Ethics Review for Human Research – APPLICATION

School of Psychology

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

2010:

TITLE OF PROJECT: The Effect of Delay and Expected Outcomes on Choices for Future Events

Name of applicant: Rosanna Frankish

Address: 125 Waimakariri Rd, Harewood, Christchurch, 8051
Phone/Email: 0275552554/ rpjf2@students.waikato.ac.nz

Supervisor (where applicable): Lewis Bizo & Mary Foster

Other people involved:

Project (select appropriate): Masters Thesis

Other, please specify:

☒ Course requirement (course number: PSYC594-10C)

☐ Renewal of previously approved project

Proposed starting date: 1/12/10

Important Note: Please download the *Guidelines* from the Psychology webpage and read them BEFORE you proceed. Hard copies of this Application form and the Guidelines are available at the Psychology secretaries' office K1.26.

Psychology Research and Ethics Committee Decision:

☐ Exempted ☐ Approved ☐ Reapproved ☐ Rejected

Convenor signature:_____ Date:_____

I request ethics approval and have provided

- ☒ a detailed description of the procedure that involves the participants
- ☒ the completed questionnaire (attached), and
- ☒ a copy of the consent form which will be used or reason why a consent form is considered unnecessary (questionnaire).
- ☐ Other: Porposal, Advertising, Information Sheet, Demographic Details
- ☒ I will bring any changes in methods or procedures as well as any unanticipated consequences which pose potential risks to the participants immediately to the attention of the Research and Ethics committee.

If first year Psychology students are your participants, please provide

- ☐ a copy of the sign-up sheet which will be displayed on the School's research sign-up board. Only PSYC102/103 students can receive course credit for participation.

If children are your participants (16 years and below), please provide

- ☐ for school children - letter to be sent to the principal, board of trustees, and parents/caregivers explaining the research and asking for permission. If your study involves preschool children, please include the correspondence to the relevant preschool personnel asking for permission.
- ☐ Information sheet for the parents/caregivers.

If employees from an external organisation are your participants, please provide

- ☐ a copy of the letter and any information to be sent to the relevant manager(s)/supervisor(s) explaining the research and asking for permission.

Applicant's signature:_____ Date: _____

I have read this ethics review application, and in my opinion, this research is ethically sound. I consider that this student and any other people involved have the necessary background and experience to carry out this research ethically and competently under my supervision.

Supervisor's signature (if applicable):_____ Date: _____

IMPORTANT: Staff members/supervisors carry full responsibility at all times for the ethical appropriateness of all graduate and undergraduate research under their supervision, even when such research has been approved by the Research and Ethics committee. They should work closely with the students to anticipate the ethical issues of any research.

Are you willing to have the content of this application used for a review of the School of Psychology's ethical review procedures (no names will be associated with the information)?

Yes ☒ No ☐

University of Waikato
School of Psychology

CONSENT FORM

PARTICIPANT'S COPY

Research Project: The Effect of Delay and Expected Outcomes on Choices for Future Events

Name of Researcher: Rosanna Frankish

Name of Supervisor (if applicable): Lewis Bizo & Mary Foster

I have received an information sheet about this research project or the researcher has explained the study to me. I have had the chance to ask any questions and discuss my participation with other people. Any questions have been answered to my satisfaction.

I agree to participate in this research project and I understand that I may withdraw at any time. If I have any concerns about this project, I may contact the convenor of the Research and Ethics Committee (Dr Robert Isler, phone: 838 4466 ext. 8401, e-mail r.isler@waikato.ac.nz)

Would you like to receive a summary of the findings? Please indicate: Yes ☐ No ☐

Participant's Name:_____Signature:_____Date:_____

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University of Waikato
School of Psychology

CONSENT FORM

RESEARCHER'S COPY

Research Project: The Effect of Delay and Expected Outcomes on Choices for Future Events

Name of Researcher: Rosanna Frankish

Name of Supervisor (if applicable): Lewis Bizo & Mary Foster

I have received an information sheet about this research project or the researcher has explained the study to me. I have had the chance to ask any questions and discuss my participation with other people. Any questions have been answered to my satisfaction.

I agree to participate in this research project and I understand that I may withdraw at any time. If I have any concerns about this project, I may contact the convenor of the Research and Ethics Committee.

Would you like to receive a summary of the findings? Please indicate: Yes ☐
No ☐

Participant's Name: _____Signature:_____ Date:_____

SCHOOL OF PSYCHOLOGY

Ethics Review for Human Research
QUESTIONNAIRE

The following questions address specific aspects of the research method related to ethical considerations, based on the Principles in the *Guidelines document* (see attached). **Please read these Guidelines BEFORE you fill out the questionnaire.**

Before you answer this questionnaire make sure you have provided a complete description of your research procedure that involves the participants. Attach interviews, questionnaire or survey items. If interviews are to be interactive, based on grounded theory, or open-ended, include the major broad areas of questioning to be covered in the interview. Participants should be made aware of all the broad areas to be covered so they can decline to answer any questions.

☒ **Tick this box if the research procedure that involves participants is outlined on extra sheet.**

1. The value of the research (Please check the guidelines)

1.1. Please state the research goals, what is trying to be achieved.

Delay discounting tasks were developed in the animal behaviour and conditioning laboratories but have recently become a key method for assessing studies of impulsivity and, in particular, human decision making and self control. This study intends to assess the effects of reward magnitude on decision making in a computerized delay discounting task. Additionally, I will assess the ability of different quantitative models of discounting to predict performance on that task.

1.2. What provision is there to give participants information about these research goals?

The information sheet provides the following statement regarding research goals: *'It has been assumed that giving people choices which differ in terms of the delay to them happening and the magnitude of the future outcomes provides a measure of self control. This study intends to investigate the effects of reward magnitude on choices about future outcomes in human decision making.'*

1.3. How will the research results be clearly and simply communicated to participants? (or stakeholders) afterwards in a way that is easily understood and accessed?

Participants will be asked if they would like to receive a clear and simple summary of the findings at the completion of the research and will be informed that at the completion of the research they are able to look at the research in the University of Waikato Library.

*2. **Risk should be minimised** (Did you check the guidelines?)*

2.1. Does your research procedure involve interacting face to face with participants in some way?
Yes ☒ No ☐
If Yes please provide details about where this will take place:

Within the participants place of employment, in a quiet office, the participant and the researcher will be present to complete the study.

2.2. Are there any potential risks or discomfort to participants?
Yes☐ No ☒ If Yes, please provide details in the box below.

3. The informed consent of participants should be obtained, without coercion

3.1. a. Who will be the participants? How many?

Thirty participants who will be recruited voluntarily through their place of work. The two businesses which have given the researcher permission to advertise and approach their staff are: Science Alive and Growers Direct Market (both Christchurch based companies).

b. Will some of them be known to you?

The participants will not be known to the researcher.

c. Will you be in a position of authority or power over any of them?
Yes ☐ No ☒ If yes, please provide details in the box below.

3.2. How will the participants be selected and recruited to take part?

Flyers will be placed on staff notice boards and interest will be indicated by providing email addresses on the board. The researcher has also been given permission to approach staff and give them the information sheet in which they can contact the researcher if they are interested in participating.

3.3. Describe how and when the participants will give their consent to take part? Who will be present?

The participant and researcher will be present. Consent will be gained prior to the laboratory session.

3.4. How will the participants be informed of the right to withdraw from the research at any stage, for any reason, without penalty or loss of benefits to which the participant would otherwise be entitled?

The participants right to withdraw is described clearly on the information sheet and consent form.

3.5. Will participants receive material benefits as an incentive to participate in the research? Such benefits might include: monetary payment, lottery tickets, prizes, etc.
Yes ☒ No ☐ If Yes, please specify the nature and amount of benefit, plus the justification.

Each participant will go in the draw to win a $50 grocery voucher. This is to provide incentive for participation as participants are not students and most likely lead busy working lives with limited sympathy for the difficulty of recruiting participants.

3.6. Will participants receive any payment for their time or reimbursement of expenses?
Yes ☐ No ☒ If Yes, please explain.

3.7. If the participants are younger than 16 years, will you get the consent from their parents or caregivers as well as from participants themselves?
Yes ☐ No ☐ N/A ☒ If No, why not?

To be eligible for participation they must be over 16 years old.

3.8. If the participants are adults but are unable to give consent on their behalf what provision is being made to obtain consent? N/A ☒

4. Privacy and confidentiality should be respected

4.1. a. What steps have been taken to preserve confidentiality?

Once the task has begun participants will receive an identification number. This participant I.D. number will be how they are identified for the remainder of the data analysis. To confirm the winner of the grocery voucher a first name and contact information will be kept until the winner has been named and notified, after which point information will be destroyed. Demographic details will be anonymous and only identifiable by the participant I.D number.

b. What will happen to data (e.g., audio tapes, filled in questionnaires) that identify participants after completion of the research?

The consent form, demographic questionnaire, and data will be stored at the University of Waikato for a period of 3 years in a filing cabinet in my supervisors office, after which they will be destroyed.

4.2. Who else will see any information provided by participants which is linked to participants' names?

Only the researcher and possibly their supervisor.

5. Deception should be minimised

5.1. Does the research involve any concealment of information or deception?

Yes ☐ No ☒ If Yes, please answer the following:

a. What is the justification for the use of such procedures on scientific grounds? Include an explanation of why non-deceptive procedures could not be used.

b. How will you obtain consent from participants to waive their right to prior information on the nature and purpose of the study?

c. How will you ensure that all participants are given a full explanation of information withheld and the reasons it was withheld as soon as practicable?

d. How will participants be debriefed about the deception?

6. Research goals and methods should be socially and culturally responsive

6.1 Will people be selected as participants on the basis of their ethnicity, culture, gender, sexuality and/or in other ways which will target specific collectivities?

Yes ☐ No ☒

6.2 If Yes, describe the group and explain how the selection process ensures that no person or group will feel offended by either their inclusion in or their exclusion from the research.

6.3 What has been done to ensure that the research procedures are not likely to be insensitive, inhibit participation or cause offence (e.g., to specific ethnic, gender or age groups)?

6.4 Will the research focus on participant's culture, ethnicity, sexual orientation, or religion?

Yes ☐ No ☒ If Yes, please answer the following:

a. What steps have been taken to ensure that neither the conduct of the research, nor its outcomes, will unfairly affect the participants or their collectivities?
b. If the participants as a group differ from the researcher in terms of culture, ethnicity, sexual orientation or other significant ways relevant to the research, what procedures will be used to ensure that involvement in the research is culturally safe and non offensive for the participant?

Responsiveness to Māori

The University and the School of Psychology has an explicit commitment to ensuring that Treaty of Waitangi is acknowledged and responded to as part of the ordinary life and activities of the institution (Goal 1.2 of the University of Waikato Charter). The Treaty of Waitangi has implications for all psychological research. In some instances, the implications may be quite small (eg. ensuring that samples of participants include Māori). At other times, the implications may be major (eg. requiring careful consultation and obtaining informed consent from Māori stakeholders and collectivities, as well as from individuals).
Whatever the research, we are asking you to demonstrate that you have given thought to the Treaty and its implications for research. For background information, please refer to section 6 of the Guidelines (attached to Application form).

6.5 Will the proposed research have actual or potential implications for, or impacts upon Māori?

Yes ☒ No ☐
(Please explain your response).

The implications for Maori in this study are the same for all cultures, a further understanding of the human decision making process. This study is intended to look at human decision making and the methods used to analyze the data, the researcher will ensure all cultures and cultural needs are respected throughout the study. This will be achieved by the research asking questions designed not to impose on cultural beliefs and by assuring participants that participation is entirely voluntary.

If you have answered 'yes' to this question, please also respond to those questions that follow.

a. Does your research require consent from or consultation with any specific Māori groups or individuals?

   Yes ☐ No ☐

b. If yes, what were the outcomes of any necessary consultation or consent seeking activities you engaged in?
c. Where necessary, how will Māori stakeholders or advisers have an ongoing role in your research?
d. What steps have you taken to recognise and protect the cultural and intellectual property rights of Māori individuals or collectives?

7. Exploitation of researcher-participant relationship should be prevented

7.1. Are you associated with the participants in any way that might influence the ethical appropriateness of you conducting this research (e.g., employer/employee, supervisor/worker, personal relationship, or lecturer/student)?

Yes ☐ No ☒
If Yes, please describe the steps you have taken to protect the participants including any limits placed on the use of the information.

8. Property rights should be respected

8.1. Is there any risk that the research findings may exploit the participants? Refer to the Guidelines.

Yes ☐ No ☒ If Yes, please explain the potential risk and how you will prevent it.

8.2. In the case of "qualitative case studies" or interviews will you show draft transcripts to participants for comments and corrections?
Yes ☐ No ☐ N/A ☒ If No, why not?

9. Any conflict of interest should be declared

9.1. Do you get sponsorship for your project?

Yes ☐ No ☒ If Yes, please answer the following:

How will the nature of commission or sponsorship be declared both to participants and in public findings?

The Effect of Delay and Expected Outcomes on Choices for Future Events

Behaviour economics studies the principles of psychology and economics to understand the transactions individuals make with the world (MacKillop, Miranda, Monti, Ray, Murphy, Rohsenow, McGeary, Swift, Tidey, & Gwaltney, 2010). Behaviour economics has found that choice is relatively predictable when the alternatives differ on only one dimension (Green & Myerson, 2004), when presented with two reward alternatives (which only differs in delay) the individual will choose the less delayed reward.

If the choice differs on more than one dimension, the predictability of the behaviour decreases. When two rewards differ in delay and size, the individual must choose between the smaller, more immediate option and the larger, more delayed option. Green and Myerson (2004) suggest choices which involve more than one dimension can be viewed from the perspective of discounting, discounting assumes the perceived value of the reward is increasingly discounted as the delay increases, and the chosen reward has the perceived higher (discounted) value. Figure 1 shows Green and Myerson's (2004) example of the discounting process over time. Discounting is the rate at which the larger reward is discounted as a function of time (Green & Myerson, 2004).

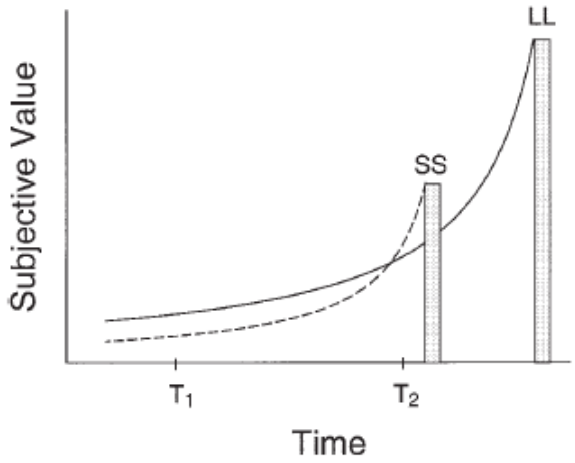

Figure 1. Choice between a smaller reward, available sooner (SS), and a larger reward, available later (LL). The curved lines represent change in subjective value as a function of time. The heights of the bars represent the actual reward amounts. T_1 = Time 1; T_2 = Time 2.

Figure 1. Reproduced figure from Green and Myerson, 2004

The discounting account describes preference reversals as occurring because the subjective value of smaller, sooner rewards increases more than that of larger, later rewards when there is an equivalent decrease in the delays to the two rewards (Green & Myerson, 2004). When an individual displays a preference for the smaller, more immediate option they are displaying 'impulsive' behaviour (Diller, Saunders & Anderson, 2008). Choosing the larger, more delayed option is defined as the individual displaying 'self-control' (Diller et al., 2008).

The point at which the participant changes their choice to the smaller, more immediate option is referred to as the indifference point. The indifference point provides the perceived value of the delayed reward at a certain point in time, it allows for calculations to be made about discount rate and mathematical discounting models to be fit (Green & Myerson, 2004). The most widely accepted form of discounting is described by the hyperbolic equation (Davison & McCarthy, 1988):

$$V = \frac{A}{1 + kD},$$

V is the time-discounted value of the reward, *A* is the subjective present value, *D* is the total delay to delivery, *k* is a discounting coefficient, and 1 is added in the denominator to ensure the curve does not extend to infinity at very short intervals (Smith & Hantula, 2008). The hyperbolic discounting concept was developed in the animal learning and conditioning laboratory, although recent work concerns human decision making (Smith & Hantula, 2008).

Delay discounting is increasingly being treated as a construct and a psychological instrument, while issues remain regarding the psychometric properties of the methods used to estimate discounting parameters (Smith & Hantula, 2008). The most commonly used delay discounting task is the binary choice task (Smith & Hantula, 2008). The binary choice tasks are adapted from animal laboratory studies (Smith & Hantula, 2008). These tasks involve the presentation of a number of hypothetical options for which the participant is to choose between a smaller, hypothetical reward immediately available and a larger, more delayed hypothetical reward (Kollins, 2003). This study intends to provide basic psychometric data from two binary choice tasks, one is a smaller-reward task and the other is a larger-reward task. By assessing the fit of discounting models to two computer-based delay discounting tasks will add to the limited evidence of human discounting, and provide further insight into

the psychometric properties of this increasingly accepted method. Gaining evidence of delay discounting's relevance to human studies aims to test the validity and reliability of this method which has already gained momentum in psychological research – somewhat prematurely.

Method of data collection

Participants will be recruited by advertising within two busy Christchurch central city businesses with the permission of the CEO's. Preliminary, informal consent has been received; however, formal approval still must be obtained. Voluntary and informed consent will be obtained prior to attending the delay discounting sessions and after the information sheet has been read, demographic details will be obtained by questionnaire which asks age, gender, occupation, ethnicity and living circumstances. Participants will complete the delay discounting task within a quiet office at the place of business. The participants will be asked to sit at a desk in front of a HP laptop, and only the participant and the experimenter will be present for the task to be complete.

Delay discounting tasks will be assessed using a computerized task in which the participants are asked to indicate their preferred choice. The computer will be open on the first page in which the participant is instructed to type in their first name (this allows the software to allocate the participant a participant code), then the participant is presented with an introduction to the experiment which instructs them on what the task will entail. This is shown in figure 2.

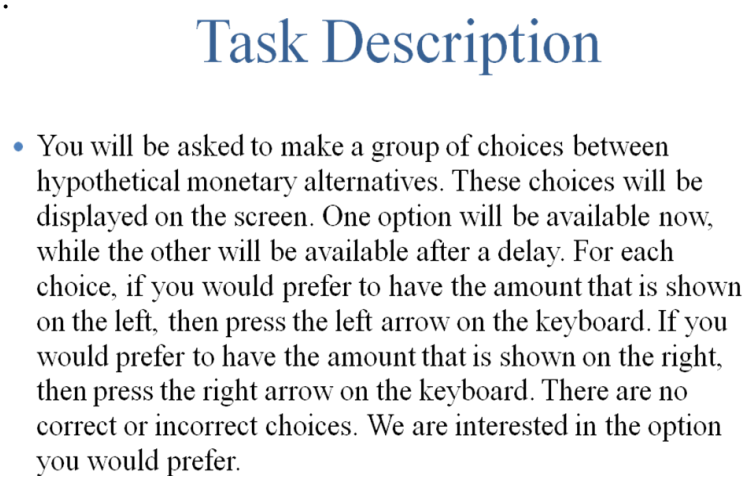

Figure 2: The introduction each participant reads before completing the task

Once the participant clicks the button to continue the experiment begins. The participants will be asked to complete two binary choice tasks. Using an adapted version of Smith and Hantula's (2008) method, the first task is the small-reward condition in which the larger, later reward is $1000, and the smaller, sooner alternatives are $1, $2, $10, $20, $50, $100, $200, $500, $1000. In the large-reward condition the larger, later reward is $10,000, and the set of smaller, sooner alternatives are $10, $20, $100, $200, $500, $1000, $2000, $5000, $10,000. Seven delay periods will be used with each large hypothetical reward (1 month, 6 months, 1 year, 2 years, 4 years, 8 years, & 16 years). The tasks are counterbalanced and in random order. Figure 3 shows the smaller-reward monetary task.

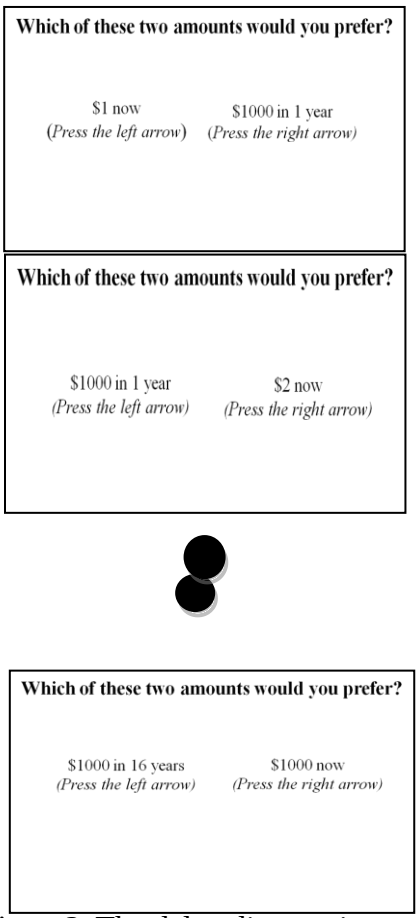

Figure3: The delay discounting task for the hypothetical $1000 reward (smaller-reward monetary task)

At the completion of the first task a screen will appear which gives the participant opportunity for a break before continuing, they click the button when they are ready to proceed to the next task. Each participant is assigned a participant number so at the completion of the tasks their identity will remain anonymous, however, a first name and a contact email address will be kept until the completion of the study as all participants go in the draw to win a $100 grocery voucher.

Expected Outcomes

The pattern of results I expect to see should resemble figure 4, I am expecting to find:

- The small-reward condition ($1000) will be discounted more than the large-reward condition ($10,000).
- Discount curves will be described best by a hyperbolic decay function.
- *k* estimates will increase as a function of reward magnitude (so the alternate form

correlation is weaker with large rewards).

- Area Under the Curve used as the discounting function will provide stable between-task differences.

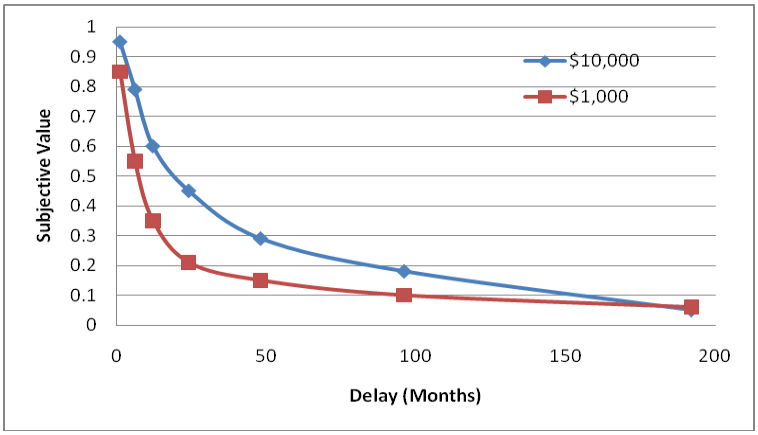

Figure 4: Example of expected discounting pattern of results

References

Davison, M., & McCarthy, D. (1988). The matching law: A research review. *Hillsdale,* NJ: Erlbaum.

Diller,J., Saunders, B.T., & Anderson, K.G. (2008). Effects of acute and repeated administration of caffeine on temporal discounting in rats. *Pharmacology, Biochemistry and Behavior, 89,* 546-555.

Green, L. & Myerson, J. (2004). A Discounting Framework for Choice With Delayed and Probabilistic Rewards. *Psychological Bulletin, 130,* 769-792.

Kollins, S.H. (2003). Delay discounting is associated with substance use in college students. *Addictive Behaviours, 28,* 1167-1173.

MacKillop, J., Miranda Jr., R., Monti, P.M., Ray, L.A., Murphy, J.G., Rohsenow, D.J., McGeary, J.E., Swift, R.M., Tidey, J.W., & Gwaltney, C.J. (2010). Alcohol Demand, Delayed Reward Discounting, and Craving in Relation to Drinking and Alcohol Use Disorder. *Journal of Abnormal Psychology, 119*(1), 106-114.

Smith, C.L., & Hantula, D.A. (2008). Methodological considerations in the study of delay discounting in intertemporal choice: A comparison of tasks and modes. *Behavior Research Methods, 40*(4), 940-953.

I Need

RESEARCH PARTICIPANTS

Are you interested in Money? Predicting future events?

Please participate in my research to examine the effects of reward magnitude on simple decision making tasks.
Participants will be asked to complete a simple computer-based task.
Participation will take approximately 30 minutes and I bring it to you.

All participants go in the draw to receive a $50 grocery voucher!!!

Participate in this stress free, fun study!
More details contact Rosie: rpjf2@student.waikato.ac.nz

Interested? Sign up here
First Name and Email:

_____

_____

_____

Demographic Details

Please fill in the following questions:

1. Age (years) _____

2. Gender (circle): Male Female

3. Occupation _____

4. Ethnicity (circle): NZ European

   Maori

   Pacific Island

   Asian

   Indian

   Other, please specify _____

5. Living Circumstance (circle):

   Home owner

   Renting

   Other, please specify _____

Information

The Effect of Delay and Expected Outcomes on Choices for Future Events

My name is Rosanna Frankish; I am a student in the Masters of Applied Behaviour Analysis programme at the University of Waikato's Psychology School. I would like to invite you to participate in my research to examine the effects of reward magnitude on simple decision making tasks. By participating in this research you automatically go in the draw to win a $50 grocery voucher.

It has been assumed that giving people choices which differ in terms of the delay to them happening and the magnitude of the future outcomes provides a measure of self control. This study intends to investigate the effects of reward magnitude on choices about future outcomes in human decision making.

You will be required to:

- Attend one session which will take approximately 30 minutes in duration.
- Before the session some demographic details will be required by filling out a questionnaire.
- The session will involve completing two simple delay discounting tasks, these requires you to choose between two options in hypothetical money and commodity tasks. The choice made provides information regarding individual self control tendencies.

Data will remain anonymous and confidential:

Contact details and your name will only be required for identifying the winner of the $50 grocery voucher, once the winner has been announced your identifying details will be destroyed. Demographic details will remain anonymous and used for analytic purposes only. Voluntary and informed consent will be asked for before participating in this study, consent forms and data will be kept securely at the University of Waikato for a period of three years at which point they will be destroyed. Any further use of the data will only be reported as group data.

Participation in this study is entirely voluntary:

You are free to withdraw from the research at any time without question or negative consequence. If you have any enquires regarding your participation in the study feel free to contact the researcher or supervisor:

Researcher: Rosanna Frankish
School of Psychology at the University of Waikato
rpjf2@students.waikato.ac.nz
Phone: 0275552554

Supervisor: Dr Lewis Bizo
School of Psychology at the University of Waikato
lbizo@waikato.ac.nz

This project has been approved by the School of Psychology Research and Ethics Committee and if you have any concerns about the research you may approach the convenor of the

committee; Dr Robert Isler (phone 07 8384466 ext 8401, email: r.isler@waikato.ac.nz)