

iPad-mediated talk in young children's learning and exploration of interests

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Practice paper outline

Emerging evidence highlights the potential of mobile and tablet technologies such as the Apple iPad in facilitating more productive learning processes and outcomes in formal contexts. Very little research has however been conducted in the New Zealand context, especially in early childhood settings. This study is aimed at understanding the nature of the talk young children (3 and a half to 5 year olds) engaged in while using the iPad for free exploration and play in small group settings with teacher guidance. Data was collected from eight observations (one hour to one and half hours long) of child-directed iPad use (video and audio recordings and photographs). Analysis of the data was based on an adaptation of Mercer's (1994) 'talk types' framework which discriminates between cumulative, exploratory and disputational talk. Findings indicated that children used different kinds of talk to support one another's attempts to work through an app on the iPad. The iPad further afforded a unique potential as a shared, public learning device, and enabled young children's ease of sharing content and working together. Additionally, teacher-child talk was crucial in children realising the iPad's potential, reminding ground rules for working with the iPad, supporting developing literacy and numeracy ideas when working on iPad apps, and acknowledging children's success. Teachers therefore play an important role in scaffolding young children's ability to develop talk strategies valuable to their learning and exploration with the iPad in the ECE contexts.

Introduction

Mobile and tablet technologies are increasingly prevalent in society today. They are captivating, entertaining, and can be educational for young children. Most of the studies investigating the effectiveness of incorporating iPads into educational environments have focused on formal compulsory schooling and tertiary contexts. Systematic studies on the educational potential of the iPad in the early childhood setting are beginning to surface to show that young children can indeed benefit from using the device (e.g. Hatherly & Chapman, 2014; Kucirkova et al., 2014). Zevenbergen (2007) reminds educators to persist in identifying ways to ensure quality learning experiences for young children as digital technologies become increasingly prevalent and important in their lives. The iPads and opportunities for teaching and learning for young children (iPads n Kids) project was initiated for this purpose, with the aim to understand the educational affordances of iPads for teaching and learning with children, from the perspectives of teachers, young children and their parents/caregivers (Khoo et al., 2015). It is underpinned by a sociocultural perspective of learning which emphasises the interaction between people, the tools they use to achieve particular purposes, and the setting in which their interaction was occurring (Wertsch, 1998). That is, merely making an iPad (tool) available to children on its own is

inadequate for learning to occur. What is required is a meaningful and appropriate integration of a tool directed at enhancing learning. Examining the nature of talk between teachers-children and amongst children to understand how this can impact on learning and cognitive development has been found to be a productive approach in informing and enhancing teacher practice in face-to-face (Mercer & Howe, 2012; Molinari & Mameli, 2013) and even digitally-mediated teaching-learning environments (Falloon & Khoo, 2014).

This presentation reports on the findings from a study focused on the nature of the talk young children (4-5 year olds) engage in while using the iPad in interaction with one another and their teacher. Specifically, it unpacks the following questions:

- What is the nature of children's talk when taking up opportunities for iPad-supported learning and exploration?
- How might teachers use the iPad to foster talk that can encourage young children's learning and exploration?

It is intended to inform early childhood educators' practice on the ways and conditions for engaging young children productively to foster their learning and exploration of interest when using the iPad.

The practice under scrutiny

This exploratory qualitative study was conducted in an early childhood education (ECE) centre within Hamilton. The research team collaborated with two teachers in a preschool environment which has an enrolment of 35 to 40 children who are between the ages of 3 1/2 to 5 years. In the centre, iPad use was child-directed with a teacher present to guide and facilitate children's participation within group contexts. Children took turns exploring an app (s) of their interest (free choice of pre-loaded apps) within a group (observed by other children). The apps ranged from a focus on literacy and numeracy, to art (drawing) and music (songs) in games and puzzles format.

Data was collected through eight observation sessions (videotape, audiotape and photos) (1-1/2 hr long each) with the two teachers. Using Nvivo software to code the data, analysis of talk was based on an adaptation of Mercer's (1994) 'talk types' framework and Fisher, Lucas and Galstyan's (2013) analysis of the iPad's 'private-public work space affordance'. Mercer's (1994) 'talk types' framework distinguishes between cumulative, exploratory and disputational talk. These talk types and their specific talk types are detailed and coded according to the descriptors summarised in Table 1. Disputational talk is 'argumentative' in nature, where children challenged each other's ideas, but without necessarily justifying or offering alternatives. Cumulative talk was more conciliatory, and typically represented agreement or continuance of previous utterance without the argumentative elements of disputational talk. Finally, exploratory talk supported reasoning, and displayed children's capacity to interact with "the reasoned arguments of others when drawing conclusions, making decisions, and so on" (Mercer, 1994, p. 27).

Talk type	Sub-talk type	Description/characteristics
Cumulative	Affirmation/agreement	Talk that is supportive and affirming. Non-critical Agreement with what was suggested without cause to review or challenge. passive and compliant
	Consensus/clarification	Talk that builds understanding or suggestions or ideas in a non-critical, non-challenging and non-expansive way. Developing common understanding by talking about ideas. Working towards general agreement on course of action.
	Elaboration	Talk that is more expansive and focused on building the finer detail of how to go about producing or deciding on content. Questions asked seeing further detail about how to do things or charity why a partner is suggesting a particular course of action
Disputational	Competitive/defensive	Talk that emphasised person-focused conflict, argument or disagreement, detracting from collaborative effort. Competing for time on device ('my turn, your turn'), verbally interfering with or negatively critical of other's input. Emotive response is triggered by personal notion of 'unfairness'. Talk that indications possessiveness of own contribution. Unwilling to consider others' suggestions for improvement or change.
	Individualised	Talk indicating possessiveness of contribution. Unwilling to consider others' suggestions for improvement or change.
Exploratory	Critically constructive	Talk indicating respectful cognitive engagement with and consideration and ritual review of others' ideas that leads to improved decision-making or content. Constructive critique focused on the ideas or suggestions, not the person.
	Negotiated/debated	Talk that demonstrates tentative ideas being offered and debated. Student(s) receptive to change if reasonable supporting case made by others. Different perspectives acknowledged and synthesised into collective response. Compromise negotiated.
	Justifications sought/given	Talk seeking justification of perspectives or ideas offered, with a focus on how they improve decision-making or output quality. Reasons for suggestions pursued through probing questioning or offering alternatives.
Teacher-Student		Talk between the teacher and student pairs; responding to student requests for help; formative feedback based on teacher's observation during monitoring group progress. Whole class teaching at session start or feedback/review at end, or formative during work session.

Talk type	Sub-talk type	Description/characteristics
Working		Talk often to self while working - self talk while sounding out words, 'thinking aloud' about content or procedures, reading sentences aloud; talk related to organising work with others such as access to materials (word boards, spelling lists...)
Other activity		Task-related talk not fitting the above categories, such as: teacher-whole-class talk (teacher introduces app or task, sets success criteria, explaining technical skills...) or sharing and evaluating outcomes at end of sessions.

Table 1. An adaptation of Mercer's (1994) analytical framework (Note: a version of this table was published in Falloon and Khoo, (2014))

A summary of the findings indicated:

- There was a higher percentage of teacher-child talk (60%) compared to child-peer talk;
- The overall proportion of child-peer talk were Cumulative (36%), Other (30%), Disputational (18%), Working (14%) and Exploratory talk (1%) types;
- The proportion of specific child-peer talk types revealed the following: Affirmation or Agreement (31%), Consensus or Clarification-building common knowledge (27%), Competitive or Defensive (21%), Individualised (15%), Elaboration (4%), and, Justification (2%);
- When teachers interacted with the children around the iPad, the kinds of teacher-child talk consisted of supporting children in terms of technical skills (37%), literacy or numeracy (31%), reminder about ground rules/ managing turn taking (27%), and, acknowledging children's achievements (5%); finally,
- Apps with open design (e.g. Puppet Pals) allowed for more children participation and diverse talk types.

These findings will be elaborated on in our presentation, with examples of video clips to illustrate the different kinds of talk and apps useful to fostering talk.

Discussion/conclusion

The iPad is appealing and can support children's developing literacy, communicative and participatory learning skills and sense of fun, wonder and exploration. Although it can be used on an individual basis, the iPad has the unique potential as a shared, public learning device and enables young children's ease of sharing content and working together or with their teacher. The children in our study used different kinds of talk, the most common of which was 'cumulative' in nature to support one another while working through apps on the iPad. The 'Other' category children talk type also emerged to be a valuable part of children's learning about iPad use and appropriate ground rules and facilitated children sharing of their learning interests and a sense of belonging at the centre.

Teacher-child talk was also crucial in children becoming aware of the iPad's affordances, understanding ground rules for its appropriate use, its value for scaffolding of ideas and affirming children's success - thereby contributing to realising its full potential. Teachers can use iPads to enhance children's talk quality by:

- being sensitive and responsive to children's emerging interest while keeping valued ECE learning outcomes in mind;
- modelling the kinds of valued talk that can help children become aware of and in turn model and apply their talk meaningfully to contribute to and extend the group's learning;
- establishing 'ground rules' regarding expectations and ways of working together;
- choosing iPad apps that are more open than closed in design, and,
- encouraging iPad use as public learning devices to enhance young children's constructive talk and collaboration.

Take home message

Young children easily pick up the skills to use the iPad through their own exploration and trial-and-error. However, the real potential for learning and exploration of children's interest lie in using the iPad as a shared resource where children have opportunities to use the iPad in small group contexts with teacher guidance. Our study highlights the value of understanding the kinds of talk that children partake in with their peers and teachers when they work together in such contexts. Quality child-peer and teacher talk is a valuable resource and central to children's developing skills, confidence, and dispositions for meaningful and productive engagement with iPads. Teachers therefore play an important role in scaffolding young children's ability to develop talk strategies valuable to their learning and exploration with the iPad in the ECE context. The findings of this study are expected to inform more innovative iPad-supported teaching-learning practices and the conditions for shaping these practices, as more educators consider adopting mobile and tablet devices in their contexts.

References

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