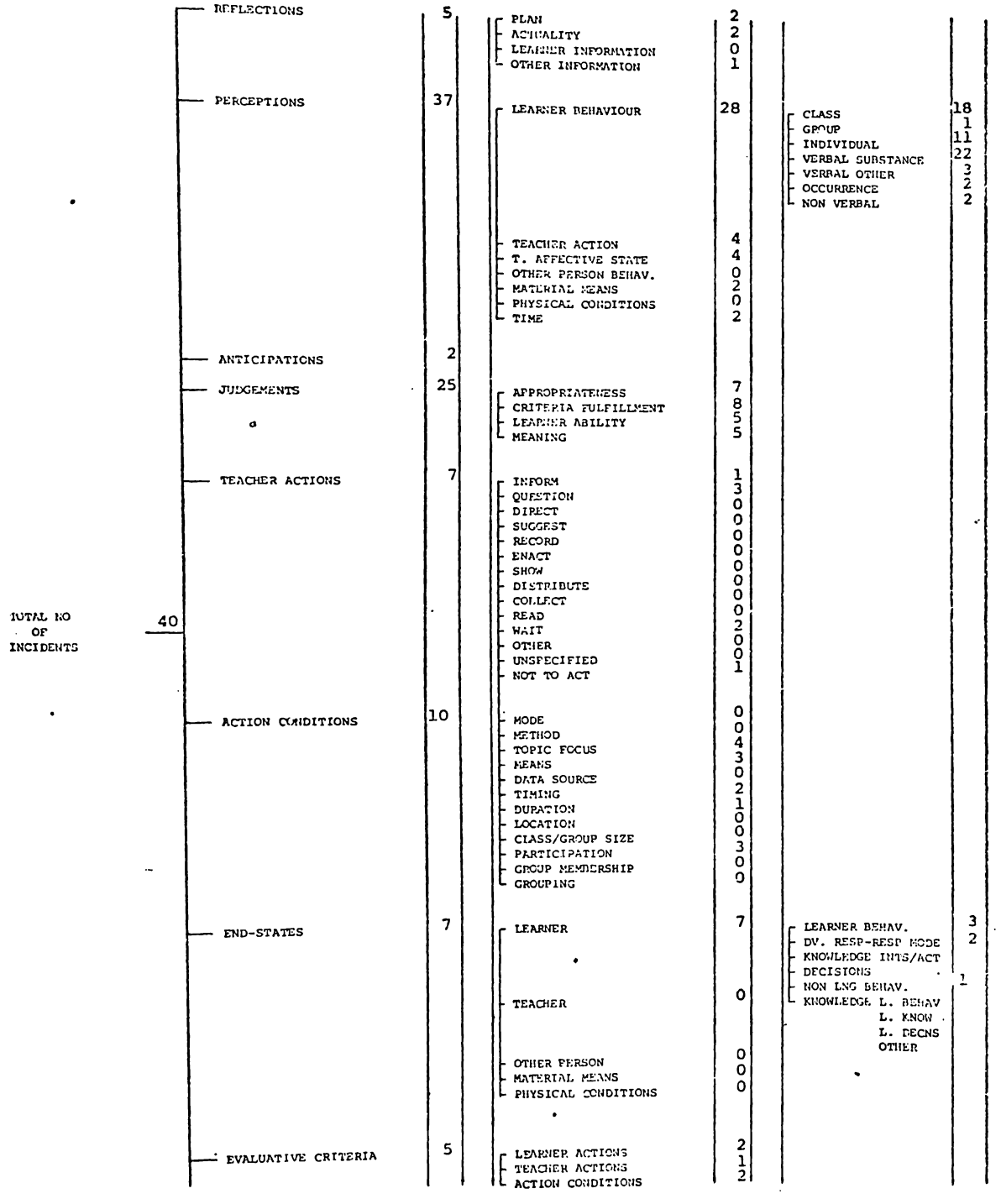
In assessing the match between Susan's perceptions and the reality represented in the data obtained in this study, it must be remembered that the teaching task directions specified in general terms the learning behaviour the teacher was supposed to attempt to facilitate, as well as the general topic focus. The teachers were 'forced' to consider these objectives at the outset of their planning in the context of these lessons. Some departure from normal practices may have been imposed. Susan did direct attention to learner behaviour and this generally occurred in the earlier phases of planning. As noted previously, her attention was directed, however, to the content of the responses that she hoped to elicit from the children more frequently than the types of learning behaviour that the children might engage in. As the records of the sequence and frequency of planning thoughts indicate, there were a limited number of instances overall where she appeared to have directed attention to learning behaviour. No instances were recorded for Lesson Two. One might assume, nevertheless that she did mentally re-note the specified learning behaviour and general topic focus for this lesson. These specifications had been considered at the outset of planning for Lesson One. Materials and their potential use as a data source were also likely to be early concerns during planning. In the latter phases of planning, Susan appeared to be particularly concerned with formulating a detailed script for her own actions in particular.

6.5 Susan's Within-Lesson Attention and Thoughts

In this section, data concerning the focus of Susan's attention and thoughts during the three lessons are presented, and discussed in relation to her perceptions of her typical monitoring and planning behaviour in lessons. TABLE 4 (p.202) presents a summary of the total number of lesson review incidents in which Susan reported specific categories of attention and thought.

Perceptions: In the 40 incidents in which Susan recalled the focus of her attention and thoughts, her attention was most frequently centered initially on the 'here and now' (Perceptions), in particular on the responding of the children. The three lessons were characterized by a

TABLE 4: Susan: Total Number of Lesson Review Incidents Including a Focus on Specific Categories of Attention and Thought



relatively high level of chorus-answering, and this may in part account for the fact that she more frequently recalled impressions of the behaviour of the children as a group rather than that of individual children. Because she was contending with a relatively high information load, she may have experienced a cluster of somewhat undifferentiated or blurred perceptions at times. This pattern of recall may also, however, have been an artifact of difficulty Susan probably confronted during the lesson reviews when she attempted to remember the exact focus of her attention during such interactions. In addition, it must be acknowledged that the categorization of response to the class or a group of children could be refined somewhat. Coding of responses to the class as a whole was generally made on the basis of Susan's reference to *"they"*.

e.g. *(T) I was aware here that <u>they</u> weren't really thinking. <u>They</u> got the bit later on, before, or with my help and <u>they</u> understood the bit before - some people are fooled by ads, others are realistic enough to, to be aware of...you censor them. But <u>they</u> couldn't think of any ads that were, perhaps were convincing people to buy products that they didn't really need...*

(R) So what exactly was in your mind here then?

(T) Well, that. I could see that <u>they</u> couldn't, <u>they</u> weren't going to give me any.

(R) Examples of that type of ad?

(T) Mmhm.

Additional probing may have established more clearly and reliably whether her attention was, in fact, directed towards all of the children, or whether she was summing her actual perceptions of the behaviours of some of the children, and taking them as indicators as the likely common behaviours of the rest.

A further coding problem may be noted here also. On some occasions, Susan's reports of her attention to children's behaviour, coded as perceptions, may have also provided evidence of reflections. For example, when she made reference to the fact they 'they' were not able to give the correct or acceptable answers, it might be legitimately inferred that she was paying attention to and taking into account a succession of answers. Thus, on occasions her judgement about the children's ability to answer appropriately may have been based on perceptions of an immediate answer, as well as reflection on answers offered over a period of time previously. The situation is more clearly illustrated when the teacher recalls her awareness that a pupil has not offered any answers for some time.

e.g. *(T) ...I thought that he hadn't said anything for ages.*

(Lesson 1, Incident 4)

As noted previously, chorus responding occurred relatively frequently throughout these lessons. There were, however, only three instances where Susan reported her specific concern about the level of noise during the discussions and her actions to reduce it.

e.g. *(T) I was just standing there for them to be quiet. They're too noisy.*

(Lesson 2, Incident 12)

There were other occasions evident during the lessons (in particular Lesson Two) where she undertook actions in response to noise level as well as other off-task behaviour of the children, but these apparently occurred as an automatic response to the situation.

e.g. (actual teacher statements in Lesson Two)

- *Shhh. We're listening to Adrian.*
- *Dion!*
- *Oh Adrian. OK. You're getting a bit carried away there boy. Better put you outside.*
- *Shhh Adrian. One at a time.*
- *Hands up.*

It should be noted that Susan did not seem to have a general concern with the prevalence of chorus-answering.

(R) Through a phase like that where they're getting so excited, are you aware of them or are you reacting, reacting automatically without any conscious concern about them all wanting to answer at the same time.

(T) Yes, just automatically. I wasn't really worrying.

(Lesson 2, Explanatory Incident)

This points up the individual differences that are likely to exist in respect to preference and tolerance for, as well as ability to process the higher information loads that are a feature of such interactions. While the press of information may be coped with, opportunities to consciously take account of and respond to events may be curtailed. This was evident in one incident when Susan indicated that she had not been consciously reacting to events through a phase of Lesson Two, and then observed:

(T) I can't remember thinking anything...You're busy trying to listen to all these conversations, although there was always one dominant person in it, in the, who are worth listening to, and everybody was sort of reacting to that person.

(Lesson 2, Explanatory Incident)

Susan's perceptions of the children's behaviour were most frequently associated with the substance of their answers to questions (almost two-thirds of all perception incidents). She commented on her likely attention to the substance of the children's answers in the structured interview:

> *Whether they're coming up with the right, with ideas which you thought of, or whether they're coming out with ideas that they've obviously thought about. Not just recall questions or something like that. The depth of their thinking.*

Her perceived concern with the quality of children's answers was also evident in the judgements she recalled making, either about the relevance or acceptability of answers, or the children's apparent ability to handle the learning task that the question was intended to initiate (11 incidents included these categories of judgement).

In the course of the interview, she indicated that she would also be likely to be taking account of:

> *How many children are participating, and whether the quiet children who aren't just, who don't usually participate at all...and just how fiddly the children are. Whether they're really involved. You can tell if they're really involved by whether they're listening and answering questions and things like that.*

The occurrence or non-occurrence of pupil responding did not, however, appear to be a significant conscious concern for Susan in the course of these lessons. There were only two incidents where she recalled her awareness of and concern that a pupil had not been volunteering answers. This data may indicate that:

(a) Susan's monitoring of participation or involvement occurred as a relatively automatic activity;

(b) there was no cause for concern from her point of view, with this aspect of the children's responding in these discussions;

(c) the levels of interaction referred to previously reduced opportunities for her to monitor this aspect of the children's behaviour.

The data available do not allow the accuracy of these possible explanations to be established.

While relatively few incidents included a focus on participation, Susan did appear to have formed a general impression of the relative

level and quality of contributions from individual children over the course of lessons. Thus, during the Lesson Two review she observed:

> (T) *Adrian, he's the one who actually kept the discussion... rolling and taking things away out on a tangent and all these sorts of things. Yes, it was him mainly... Dion and Marie spoke up a lot more than they usually do. Actually it seemed to be the children, not the same ones who lead the last discussion because you know, it was recall and they didn't really have to think, so all of them could contribute something. And so it was sort of children who, who'd perhaps couldn't think as deeply as the others who came out more.*
>
> (Lesson 2, Incident 2)

Susan considered that a further likely focus of her attention was the extent to which she was required to actively structure, direct or control the interactions (i.e. Teaching-Learning Mode).

> (T) *And how much participation you've got to...*
>
> (R) *How much you've got to contribute?*
>
> (T) *Yes. Whether they're motivated enough, or whether they're running the discussion themselves, or whether it's just question-answer, question-answer...and if you've introduced the discussion well enough, and asked the right sorts of questions, you shouldn't have to participate all that much, if that's the sort of discussion you want.*
>
> (S.I.)

She made no explicit reference to a concern with teaching-learning mode, however, when reviewing the three lessons. It is also appropriate to note here that Susan's attention was directed to her own actions or feelings on few occasions (4, 4 incidents in each case). Three of the former were essentially associated with judgements that particular actions were inappropriate. In the remaining incident, Susan anticipated the possible, undesired responses that particular words in a statement might elicit.

> (T) *Then I decided, I think I must have realized that they weren't going to get the definition out by asking how do you know they were ads because it was so obvious to them...I didn't think they'd really be able to answer the question properly.*
>
> (Lesson 1, Incident 3)
>
> (T) *and when I said 'two main types' I was scared they'd bring up this display and classified bit again, so...*
>
> (Lesson 1, Incident 14)

Instances of attention to materials and time was also recalled, but the number of incidents was limited (2 incidents of each category). Susan's pre-lesson concern in Lesson One that there might be an excess of content in relation to time available was not realized. No incidents

in Lessons Two and Three included attention to elapsed or remaining time.

Reflections: There were relatively few incidents in which reflections were reported, and in only two of these was Susan's attention clearly directed to an element of her plans (materials, teacher actions). Susan's plans, then, appeared to unfold without her being required to consciously monitor her progress through them. Under these circumstances, her attention could remain focussed on the learners. That her plans were relatively clearly delineated and stabilized in memory is suggested by the fact that she did not make use of the planning (prompt) notes that she took into each lesson. Thus:

> (T) *I thought I better take it* [plan]. *I had it. I thought I better take it just in case I forgot something, but I didn't use it. But I had it close by just in case I needed it.*
>
> (Lesson 2, Explanatory Incident)

One incident towards the closing stages of the third lesson provided the only occasion on which she recalled any uncertainty as to *"where to go"*.

> (T) *At this point I was ah, I'm picking up a few things. I don't think, I wasn't really listening to them. I'm sort of trying to decide where to go. I didn't sort of hear all these little ones, really missed. I'm really trying to think of where to go from here. They weren't getting anywhere.*
>
> (Lesson 3, Incident 10)

This incident illustrated the possible negative consequences of not having a plan available. In the course of trying to formulate further intentions, attention may have to be diverted from the learners.

Judgements: Within a little more than half of the total number of incidents (25/40), Susan recalled judgements that she had made. Most frequently recalled were those concerning:

(a) the appropriateness of envisaged, planned or actual lesson elements; and

(b) the relevance or value of particular learner behaviours.

The majority of the judgements represented 'negative' conclusions about lesson elements:

e.g. (T) *I was mainly concerned about the noise...*

(R) *You were conscious of the noise and feeling it was a bit too much?*

(T) *Yes.* (Lesson 1, Incident 11)

(T) *I was conscious that we weren't getting anywhere. They're sort of repeating themselves. Just sort of*

giving more examples. Same sorts of things.

(Lesson 3, Incident 7)

(T) *Yes, well I thought I won't bother to bring that* [topic] *in...I decided that it's not really worth it. Now if I try and get them to make a decision without thinking of all these other issues it may not be a very good idea.*

(Lesson 3, Incident 9)

In addition, there were five incidents in which Susan recalled her uncertainty about the meaning and/or basis for particular learner behaviours:

e.g. (T) *I, yes thought, well how had that come up. I didn't understand. I couldn't see how they'd interpreted my question to get these.*

(Lesson 2, Incident 8)

It appears that judgements were most likely to be consciously registered when Susan perceived one or more of the following circumstances:

(a) elements of her plans were not being realized;

(b) established criteria for acceptable behaviour were not being met (e.g. noise levels); or

(c) envisaged or actual elements were or would be inappropriate.

Planning Thoughts: Conscious consideration and selection of teaching actions occurred with limited frequency (7 incidents overall) in the lessons. For example:

(T) *That's when I changed the...rather than how do you know that they were ads. I decided to change it to asking what the definition of ads were.*

(Lesson 1, Incident 3)

(T) *I remember thinking, oh well, none of these kids are getting it, yet I'd heard the answer before, so maybe I'd better tell them.*

(Lesson 1, Incident 7)

(T) *...I consciously, I was aware of that then that I was going to wait.*

(Lesson 2, Incident 12)

Action conditions, including topic focus, material means, timing and participation, received conscious attention, but again the number of incidents within which these were reported was small. Illustrative of Susan's recall of her concern with these conditions are the following incidents:

The thought did run through my mind that I must try and involve Adrian again, because...That's where Adrian came back in and I directed a question to him (Participation).

(Lesson 1, Incident 4)

I consciously thought I've got to give, you know, this is something they can all talk about most of them, except for

Daniel, so I give them all an opportunity to say something (Participation, Topic Focus, Evaluative Criteria Topic Focus).

(Lesson 2, Incident 3)

...they'd just picked out the ones that applied to radio, [Taped radio advertisements], *so I thought we'd just bring it up* (Materials, Timing).

(Lesson 2, Incident 16)

I can't give them the impression, give them the impression that we should let any of these ads go on television except for the community ones, because so many people on television itself depend on advertising. I thought I won't bother bringing that [topic] *in.* (Topic Focus - Rejected).

(Lesson 3, Incident 9)

The number of incidents in which end-states appeared to have received explicit attention was also relatively small (7 incidents). Those considered were all associated with the children's learning behaviour. Susan envisaged having children overtly contribute to the discussion in two incidents:

e.g. *I consciously thought I've got to give...so I give them all an opportunity to say something.*

(Lesson 2, Incident 3)

In three further incidents in which she appeared to have the children's cognitive learning behaviour in mind, the end-states were rejected:

e.g. *I thought I can't give them the impression I don't think they need to wash their hair.*

(Lesson 2, Incident 10)

if I try to get them to make the decision...it may not be a good idea.

(Lesson 3, Incident 9)

In the remaining incidents, she thought it necessary for the children to "be quiet" to "see" information recorded on the blackboard, and to "come together a bit more". The exact meaning of the latter statement was not established during the review. Clearly, these end-states did not represent a significant departure from or addition to those originally planned.

In respect to evaluative criteria, in only two incidents did Susan appear to explicitly have in mind criteria for the content of learner responses that she might elicit. In one incident, having realized that *"that's* [interviewing] *another technique they use"* she decided to try to elicit this from the children. In the second, the degree of 'obviousness' of a correct learner response represented criteria that led Susan to modify a question. In three further incidents, possible elements were rejected because specific criteria could not be met. Criteria included possible conflict between her own statements and the

content of another class programme, inaccuracy of an 'impression' that she might communicate to the children, and inappropriate timing of a learning behaviour.

Susan's relatively infrequent attention to her own actions, action conditions, end-states on evaluative criteria as the lessons were underway might be attributed to several factors. They include:

(a) the thoroughness of her pre-lesson planning;
(b) lack of opportunity to turn her attention to these elements because of the nature of the interactions occurring during the lessons;
(c) the apparent lack of necessity for addition to or modification of initial plans; and
(d) a combination of these reasons.

In terms of (c), it is appropriate here to note Susan's descriptions of what would represent discussion lessons that were going really well, and lessons that were turning into a disaster. In the former, she stated that children would be all actively participating (including those normally more reticent), answers would be volunteered and initiated with limited teacher structuring, children would be listening to one anothers' ideas, asking questions, and there would be a depth or quality of thinking evident in their answers. In the disaster situation, there would be a lack of willing involvement and active responding from children, domination of the discussion by a few children, restlessness, talking, fiddling children, considerable teacher structure and direction required, and answers would not be 'good' ("at the recall level"). In the context of her three lessons, there were very few instances where levels of pupil participation, the quality of children's thinking evident in answers, noise and other off-task behaviour, and the extent to which she had had to structure the discussion were obviously of major concern for Susan. Given the lack of significant change to her pre-lesson plans as well as the nature of her within-lesson thoughts, it is apparent that the lessons were far removed from disasters. From her point of view, they had gone well, if not really well.

6.6 Plan-Reality Relationships

In this final section, data on the relationship between Susan's plans for the three lessons and the reality of those lessons are presented. These data are discussed in the context of her observations on aspects of this relationship for her teaching of discussion lessons in general.

In planning for each lesson, Susan formulated a number of specific teacher actions. The majority of these actions were questions. In turn, most of these questions had been scripted. In both Lessons One and Three, all planned actions were subsequently implemented, and there was a variable but relatively close match between plan and lesson scripts for questions. In Lesson Two, fourteen of the twenty teacher actions were implemented. Four of the planned actions were, however, conditional and it appeared that it was only appropriate to use one of these.

The number of prospective topics that could be identified in the planning record for each lesson tended to reasonably closely parallel the number of questions planned for. There were only a limited number of instances where topics featured as a discrete element of concern. Rather, topics were implicit in specifications for teacher questions. Within the actual lessons, almost all topics were touched on (Lesson One, 10/10; Lesson Two, 17/20; Lesson Three, 9/10). The number of unplanned topics dealt with in the lessons varied (Lesson One, 15; Lesson Two, 25; Lesson Three, 35). The planned topics as a proportion of the total number of topics, also varied (Lesson One, 40%; Lesson Two, 46%; Lesson Three, 25%). Susan's comments in the course of the Lesson Three review may offer some explanation for the change in proportion:

> *I think I was more relaxed too, because I didn't feel like exerting myself. Just letting them go on, and they were giving me all the cues.*

As the lessons were taken over the course of an eight week teaching practice section, Susan may well have become more relaxed and self-assur ed in terms of both her relationships with the children and in departing from plans. The prescribed objectives for the last lesson may have also contributed to this pattern of data. Susan commented in the course of planning for the lesson that she could not reliably predict or anticipate how the children might answer questions, or *"how the lesson might go"*.

The number of unplanned topics touched on in each lesson that could not be considered to be immediately relevant to either the subject matter or instructional/managerial aspects of the lessons was relatively small (Lesson One, 2/15; Lesson Two, 5/25; Lesson Three, 5/35).

In the course of planning for each lesson, Susan envisaged responses that she anticipated or hoped that she might be able to elicit from the children as she set about facilitating the learning objectives. The number of 'planned' responses varied across the lessons. There was, in

fact, a decreasing number considered over succeeding lessons. In both Lessons One and Two, all planned responses were subsequently obtained, along with several others volunteered by the children, but not previously considered by Susan. In Lesson Three, fewer responses were considered in advance, and fewer of the envisaged responses were sought and obtained during the lesson. While Susan noted her inability to predict pupil responses to her questions, it is apparent that it would be possible to have envisaged further responses.

When these three elements of plan and reality are examined, it is clear that the relatively comprehensive and detailed plans taken into these lessons were implemented almost in full, and without significant modification. At the same time, it must be remembered that many elements of the lessons were not planned for. The analysis of topics actually introduced makes that clear. Asked to comment in the course of the interview on the ease and frequency with which she made modifications to pre-lesson plans, Susan offered the following comments.

> *Never easy. I think it depends on the lesson. Depends. If the lessons going flat I think I'd struggle on with it. Unless I suddenly thought of a bright idea. Well, I think I'd wait until the ideas came to me. If I suddenly thought of a bright idea...you know, just came, that the lessons going flat. This would be the right thing to do, or something to do to try and lift it a bit, I'd try it straight away. And if the discussions going really really well, I think I'd leave it. But if they're just sort of floundering along. I don't know. Let me think about that. I don't think I've ever had to abandon something. I don't think I ever do. I think it...But I don't know whether I've ever had to though, <u>because I spend the time in my planning</u>. Usually I've planned so, or the right, enough...enough successfully to carry on with the lesson. And if at the end, I thought it was flat, I might wipe the whole unit, or change the whole unit. But I don't think I'd very often change it.*

Thus, Susan's own perceptions of this aspect of her teaching behaviour closely match the reality of her actions during these three lessons. Plans were implemented almost exactly as formulated. Susan clearly sees planning as essential to the successful outcome of her lessons, and in the context of her limited teaching experience, and from her point of view, her plans have been appropriate and successful.

She went on to note that she might make *"minor alterations. Like in these lessons we've done"*. The sorts of changes that she believed she might make included changing the duration of phases of the lesson, rephrasing questions, abandoning the use of certain materials, asking

additional questions *"that seems appropriate at the time"*. The changes that Susan described were all represented in these lessons. She spontaneously added the comment:

> *But I think these are things that make the lesson better, and they're all little things, and you're still probably meeting the same objectives...Yes, I think the main thing is, if you're still meeting the same objectives.*

At this stage in her career, most of Susan's major teaching and learning objectives are prescribed by others (e.g. Teachers College lecturers, Associate Teachers), and in those circumstances, the possibility of modifying objectives may not be readily considered by a student teacher.

CHAPTER SEVEN

DAVID AND SUSAN: A COMPARISON

In this chapter, an attempt is made to highlight key similarities and differences that were evident in David's and Susan's thoughts and actions over the three lessons, as well as their perceptions of their teaching practices in general. The discussion format once again follows that which was established for Chapters 5 and 6. Thus, considered in turn are contrastive features of: (a) the content of David's and Susan's plans; (b) their approaches to the planning process; (c) the focus of their within-lesson attention and thoughts; and (d) the relationship between their plans and the reality of lessons.

7.1 The Content of David's and Susan's Plans

While both teachers formulated specifications for aspects of the behaviour of the children, there was at least one difference in the aspects likely to be considered. David allocated more attention to specification of the categories of cognitive learning behaviour in which he wished the children to engage. Although affective learning behaviour received explicit attention from both teachers on only one occasion during the planning of these lessons, it could well be that specifications for some elements (e.g. materials, topics) were in part shaped by an implicit concern that certain affective behaviours eventuate (e.g. attention, interest, involvement). Some evidence for this was provided by David's and Susan's reports of criteria that governed their selection of particular materials (e.g. familiarity, relevance to children's interests).

Both teachers allocated attention to evaluative criteria for the content of 'acceptable' responses that they hoped to elicit from the children. They varied, however, in their concern with this element. David contended that he was more likely to attend to the specification of learning behaviours rather than the content of responses that might follow from those behaviours. Certainly, for Lessons One and Three he formulated few specifications for acceptable learner responses. Lesson Two provided a contrast to this, however. On this occasion, David's choice of particular materials led him to envisage a range of learner responses that these materials might allow him to elicit. In Susan's plans for Lessons One and Two she showed a clear concern that acceptable learner responses be specified. This was particular evident in Lesson One. In Lesson Three, however, she considered that the prescribed learning behaviours and topic focus did not

allow for the specification of correct responses. Unlike David, Susan showed some concern about the uncertainty that followed from this situation.

Susan's and David's final plans clearly differ ed in respect to the number of planned teacher actions. David formulated specifications for 19 actions overall, including 8 questions. A degree of scripting was evident for all of these questions. While he noted that teacher questions were an element likely to receive his attention in the planning of such lessons, he also indicated his assurance that he could readily generate appropriate questions as the lessons were underway. Susan formulated specifications for 42 actions, including 37 questions. 34 of these questions were fully scripted. She allocated more attention than David to the scripting of questions, and indicated that phrasing was a recurrent planning concern. Rather than being evident as a discrete feature of David's and Susan's final plans, specifications for prospective discussion topics were usually incorporated in those for other elements such as teacher actions and learner behaviours.

In all plans, the sequence in which elements were to be implemented or sought in the actual lesson was fixed rather than left as conditional or indeterminate. Several factors seemed to have determined the sequence finally adopted. First, the teaching task directions for Lessons One and Three may have suggested a possible sequence for some aspects of the lessons. Second, for both David and Susan, propositions regarding appropriate sequence that were derived from particular academic teaching-learning theories seem to have been taken into account. Thus, in Lesson One, Susan based the sequence in which particular topics were to be discussed and learner responses sought, on a 'Ausubelian' concept hierarchy. For David, Taba's teaching-learning theory provided a basis for the sequencing of cognitive learning behaviours in Lessons One and Three in particular. The sequence consisted of 'data-gathering', 'data-processing' and then 'generalization' behaviours. Third, the materials that were selected also influenced sequence on occasions. Audio-taped advertisements and sample advertisements in a learning package were most conveniently considered in the order in which they were originally assembled. Fourth, where planning thoughts emerged in a sequence that paralleled the course of the prospective lesson, it can be conjectured that some of the sequences of elements brought to mind represented established patterns or routines. These routines, which included specifications for the sequence of particular elements, might be automatically redeployed in the context of different topics.

David's and Susan's common concern that sequence was specified followed from their expressed need for security within lessons. When plans specified 'where they might go next' at any point in the lesson, this ensured that they experienced a measure of security and confidence when dealing with the inherent unpredictability of children's behaviour in discussion lessons.

Materials were an element of particular concern to both teachers, and the availability and selection of particular materials clearly shaped other elements of the lesson such as topics, learner responses sought, and, as previously noted, sequence. Criteria associated with their selection indicated that it was likely that they were intended to facilitate affective as well as cognitive ends.

Consideration of the number of actions and topics that could be accommodated in the time available was evident as a planning concern for Susan, but not for David. One of the pay-offs Susan reported for her teaching practice experience, however, was more assurance that she could make accurate judgements about this element.

There were a number of elements of the lessons that received minimal or no explicit attention from both teachers during planning. These included:

(a) possible <u>covert</u> teacher actions (e.g. perception, judgement, planning);
(b) the identity of individual children who might participate in particular activities, or whose behaviour might be monitored;
(c) learner knowledge of teacher plans for the lessons; and
(d) criteria for teacher actions.

In respect to (d), while Susan did not report having such criteria in mind as she planned, the fact that she did make a number of modifications to the phrasing of prospective questions suggests that there were criteria that prompted her to make these changes.

Both teachers also included very few conditional specifications in their plans despite the unpredictability that both acknowledged was a feature of such lessons. When such specifications were included, they followed from the teachers' recognition that the children's responses were uncertain.

7.2 David's and Susan's Approach to the Planning Process

For both teachers, planning was a mental activity over which they could not exercise absolute control. Thus, while planning generally occurred as a consciously-initiated activity, planning thoughts also emerged into the teachers' consciousness quite spontaneously on occasions. The latter circumstance did not always permit sustained attention to these thoughts, and as occurred with David this could lead to their suppression. David did note, however, that he kept a prepared record sheet on which he recorded such spontaneous thoughts at the time they were first registered. This made it possible for him to reconsider, at a more opportune time, planning thoughts that might otherwise have been lost from memory. Susan clearly did not experience the same pressures and, overall, allocated more time and more separate occasions to the planning of each lesson.

A series of relatively consistent, and to some degree similar, stages were evident in the planning that Susan and David undertook for these lessons. The first stage might be described as recognition and identification of the nature of the planning problem that needed to be solved. In the context of these lessons, the teachers' reading and subsequent recall of the researcher-provided specifications for the lessons would have served to bring the problem into focus.

In the second stage of Susan's planning, 'possibilities' for the lesson were envisaged. Some of the specifications in mind were immediately accepted as appropriate for the final plan while others were viewed as tentative. There was more evidence of uncertainty, as well as rejection and reformulation of prospective specifications in the case of Susan's planning. This may have been the consequence of one or more of the following factors: the greater amount of time she could allocate to planning; her relative inexperience; her lack of explicit commitment to a particular teaching-learning model.

In the third phase of Susan's planning, a tentative draft of a comprehensive and complete plan was formulated. There appeared to be criteria regarding the type and detail of specifications that she tried to fulfill in putting together the ingredients of this plan. Thus, the plan typically provided specifications for a temporally-ordered sequence of teacher and learner actions, criteria for 'hoped for' learner responses, and various associated action conditions such as topics and materials. Most of these specifications were fixed, rather than conditional.

The second phase of David's planning included some of the components of both the second and third phases of Susan's planning. The sequence of

his succeeding thoughts tended to reflect the likely course of events of the lesson, and most of the envisaged specifications were immediately adopted. Again, one of the criteria governing plan formulation seemed to be the requirement that the sequence of such elements as teacher/learner actions, topics, use of materials and so on be determined. David showed less tentativeness as to appropriate specifications, and fewer possibilities were rejected.

In both cases there was no clear evidence of alternatives being concurrently envisaged, weighed against particular criteria and chosen from. It appeared that possible specifications were simply recognized as an acceptable or unacceptable solution to aspects of the planning problem because they either met, or failed to meet, certain criteria the teacher had in mind.

Both Susan and David exhibited one further stage in planning (in David's case, revealed in two of his three lessons): their complete but provisional plan was reviewed and a final version prepared. This plan was likely to incorporate a limited number of modifications or additions to the first draft. For example, the final scripting and sequencing of teacher actions was a particular concern for Susan at this stage. It is conjectured that as well as allowing for final editing of the plan, this review phase helped the teachers stabilize the plan in memory. On several occasions, both teachers made a few additional last minute amendments to their plans.

In respect to the sequence in which particular elements were likely to be considered, David contended that learning behaviours were almost invariably an initial planning concern. On the other hand, Susan believed that such behaviours were likely to be a later and emergent planning concern. As the research task required both teachers to take note of the prescribed learning behaviours at the outset of planning, the match between their beliefs and actual practices could not be reliably assessed.

7.3 David's and Susan's Within-Lesson Attention and Thoughts

Over the three lessons, Susan recalled a greater number of incidents in which she had consciously registered thoughts about elements of the lessons (Susan, 40 incidents; David, 29 incidents). A number of factors may potentially account for this difference and some of these are noted in the succeeding discussion of the specific categories of attention and thought that were recalled. As a general explanation, however, it might be hypothesized that the data reflects differences in the extent to which Susan

and David were able automatically to attribute meaning to situations they encountered in the lessons, and to select end-states and a course of action that were appropriate to those circumstances. For David, more situations may have been predictable and familiar, and he may have been able to make use of many more established routines when dealing with the variety of situations encountered. Susan's more limited teaching experience may have meant that she had to consciously respond to some situations that David was able to adapt to automatically.

The possibility that differences in the total number of incidents recalled might indicate that Susan and David responded differently to the stimulated-recall task can not be ruled out as a further explanatory factor. For example, David's ability to concentrate on fulfilling the demands of the task may conceivably have been reduced by fatigue at the end of the teaching day, and knowledge that a number of after-school duties had still to be carried out.

Contrastive features of David's and Susan's recall of specific categories of attention and thought are now outlined. Most of the specifications in David's and Susan's pre-lesson plans appeared to have been implemented 'automatically'. Thus, both teachers generally did not appear to need to consciously mark off their progress through the plans or to note 'what comes next'. The fact that their plans did unfold relatively automatically adds weight to the proposition that phases of the planning process may have allowed for mental rehearsal of forthcoming actions and events, and ensured that specifications were clearly delineated and stabilized in memory. Incidents in which the teachers reflected on their plans were recalled more frequently by David. Several of these incidents pointed up the fact that when he did direct attention to plan specifications, other salient information in the immediate situation (e.g. acceptable learner responses) might, as a consequence, be overlooked.

David brought to mind information about particular children in four incidents. Susan did not report any incidents that included this focus of attention. Several factors might account for their minimal conscious attention or lack of attention to such information. First, the press of events in the discussions may have meant that there were few occasions on which the teachers could readily turn their attention away from immediate circumstances to such information. Second, in David's case in particular, patterns of differential response to individual children that may once have been associated with conscious attention to such information, may now

be implemented quite automatically. Finally, in Susan's case her relatively limited contact with the individual children she was teaching may have meant that there was little relevant information that she could bring to mind.

Information about past circumstances, either within or outside of the lessons, was recalled on few occasions. Most of the incidents involved teacher reflection on the pattern of children's responses over a period of time during the lessons.

Possible future circumstances within the lessons (i.e. Anticipations) received even less attention than past circumstances. This is probably not surprising, given the fact that Susan's and David's plans mapped out a relatively complete scenario for each lesson. As with reflections, the demands of attending to immediate events may have limited their opportunities to contemplate how things might be at a future point in the lesson. In the two incidents reported by Susan, she envisaged possible negative consequences of planned actions.

Perceptions of immediate circumstances, in particular the verbal substance of children's responses, were the predominant initial focus of attention for both Susan and David. Associated with a relatively high proportion of both teachers' perceptions of chilren's responses were judgements concerning (a) the relevance or acceptability of those responses; (b) the children's ability to cope with tasks; or (c) the meaning of their responses (Susan, 18/28 incidents; David, 8/10 incidents). These data suggest that the products of the teachers' information-processing in the course of the lessons were more likely to be registered in consciousness when actual events failed to match those planned, or did not fulfill established criteria for children's behaviour. While David recalled a somewhat lower number of incidents in which such judgements of children's behaviour had been made, the fact that he commented more readily and forcibly on the negative feelings he experienced when making these judgements suggests that he experienced more concern than Susan when children's responses did not fulfill criteria 'in mind'. As the level of responding from the children was of minimal conscious concern for both teachers, it can be conjectured that the children's involvement did fulfil established or planned criteria, or that the teachers' monitoring and maintenance of responding occurred as an automatic routine.

While David and Susan recalled having attended to immediate aspects of the lessons other than learner behaviour, the number of incidents including such perceptions was uniformly low.

	David	Susan
Teacher Actions	2	4
Teacher Feelings	6	4
Materials	4	2
Time	0	1
Physical Conditions	0	0

This data may indicate that:

(a) David and Susan found it difficult to turn their attention away from the children's on-going behaviour to some of these other elements; and/or

(b) the reality of these elements of the lessons largely accorded with those that they had planned, or fulfilled established criteria.

There was a very close match between the number of incidents in which Susan and David consciously formulated further specifications for the four broad categories of lesson elements.

	David	Susan
Teacher Actions	8	7
Action Conditions	12	10
End-States	8	7
Evaluative Criteria	6	5

The following more specific features of their within-lesson planning can be noted. First, in both cases no particular category of teacher action appeared to be more likely to receive attention in these incidents. Second, topics not previously considered during planning received conscious attention from both teachers on several occasions (Susan, 4 incidents; David, 5 incidents). Set in the context of the number of unplanned topics touched on in the discussions, it is apparent that most of these topics were introduced or followed up automatically. Third, all other categories of action condition received minimal or no conscious attention from Susan and David as the lessons were underway. These elements included teaching-learning mode, materials, the duration of events and the identity of children who might be called upon to participate. Pre-lesson plans and habitual routines of teacher action appeared to have taken care of these ingredients of the lessons. Fourth, the additional end-states contemplated were, with

one exception in David's case, associated with the children's behaviour. Fifth, when these thoughts about possible teacher actions, action conditions and end-states are considered in the context of the lessons as a whole and the associated pre-lesson plans, the scale of the modifications or additions made to those already planned were relatively minor for both teachers. Finally, their planning thoughts might emerge into the teachers' consciousness quite unexpectedly, be 'prompted' by the responses of the children, or follow from recognition of a 'discrepancy' between plans and reality.

Susan's and David's perceptions of the likely focus of their attention and thoughts during such discussion lessons closely matched those actually recalled for the three lessons, and some consistency in their thoughts across the lessons was evident. The data also indicated that the teachers' concerns could vary significantly in each lesson, and that instability as well as stability could be expected to characterize features of their conscious experience of interactive teaching in different contexts.

7.4 Plan-Reality Relationships

Similarities rather than differences are revealed in a comparison of the plan-reality relationships in David's and Susan's cases. Almost all specifications were implemented or realised as originally planned, and major modifications or additions to plans were not evident in either case. Both teachers identified various categories of change that they believed they might make on occasions, however, and some of these were evident in the three lessons. Those recalled during the lesson reviews included rephrasing and resequencing of questions, addition of questions and topics and use of additional materials. Analysis of the lesson transcripts of the lessons indicated that such changes were frequently made automatically.

To some extent the changes that David and Susan made seemed to be part of a fine-tuning process that would help ensure that the end-states or learner responses originally in mind would be achieved. End-states and evaluative criteria remained intact while planned teacher actions and action conditions were slightly amended.

Some difference was apparent in Susan's and David's perceptions of the ease and frequency with which they might make changes. David considered that he could make changes fairly easily and these might be made more or less frequently in lessons. He attributed ease of change, and his willingness to seize upon the 'teachable moment', to the security his pre-lesson plans provided. Where departures were made and were either

implemented successfully or proved inappropriate, these plans could then be returned to and the original objectives pursued. He observed that changes were more likely to be made to the route to planned objectives rather than the objectives themselves. He also noted some criteria that would typically need to be fulfilled before departures from or additions to plans were made (e.g. achievement of original objectives would be facilitated, rather than prejudiced, pupil ideas to be followed up were divergent or creative). The data from the three lessons suggests that from David's point of view, circumstances did not fulfil these criteria. In addition, discrepancies between plans and reality were apparently not sufficiently important to prompt significant changes.

In contrast, Susan believed that she would never find it easy to make major changes to plans, and such changes would be rarely made. She qualified this with the observation that she had never met circumstances that necessitated significant change to plans, and this clearly applied to the lessons taken for this study.

CHAPTER EIGHT

SIX CASES: COMPARISON AND FINDINGS

8.1 Introduction

In the course of the presentation of David's and Susan's cases, a number of contrastive features of their teaching thoughts and actions were identified and tentative explanatory propositions advanced. Those features and propositions are now considered in the context of data from four additional cases. It will be remembered that these further cases, as with the first two, were selected in turn from the original pool of 18 cases because they appeared to embody features that were dissimilar or contrastive to those evident in the cases already examined. In addition, it was decided to analyze the cases of two student teachers and two experienced teachers to allow further examination of possible relationships between length of teaching experience and aspects of teacher thought and action.

The steps taken in considering these four cases were as follows:

(i) From the comparison of David's and Susan's cases, aspects of their planning and within-lesson attention and thought which showed significant similarities and differences were identified.

(ii) These aspects were then considered in relation to relevant data from the other four cases - case studies of similar comprehensiveness and detail to those prepared for David and Susan having been completed for each of these teachers.

(iii) On the basis of this analysis and the associated 'testing' of the propositions derived from the first two cases, a final set of propositions was formulated. It should be noted that these propositions are intended to account for particular features of the mental life of six teachers only. However, they may have more general applicability and, therefore, they also represent hypotheses concerning aspects of teacher thought and action in general.

The findings that emerged from this analysis and proposition testing are presented in the following format. First, brief portraits of the additional four teachers will be given; then each of the research questions that have shaped the course of the study is discussed either solely in terms of descriptive data from the study, or in the form of

one or more general propositions arising from the research data.

8.1 Brief Portraits: Tom, Gary, Robert, Stewart

Tom was a student teacher in his third and final year of a teacher education programme. With reference to his current feelings about the experience of teaching, he described himself as *"equally dissatisfied and satisfied, tending towards satisfied at the moment"*. He identified several factors that contributed to this assessment. First, because of his perception that many classroom teachers *"get into a rut"*, he was *"scared that I'm going to do that, 'cause I can"*. He believed strongly that *"we* [teachers] *are all put into a little mould so far as the rest of the community is concerned"*, and illustrated his dissatisfaction with this situation by describing the following incident:

> *You know, I was trying to get a point across to this woman and she said ah, and she didn't understand it so I broke it down into simpler terms and then...at the end, although I'd sort of won and I'd got my point across and everything like that, she didn't agree with me. She just said um 'oh well, you know, you've got to be careful because you're starting to talk to me as if I were a five year old'. And I thought oh God, that's the last thing. I just wanted to get the point across and then she said, you know, 'Teachers do this'. And there she was. She was putting me into...oh God, I sort of, in a, I didn't enjoy the night from then on.*

These concerns meant that he was unsure at times whether he was *"doing what I should be doing"*. He felt, however, that this uncertainty could not be resolved until he had his first year of classroom teaching when *"If I make it, then I'll be the happiest guy on earth. But if I don't, then I'm just, I might give it two years"*.

Offsetting these uncertainties for Tom were more immediate, if somewhat intangible satisfactions:

> *I like to see them, ah sort of gaining a bit of knowledge and going ahead and everything like that...I can't really point out what it is that does satisfy me about it. But you, when the kids have enjoyed it and everything like that, I come out of it. You know, I took that hangi* [lesson] *you know. After that day I came away and I, you know you achieved something. The kids enjoyed it and you know everything went great and that gave me some satisfaction.*

Gary, also a third-year student teacher, considered himself to be very satisfied with the experience of classroom teaching.

> *I love the actual teaching...I look forward to teaching...yeah, just relating to the kids. That's where the satisfaction comes. The feedback from the kids.*

At the same time, however, he viewed *"the whole education system"* with some dissatisfaction. As a result of *"discussing this a lot with colleagues"*, he felt particularly dissatisfied with current teacher assessment practices. Those of concern included the absence of "grading" in the first six years of classroom teaching; use of a normal distribution for the allocation of grades to teachers, which meant that *"you have to put someone down before you can go up"*; and the weighting of 'qualifications' in assessments:

> *...they don't take into account how good you are as a teacher. It's just your qualifications.*

Robert, who had had thirteen years of classroom experience, was deputy Principal of a large city school. He hoped to complete his Bachelor of Education degree that year. As part of his role as deputy Principal, he had oversight of a syndicate of senior teachers who worked in an open-plan classroom setting.

Robert was more satisfied than dissatisfied with the day-to-day experience of teaching. The factors he identified as contributing to the satisfactions included *"a lot more positive feedback from the kids at the moment"*, personal satisfaction that a deliberate attempt to lift standards of presentation in the children's work was producing tangible results, and the general "tone" of the class. The tone of the school was also seen as contributing to the satisfactions of the job. He considered that staff were particularly supportive of each other *"because they seem to understand the sorts of things that everyone is trying to do"*, and *"people are quite prepared to talk there to you about and offer help to each other on all sorts of professional things"*.

Dissatisfactions followed from the "socializing" role he saw schools being asked to take on. The fact that schools seemed to be the only agency capable of dealing with some of the current social problems, but were not able to exercise their influence early enough, was a source of frustration:

> *I find that very depressing at times, and it reflects itself in, you know...I'll come home pretty washed out sometimes because you know, you've had nothing but negative feedback, sometimes all day, or you've spent virtually the whole of the day on sort of social work instead of teaching, the job of educating kids, and then you know...you've got to keep going regardless of whether it's the ideal way of doing it. You've got to keep trying I think.*

Stewart was a relatively young teacher, currently in his second year of classroom teaching. He was undertaking courses on a part time basis

towards his Bachelor of Education degree. At this time he had no particular responsibilities for the planning of curriculum outside of his own classroom. He categorized himself as very satisfied with the day to day reality of teaching.

> *There's nothing I'd rather do, so I suppose I am very satisfied.*

Asked to identify the factors that would contribute to this feeling, he commented:

> *I don't even know why I went teaching because I had no ideas like, heck, I've got to work with kids or something. It actually happened to me that time when they did that campaign.*
>
> *I've never once thought: God I've got to get out of this.*
>
> *Like, I would never consider doing anything else bar teaching. Although at the same time I think I've already said to you, no way could I teach for the rest of my life. I enjoy it, get satisfaction from it. It pays well. Never experienced dissatisfaction.*

8.2 Why do Teachers Plan Before Lessons?

If the pre-lesson planning of the six teachers for the research lessons was typical - and they maintained it was - then this indicates that they often allocated a considerable amount of time and effort to lesson planning. It was also apparent that planning might occur at any hour of the teacher's working day, it might take place in any setting, and it might operate as a spontaneous as well as consciously-initiated activity. Given these features, it is appropriate to ask what specific pay-off(s) pre-lesson planning might have for the teacher and learners. The research data supported two propositions concerning this question. These are presented below, together with an analysis of the data that generated them.

Proposition 1:	Pre-lesson planning is commonly undertaken by teachers because, in contrast with within-lesson planning, it usually allows solutions to teaching problems to be devised in relatively more controlled circumstances.

Support for this proposition comes from two sources. First, as noted earlier (Chapter 5), David directly expressed the view that it was necessary to take advantage of the conditions associated with pre-lesson planning if he was to "do justice" to the task of teaching. He observed that if he

did not plan ahead for such lessons, he was *"scared"* that he would *"live to regret it afterwards"* because it was likely that he would not have thought of all the things that he *"could have said or could have done"* (S.I.).

The second source of support for the proposition are the data on within-lesson planning. These data, both directly and indirectly, indicate that conditions in the course of discussion lessons may: (a) significantly reduce opportunities for planning; (b) limit the scale of planning that may be undertaken; and (c) make it difficult at times to implement plans formulated 'on the spot'. The following features of the data lend support to this view. First, in the context of the three lessons as a whole, the number of occasions on which the teachers consciously registered incidents of within-lesson planning was comparatively limited. TABLE 5 presents data that indicates the number of lesson review incidents in which the teachers recalled having consciously considered or formulated specifications for particular lesson elements.

TABLE 5: Number of Lesson Review Incidents in which Teachers Recalled Having Consciously Formulated Specifications for Particular Lesson Elements.

	Tom	Gary	Stewart	Robert	Susan	David
Teacher Actions						
Inform	6	1	6	4	0	1
Question	0	1	3	0	3	1
Wait	0	0	0	3	2	1
Not to Act	4	0	2	3	1	1
Action Conditions						
Topic Focus	13	4	10	5	4	5
Means	0	0	1	0	3	1
Timing	14	10	14	3	2	6
Participation		9	5	8	3	1
End-States						
Learning Behaviour	4	3	4	6	3	8
Overt Response	3	10	6	7	2	5
Evaluative Criteria						
Learner Action	2	1	2	1	2	4
Teacher Action	2	0	1	2	1	1
Total No. of Lesson Review Incidents	42*	79	48	55	40	29
Lesson Duration (mins)	109	108	94	81	81	76

* Note: In a single lesson review incident the teacher may recall having formulated specifications for several lesson elements. Column totals will therefore not balance.

Second, when within-lesson planning occurred, it did not typically result in the teachers abandoning or making major modifications or additions to their pre-lesson plans. The relatively close match between original plans and the reality of the lessons is illustrated by the findings concerning the relationship between planned and actual teacher actions, discussion topics, and the content of learner responses.

(i) Planned teacher actions were almost invariably all implemented:

TABLE 6: Number of Planned Teacher Actions Actually Implemented.

	Tom	Gary	Stewart	Robert	Susan	David
No. T. Actions Planned	5	11	10	11	42	19
No. Planned Actions Implemented	4	10	8	11	38	19

(ii) Planned discussion topics were almost always discussed.[1] In all cases, a number of 'unplanned' topics were considered in the actual lessons. Almost all of these were either directly subsumed by the overall theme of the lesson or planned sub-topics, or else they dealt with procedural, managerial or instructional aspects of the lessons. TABLE 7 indicates that there was also a low incidence for the number of topics discussed that could be considered <u>irrelevant</u> either to the prescribed subject-matter or to the procedural, managerial or instructional aspects of the lessons.

TABLE 7: Number of Irrelevant Topics Discussed

	Tom	Gary	Stewart	Robert	Susan	David
No. of Irrelevant Topics	10	3	4	3	12	2

(iii) With the exception of one case (Gary), almost all of the information that the teachers planned to seek from the children was either elicited with varying degrees of teacher prompting, or was directly presented to them by the teacher if 'correct' responses were not forthcoming. This is illustrated in TABLE 8 which indicates: (a) the number of cate-

1 Data concerning the relationship between planned and actual topics is not readily summarized in tabular form because of the varying levels of generality of topics and the 'nested' or inclusive relationship between topics.

gories and techniques of advertising that the teachers hoped the children might be able to identify in the course of Lessons One and Two respectively; (b) the number of planned responses given by the children; (c) the number of planned responses given by the teacher; and (d) the number of additional, 'unplanned' categories and techniques that were discussed. The latter were either volunteered by the children or introduced by the teachers.

TABLE 8: The Relationship between Planned and Actual Learner Responses.

	LESSON ONE				LESSON TWO			
	a	b	c	d	a	b	c	d
Tom	12	11	0	4	9	5	3	7
Robert	7	7	0	3	7	0	7	1
Gary	13	5	5	0	15	6	4	8
Stewart	4	3	1	0	5	4	1	2
Susan	12	12	0	3	12	12	0	3
David	3	3	0	23	9	8	1	6

Column a. Number of Responses Planned

Column b. Number of Planned Responses Given by Children

Column c. Number of Planned Responses Given by Teacher

Column d. Number of Unplanned Responses/Topics

There were very few instances where the teachers either 'forgot' responses or abandoned attempts to elicit responses or present information.

That within-lesson planning was unlikely to lead to large-scale departures from pre-lesson plans is also indicated by the data concerning the teachers' perceptions of the modifications that they would typically make to plans, as well as the types of modifications that they actually made during the three lessons. All of the teachers considered that they were likely to make some modifications and those identified by the teachers were relatively similar. For example, Stewart noted the following as typical of those he might make.

Picking up topics from kids and pursuing them

...the way I might use them [materials] *is different, or I might say leave out a little bit of it or not use all*

I'll speed it up

...sometimes I drop them [questions] *out because they are unnecessary*

...adding in the questions or rephrasing questions. Or doing something I didn't think of beforehand to try and get out what I want.

(S.I.)

What remained apparent in each case, however, was that planned learning end-states were unlikely to be significantly modified or abandoned once such lessons were underway. Where specifications for learning behaviours were consciously envisaged, these usually directly contributed to those already specified in pre-lesson plans. For example:

I thought, well, if I give it to them they might reword it.

(Stewart, Lesson 1, Incident 28)

I was starting to think of getting them to make a bit of a conclusion.

(Tom, Lesson 3, Incident 31)

So I thought we'd try and tie the whole thing together by getting them to give their opinions.

(Tom, Lesson 3, Incident 31)

It appeared, that in planning during lessons, teachers generally took account of actual conditions and events in the lessons, and 'extended', 'fine-tuned' or 'filled in' original plan specifications where it might help facilitate planned learning outcomes or enrich the quality of the children's learning. Nonetheless, it was also apparent that the products of this process were relatively infrequently registered in consciousness. Teachers introduced or followed up most 'unplanned' topics and responses 'automatically'. This is confirmed by the data in TABLE 9 which indicates that the number of lesson review incidents in which the teachers recalled planning thoughts concerned with modifications or additions to their pre-lesson plans was relatively small.

TABLE 9: Number of Incidents of Conscious Plan Modification Recalled

	Tom	Gary	Stewart	Robert	Susan	David
No. of Incidents of Conscious Plan Modification	18	12	17	8	7	7
Total No. of Lesson Incidents	42	79	48	55	40	29
Lesson Duration	109	108	94	81	81	76

Several explanations can be offered for this pattern of data. The teachers generally considered that their plans had proved appropriate and

significant modifications may, therefore, not have been required. It is also clear that they were able automatically to make use of many established teaching routines when responding to events during the lessons. As a complementary explanation, however, the findings might also be attributed to the difficulty that the teachers were likely to experience in finding opportunities to contemplate calmly and rationally alternative courses of action once the lessons were underway. If the teacher does elect to engage in 'deliberate' planning during interactive teaching, attention must be diverted from immediate, on-going events 'out there' to ideas being registered in consciousness. This means that there is inevitably a cost involved in such planning as the teacher 'loses sight' of external events for some interval of time. It is understandable, then, that the period of time that the teacher is typically prepared to allocate to incidents of within-lesson planning may be too brief for him/her to 'do justice' to the planning of major modifications or additions to plans, or to actually formulate a complete plan 'on the spot'. Small-scale modifications of the types previously noted may, however, require only momentary conscious attention. Certainly, there were few incidents recalled by the teachers where they appeared to have allocated attention to planning for a sustained period of time. Planning thoughts during the lessons were typically fleeting and quite often emerged 'out of the blue' without any obvious external stimulus.

> *I hadn't really planned that...it just came out. I thought, just thought of it on the spur of the moment.*
>
> (Gary, Lesson 2, Incident 20)

> *that* [topic] *just sort of came into my mind.*
>
> (Gary, Lesson 3, Incident 15)

> *I'd only thought of that on the spur of the moment, that that was something...I decided on the spur of the moment I'll include it I don't think it's something the kids gave. I just thought of it.*
>
> (Stewart, Lesson 2, Incident 29)

> *It just came to me. I thought, oh yeah. I talked about this ad. I must have had this one down in front of me and I remembered using the term tricky last time. So I thought I'd get back on to that track and see if that helped.*
>
> (Robert, Lesson 3, Incident 14)

Even where conditions allow teachers to consciously formulate specifications, there may be further difficulties to contend with in actually managing to implement plans formulated 'on the spot'. This was illustrated in several incidents recalled by one of the teachers. On these occasions, Tom's awareness of a particular idea inherent in a pupil's response had prompted thoughts about an additional topic that might be discussed, but

competing demands on his attention meant that he was unable to hold the idea in mind until an opportunity to introduce it occurred:

> *I heard them talking behind me about breaking legs and things like that and when he said 'frightening', I immediately thought well here's another one. That some advertising...is in some ways frightening to people, but never got round to develop that either. It was one of those things where you hold on to it but I never get back.*
>
> (Tom, Lesson 3, Incident 4)

> *That was one I hadn't thought of. It's sportsman. I didn't have that down. I was going to sort of take it a bit further when he said it, but I think something else happened and I didn't have a chance.*
>
> (Tom, Lesson 1, Incident 13)

> *I was going 'please let me say it'* [covertly]. *All I wanted to say was, 'all it's doing is letting people know it's not making kids into alcoholics or anything'. And things were happening around me, so I don't think I ever did get to say it.*
>
> (Tom, Lesson 3, Incident 12)

Taken together, the data reviewed above provide strong support for the proposition that the teachers recognized that conditions associated with pre-lesson (as opposed to within-lesson planning) were generally more likely to allow them to formulate plans which would 'do justice' to the instructional problems with which such discussion lessons typically confronted them.

Proposition 2:	Pre-lesson planning is commonly undertaken by teachers so that they can anticipate elements of the lesson to come, and can envisage how these might be arranged so that there will be a degree of certainty and thereby security for them during the lesson.

The theme of security emerged as a significant teacher concern and it was apparent that it followed from the teachers' recognition that some of the elements of lessons were inevitably characterized by a degree of uncertainty. For example, Tom recorded his view that it was not always possible to envisage the responses that learners should or might well come up with:

> *There's no real use because the kids will always bring out something extra that you hadn't thought of anyway. It doesn't matter how much planning you've done. They, I found that they quite often bring out something you hadn't thought about.*
>
> (S.I.)

As was initially made apparent in the cases of David and Susan, the teachers tried to meet their need for some degree of security by including within their plans specifications that would denote 'where they should or might go next' (i.e. end-states) and/or 'what they should or might do next' (i.e. teacher actions) at any point during the actual lesson:

> *It* [a plan] *gives me personal security in the situation, that it's there. I know what my next move is likely to be even if I do perhaps follow something else.*
>
> (David, S.I.)

> *...in these three lessons I did make sure I knew exactly and made things clear for myself about what I was going to do... what I thought the question or lesson should contain.*
>
> (Susan, S.I.)

Similar views were expressed by the other teachers. Thus, Gary observed that his security rested on knowing:

> *There's not going to be a place where it falls flat and I'm not going to know what to do next, where I can lead to next. I always had something there so I can say right, I'll do this next.* (S.I.)

and Robert noted:

> *I like to know in advance where I'm going, and roughly how I'm going to get there. But I think, as I said, I would probably, I don't mind, to take your term, off the cuff once I get into it. I don't mind and I feel quite comfortable doing that, but I've got to have some sort of framework within which to work...I know that through experience. If you're not prepared, you...at the worst you can have a difficult time for yourself and for the kids.* (S.I.)

Specific incidents were also recorded in the course of planning that indicated that the content of the teachers' plans were at times shaped by the need to take into account some uncertainties:

> *You see I was thinking then I didn't really know what the kids were going to give me.*
>
> (Stewart, PRI, Lesson 1)

> *I didn't know how they were going to answer the question. Yes, some you can really predict, and the lesson, and you just know it would flow...And I just didn't know how they were going to answer any of the questions.*
>
> (Susan, PRI, Lesson 3)

> *I wasn't sure what sort of responses I would get from the kids...*
>
> (Robert, PQ, Lesson 3)

When the teachers recorded such uncertainty they might: (a) plan additional teacher actions; (b) specify conditional teacher actions (e.g. *"if the children did not get on to something then I would put it in and develop it"* - Tom, PRI, Lesson 3); or (c) envisage giving information

to the children rather than attempting to obtain it from them through questioning (e.g. *"just before we came in, I thought I'll just get this together and I'll summarize it myself. I'll feed it in myself in case it doesn't come"* - Robert, PRI, Lesson 3).

This proposition might also contribute to an explanation of the data on within-lesson planning. As previously noted, conditions in the course of discussion lessons may not allow the teacher time to do justice to the task of planning a new course of action. They may also make it difficult for the teacher to anticipate the uncertainties that could accompany major modifications to existing plans and to consider whether or how these uncertainties can be coped with.

8.4 How Similar and Consistent are Teachers' Plans?

The preceding section indicated that teachers in the research sample saw at least two advantages for pre-lesson over within-lesson planning. Notwithstanding these two common planning bases, teachers' plans over three lessons also revealed other similarities as well as differences in the content of their plans. These can be illustrated by reference to several key lesson elements.

8.4.1 Cognitive Learning Behaviours: The reader is reminded that the directions for the three lessons included objectives for learner end-states expressed in terms of particular categories of cognitive learning behaviour. Consequently, it cannot be assumed that the attention the teachers actually gave to this element during their planning was necessarily typical. The directions did not, however, specify either categories of affective learning behaviours or the criteria for 'correct' learner responses.

With the exception of David, there was little variation in the level and the nature of the attention that the teachers gave to cognitive learning behaviours. Apart from mentally noting the prescribed learning behaviours on a limited number of occasions during planning, each teacher envisaged an equally limited number of additional (i.e. non-prescribed) cognitive behaviours for the lessons (see TABLE 10, p.236).

There were few instances recorded where these other learning behaviours and the associated topics represented a significant departure from those prescribed.

David was the only teacher who volunteered the information that cognitive learning behaviours typically received his attention during planning. Sensitivity to this element was registered in his recorded concern that learning behaviours were specified clearly in performance

terms, that they occurred in an appropriate sequence, and in the context of Lesson Three that the children understand the nature of the cognitive behaviour they were to engage in.

While the other five teachers did not show the same concern with this element, the content of their plans clearly indicated that the prescribed learning behaviours continued to be borne in mind in the course of planning whether or not they were consciously acknowledged on a number of occasions, or were drafted in more specific terms.

TABLE 10: Number of Non-Prescribed Cognitive Learning Behaviours Specified in Plans

	No. of Non-Prescribed Cognitive Learning Behaviours Specified in Plans
Stewart (E.T.)	1
Tom (S.T.)	2
Gary (S.T.)	4
Robert (E.T.)	2
David (E.T.)	5
Susan (S.T.)	0

8.4.2 Affective Learning Behaviours: For five of the six teachers, affective learning behaviours were not a significant planning concern in the context of the three lessons, and only two teachers volunteered the information that this element was a typical planning concern for them. Robert, for example, appeared to have had in mind the possible affective outcomes of his own actions on only one occasion:

> *No pressure on the kids. No-one would be forced to give one if they couldn't.*
>
> (PRI, Lesson 1)

There was no evidence in the planning records that Tom had registered any concern with the children's affective responses. However, he did make the following observation when identifying what he believed were his invariant planning concerns:

> *I tend to think mainly about how I'm going to get them motivated and in to thinking about it. Ah, what's going to get them interested and, ah, into discussing it, you know...I quite often use gimicks and, um, situations or something like that just to get them ah, going. I think that's my biggest worry. Something that will sort of go bang, right, we're away, rather than starter questions.*
>
> (S.I.)

Gary was the only teacher who explicitly directed attention to this element in his planning for each lesson. In these instances, the opening phase of the lesson was identified as being associated with motivation. Teacher actions, learner actions and action conditions planned for this phase were all apparently intended to help foster positive feelings in the children. Elaborating on his concern with this introductory phase of lessons, Gary noted that it was *"just about the most important thing in my mind because it sets the tone of the lesson"* (S.I.). He also identified this phase in Lesson One as both the most difficult to plan and potentially the most difficult to implement:

> *This will be the whole crux of the lesson and if the motivation does not go well and relate to the topic the lesson will be totally isolated and unrelated.*

Thus, Gary was the only teacher to contend and to demonstrate that affective learning behaviours were a significant planning concern.

8.4.3 Evaluative Criteria - Learner Responses: Both similarities and differences characterized the attention the six teachers gave to specifications for the content of responses that they would consider correct or acceptable. Thus, while each of them generally specified responses that they hoped to obtain, differences were evident in respect to the number of responses specified, and the strength of the commitment they had to obtaining these responses.

The variations in the number of acceptable responses specified is illustrated in TABLE 11. The data indicate the number of categories and techniques of advertising the teachers hoped the children might be able to identify in the course of Lessons One and Two respectively.

TABLE 11: Number of Learner Responses Specified in Plans

	Lesson One	Lesson Two
Tom	12	9
Robert	7	7
Gary	13	15
Stewart	4	5
Susan	12	12
David	3	10

Variations in the teachers' commitment to obtaining responses was revealed in the course of the plan interviews. For example, it became

apparent that although Gary identified more prospective responses than the other teachers, he did not commit himself to attempting to elicit these from the children. Rather, he brought to mind a number of ideas associated with the lesson theme that could represent either discussion topics that he would introduce or responses that would be sought from the children. Both options appeared to have been viewed in advance of Lesson One and Two. In addition, while a range of prospective responses/topics were generated, Gary did not envisage that he would necessarily cover all of these in the actual lesson. For example, in respect to the 15 advertising techniques that he had identified during his planning for Lesson Two, he noted:

> *I wasn't planning to cover all of those. Perhaps just a few of them.*
>
> (PRI, Lesson 2)

In the course of the actual lesson, five of the techniques were not considered or sought and of the other ten, six were identified by the children and Gary introduced the other four. The children identified a further eight techniques that Gary had not originally considered.

In contrast, Robert appeared firmly committed to having all of the ideas that he had envisaged as appropriate considered in the course of the lessons. Also, he more frequently registered concern that he might not be able to elicit these ideas from the children. This concern significantly influenced his final plan specifications in several instances. For example, in the initial stages of planning for Lesson Two, Robert envisaged having the children identify the techniques inherent in a set of sample advertisements. Subsequently, however, he decided he would initially introduce all of the techniques himself rather than attempt to elicit them from the children.

Other teachers shared a similar commitment to having certain ideas considered and similarly registered uncertainty as to whether these ideas would be obtained from the children. Their response to this possibility did not parallel Robert's, however. Thus, in the context of Lesson Three, Tom noted as a strategy that if the children did not *"get on to something, then I would put it in and develop it"*. In addition, for both Lessons One and Two he indicated that hoped-for responses would also represent prospective topics for discussions. Thus, in the context of Lesson Two he recorded his intention to *"have the children identify the techniques used"* and *"discuss the techniques <u>once identified</u>"*. On several occasions, Stewart observed that specification of his own actions was not possible because of his uncertainty as to whether the children might come up with appropriate responses.

A further feature of the data in several cases was a significant variation in the number of prospective learner responses specified for the third lesson in contrast with the preceding two lessons. The plans that Stewart, Susan and Gary formulated for this lesson contained minimal or no specifications for this element. The only evaluative criteria that Stewart had in mind was that the children's responses should represent their *"own opinions"*. This had reciprocal implications for his own actions:

> *Mustn't give my opinions - totally the children.*
> *And then I thought, well I'd better make it the children's opinions and not mine.*

Susan believed that it was not possible or appropriate to "confidently" predict answers for the lesson and Gary envisaged only one possible learner response/discussion topic. He did, however, plan to make use of a range of sample advertisements that had been used in the previous lessons, and may therefore have felt confident that he would be readily able to bring to mind relevant topics or responses as the lesson was underway.

8.4.4 Teacher Actions: Data concerning the number of specifications for teacher actions in the teachers' plans are summarized in TABLE 12.

TABLE 12: Number of Teacher Actions Specified in Plans

	No. of Teacher Actions Specified	
	All Actions	Questions
Susan	42	37
David	19	8
Gary	11	6
Robert	11	7
Stewart	9	4
Tom	5	1

The table points to the significant differences that can exist in the attention given to teacher actions during planning and the absence of a consistent relationship between length of teaching experience and the number of planned actions. This is highlighted by the case of Tom (student teacher) who demonstrated the least concern overall with this element. He offered no explicit reason for this, simply observing on several occasions that questions in particular were unlikely to be a significant or recurrent concern (e.g. *"I don't think of any, of questions as*

such", (S.I.). It should be acknowledged here that Tom did not overlook his actions entirely. For example, as a hindsight observation on one of the lessons, he commented on his awareness of the difficulty he experienced in drafting clear, unambiguous questions on-the-spot:

> *I think I would have planned it a lot more...I think also a couple of good questions. I wasn't too sure how to phrase a couple of them. Ah, there's one about the senses and that. I'd start off and I'd think no, and sort of well, try it from different angles. And listening to it I was saying sentences like um, but how did, what do they. I wasn't meaning the television, I wasn't meaning the newspaper. I was meaning the senses and I didn't say that.*

A review of lesson transcripts also suggested that he had more difficulty in framing-up clear, grammatically correct questions than most other teachers in the sample:

> *Can you notice something about those advertising, the ah, advertising that they're advertising. What sense is it? What sense...you know...of your senses. You've got touch and everything like that. What senses do you use, or do they respond to when they're advertising?*
>
> (Lesson 1, Transcript)

There was no evidence, however, that his recognition of such difficulties led to more attention to the planning of questions for subsequent lessons.

It will be recalled that Susan and David both considered that teacher actions, in particular questions, were an element of such discussion lessons that they would almost invariably give attention to during planning and this was the case for the three lessons taken in the study. They clearly differed, however, in terms of both the number of actions formulated and their level of concern with the scripting of these actions. This indicated that differences in respect to the number of actions formulated was not a reliable index of the teachers' level of concern with their own actions. This is confirmed by the data for Gary, Stewart and Robert. All appeared to have allocated somewhat similar levels of attention to their own actions during planning but their perceptions of the place of questions in their plans differed. Thus, although Gary indicated the questions were not generally a planning concern, both Stewart and Robert contended the questions were almost invariably considered:

> *Probably like to have starter questions, or if you like key questions.* (Robert, S.I.)

> *I work out a topic. The questions I'm going to go within. Not too structured sort of thing.*
>
> (Stewart, S.I.)

8.4.5 Timing: In the plans that four of the teachers formulated (Susan, David, Robert, Stewart), there was generally a clearly defined framework that delineated a sequence of broad stages within the lesson as well as elements within those stages (e.g. specific topics, learner behaviours and responses). The sequence in mind was fixed rather than conditional or indeterminate. In reviewing each plan, the researcher was left with a clear impression of the likely course of events within the actual lessons. The data from the other cases points to quite different ways in which teachers may think about this element during planning.

In formulating his plans, Gary had in mind several broad phases for each lesson (e.g. Lesson Three: motivation, discussion, conclusion) that were demarcated by shifts in learner end-states and/or general topics. Although sequence for these phases was established there was no determination of sequence for the specific sub-topics, answers to be sought from the children, or the materials to be employed. Thus, he observed in the context of Lesson Two that when it came to a phase dealing with techniques of advertising:

> *I wasn't sure sort of what I was actually going to do first... I sort of had all these examples. I wasn't sure exactly what I was going to do first or the sorts of things I was going to discuss. I was just going to wait, just going to listen, to see.*

The only order imposed on the sequence of elements within this phase was determined by his decision to consider written ads. prior to taped ads. and to have one of the sample ads. displayed first. The possible consequences of this policy is made apparent in an observation Gary made during the review of Lesson One. He noted at one point:

> *I'm just waiting for the kids to make the ideas and just flow in as they mention it...I was following what the kids came up with and hoping they'd lead on to what I'd planned.*

In the structured interview, Gary indicated that in respect to sequence:

> *I usually plan it out in my own mind, but quite often it's dependent on how the kids go to what sequence I do it in.*

Tom appeared to share some of Gary's attitudes towards specification of timing. For example, in Lesson One there were three broad phases planned for the lesson demarcated by shifts in learning task behaviours. Within two of these phases he had not, however, specified sequence for dealing with the more specific sub-topics or learner responses he had also considered. In both Lessons Two and Three, no broad phases were distinguished. He set out to do this for Lesson Two but found:

I started off to consider how my lesson was going to go [in terms of sequence], *how I was going to do my lesson but I...just, ah well, I know what to do.*

(PRI, Lesson 2)

Some specification of timing, however, was determined by the materials he planned to use (audio-taped advertisements) and one of a number of sample magazine advertisements had been ordered for presentation because of the 'obviousness' of a particular feature. In Lesson Three there were no specifications of timing for any teacher or learner actions, discussion topics or materials, and Tom noted:

All I wanted was discussion. If we got on to something I'd bring it out. If we didn't get on to something then I'd put it in and develop it. It wasn't going to be set out that we'd first do that.

8.4.6 Time Allocation: There were differences apparent in David's and Susan's concern with the number of topics and learning tasks that could be dealt with in particular periods of time, and the amount of time that might be allocated to particular elements of lessons. Susan identified both of these aspects as recurrent planning concerns and the former was recorded as a significant difficulty in the planning of one of her lessons. In contrast, there was no evidence that David experienced these concerns as he planned the three lessons, or that he regarded them as typical concerns when he was engaged in planning.

In each of the other four cases, concern with one or both of these aspects was a feature of planning thoughts on a limited number of occasions. The exact nature of this concern and responses to it were quite varied. For example, in the context of one lesson Gary reported planning to *"break this up into time blocks"* and of feeling that the time available was too *"restrictive"* to allow all of the phases of his plan to be implemented. He observed during the structured interview that he *"usually overplanned to be safe"*. This practice seemed designed to ensure that he had a surplus of possible topics, responses and materials on hand for lessons. These could then be selected from in the light of both learner responses and the time available, and there was no commitment to implementing all of these possibilities. It can also be noted that Gary was the only teacher to over-run the suggested time allocation for the lessons by a considerable margin. In contrast, on one occasion Robert noted *"the time sort of thing"* and *"wanting to get on with the job"* of implementing his plan in full as a reason for choosing *"to hasten the process a bit if I summarized"*.

For Stewart, the relationship between time available and the number

or range of topics that might be discussed was a conscious concern in Lessons One and Two. The problem of time was dealt with in part by the inclusion of the homework task that would allow for 'range' (Lesson Two) and 'depth' (Lesson Three) in discussion of topics. Tom was the only teacher who recorded wondering whether there was enough content in a lesson for the time specified.

8.4.7 Intention Focus: In the context of the planning undertaken for the three lessons, the six teachers rarely turned their attention to the identity or attributes of individual children. Some variation was evident, however, in the experienced teachers' observations concerning the likelihood that they would plan separately for particular groups or individuals within their class. David stated that he would tend to plan initially in terms of the "middle and top" of the class because these children were most likely to be able to come up with the generalizations he would wish to come out of many discussions. How he might accommodate the bottom group, who were less likely if at all capable of producing these generalizations, would be a final planning concern.

Some contrast to David's perceptions was provided in Stewart's case. At one point during his planning for the first lesson he recorded his attention having shifted to the variable *"coping"* abilities the children might bring to this situation. His thoughts were not directed to particular children in the teaching group, however, as these had not been selected at this stage:

> *Rather...just as you go through, the things that you decide on, you know. Are they going to be able to do it.*

Enlarging on this point he commented:

> *I think it's a matter of a person, because you know a lot of people might think of the kids at the top of the scale, whereas I don't know why, but I always think of the kids at the bottom. You know...will it be above them, but I always go that direction. I don't know why, but it always happens.*

On another occasion he observed:

> *Most times, I find myself thinking of the extremes of kids. You know, how they are going to be able to cope, because I sort of think that this idea that you have to teach the middle, within reason.*

The observation was qualified with the comment that the process of judging the ability of individual children to cope with aspects of the lesson may occur more frequently within the lesson, rather than before it. In the context of these lessons, thoughts about the ability of particular

children or the children as a whole to cope with learning tasks were only registered in Lesson One where the definition of advertising that would be sought from the children was *"simplified for a more basic level of children's use"*. Lesson Two provided the only instance where Stewart recorded the fact that he had a particular child in mind in the course of planning. He thought that he *"might have to re-arrange words etc. - easier understanding - especially for Brenda etc."* (PR - 2)

Robert, the other experienced teacher, volunteered no comments about this aspect of his planning, and no information was directly sought. It can be noted, however, that on no occasions when he reported feeling uncertain whether "the children" would be able to come up with particular responses did he have in mind individual children who might have been less likely to respond successfully. The uncertainty appeared to have been experienced in terms of the children as a whole, regardless of their varying abilities.

8.5 What Factors Influence the Content of Teachers Plans?

Data gathered in the course of the study provided the basis for propositions concerning the factors which may account for similarities and variations in teachers' plans.

Proposition 3:	Factors internal and external to teachers account for similarities and variations in the content of lesson plans formulated by (a) any individual teacher on different occasions, and (b) different teachers undertaking similar lessons.

Proposition 3a:	Factors internal to teachers that may account for similar and contrastive features of their plans include (i) perceptions of, tolerance for and preferred pattern of response to uncertainty; (ii) the availability of established teaching routines; (iii) commitment to the propositions of a theory of teaching, (iv) information-processing capabilities; (v) interpretation of prescribed teaching intentions; (vi) attitude to planning; (vii) the range of possible specifications that can be envisaged; and (viii) knowledge of the attributes of children.

Proposition 3b:	Factors external to teachers that may account for similar and contrastive features of their plans include (i) time available for planning; (ii) time allocation for lessons; (iii) availability of material resources; (iv) school and classroom architecture; (v) prescribed curriculum; and (vi) school administrative policies.

Specific data from the cases that serve to both substantiate and illustrate each of the internal and external factors identified in these propositions, are now presented.

8.4.1 Internal Factors

Perceptions of, tolerance for and preferred patterns of response to uncertainty: The data indicated that the teachers varied in their perceptions of the degree of uncertainty that would be associated with particular elements of the lessons, their tolerance for uncertainty, and the nature of their response to the prospect of uncertainty. Evidence of concern with uncertainty was most frequently associated with the teachers' perceptions of the likelihood that the responses that they hoped to elicit from the children would be forthcoming. The effect of this concern on final plan specifications was quite varied. Thus, when uncertainty was experienced, the teacher might choose to formulate more teacher actions, give more attention to the scripting of statements, formulate conditional teacher actions, refrain from specifying teacher actions or learner responses, or elect to give information to the children rather than attempt to solicit it from them. The following incidents illustrate some of the occasions when this concern was registered and the patterns of response that were evidenced.

In the course of planning Lesson One, Stewart decided to formulate conditional specifications for the use of sample advertisements because the responses of the children were uncertain:

> *If the kids didn't give them* [categories of advertising] *I was going to give the examples to them first...as a prompt... and if I did get the ideas, then I was going to use the material as an example of the idea they had given me.*
>
> (PRI, Lesson 1)

Commenting on his limited attention to his own teaching actions as he planned for this lesson he also observed:

My idea is that you don't know what questions you're going to ask until the responses you get.

(PRI - 1)

In Lesson Three, Tom recorded similar uncertainty concerning the children's responses and, as a strategy to cope with this possibility, decided that if the children did not *"get on to something, then I would put it in and develop it"*. Susan's similar uncertainty about possible learner responses to this lesson (*"I didn't know how they were going to answer the question"* PRI, Lesson 3) also led her to specify several conditional teacher actions for this lesson. Within the planning record for Lesson One, she also recorded her uncertainty as to the children's ability to identify 'classified' and 'display' categories of advertising. This led her to consider the possibility that the children *"may need more clues concerning the visual category being divided into pictures and words"*. These two categories were not subsequently included in the final plan specifications for learner responses, and she noted within the actual lesson that she *"still didn't know whether I was going to bring it in or not"*.

On two occasions in the course of planning, Robert decided that he would tell the children key items of information instead of attempting to get them to come up with them. In the context of Lesson Two, this decision represented a major, last minute (15 minutes prior to the lesson) modification to the plan and followed from his concern that he couldn't really count on the children coming up with the information themselves. Similar circumstances surround the same decision for Lesson Three:

Just before we come in I thought I'll just get this together and I'll summarize it myself. I'll feed it in myself in case it doesn't come. (PRI - 3)

Robert was the only teacher to respond to uncertainty regarding learner responding in this manner and it is conjectured that he had a somewhat lower tolerance for uncertainty than some of the other teachers. The fact that his plan specifications for teacher actions, topics, learner responses and timing were almost invariably fixed, rather than conditional or indeterminate, also adds weight to this view.

As a contrast, although Gary indicated that the need for security shaped his plan specifications, the content of his plans suggests that he had somewhat more tolerance for uncertainty than Robert. From Gary's point of view, security would be experienced in a lesson when he could retrieve from memory, at any point of the lesson, an array of possible discussion topics or learner responses. Security did not depend on these

topics having been scheduled to be definitely dealt with at predetermined points in the lesson. His planning seemed in part designed to ensure that there was 'more than enough' on hand in terms of these elements. As he noted in the structured interview, *"I usually over-planned to be safe. I had more than was necessary"*. This practice allowed him to adopt the strategy of *"waiting for the kids to make ideas and just flow in as they mentioned them"*. It would also have reduced the uncertainties that might otherwise have accompanied his preference not to commit himself to a fixed set and sequence of particular responses and topics.

The availability of established teaching routines: Several features of the data indicate that the teachers had established teaching routines available which could be: (a) automatically selected and implemented once lessons were underway; or (b) readily brought to mind and incorporated in pre-lesson plans. First, it was apparent that for all teachers specifications were formulated for only a small proportion of the actions that they would actually use in the course of the lessons. This, in part, can be attributed to the fact that the actions that all teachers use are not unique to teaching-learning contexts. For example, giving information, asking questions and responding to others' answers are types of action used in an infinite range of contexts other than classrooms. Teachers, therefore, will obviously have many well-established patterns of action that they can employ automatically when they encounter particular teaching situations. Teachers having tacit knowledge that such action routines exist may feel they can securely proceed into lessons without having consciously specified many of their actions in advance. The variability in the number of teacher actions specified in plans, as well as differences in the teachers' perceptions of the place of these specifications in their plans, indicated that the teachers varied in their confidence that they would be able to produce appropriate teaching actions without pre-lesson planning.

Second, the limited attention that most of the teachers gave to the categories of learning behaviour that the children would engage in during the lessons may similarly be attributed in part to this factor. Thus, just as many of the ultimate outcomes of such lessons are likely to follow from teaching actions that will be automatically selected and implemented once the lessons are underway, the immediate ends of these actions may similarly receive no conscious consideration in the course of planning. Past experience may effectively programme the teacher to automatically set out to facilitate them once the more generic or ultimate ends for the

lesson have been consciously identified. For example, when the teacher has envisaged having the children identify the techniques used in particular sample advertisements, on the way to that end he may automatically set out to have the children attend to him, to attend to a sample advertisement, to identify aspects of the advertisement that attract their attention, to explain why the aspect identified attracts them, to name the 'attention - attracting' technique, and to identify further instances of the technique in other sample advertisements. This pattern of learning behaviours (attend, identify, explain, name, identify), as well as the accompanying teacher actions, may have been associated with many other lessons and consequently have become established as a set of intentions and associated actions that will be selected automatically in certain contexts. Teachers may come to recognize that they will be able to employ such routines without needing to allocate attention to them during pre-lesson planning.

Third, the data indicating that the teachers' emerging thoughts about the lesson frequently followed the time line of the prospective lesson, and that most of the teachers showed little uncertainty or made few choices when considering sequence, suggests that some of the planned sequences represented well-established routines.

Fourth, the fact that the teachers showed different levels of concern with 'time allocation' in the course of planning can in some instances be attributed to differences in their ability to accurately and automatically assess the appropriate ratio of lesson content and activity for the time available. The experienced teachers were more likely to have established criteria specifying the appropriate duration and timing for certain aspects of the lessons. This was acknowledged by Susan when she identified *"the time factor; how much time should allow"* as an element of lessons that she would typically *"have to think about"* in the course of planning. At the same time, she expressed the view that experience would allow decisions about the factor to be made *"more subconsciously"*. As detailed in the account of her case given earlier, Susan believed that her teaching practice experience had in fact given her more assurance in planning the 'time factor' of lessons.

Finally, while the data are somewhat less conclusive on this point, they do suggest that teachers included some specifications automatically in their plans so that certain affective learning behaviours that were not overtly acknowledged might be facilitated. Thus Robert observed:

I don't know if I consciously do it or not, but I try to get things to fit together into two or three stages and try to make the activities within each stage slightly different. But if I had more time I might have got the kids to actually write down their lists. Here would have been discussion. Here would be reporting back and further discussion so that there's a break in the type of activity.

(PRI - 1)

Although not explicitly stated, these different activites may be intended to help ensure that the children's attention and interest is maintained.

Data previously presented from Susan's and Tom's cases (p.197, p.236) also suggests that these teachers 'routinely' included certain specifications in their plans in order to solve the 'routine' problem of facilitating learner motivation.

Commitment to the propositions of a theory of teaching: In commenting on features of their plans, all of the teachers on occasions directly or indirectly expressed their personal views concerning the end-states, teacher actions, action conditions and/or evaluative criteria that they believed would be most appropriate in particular situations. These views essentially represented the propositions of the teachers' personal theory about the nature of effective teaching. The relative experience of the teachers had no predictable relationship to the content of those theories.

Data from the six cases indicated that the teachers varied in terms of the extent to which these propositions had been derived from 'academic' teaching theories or had been personally-constructed on the basis of first-hand teaching experiences. Only two teachers reported having had in mind the views of particular educational theorists as they planned. As has been discussed in detail previously, David's plans were significantly influenced by his commitment to the Taba teaching-learning theory which emphasizes the need to consider the types and sequence of cognitive learning behaviours that will be associated with the learning of particular cognitive content. Susan reported on one occasion that she had recognized that the approach she was adopting to the organization and sequencing of topics and responses accorded with propositions advanced by the teaching and learning theorist David Ausubel.

These findings must be qualified by two observations. First, it may be difficult to identify the source of propositions in teachers' theories. Certainly, there was no systematic attempt to do this in the present study. It is possible that propositions that do not have an obvious link with academic theory may, in fact, have their origins in the teacher's exposure to academic theories in the course of formal teacher education experiences.

The fact that the authors of such theories or propositions are not directly alluded to by the teachers, and the propositions are not expressed in educational 'jargon', may also conceal the fact the formal teacher education experiences as well as first-hand experiences of life in classrooms have shaped the teachers' theories.

Second, although some of the evidence for the existence and influence of such propositions came from relatively direct teacher references to such propositions (e.g. *"Most times I find myself thinking of the extremes of kids. You know, how they're going to be able to cope because I sort of think of this idea that you have to teach to the middle, within reason"*, Stewart, S.I.), much of the evidence was indirect. Again, this followed from the fact that the researcher did not set out systematically to explore the content of teaching theories. Indirect evidence was contained in teacher statements that implicitly referred to the reasons why particular plan specifications were adopted, and in the teachers' descriptions and explanations for their planning practices in general. This can be illustrated by data from Robert's case. Both the substance and sequence of elements in his plans was largely determined by his concern that there be a logical basis for the inclusion of particular topics, specifications for teacher and learner behaviours, as well as the sequence of these basic elements. The word 'logical' is used by Robert in several statements he made about his plans:

> *I like things to be reasonably - I like things to follow reasonably logically, and I probably think about a thing the way I want it to go logically.*
>
> (S.I.)

> *Probably like to have starter questions, key questions or key points, and I like to have them in some sort of logical sequence too. Not that logical is necessarily the right type of word...I like to have some key points that I want to bring out and have them roll on from one another.*
>
> (S.I.)

> *I want to make sure I reached that in a logical way by... through the ways we asked the questions.*
>
> (PRI - 1)

and these clearly indicated that there was some proposition or hypothesis that governed his decisions about the inclusion and sequence of particular elements of the plan. It was appropriate, necessary or justifiable to 'do it this way'. Robert referred to the possible attributes of a 'logical' sequence on only a few occasions in the planning records and interviews, however, and most references were implicit rather than explicit in his statements.

e.g. *I was hoping to get a maximum of 8 responses which would then lead...into attempting to analyze the ads they were able to record.*

(PRI - 1)

Where and in what form does advertising present itself to us, hoping that this would lead into the record stage.

(PRI - 1)

I know it wasn't necessarily the objective, but I thought if I could build into it somehow or other, some sort of springboard for future lessons.

(PRI - 1)

...then I thought no. I changed that. I thought no. I'll start by talking about the techniques we used and then say, what is advertising. And the only reasons I thought this would be fresher in their minds.

(PRI - 3)

Information-processing capabilities: Two features of the data may be accounted for in terms of the inherent limitations of each teacher's information-processing capabilities. First, the finding that the teachers almost never formulated teaching intentions for individual children may indicate that they recognized that there were limitations in their capacity to hold in mind detailed specifications catering for a range of individual differences. Only a limited number of 'bits' of information about the prospective lesson may be able to be carried in memory, and the immediacy of the demands on the teacher's attention as such lessons are underway may limit opportunities to retrieve specifications from memory, or to refer to detailed prompt notes.

Second, it was apparent that even where teachers were less inclined to specify sequence for some elements of the lessons, they almost invariably identified a limited number of broad stages that were delineated by some over-arching feature (e.g. change in general topic focus, or category of learner behaviour). This 'chunking' may represent a strategy wittingly or unwittingly used by teachers to help them hold in mind and retrieve specifications as the lesson is underway. It may be easier to initially recall the general feature that distinguishes each new stage and then, as discussion is initiated, to bring to mind the more detailed specifications. Both of these explanations are necessarily tentative.

Interpretation of prescribed teaching intentions: The content of plans may be influenced by the teacher's interpretation of statements that prescribe specifications for some elements of the lessons. For example, in the context of the three lessons, most of the teachers may have viewed the anticipated learning achievements almost entirely in terms of the content of particular learner responses rather than the categories of learning

behaviour in which the children might be required to engage in order to produce these responses. The lesson prescription statements did not emphasise these behaviours as key objectives and thus 'product' rather than 'process' objectives may have been uppermost in the teachers' minds as they planned.

In addition, it was apparent that both Stewart and Susan considered that the prescribed learning outcomes and topic for the third lesson did not make it appropriate for them to attempt to specify acceptable or correct learner responses. Stewart observed that the only evaluative criteria for the children's responses on this occasion was that they should represent "their own opinions":

> *Mustn't give my opinion - totally the children. Well, see,... I obviously must have thought to myself what the topic was, and then I thought well I'd better make it the kids opinion and not mine.*
>
> (PRI - 3)

As previously detailed, Susan 'thought' on several occasions that the children's responses would necessarily be uncertain for this lesson. Stewart and Susan's interpretation of the import of the prescribed teaching intentions for plan specifications was not shared by all of the teachers.

Attitude to Planning: Data from several cases indicated that the teacher's attitude towards planning in general, and planning in the context of particular subject areas, might influence the content of plans. Two teachers spontaneously volunteered the information that they found the activity of planning boring. Thus, Stewart observed that while he saw planning as an essential component of teaching, he generally didn't do a lot of planning *"because...I do find it boring"* (S.I.). This attitude would seem to place Stewart in a somewhat unenviable position as a *"boring"* task was also seen as an essential ingredient of effective teaching. Tom noted in more specific terms that:

> *I don't like going through and breaking everything down and writing and putting it down. It just bores me.*
>
> (S.I.)

He also commented that his associate teacher had made reference to his planning practices in making a formal evaluation of his teaching practice performance:

> *When he did my report, all the way through, it is uhm, you know, 'needs to plan more'.* (S.I.)

Teacher preference for particular subject areas might also influence attitudes to planning and the content of actual plans:

Like in reading I do more planning than I do in maths. Because I'd like to keep to maths all day and I hate teaching reading. So I try to, well I don't try. I do more planning in reading than I do in maths.

(Stewart, S.I.)

Science. Probably spend a bit more thinking about because, ah, it's not a subject I've taught with a great deal of enthusiasm so I probably think about that a bit more.

(Robert, S.I.)

The range of possible specifications that can be envisaged: Although direct evidence of the influence of this factor was limited, it was apparent that the teachers could experience varying degrees of difficulty in envisaging possible specifications for particular elements. For example, Stewart recorded on two occasions the difficulty he experienced in bringing to mind possible topics and learner responses:

They were hard to think of...you know, I don't know whether it was just because they were obvious things or what. But they were hard to think of.

(PQ1, Lesson 2)

My difficulty was what to include, especially what to include in the actual discussion, especially the things that were for. There was such a lack of things I could think of.

(PQ1, Lesson 3)

As a contrast, in planning for Lesson Two, he experienced difficulty in:

trying to keep the lesson discussion-based. I kept thinking of other ways that the objectives could be considered or covered, generally more practical than discussion-type.

(PQ1, Lesson 2)

One outcome of these thoughts was the production of a 'practical' homework task to be completed following the lesson.

Knowledge of the attributes of children: As previously reported, there was negligible evidence in the planning records of the teachers having modified or incorporated specifications in order to take account of information they had in mind concerning the attributes of individual children or groups of children. It was apparent, however, that the teachers did have a body of information about the 'class' of children they were to teach, and this might significantly influence the content of plans. For example:

I had the feeling then that the kids would possibly think of advertising in terms of t.v. commercials, so I felt I might need to point out that it was everywhere around us. Set them up for thinking about where we do find it.

(Robert, PRI - 7)

they're not, by no means the only criteria to judge it by, but I thought those were the two that I thought the kids would be able to understand and use.

(Robert, PRI - 3)

In addition, several teachers contended in the course of interviews that their plans were, in fact, shaped by information about groups of children on occasions:

Like the high group one, I know I don't really have to worry about the material because generally they'll be able to cope with the materials, whereas the low group, it's the first thing I think of. Are the kids going to be able to read it.

(Stewart, S.I.)

8.5.2 External Factors

Time available for planning: For the experienced teachers in particular, time available for planning was noted as a factor that could significantly influence their planning. Already discussed in the context of David's case, the influence of this factor can be further illustrated by data from Robert's case:

(T) *I have a lot of demands on my time in school time...You know, schools a difficult place for me to sit and plan actually. To sit and think about things, or to do or even to do physical things like getting things ready, because I have a lot of interruptions. In terms of the sorts of things that are asked of me in the school. Somebody will be in the school and* [Principal] *might not be there, and I've got to see them. That type of thing. Or dealing with some kid over some problem, or that type of thing.*

(R) *Your planning might be going on more frequently watching t.v. or something?*

(T) *Can do. Yes. Used to think a lot when I rode the bike, rode the bicycle to school. And I used to, once I got out of the heavy traffic, I used to think quite a bit there. That was one of the best opportunities I ever had actually.*

Some indication of the possible impact of time on actual plan specifications became apparent in Robert's planning for Lesson Three. This lesson was planned for a single fifteen minute period immediately prior to the lesson. Because he was *"on the hop at the time"* and a *"wee bit rushed"*, he decided to make up several charts summarizing key information relevant to the lesson. They would help him keep in mind these specifications for the lesson and compensate for the lack of time to rehearse and stabilize the plan in memory.

Time Allocation for Lessons: Several teachers recorded their recognition and concern that the length of time prescribed for the lessons

imposed constraints on the specification that could be formulated for some elements of the lessons. For example:

> *When I was initially planning...I've only got 20 minutes here. I've got to break this up into time blocks, and I thought five minutes for motivation, five minutes for defining, five minutes for types and things like that...I was thinking that all the time, right. I've got to divide this lesson up. I was thinking that all the time last night and I thought this morning it's pretty restrictive.*
>
> (Gary, Lesson 1, Incident 23)

It must be acknowledged that for the experienced teachers, time allocation for such lessons is unlikely to be a recurrent concern as they are able to 'control' this factor to some extent. They may choose to continue lessons 'over time' or at some later date:

Availability of Material Resources: All of the teachers made use of material resources either as a source of planning ideas or as an adjunct to their own or the children's actions, and they allocated a significant amount of time and effort to finding and selecting them. While there were no instances where the teachers reported that they were unable to locate suitable resources, it is obvious that this might occur on occasions. Data from each case also indicated that specifications for a number of elements of the plans (topics, learner responses, timing) were largely shaped by the materials that were available. The two aspects of the contribution that available materials may make to plans was clearly illustrated in David's case.

> *(T) Ever since you told us that...a couple of days before I'd been thinking about, you know, resources. I wanted some resources. I wanted to get away from using the same resources over again...*
>
> *(R) You went through the book and had a look?*
>
> *(T) Yeah.*
>
> *(R) But not making any decisions really at that point. Just seeing what was in there?*
>
> *(T) Were they adequate for what I wanted to use them for... Mainly I was looking for examples of different techniques, but of course it was the ads that gave me the idea about techniques, the different types.*
>
> *(R) You didn't make a list of techniques and then go and try to find examples of ads that used them?*
>
> *(T) No. I did both at the same time really.*
>
> (PRI - 2)

Other External Factors: A number of external factors other than those noted in particular in this study clearly may also influence the content of plans on occasions. These include school and classroom archi-

tecture, prescribed curriculum, and school administrative policies.

8.6 What is Involved in the Planning Process?

The analysis of data from the six cases lead to the formulation of several propositions concerning the activity of planning.

Proposition 4:	Planning is a problem-solving activity.

Data from the case studies suggested that it was more appropriate to describe planning as a problem-solving as opposed to rational decision-making activity. Each prospective lesson confronted the teachers with a general problem: how could they arrange conditions so that certain learning behaviours and achievements might be facilitated? The time, effort and types of activity associated with pre-lesson planning indicated that the teachers never had a complete and ready-made solution to this problem immediately available. They invariably had to 'work out' a solution (plan). In that process, the teachers rarely brought to mind alternative solutions (specifications) and then made considered choices between them. Rather, specifications appeared to be most frequently selected in a process that involved their being checked off against criteria formulated for the current lesson or criteria that had been established in the past and had generalized applicability. From this perspective, the most general criteria governing the adoption of specifications for the plan represented the extent to which they ensured an acceptable level of probability that: (a) learning behaviours and learning achievements would be facilitated; and (b) 'security' would be experienced as the lesson was underway.

For all teachers, more specific criteria were associated with those elements of the lesson that might arrange or control. Thus, the teachers were likely to have in mind certain qualitative and/or quantitative attributes (e.g. 'concrete', 'clearly-phrased', 'moderate difficulty', 'no more than four', 'rapidly') that they believed the specification for particular elements would need to fulfill if they were to facilitate the desired learnings. It was apparent that some of the criteria that plan specifications needed to fulfill could become 'routine' for all similar lessons (e.g. all children to remain attentive and overtly contribute to the discussion throughout the lesson, opening topic to relate to known interests of children) and might not be consciously registered on every planning occasion. Other criteria might be specific to one lesson and were therefore more likely to be consciously formulated.

Proposition 5:	Three factors contribute to the relative difficulty of planning: (i) the probabilistic nature of the teaching-learning process (ii) the number and variety of sub-problems to be solved (iii) the novelty of succeeding problems

As has been previously noted, most of the teachers acknowledged at times in the course of planning that it was impossible or difficult for them to predict how the children might respond to elements of the lessons that they were able to directly control in the course of the lessons. The children's behaviour was not a 'controllable' factor. This reality meant that they could never have complete certainty that a plan formulated, but not trialled or tested prior to the lesson, would ultimately prove to be correct. At best the teachers could view a plan as having a high probability of being correct.

Subsumed within the general problem that each lesson presented (i.e. facilitating certain learning end-states) were a number of sub-problems. Each of the intermediate end-states that the teacher envisaged facilitating on the way to the 'ultimate' outcomes represented such a sub-problem (e.g. learner motivation, recall of ideas from previous week's lesson, attention to features of a sample advertisement, responses from John, evaluation of effectiveness of techniques). Again, the probability that the solutions formulated for each of these problems would prove correct was dependent on the teacher's ability to accurately predict and control certain elements of the lesson. It is understandable that the teachers showed varying levels of confidence that the solutions formulated far different sub-problems within each lesson would be appropriate.

Finally, while each lesson presented the teachers with some familiar problems (gaining and maintaining the children's attention) there were inevitably many that were unique. As no ready-made solutions were available, problem solving was unavoidable.

Proposition 6:	The process of planning for a lesson typically moves through a succession of stages which cummulatively contribute to the production of a plan that will fulfill the teacher's personal criteria for an acceptable plan.

Proposition 6a: Two different, but overlapping features of the planning process may be used to differentiate planning stages:

(i) the nature of the planning activities being undertaken;

(ii) the category of lesson elements, or phases of the lesson being considered.

Proposition 6b: In planning for a particular lesson, the teacher may undertake some or all of the following planning activities, often in a cyclic rather than linear pattern. The teacher:

(i) recognizes and identifies problems associated with a prospective lesson, and a 'set to plan' is induced;

(ii) obtains information that may facilitate planning from such sources as personal subject matter knowledge, colleagues or texts;

(iii) brings to mind and adopts or rejects 'possible' specifications for elements of the lesson;

(iv) assembles adopted specifications into a mature plan;

(v) "fine-tunes" a draft, mature plan;

(vi) reviews and stabilizes the final plan in memory; and

(vii) prepares prompt notes for selected plan specifications.

Proposition 6c: In planning for a particular lesson, the teacher may deliberately order their attention to:

(i) particular elements of the lesson (e.g. "concept to be taught" considered before "activities");

(ii) phases of the lesson (e.g. "Introduction" considered before "Body of the Lesson"); and

(iii) Succeeding events in the lesson.

Proposition 7:	Internal and external factors that account for the type, pattern and stability of stages evident in the planning undertaken by individual teachers include:
	(i) commitment to propositions of teaching-learning theories;
	(ii) personal knowledge of subject matter;
	(iii) availability of 'routine' solutions for 'routine' sub-problems;
	(iv) time available for planning;
	(v) access to person and material resources for planning ideas; and
	(vi) personal criteria for an acceptable plan.

These propositions were originally derived from the analysis of data from David's and Susan's cases. That obtained from the other four cases both confirmed and extended the basis for the propositions. Selected features of these cases are now presented to illustrate some of the similar or idiosyncratic qualities of the planning process and to further substantiate the propositions.

While two or three distinctive stages were evident in Stewart's planning for each lesson, some features of his thoughts within these stages were dissimilar to those previously noted for Susan and David. Thus, on several occasions during the plan reviews he spontaneously commented on his concern with establishing at an early juncture in the planning process, what was variously described as a *"key idea", "main idea"* or *"key question":*

> *When I do a lesson I have this one thing which I, you know, I don't really mind what we do within the lesson, so long as it revolves around what this key idea is.*
>
> (PRI - 1)

> *I like to have this overall idea which I keep going all the way through. And I usually write that down so I know exactly what it is.*
>
> (PRI - 1)

Additional evidence that a key idea would typically be an early planning concern in such lessons was obtained in the course of the structured interview. Discussing the fact that the *"concept being taught"* rather than *"activities"* would generally be considered initially, Stewart contrasted this with what he believed was the practice for some other teachers:

> *...if you start, and I think some people do this, not that I'm saying it's bad, but for me it would be, they start with what types of activities can we do. You know, they tend to work the concept around the activities rather than work the activity around the concept sort of thing.*
>
> (S.I.)

It was noted that the elements that Stewart considered in this initial phase of planning (e.g. topic focus, evaluative criteria - topic focus, materials, evaluative criteria - materials, duration) did not include teacher actions, and apart from an opening reference to the prescribed learning behaviours these also did not receive any additional attention at this point.

Stewart's commentary indicated that the first stage of planning would be terminated once the key idea or concept had been established, and an outward sign of this would typically be the first written record of decisions. For example, at a relatively early stage in his planning for Lesson One, he observed:

> *I was sort of thinking to myself that I was going to write the plan, and then I thought ah no, maybe that wasn't such a good idea because I'd already changed my mind once. Well, I thought blow this. I'm not going to do it until I thought about it a bit more.*
>
> (PRI - 1)

At this point, there was no evidence of a key idea having emerged. He had reviewed his own subject matter knowledge and possible topics, methods and materials had been envisaged but no firm decisions made.

Eventually, he consciously directed himself to *"get specific"* and decide on a key idea for the lesson. As soon as this decision was made, the first specifications for sequence and teacher actions were recorded. Stewart observed that at this point, *"It sort of starts turning into a plan, because it's mainly, because it's getting more specific"*.

Attention then shifted across various elements (e.g. topics, teacher actions, evaluative criteria for learner responses, timing) in a relatively random fashion but, in the process, final decisions about specifications were made as they were *"tied together"*. The pattern was similar for the other two lessons, with the addition of a mental summary of key elements of the main phases of the lesson during the final stages of planning. In only one lesson was there a further review of the initial draft of a 'complete' plan.

Stewart indicated that the action of making a written record of certain decisions represented a significant aspect of the planning process *"because as soon as you write something you commit yourself"* (S.I.).

Associated with this commitment were:

(a) a deliberate process of bringing together previously considered specifications so that a coherent *"line of action"* was formulated; and

(b) further deliberation on both the concept being taught and a plan of action:

> *Because as soon as you write something, not that you have to take that line of action if something changes, but at least you have a line of action or a plan of what you're going to do, whereas if you just, you know, if you think about it, I think you must think about activities, areas, but you don't bring them all together, whereas if you've got to put them on a piece of paper.*
>
> (S.I.)

> *When you write the concept down that I find I do anyway, I think about it, and I turn over in my mind what the concept is, different ways of doing it.*
>
> (S.I.)

He also noted that written prompt notes recording key ideas/questions might be prepared, more particularly for lessons where he anticipated that he was more likely to *"get off the point a lot"*, or where there are *"the sorts of things* [items of information] *that are difficult to remember"*.

Robert's planning was also characterized by relatively consistent stages, but again his thoughts within stages showed both similarities and differences in relation to the other cases. For each of the three lessons, the main portion of planning occurred in a single period of deliberate planning that saw the formulation of a completed plan.

Within this period, two distinct stages were evident for two of the lessons. In the first, a complete prospective plan was formulated. Succeeding thoughts about the lesson during this stage tended to be concerned with the likely succeeding actions and conditions of the lesson. The somewhat random attention to elements evident in Stewart's planning was not apparent here.

In the second stage, this first draft was reviewed and some modifications and additions made (e.g. modification of scripting for actions, timing change, consideration of criteria for teaching actions). These modifications might essentially be viewed as the products of a fine-tuning process, although in the case of one lesson, last minute modifications were of relatively major import. Because of limited time, planning for the other lesson was compressed into a 15 minute period immediately prior to the lesson and the two stages were essentially combined. A further

consequence of limited time was a decision to record key questions and information on charts that would serve in part as a form of prompt note. It appeared that the limited time reduced opportunities to rehearse and stabilize plan specifications in memory.

To some extent, both the products and the process of Gary's planning were shaped by a pre-determined and consistently followed format. That is, broad clusters of interrelated elements were considered at a common stage during planning. The clusters of elements were broadly categorized in the planning records as 'Aims", "Organizational Matters', 'Materials', 'Lesson Content' or 'Lesson Structure'. Aims featured as an early, but not necessarily the very first concern when planning was initiated for each lesson. Both prescribed and non-prescribed learner behaviours were distinguished at this point. For example:

> Aims: The children will -
>
> (1) Define "advertising" and its use in society.
>
> (2) Discuss the various types of advertising and who the ads relate to.
>
> (PRI - 2)

Under the heading 'Organizational Matters', a variety of procedural and action conditions were considered (e.g. lesson location, sources of materials, duration). 'Materials' then featured as a major concern in Gary's planning for each lesson. He allocated considerable time to the gathering of materials, and once chosen these provided a major source for 'ideas' that might be introduced or solicited during discussion. The significance of this element for Gary is highlighted in his following comments:

> *I sort of get ideas through my mind, especially from materials I can grab up. My planning revolves a lot around materials. The sort of materials I can get hold of.*
>
> (PRI - 2)

During the phase concerned with lesson content or structure, Gary's succeeding thoughts focussed on specifications for elements within succeeding stages in the prospective lesson. These stages were delineated by sub-headings (e.g. Motivation, Discussion, Conclusion). Once an initial draft of the plan was formulated, this was reviewed and a final edited version established. Modifications or additions made at this point were of minor rather than major import. The proposition that the final review process was an activity intended to allow for stabilization of the plan in memory as well as final editing is given some support by

Gary's observation that rather than use written prompt notes, *"I usually just memorize what I'm going to do beforehand"* (S.I.).

There was only one incident recorded during planning where Gary held in mind alternatives for an element of the lesson:

> *That was one of the things I was sort of tossing up. Whether to do a debate situation or use an ordinary discussion.*
>
> (PRI - 3)

Tom's approach to planning was quite different from that evident for Gary, as well as the other teachers. He essentially formulated a 'completed' plan for each lesson on a single occasion that occurred no more than a day in advance of the lesson. There was little evidence of clearly defined and relatively consistent stages within the planning process. Thus, apart from opening reference to the prescription for each lesson, elements of the lesson were not considered in either a pre-determined sequence or a sequence that closely paralleled the likely course of events in the lesson. For only one lesson did Tom systematically review and make modifications to the plan as initially drafted.

He observed that he was unlikely to prepare detailed 'prompt' notes for use during the actual lesson.

> *I don't go to any detail when writing down plans because I don't like carrying pieces of paper around in your hand... I just might have the heading, and then the next heading and the next heading like this, so that...if I do get a blank in my head I can just go back.*
>
> (S.I.)

In the course of planning he might however:

> *write it* [the plan] *down so just maybe I could remember it, but I wouldn't use that bit of paper as such.*

8.7 What do Teachers Attend to and Think About During Lessons?

In the course of the lesson reviews, the teachers identified and described incidents in which the focus of their within-lesson attention and thoughts had been consciously registered. The data from the six teachers revealed a number of similarities and variations in respect to the number of incidents recalled by the teachers, the reported focus of their attention, and the nature of judgements recalled. In the succeeding commentary, significant features of that data are briefly summarized.

8.7.1 Total Number of Incidents Recalled: TABLE 13 indicates the total number of incidents recalled during the 'stimulated-recall' reviews of the

three lessons, the overall duration of the three lessons and the average interval of time between reported incidents. The latter figure provides an index of the relative frequency of incident recall.

TABLE 13: Total Number of Lesson Review Incidents, Duration of Lessons, and Average Time Between Incident Recall.

Teacher	Total Number of Incidents	Total Duration of Lessons (Mins)	Average Time Between Incident Recall (Mins)
Robert (E.T.)	42	81	1.92
Stewart (E.T.)	79	93	1.17
Gary (S.T.)	48	102	2.12
Tom (S.T.)	55	105	1.90
Susan (S.T.)	40	81	2.02
David (E.T.)	29	76	2.62

As evident from the figures presented in this table, none of the teachers stayed strictly within a 20 minute period for the lesson. They were told, however, that they could run over the prescribed time if they felt this was necessary to bring the lesson to a satisfactory conclusion. The teachers appeared to interpret this guideline more or less liberally.

When the figures concerning both the number of reported incidents and lesson duration are taken into account, they point up the potentially wide variance in the frequency with which such incidents may be'experienced' by teachers.

8.7.2 Within-Lesson Reflections (The Plan, Learner Information): TABLE 14 summarizes data for all six teachers in respect to the number of incidents in which categories of reflection were recalled.

TABLE 14: Total Number of Incidents Including Recalled Reflections

	Tom	Gary	Stewart	Robert	Susan	David
Reflections On:						
The Plan	14	7	11	2	2	7
Learner Information	0	0	1	4	0	4
Actuality	15	14	19	11	2	3
Other Information	0	0	0	1	1	0
Total Number of Incidents	55	48	79	42	40	29
Duration of Lessons	105	102	93	81	81	76

It is apparent that the number of occasions on which the teachers brought information to mind about either plan specifications or the attributes of the children being taught was relatively low for all teachers. When adjusted for differences in the duration of lessons, the data indicates that both Stewart and Tom were more likely to have plan details in mind than the other teachers. At the same time, however, the frequency of their attention to these specifications was still relatively low. For example, reflections on plans were reported by Tom once every 7.5 minutes on average.

8.7.3 Learner Behaviour: Perceptions, Judgements: As TABLE 15 indicates, with the exception of David all of the teachers recalled their attention having been initially directed to the behaviour of the children, in particular the verbal substance of their responses to questions, in a majority of the incidents. Associated with a significant proportion of these incidents were judgements about the relevance or acceptability of behaviour, the children's ability to cope with the requirements of the immediate learning task, and/or the meaning of children's responses. A majority of these judgements had a negative quality (e.g. responses considered irrelevant).

TABLE 15: Number and Percentage of Incidents Including a Focus on Aspects of Learner Behaviour and Teacher Negative Judgements re Learner Behaviour

	Teachers					
	Tom	Gary	Stewart	Robert	Susan	David
No. & % of Incidents Including A Focus On						
Learner Behaviour	32(58%)	25(52%)	54(68%)	26(61%)*	28(70%)	10(34%)
Verbal Substance of Learner Behaviour	31	14	42	17	22	8
Occurrence of Learner Behaviour	1	7	7	4	2	1
'Other' Verbal Learner Behaviour	1	01	1	1	3	1
Non-Verbal Learner Behaviour	1	2	4	7	2	2
Negative Judgements re Learner Behaviour	14(43%)	13(52%)	26(48%)	12(46%)**	13(46%)	13(70%)
Total No. Incidents	42	79	48	55	40	29
Lesson Duration (Mins)	105	102	93	81	76	81

* $\frac{\text{No. of Learner Behaviour Incidents}}{\text{Total No. of Incidents}} = \%$

** $\frac{\text{No. of Negative Judgement Incidents}}{\text{No. of Learner Behaviour Incidents}} = \%$

8.7.4 Teacher Actions: Perceptions, Judgements: TABLE 16 shows the number of incidents that included a report of attention to teacher actions, and the number of incidents that included recall of negative judgements about such actions.

TABLE 16: Number of Incidents Including A Focus On Teacher Actions and Negative Judgements re Teacher Actions

	Teachers					
	Tom	Gary	Stewart	Robert	Susan	David
No. of Incidents Including a Focus On:						
Teacher Actions	6	4	15	3	4	2
Negative Judgements re Teacher Actions	5	4	12	2	3	1
Total No. of Incidents	42	79	55	48	40	29
Lesson Duration (Mins)	105	102	93	81	76	81

Apart from one teacher, the number of incidents in which the teachers recalled having attended to this element is clearly low. One qualification of this data is necessary, however. In the review of one lesson Gary recalled and reported on two occasions what had been a continuing rather than momentary concern with aspects of his own actions.

e.g. *I was also very conscious of putting ideas in kids' heads by sort of pushing things in...I was thinking I was telling them what they should be saying.*
(Lesson 3, Incident 12)

This observation can also be set against Gary's observation in the structured interview, that one of the features of a lesson that was turning into a disaster would be the fact that he was *"obviously trying to prompt the kids all the time. Point them in the right direction. Teacher directed"*.

The incidents reported by the four teachers were again almost invariably associated with judgements that actions were inadequate or inappropriate according to some criteria. For example:

> *I didn't like making that statement really. I try not to make statements like that to kids. I can remember what I felt then having said it. You could have said it a little better.*
>
> (Robert, Lesson 1, Incident 4)

8.8 What Factors Influence Teachers' Attention And Thoughts During Lessons?

A number of propositions were formulated to account for the findings concerning teacher attention and judgements within lessons. These propositions were based on data that described the teachers' actual pattern of attention and judgement in the three research lessons (presented in the preceding section) as well as data from interviews in which the teachers commented on their perceptions and propositions about these aspects of their own teaching behaviour.

Proposition 9:	When plans are clearly delineated and fixed in memory, and specify the sequence for lesson events, they are likely to direct teachers' actions without the teacher being required to consciously monitor progress through them. This opens the way for relatively undivided teacher attention to external events while teaching.

For each lesson, the teachers formulated a plan that contained clearly delineated and, to a variable extent, temporally-ordered specifications for elements of the lesson. It was apparent that the activities associated with planning generally ensured that these specifications had been rehearsed and stabilized in memory. The one exception to this occurred when Robert had limited time to review specifications that he had brought to mind and he prepared prompt notes (charts) to cope with these circumstances. The pay-off of the teachers' planning practices was the relatively automatic unfolding of plans once lessons were under way and, therefore, opportunity to give relatively undivided attention to other events. In only one of the cases was there evidence of the teacher having registered uncertainty as to *"where to go next"*, and the number of occasions on which there was conscious noting of the next planned move, or recall of forgotten specifications, was limited:

> *That's where I remembered, my God, I haven't used those other ones* [prepared materials].
>
> (Stewart, Lesson 1, Incident 32)

Plan specifications were most frequently in mind as a component of a consciously registered decision to 'move on' to a further planned phase of the lesson. This followed from the fact that while sequence was planned for, the circumstances that would denote the point at which shifts would be made to succeeding specifications was not generally planned.

Proposition 10:	The press of events in the course of discussion lessons may limit the teacher's opportunities for reflecting on plan specifications; for bringing to mind and considering information about individual learners; and for monitoring teacher actions.

It was apparent in at least one case, that when the teacher directed attention to the plan and therefore diverted attention from events 'out there' for an interval of time, there could be a cost involved because significant information about immediate learner behaviour was inevitably overlooked. These circumstances have previously been discussed in the context of teachers' within-lesson planning, and they may clearly also be associated with incidents in which the teachers attempt to recall information about individual learners or monitor their own actions. The limited evidence of conscious reflection on learner behaviour may also reflect the fact that experienced teachers are likely automatically to respond differently to individual learners, having had opportunities in the past to gather and take into account such information. The inexperienced student teachers in the teaching practice situation may not have had sufficient time to acquire much significant information about individual children, or to formulate patterns of differential response. The limited attention given to teaching actions may similarly also indicate that the monitoring and modification of actions often occurs as an automatic process. Inspection of the lesson transcripts pointed up instances where statements were 'corrected' without any report of a consciously registered judgement regarding their inappropriateness. It is also possible that there may have been few situations in which significant departures from established or planned criteria for such actions occurred.

Proposition 11:	Information gathered by the teacher about the immediate and historical features of children's behaviour is generally judged fairly automatically against criteria defining the attributes of acceptable learner behaviour.

When set in the context of the three lessons overall, the number of incidents in which the teachers recalled having consciously registered their attention to and judgements about features of the children's on-going behaviour was low. It is apparent that the activities of monitoring

learner behaviour and judging the fulfilment of such criteria must operate automatically for much of the time.

Proposition 12:	Teachers' on-going judgements about the acceptability of children's behaviour are more likely to be consciously registered when the behaviour is judged to be unacceptable.

The fact that the teachers' consciously-registered judgements about children's behaviour generally had a negative quality, suggests that evidence of a discrepancy between the teachers' criteria for acceptable behaviour and the behaviour actually monitored is the circumstance most likely to lead to the products of the monitoring-judgement process being registered in consciousness. There were relatively few incidents reported in which the teachers had consciously registered the judgement that the children's responses met or surpassed such criteria. It seems, therefore, that when the latter conditions exist, this aspect of within-lesson information-processing typically operates quite automatically.

Proposition 13:	When teachers judge children's behaviour to be unacceptable, their response to that situation frequently is formulated automatically rather than consciously, particularly where the criteria for acceptable behaviour have been long-established.

It was apparent that when teachers did respond to evidence that children's behaviour did not fulfill particular criteria, their response often occurred quite automatically. This was particularly the case where there were well-established criteria for such aspects of learner behaviour as levels of overt responding, turn-taking, and 'social' behaviour. Where a discrepancy was consciously registered (e.g. non-participation by a child) and a response to it eventuated (e.g. teacher redirects a question to the child), the form of response generally appeared to have been selected and implemented automatically. The teachers clearly had 'routine' ways of responding to such discrepancies. Where criteria established in the course of planning were not fulfilled (e.g. hoped-for answers could not be obtained), teachers were less likely to have a routine response available for that situation.

Proposition 14:	Some of the criteria that define the attributes of acceptable learner behaviour for any lesson are established by teachers in the course of planning, while others represent criteria that have been established some time previously and that are routinely operative in all similar lessons.

Proposition 15:	There will be similarities and differences between teachers in respect to the criteria that they wish children's behaviour to fulfill in particular lessons, as well as the behavioural cues that they take into account when judging whether those criteria have been fulfilled.

All of the teachers in the study readily identified both the established evaluative criteria that they believed they would have in mind and the behavioural cues that they would typically attend to as such discussion lessons were underway. The accuracy of their perceptions was confirmed by the lesson review data. Most of the criteria and behavioural cues noted by the teachers were, in fact, consciously registered on occasions during the three lessons. Some of the similarities and differences that might characterize these features of within-lesson attention and thought have previously been detailed for Susan's and David's cases. Data from the other four cases further confirmed and illustrated the similar as well as idiosyncratic character of the criteria and behavioural evidence likely to be used and reported by teachers in such lessons. Illustrative data from each of these cases is now presented.

In Stewart's case, *"The time between the asking of the question and getting an answer"* was the first cue noted. Associated with this feature was the notion of pace or momentum:

> *I think I tend to teach fairly rapidly. When it doesn't do that then the whole sort...starts falling down.*
>
> *Things are turning over quick. Not quickly, but rapid. Rapidly. Like I get a question - bang - the answer is there.*

He also observed, however, that:

when their answers are coming quick and fast, then I think they're going good as long as they're sensible...the answers.

(S.I.)

Other features noted included the readiness of the children to volunteer answers (*"not just one kid wanting to give it. A lot wanting to give it"*), the frequency of participation (*"...who are doing it. Who aren't participating..."*), and a variety of specific physical cues such as hand-waving, tension, restlessness, "mucking around" and "fiddling" were also noted. Stewart's perceptions of his own attending behaviours largely accorded with data obtained from the stimulated-recall interviews. Neither the level of responding of the children, or the rapidity ('pace' or 'momentum') of their responding, however, featured as significant conscious concerns. It can be conjectured that monitoring and response to these aspects may well have occurred automatically, or deviations from associated criteria did not occur.

Robert catalogued the following criteria and behavioural cues:

(T) *Well I suppose the obvious one is the sort of response... getting responses from the kids for a kick off.*

(R) *Are they coming voluntarily?*

(T) *Yeah. Are they with me. If there's no response, you know, sometimes I've had to work rather hard and change tack and sort of try and rephrase things and attack from a different view to try and get them going. So there's that sort of thing. Mmhm, I watch kids all the time. I just watch kids all the time for their actual reactions to what we're doing. And because they can not be giving a response, and yet they can still be with it, as long as they're not fidgetting or being disruptive. And the types of responses that they're giving...that I'm getting. If they're relevant sort of responses. That sort of thing. And just the general sort of tone.*

(R) *Just sort of an atmosphere of interest? That you can read?*

(T) *Yeah. Yeah. Those are I suppose the sorts of things I look for, just the atmosphere I can feel. Whether it is...*

(R) *Sort of physical signs on their faces?*

(T) *Yeah. On their faces. Yeah, you can read a lot on their faces. Yeah.*

I've probably got some idea of the sorts of responses I want. If I've got my key questions, I've probably got some idea of the responses, the sorts of responses that I want, and anything that approximates that I would be quite happy with.

His observations on his likely concern with children's responding again matched the evidence of his recalled attention and thoughts. In over half of the incidents, he recalled his focus on the responses and res-

ponsiveness of the children.

Gary's main concern was:

> *...motivation. How well that goes on...Get the feeling from the kids, whether they're fiddling, whether they're taking part in the discussion...what sort of direction the discussions taking too. Sometimes it can just waffle off into something completely irrelevant, the kids experiences - what happens on the weekends...How I feel about it myself too.*
>
> *Whether you can feel whether you're bored yourself or not. I've found taking the advertising lessons, a couple of times I've found myself just droning on. I thought, it's not much good. Try and pep it up...yeah, total involvement from the kids and myself 'cause a lot of the time you can teach and still be miles away.*
>
> (S.I.)

For Tom, whether or not answers to questions were off-track was noted as a particular concern. In part, this seemed to be associated with his recognition that his own teaching actions might be responsible for this state of affairs on occasions:

> *That's my biggest worry. Whether the questions have got through to them. Whether they can understand what I mean. 'Cos I can bumble on for half an hour or more and then realize that they don't know a word.*
>
> (S.I.)

The physical responsiveness of the children was also emphasized. Thus, describing a specific instance that highlighted this factor, he noted:

> *I'll tell you what, we went for about an hour and a quarter, and they were dissappointed when we had to stop. And we had the blackboard covered in just resources and things like this. And the enthusiasm of every kid. You can tell, you know. And they had their hands up and something would go up and they'd realise, oh yeah, yeah and they'd put that down, and they'd think of something else. You know. Yes physically you can sense it.*
>
> (S.I.)

The nature of the behavioural cues and evaluative criteria identified in each of these cases alerted the researcher to several factors that clearly could make the task of monitoring the children's behaviour somewhat difficult.

8.9 What Factors Influence Teacher Monitoring Behaviour?

The data from the lesson reviews, and the teachers' perceptions of the 'typical' focus of their within-lesson attention and thoughts, made it apparent that there were several factors that could make it relatively difficult for teachers to readily and accurately make judgements about the appropriateness of certain learner behaviours. This data led to the formulation of several propositions about the nature and possible con-

sequences of these factors.

Proposition 15:	The behavioural cues that provide the basis for teachers' judgements about the acceptability of children's behaviour, vary according to: (i) the degree of ambiguity in their meaning; and (ii) the extent to which they can be 'objectively' defined in terms of specific features of observable behaviour.

Proposition 16:	Teachers may experience difficulty in both judging accurately the acceptability of children's behaviour, and in identifying the reasons for the relative success of a lesson, when their judgements are based on relatively ambiguous behavioural cues that can not be readily defined in performance terms.

Some of the cues that provided the basis for the teachers' judgements about the acceptability of the children's behaviour were clearly relatively unambiguous and readily defined. The children's ability to give a 'correct' answer to a teacher question generally provided such a cue when the teachers judged whether the children had acquired certain information. Data from the six cases also made it apparent, however, that the cues that provided a basis for judgements about some aspects of the children's behaviour (e.g. attention, interest, enthusiasm) were somewhat more ambiguous, and at times had an almost intangible quality. Thus, while one teacher might consider that a high level of chorus-answering was an indicator of positive learner motivation, another might see it as a sign of disruptive social behaviour. Cues might be relatively low inference as in the case of rapidity of responding or vehemence of hand-waving, or might be high-inference as instanced when the teachers used such descriptors as 'tone' or 'atmosphere' to characterize qualities of the teaching-learning situation.

Some of these features have already been highlighted by data from Susan's and David's cases. Data from the other four cases provide further support for these propositions. For example, the subtleness of

some cues was highlighted in Robert's accounts of the focus of his attention during the three lessons:

> *One or two were sitting with vacant looks - literally vacant looks. But one or two of the more alert ones that I thought would get more out of it were looking puzzled. They just had a look in their eyes. They were puzzled. Not puzzled so much. They were labouring.*
>
> (Lesson 3, Incident 9)

> *Again I was looking at them and some of them were lighting up a wee bit and I think they were beginning to see this idea.*
>
> (Lesson 3, Incident 9)

> *She was just watching and I must have had her out of the corner of my eye and I also knew she was a bright kid. And I thought she is following this, but she'd probably got it where he hasn't you know. And the way she just threw up her hands. I thought. You've got it.*
>
> (Lesson 2, Incident 5)

The difficulty of clearly defining such cues was explicitly acknowledged by both Gary and Tom in their comments on features of a discussion lesson that was going well:

> *You sort of feel a general tone of involvement way up here. They all start to contribute and really think about what they're saying. These are not easy questions.*
>
> (Gary, S.I.)

> *When it's obvious the kids enjoy it, but also get something out of it. I might have said too much about this enjoyment part, but I really think one goes with the other. If they enjoy it and get something out of it, then it's really worthwhile. If they get something out of it, but don't enjoy it, I think they are going to forget about it pretty quick...They, you can just sort of tell it's clicking, their faces light up and they realise what's happening. You can sort of see it happening. Don't know how. Sometimes you can see it, looking around. Shaking their hands like this, trying to think of something.*
>
> (Tom, S.I.)

Stewart pointed out the significance of such a seemingly simple feature of the children's behaviour as hand-waving:

> *Drives you up the bloody wall, but when that's happening, you know the kids are enjoying it, or presumably it's often because they are enjoying it. They're excited, they want to put forward their views. I'm not trying to grab it from them, and pull it out of them. I try to stop them doing that, but at the same time, when it happens, I know things are pretty easy, going reasonably well, or that we, lots of kids want to say something, and they're not all wanting to say the same things. I think that's good.*
>
> (S.I.)

This sort of learner behaviour may, in association with the substance of

their answers, provide important cues as to the children's affective response to the lesson, and help sustain the momentum of the lesson. Stewart also noted a further difficulty that followed in part from the ambiguous and high-inference nature of some important cues:

> *(T) I really find it harder to say why it didn't go well than why it did go well. I just get a feeling that things are not going the way they're meant to, or the kids when they answer, they don't answer in a loud voice, and they are hesitant of giving an answer, or they say it quickly. Then I say 'pardon'. They won't answer. They won't give it again because they think that they are wrong sort of thing. I don't really know. The tone is different. But I don't, I can't anyway, lots of times, if you could pick the cause.*
>
> *(R) You can't pick the cause, but those are the signs?*
>
> *(T) Like that last lesson, that I did. You know I knew all the way through that it wasn't going right, that even at the end I couldn't really other than say maybe I pitched it a bit high. But I just, I couldn't really get down and say what I've done that made it.*
>
> (S.I.)

Thus, although such cues may allow Stewart to judge whether the lesson is or is not going well, they may not allow him to diagnose the specific reasons for the relative success of the lesson. Here he identifies a central problem for any classroom teacher, as well as researcher, who hopes to identify criteria for teacher effectiveness. How can one accurately assess the nature and extent of the influence teacher actions have on children's behaviour?

Proposition 17:	Both the ease with which teachers make judgements about children's learning behaviours and achievements, and the accuracy of their judgements, depend in part on:
	(i) whether the children actually exhibit behaviour that will provide a basis for inferences about their learning;
	(ii) whether the teacher has opportunities to attend to children's on-going behaviours; and
	(iii) whether the teacher creates conditions that maximize opportunities for attending to children's behaviour.

One of the difficulties that teachers may confront in judging whether the children have fulfilled evaluative criteria for learning was succinctly identified by Robert when he observed that the children may *"still be with it"* even though they are not *"giving a response"*. Teachers have to acknowledge that 'correct' information can be held in mind by the child without being overtly expressed. The fact that overt evidence is not available does not allow them to discount the possibility that particular learnings are present. Children may sometimes refrain from providing direct evidence of their learnings for various reasons (e.g. shyness, anxiety, wilfulness).

The difficulties that follow from the absence of overt responses from children can be contrasted with those associated with an excess of overt responses. As already pointed up in the presentation of Susan's case, in situations in which chorus-answering occurs, the teacher will necessarily be able to attend to only a limited amount of the information potentially available. The problems of trying to monitor pupil responses under such circumstances are also suggested in the following lesson review incident in which Tom described his responses during a period of rapid and 'chorus' interaction:

> *Well I heard Andrew in the background going...* (indistinct). *So I ignored him and then I was a bit skint with that... I heard Megan mumble something and I thought she might have it. And, but she didn't. And then, I suppose that's fair enough, I did catch her first but, so I went to Andrew. And then I thought Maxine was going to bring up this red colour round here, but she was talking about the whole paper itself. She wasn't really on the track and then I think I bring up Megan who's going...*
>
> (Lesson 2, Incident 28).

The teacher may be in somewhat of a dilemma in such situations, as ideally he may wish to allow all of the children opportunities to offer responses to particular questions. The alternative to allowing for some degree of chorus-answering is for the teacher to systematically seek responses from each learner in turn so that it is possible to confirm that they all have 'correct' information in mind. That alternative is clearly both uneconomical and impractical. It is understandable, then, that teachers are likely to adopt the at times hazardous procedure of generalizing the direct evidence obtained from one or a limited number of children to most, if not all, of the members of the class.

While it may be difficult for teachers to gather all of the information that they might ideally wish to, or to attend to all of the information actually available, the data from at least one case suggested

that teachers may be able to create conditions that will allow them more opportunities to sample and accurately monitor information about learner behaviour. A key feature of the data associated with Robert's monitoring of learner behaviour concerned the pace of teacher-learner interactions and criteria governing the children's participation in the discussion. In the course of the stimulated-recall interview, the researcher observed to Robert that the pace of the interactions that occurred in the three lessons was relatively slow and 'deliberate'. There were also seemingly well-established rules (criteria) about participation that were adhered to by the children. Reacting to an observation the researcher made about the rapid pace and chorus-answering that seemed to characterize some teachers' discussion, Robert commented:

> *The discussions I tend to take, I tend to insist that, you know, we try to follow what I, we've talked about, as rules of discussions...that one person really has a chance to talk, and we sort of follow that one, and that sort of thing.*

Such criteria for acceptable behaviour have obviously been formulated by Robert well in advance of these three lessons. Apart from serving to keep the interaction 'orderly' the pace and rules adopted by Robert may also allow him to be more attentive to children's behaviour, and provide more opportunities for reflective and anticipatory thoughts about lessons. At the time of the interview, the researcher wondered 'aloud' whether Robert might have deliberately encouraged this style of interaction to *"allow you to remain conscious of what's happening"*. His response was *"I suppose I do like to sort of"*. The data, although limited, does suggest that it may be possible for teachers to deliberately adopt pacing and participation criteria that increase the opportunities for more thoughtful teaching.

CHAPTER NINE

CONCLUSIONS

In this concluding chapter, the most significant findings from the present study are summarized and contrasted with those from previous studies, the educational implications of these findings are identified and discussed, and some recommendations for both the objectives and methodology of future studies that address similar research questions are offered.

9.1 Introduction

This study had its origins in the researcher's recognition that the thoughts of teachers both initiate and give meaning to their 'teaching' behaviours and that research on teaching which is limited to a concern with the surface features of teacher behaviour can therefore provide only a partial account of the activity of teaching and its relationship to learning. These assumptions initially gave rise to a number of general research questions that concerned the nature of teacher thoughts about elements of lessons, the 'reasons' teachers might offer for their thoughts, and the circumstances that they believed accounted for the relative success of their attempts to put their thoughts about particular teaching situations into effect. In the course of exploring further theoretical issues and trialling data collection and analysis procedures, it became apparent that additional research questions would need to be followed up if the objective of providing a holistic account of the activity of teaching was to be realized and the educational implications of the data were to be clearly established. Thus, answers were sought to questions that concerned the cognitive activities involved in teacher thinking, the extent to which teachers thought about elements of lessons in a 'systematic' manner, and the factors internal and external to teachers that might account for the similarities, differences, consistencies and inconsistencies in their thinking and thoughts.

9.2 Limitations of the Study

It must be remembered that the answers to these questions which are to be presented now are derived from an in-depth study of a limited number of teachers who set about teaching a restricted number of small-group discussion lessons. It follows, therefore, that it is not appropriate to generalize findings uncritically outside of these parameters. At the same time, however, where it can reasonably be inferred that particular

findings and their associated implications may well have a more general applicability, this is discussed.

It must also be acknowledged that the data collection and analysis procedures used in the study have limitations as well as strengths. In terms of the latter, the procedures enabled data to be gathered without significantly distorting the teachers 'normal' mental life; they helped provide relatively complete and accurate accounts of the focus of teachers' thoughts; and they made it possible for the researcher to check whether the meaning he attached to their accounts accorded with the meaning that the teachers themselves had in mind. The study also made it apparent, however, that these procedures can never be entirely free of problems or limitations. This follows from the fact that the researcher can never take into account and directly control all of the conditions that may potentially influence the completeness and accuracy of the teachers' recall and self-report of their thoughts, and the researcher's own assignment of meaning to the teachers' statements. Obviously, this does not absolve the researcher from the responsibility of trying to identify the conditions that will determine whether data and interpretations do meet these criteria. A number of such conditions have been identified in the course of this study (e.g. fidelity of teachers' adherence to task directions, teacher and researcher interpretations of the terms 'thought' and 'decide', the ability of teachers to recall momentarily registered thoughts) and their possible impact on the findings of particular cases have been discussed (e.g. incomplete recall of thoughts, lack of confirmation of the meaning of some teacher statements).

9.3 Main Findings and their Educational Implications

The major findings of the study and their educational implications are presented in five sections which deal in turn with the following major aspects of teacher thinking: the reasons why teachers may choose to plan ahead for lessons; contrastive features of teachers' plans and their approach to the planning process; the information-processing activities involved in within-lesson thinking; within-lesson monitoring difficulties and strategies; and contrastive features of individual teacher's within-lesson thinking. The possible implications of these conclusions for non-teaching contexts are then discussed, and a concluding evaluation of the validity and value of the methodology used in the study is presented.

9.3.1 Reasons for Before-Lesson Planning

Why do teachers make plans for lessons? Exhortations on the need to

plan are an almost inevitable feature of teacher education programmes and the data of this study, as with others (Clark and Yinger, 1979; McCutcheon and Kyle, 1979), certainly indicated that planning was likely to occupy a significant amount of a teacher's time, both within and outside of the confines of the classroom and school. It was also apparent that while planning generally occurred as a deliberately initiated activity, planning thoughts might also emerge into consciousness without a deliberate effort to plan on the teacher's part and in almost any context of time and location. These findings suggested that teacher educators and classroom teachers were likely to share a common viewpoint on the need for this activity. The data which emerged, however, also indicated that teachers' beliefs concerning the ends served by planning and the actual ingredients of their plans could show marked differences as well as similarities.

Common to all teachers was the view that plans were necessary for their 'security' in lessons - security that in its most simple terms rested on their knowledge that at any point in the actual lesson they would know what they might or should set out to do next. Both Jackson (1968) and Smith and Geoffrey (1968) pointed up clearly in their pioneering studies that teachers can never take into account and directly control all of the conditions that will contribute to the children's learning achievements. They therefore have to: (a) accept that lesson conditions and events will be characterized by complexity, spontaneity, immediacy and uncertainty; and (b) recognize that their plans can at best have a high probability of proving appropriate. It is understandable that these realities are likely to induce a degree of insecurity or psychological discomfort in teachers and that they would wish to avoid or reduce this state if possible. The commentary of the teachers in this study, both as they set about formulating and implementing their plans and as they commented in general on their teaching theories and practices, indicated that they saw discussion lessons in these terms. Their preparation of plans allowed them to anticipate these realities and to envisage how they might arrange conditions so that some elements of the lesson would become more predictable and their security thereby increased. Plans that specified what teacher and children might or should do next were likely to achieve these ends.

The teachers obviously believed that their pre-lesson plans 'paid off' in terms of their teaching effectiveness as well as their own mental health. When teachers plan in advance of rather than in the course of discussion lessons, they are likely to find more opportunities to con-

sciously and calmly contemplate a lesson, its problems and possible solutions to those problems. As the data from this study indicates, once such lessons are underway, teachers' information-processing capabilities are likely to be loaded, if not overloaded, by a number of other inescapable and competing demands that limit opportunities for calm, rational planning. This finding confirms the observations of Jackson (1968), Shavelson (1975) and Yinger (1977). The conditions that accompany instances of pre-lesson planning are more likely then to facilitate effective planning and thus effective teaching. They may also increase teachers' confidence in the probable effectiveness of their planning and this state, along with that of security, may further contribute to their teaching effectiveness.

At least three important educational implications follow from these conclusions. First, in the course of making recommendations and offering suggestions about the activity of planning, teacher educators should be concerned with the question 'Why plan?' Teachers should be made aware of the manner in which their plans may influence both their effectiveness in facilitating children's learning and their own mental health.

Second, questions need to be pursued regarding the reasonableness of the assumption that teachers should be able to make major modifications to plans in the course of lessons; to readily follow up the emergent interests and ideas of learners; to teach 'off the cuff'. As the findings of this study suggest, there are conditions inherent in teachers and teaching-learning situations that may make such on-going planning difficult, if not impossible. In any case, it may sometimes even be unnecessary. For example, conditions in discussion lessons may allow few opportunities for teachers to divert their attention from immediate events in order to consciously formulate specifications for a future portion of the lesson, and the prospect of deviation from existing plan specifications or the requirement that plans be generated 'on the spot' may create unacceptable pressures and stress for some teachers. Planning prior to lessons may be the only realistic means of meeting the needs of learners and teachers in many contexts.

Third, given the significant instructional and psychological benefits that are associated with the formulation of plans, efforts need to be made to establish whether teachers do, in fact, have the resources of time and materials available that they believe are necessary if they are to at least minimally fulfill the criteria they associate with adequate planning. As was evident in at least two cases in the present study, teachers who

have a number of administrative as well as professional responsibilities may find their opportunities for planning unduly curtailed.

9.3.2 Contrastive Features of Teacher Planning

While there may be similarities in teachers' responses to the question 'Why plan?', the findings of this study also indicate that individual teachers may differ significantly in respect to their level of concern with some of the possible reasons for planning and thus the actual ingredients that they believe will be associated with an acceptable or good plan. In terms of ingredients, for example, there were clear differences evident between teachers in respect to: (a) the number of teacher actions specified; (b) the degree of scripting of planned teacher statements; (c) the number of cognitive and affective learning behaviours, topics, and 'correct' responses specified; and (d) the presence or absence of sequence specifications for particular elements of the lesson.

The factors that accounted for such differences could be differentiated into two broad categories. In the first were those internal to the teacher. Examples of these factors included commitment to the propositions of an academic or personally-constructed teaching theory; knowledge and assurance that specifications for some elements of the lesson would be automatically selected and implemented once lessons were underway; a felt capacity to respond effectively to 'unplanned' or unanticipated circumstances; knowledge of relevant subject-matter; the 'repertoire' of alternative specifications that could be brought to mind; perceptions of the constraints imposed on plan specifications by such factors as learner attributes and lesson objectives; and attitude towards the activity of planning and past experience in formulating similar plans.

A second category encompassed conditions external to the teacher. These included the time available for both planning and the actual lesson and the availability of particular material resources. Similar observations have been recorded in the limited number of previous studies that have taken such personal and contextual factors into account (McCutcheon and Kyle, 1979; Clark and Yinger, 1979).

The factors that accounted for the differences between teachers also accounted for the consistencies that were evident in the planning process and plans of individual teachers from one lesson to the next. For example, where teachers appeared to have more tolerance for uncertainty and where they placed value on following up ideas introduced by the children they were consistently more likely to leave the selection of some topics,

responses and sequence specifications until lessons were actually underway. Where tolerance for unpredictable circumstances appeared to be lower and where teachers were inclined to view their plans as being essentially complete and 'correct', they were more likely to specify a finite set of topics and responses that would be dealt with in a predetermined and relatively inviolate sequence. These conclusions find some support in the findings of previous studies. Thus, Peterson, Marx and Clark (1977) have pointed to the relationships that may exist between teacher cognitive processing styles and abilities, planning procedures, plans and actual teacher actions as plans are being implemented. Toomey (1977) and Clark and Yinger (1979) have noted that the value placed on spontaneity and the matching of plans to immediate and emergent learner needs, ideas and interests are factors that may account for consistencies in planning practices. Yinger (1977) concluded that 'established thoughts patterns' as well as 'intuitions and dispositions towards teaching' meant that some consistency could be expected when teachers encountered similar planning problems.

Planning procedures and plans are unlikely, however, to be completely consistent from one occasion to another. As the data from the research lessons indicated, and the teachers pointed out in general commentary, there were a number of circumstances that made it necessary or appropriate for them to modify the process of planning and the content of their plans for different lessons. These observations also held for the student teachers despite their more limited teaching experience.

When the significance of this catelogue of factors is assessed, a number of educational implications can be identified. First, given their range and potential impact, diversity rather than uniformity in planning practices and plans may be both inevitable and appropriate. The data therefore raise questions on whether or not it is possible to prescribe a 'best' approach to planning and a 'best' plan for particular lessons. Rather than be offered such prescriptions, teachers should be given opportunities to analyze their own, existing planning practices and the contribution that the factors outlined above may make to them; to self-evaluate the contribution that their plans may make to the successes, difficulties and failures they experience in meeting both learner and personal needs during lessons; and to gather information about and experiment with alternatives to their existing planning practices. Procedures used in this study to help teachers recall and record their thoughts and to analyze the focus of those thoughts could be used by teachers undertaking these activities. In addition, teachers may well benefit simply from

having increased opportunities to share the 'wisdom' of fellow teachers as well as researchers concerning this aspect of teaching. For example, teachers may be helped to develop: (a) planning record procedures that will ensure that 'out of the blue' planning thoughts are not lost from memory; (b) procedures that will facilitate the retention and retrieval of plan specifications (e.g. mental rehearsal, prompt notes); and (c) strategies that will allow greater opportunity for planning within as well as prior to such lessons (e.g. slowing the 'pace' of discussion, limiting chorus-answering by children).

Second, the advocates of particular curriculum and teaching practices need systematically to assess and to take into account the demands these may make on teacher information-gathering and processing capabilities. For example, implementation of propositions concerning the individualization of instruction may require teachers to attempt to hold in mind much more information than can be actually handled given the limitations of memory. Thus, the fact that plans for this group of teachers were almost invariably formulated for the group as a whole may well reflect the teachers' awareness of their own limitations in memory rather than indicate a lack of sensitivity to the differing attributes and needs of individual children. It is also apparent that teachers may believe that modification of plans to accommodate individual differences will at times most appropriately occur as lessons are actually underway, and the actual rather than anticipated responses of the children can be taken into account.

The data from this study also indicate that the teachers' actual planning practices do not accord with the decision-making and ends-means models of planning that have been considered to characterize the planning process by some theorists (Smith and Geoffrey, 1968; McDonald, 1965; Shavelson, 1976). Rather, they support those of Yinger (1977) and Clark and Yinger (1979), and again suggest a failure on the part of some theorists to take full account of the array of factors that may shape planning for individual teachers.

As a third implication of the findings concerning individual differences in planning practices, it is recommended that the advocates of major changes in curriculum or teaching practices take particular account of teachers' existing teaching theories as well as their intuitions and dispositions towards teaching. Resistance to change that is sometimes ascribed to teachers' inflexibility, closemindedness etc., may be quite understandable when there are fundamental conflicts between teachers' established beliefs and those associated with the innovations

being promoted. These conflicts may not readily be resolved, particularly where teachers are provided with few opportunities to reflect on the need for change, and to explore their own capacity to make the changes in thought and actions that would be required. As Ross (1979) has observed previously, teachers will vary in their preparedness to compromise their own theories when implementing assigned instructional approaches or programmes, and one of the consequences of continuing conflict between the teachers' own theories and those of other educators may be an inability of both parties to successfully implement their theories.

9.3.3 Within-Lesson Thinking: Information-Processing Activities

When the findings of this study concerning the focus of the teachers' attention and thoughts within lessons are reviewed, it is apparent that a number of the general conclusions and implications that hold for the teachers' pre-lesson thinking and thoughts also apply to the within-lesson situation. This is understandable since the content of plans will be one of the key factors that influence within-lesson thoughts. Thus, planning in the course of lessons is more likely to be required when: (a) possible specifications have been envisaged before the lesson but no final decisions on their adoption or rejection have been made; (b) timing specifications have not been finalized for some elements, or criteria defining the circumstances in which the teacher will 'move on' have not been determined; (c) the plan includes conditional specifications; and (d) specifications for certain elements are minimal or absent.

At the same time, however, the data also indicated that there were limits on the scale and the 'purpose' of the within-lesson planning which generally occurred. It was, in fact, most likely to be directed to ensuring that plan specifications as well as routine criteria were adhered to, or to 'filling in' or 'fine-tuning' original plan specifications in the light of the actual realities of the lessons. The latter might either increase the probability that intentions would be realized or enrich the ultimate quality of the children's learning achievements. In such contexts, it appeared that the teachers were in general unlikely to abandon or significantly modify their original plans. These findings are similar to those previously presented by McKay and Marland (1978) and Joyce (1979), who concluded that the teachers' within-lesson information-processing activities were typically constrained by a set of criteria which had been established in the course of both long-term and immediate planning episodes, and were unlikely to be abandoned or significantly modified in the course of a single lesson.

Given the difficulties teachers may experience in actually finding opportunities to 'think on their feet' in the course of discussion lessons and to plan rationally for major modifications, it is understandable that they may not generally be prepared to confront the uncertainties, risks and costs that may accompany such moves. The possible costs follow from the fact that when the teacher reflects on original plan specifications or consciously deliberates on further specifications, other information-processing activities which are equally important components of interactive teaching situations cannot be simultaneously operative. Thus, in the process of trying to recall details of the original plan or contemplating a novel course of action, the teacher may overlook significant information concerning the immediate behaviour of the children. As the data from this study and those undertaken by McKay and Marland (1978) and Morine (1979) indicate, however, many of the information-processing activities can and do operate automatically. The products of these activities are frequently not registered in consciousness. This is most likely to occur when there are well-established criteria for such elements of the lesson as learner involvement, attention and social behaviour, and the teacher has 'routine' ways of responding to deviations from these criteria. In contrast, the products of these activities are more likely to be registered when actual conditions and events in the lesson either fail to match planned or routine specifications or are notably unexpected or unfamiliar. This factor was highlighted in the present study by the predominantly negative quality of the teachers' recalled judgements about the relevance or acceptability of the children's behaviour or their ability to cope with learning tasks. Again, however, the response to such judgements was often automatically rather than consciously formulated.

A clear implication of these data is the need for teacher educators to be aware of: (a) the range and nature of the information-processing activities required of teachers in such settings; (b) the fact that teachers cannot direct their conscious attention to the products of many activities simultaneously; and (c) the circumstances that may prompt teachers to direct and shift their attention to particular elements of lessons. These information-processing activities typically include the retrieving of plan specifications from memory, monitoring and judging the match between plan and reality, recalling information about the attributes of individual children, and modifying plan specifications in the light of actual circumstances or knowledge of learner attributes. The fact that teachers cannot allocate attention to all of these activities simultaneously should be taken into account when teachers are given guidelines as to what

they should or might try to pay attention to as they teach. For example, when teachers are asked to try to consciously monitor their own actions in the course of lessons, it should be appreciated that they may as a consequence fail to register important features of the children's on-going behaviour. The costs of this particular trade-off may indeed be acceptable on occasions as in the situation where the teacher is attempting to improve the quality of those actions. Individual differences in the ease with which teachers can modify their patterns of attention to elements similarly need to be taken into account in such contexts.

9.3.4 Within-Lesson Monitoring Difficulties and Strategies

The data from the six cases in the present study also pointed up two further difficulties that teachers may confront during such lessons. One of these difficulties was associated with the teachers' efforts to monitor the match between specifications and criteria that they had in mind for appropriate learner behaviour and the behaviour they could directly observe. As both the products and processes of learning represented covert phenomenon, the teachers necessarily had to infer their presence on the basis of the surface evidence of observable behaviours. It was apparent that while the evidence for many of the hoped-for learning behaviours and responses seemed to be relatively self-evident, well-defined and unambiguous, for others the cues were indefinite, subtle and ambiguous. In addition, the absence of external cues could not reliably be taken as evidence that specifications had not in fact been fulfilled. Children might wittingly or unwittingly refrain from providing overt evidence of their learnings. McKay and Marland (1978) suggested that teachers' interpretations of the learners' current cognitive and affective states appeared to be based on observations of gross and clearly observable behaviours rather than on more subtle and less obvious cues such as facial features or gestures. On the contrary, the data of the present study suggest that teachers may, in fact, place considerable reliance on the latter.

Compounding this problem in such lessons is the practical difficulty of gathering evidence from all members of the pupil group that they have met the criteria for learner behaviour set by the teacher. Because of the difficulty of gathering confirmatory evidence from each learner, teachers were likely to generalize the successes, failures or problems of one or a limited number of the learners to the majority of the remaining members of the group.

A second difficulty followed from both the probabilistic nature of

the teaching-learning relationship and the complexity of conditions that may actually contribute to learning. These realities can make it difficult for teachers to diagnose whether or how their own actions, as well as other conditions, might have contributed to the actual behaviours of the children.

While the data highlighted these inherent difficulties, they also pointed up the possibility of teachers adopting strategies that might reduce the difficulties and, therefore, allow for more 'thoughtful' teaching. For example, through the deliberate control of the pace or momentum of the lesson and the patterns of learner responding, teachers may be able to create conditions that will allow them to gather and weigh up more of the information potentially available about the children's behaviour.

The educational implications arising from these findings again include the need for teachers to understand the nature of interactive teaching situations and the difficulties that may follow from them. In addition, teachers may well benefit from opportunities to analyze, self-evaluate and experiment with their own patterns of action for coping with these difficulties. For example, they might be encouraged to consider the variety and the possible meanings of the performances that they typically take as evidence of particular learner behaviours and states; they might analyze and evaluate their own patterns of attention to learner behaviour; and they might experiment with conditions that could increase the effectiveness and accuracy of their monitoring and judgement.

9.3.5 Contrastive Features of Teachers' Within-Lesson Thinking

While each teacher's actions in the course of such lessons were similarly constrained by the inherent limitations of their information-processing capabilities and the particular 'practical' difficulties that have been noted, the findings of this study also pointed up significant individual differences in the attention and thoughts of teachers in the course of lessons. For example, the teachers varied in respect to the behavioural cues that they took into account when monitoring and making judgements about on-going lesson events; to the 'meaning' they attached to particular cues; to the criteria against which the acceptability or value of aspects of the lesson would be measured; to the frequency and ease with which modifications or additions to plans were typically made; and to the scale of modifications or additions actually made to plans. The reasons for these differences were found in the same factors that shaped the teachers' pre-lesson planning (e.g. personal teaching theories,

tolerance of uncertainty, availability of established teaching routines), and similar implications emerge from this finding. Thus, there is a need for teacher educators to understand and take account of the differences as well as similarities that characterize teachers' within-lesson attention and thoughts when they attempt to influence the actions of classroom teachers, and to make this aspect of the activity of teaching part of the subject matter of teacher education programmes.

9.3.6 Generalization of Findings and Implications

While the data of the study were collected in a narrowly-defined context, the findings and their implications would seem to have application to 'non-teaching' contexts that share similar features. Clearly, people other than teachers set out to influence the behaviour of others in settings that are characterized by a degree of complexity, immediacy and uncertainty (e.g. business executives, army officers, sportsmen). They may similarly make plans in order to maximize their own effectiveness and security, and the content of their planning and interactive thoughts can be expected to show the same variability as those of teachers. This variability can be attributed to many of the same internal and external factors that shape teacher thoughts. It also follows, therefore, that: (a) the research methodology used in the present study may be appropriately used by researchers who wish to study the thoughts as well as overt behaviours of people confronting problems and circumstances similar to those of teachers, and (b) the procedures that it has been suggested may be used to help teachers analyze, evaluate and enhance the thoughtfulness of their behaviour may be profitably used by non-teachers for the same ends.

Conversely, there is a need for educational theorists, researchers and teacher educators to take more account of the findings of studies that have addressed similar issues in non-teaching contexts. As well as contributing to the development of theory and research methodology, these studies may specify policies and procedures that can be used to enhance the thoughtfulness as well as the satisfaction of teaching. For example, as an outcome of a study of managers or organizations, Hunsaker (1975) pointed up the possible value of a 'General Incongruity Adaption Level' test that could be used to screen individuals according to their pattern of response to environments characterized by high levels of risk, ambiguity, novelty and conflict. In the context of teaching, a similar assessment tool may be of value when teachers are being selected to work in different types of classrooms (open-plan v single-cell) or with different groups of learners (easily managed v difficult). Hunsaker also

described in general terms the nature of 'management training programmes' that might increase individual's capacity to respond effectively in such environments. Similar programmes could have a place in teacher education programmes.

9.3.7 The Research Methodology

Finally, there are implications arising from this study that concern research methodology. In this study, the stance was taken that teacher actions will not have an inherent and invariant meaning that can be reliably discerned by an observer. Rather, meaning was seen as a personal construction that might vary according to the perspective from which the actions were viewed (teacher, learner, observer). In this instance, the teachers' view of the meaning of their own actions was of concern and the research methodology was accordingly designed to allow those meanings to be uncovered.

One component of the methodology was the meaning-confirmation procedure that was used by the researcher to check whether the meaning he ascribed to teacher statements was the meaning that the teacher had in mind. The experience of using this procedure substantiated the validity of the assumption regarding the basis of meaning (since teachers frequently 'corrected' the researcher's interpretations) and pointed up the requirement that researchers clearly specify the perspective that is of immediate concern in their studies. It also hightlighted the need for researchers to be sensitive, systematic and thorough in their efforts to ensure that accurate information on the meaning of teacher actions is obtained.

This recommendation must be qualified by the observation that there are a number of factors that may make it difficult for the researcher to meet these criteria completely. For example, teachers may fail to correct researcher misinterpretations, the researcher may 'lead' the teacher to confirm a wrong interpretation, the researcher may overlook potentially ambiguous statements, or there may be a lack of concentration on the researcher's and/or teacher's part. In the course of this study, however, it has been possible to identify some approaches that might help reduce or eliminate some of the problems that follow from these factors. For example, it is clear that teachers need to be carefully briefed on the objectives of the study and provided with familiarization experiences that will ensure that they are completely familiar with the requirements of the task. Researchers must be particularly sensitive to the potential ambiguities of key terms that are likely to be used by both the teachers and themselves, and in the course of briefings and through meaning-

confirmation checks in the course of familiarization experiences try to ensure that common meanings are ascribed to these terms.

9.4 Future Research

Research efforts to date have revealed the manner in which some features of the mental lives of teachers may account for their teaching actions. The number of studies undertaken world-wide is relatively limited, however, and the methodological demands of attempts to take a more holistic view of teaching (i.e. covert as well as overt teaching activities studied) has generally meant that researchers have been able to 'do justice' to only a limited number of cases within a single study. As a result, researchers have really only just begun to uncover the range of activities that may be involved in teacher thinking, the possible content of teachers' thoughts in particular teaching situations, the factors that may account for these activities and thoughts, and the impact that particular thoughts may have on the teachers' actions and the learners' learning. Clearly, there is a need for further research that deals with the same questions and issues that have been confronted in the studies undertaken to date. In addition, the extent to which the similarities and differences in features of teachers' thinking and thoughts identified in these studies have validity across other teaching contexts and for other teachers have not been fully established. Researchers will therefore need to undertake more of the same sorts of studies with the assistance of other teachers, and in different contexts.

Given the educational implications that follow from the findings of the present study and past studies, several as yet largely untouched areas of research also appear to merit the attention of researchers. First, there should be assessment of the validity of the assumption that teachers will be encouraged to experiment with and modify or extend their own patterns of attention and thought if given opportunities to systematically review and reflect on aspects of their own mental lives.

More specifically, the possible pay-off of the use of data collection and analysis procedures similar to those used in this study in the context of such teacher education experiences as micro-teaching programmes requires systematic evaluation. Some exploratory fieldwork with their use in this setting has already been undertaken by the present researcher.

Other avenues and approaches for the effective communication and use of research findings with different audiences (e.g. student teachers, experienced teachers) also need to be designed and systematically evaluated.

Second, to help establish whether expectations for teacher behaviour are tenable for all or only for some teachers, further systematic studies should be undertaken of the demands that particular 'recommended' teaching practices may make on teachers' information-processing capabilities.

Third, investigation of the 'thoughts' experienced by teachers when they are encouraged or directed to adopt new teaching theories and practices may reveal some of the conditions that can facilitate or impede the introduction of innovations in teaching.

Finally, it is apparent that future studies must also be concerned with the refinement of research procedures used: (a) to help teachers to make public their teaching thoughts; (b) to ensure that researchers gain an accurate understanding of the meaning of statements teachers make when they describe and account for the focus of their attention and thoughts; and (c) to establish the completeness and validity of teachers' accounts of their own thoughts and actions.

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Teaching is necessarily a 'thoughtful' human activity. It is essential, therefore, that further studies that address the questions confronted in and raised by this study be undertaken if we are to come to understand how best to set about enhancing the inherent thoughtfulness, and thus effectiveness of teaching.