



Association for Behaviour Analysis

ANNUAL CONFERENCE

UNIVERSITY OF CANTERBURY

22-23 August 2015

PROGRAMME

NZABA 2015
ANNUAL CONFERENCE OF THE NEW ZEALAND ASSOCIATION FOR BEHAVIOUR
ANALYSIS
UNIVERSITY OF CANTERBURY
22-23 August 2015

PROGRAMME AT A GLANCE

SATURDAY

Time	Presenter	Title
Chair Neville Blampied		
8:40am	John Bai	Sunk time: Effects of absolute and relat
9:00am	Bartlomiej Swebodzinski	Delay discounting in humans with neurolo
9:20am	Randolph Grace	Evidence of a magnitude effect in probab
9:40am	Rebecca Olsen	Discounting of reinforcer value and stud
10:00am	Joseph Graddy	A study of the relationship between expe
Chair Randy Grace		
10:50am	Brett Furlonger	Are the third-generation counselling app
11:10am	Edward K. Morris	Childrearing as the Behaviorist Viewed I
11:30am	John Church	An analysis of the contingencies operati
11:50am	Katrina Phillips	IOA: What is it good for?
12:10pm	Neville Blampied	To average or not to average? – that is
Chair Ludmila Miranda-Dukoski		
1:30pm	Anastasia Marie Sawchak	A Comparison of Outcomes from Descripti
1:50pm	Amarie Carnett	Using behavior chain interruption to tea
2:10 pm	Emma Baker	The treatment of vocal stereotypy using
2:30pm	Joanne Wong	Using video modelling to teach social sk
2:50pm	Richard Dagher	An intervention package comprising of vi
Chair Doug Elliffe		
3:40pm	Anthony McLean	Do they stay or do they go?
4:00pm	Stephanie Gomes-Ng	To switch or not to switch?: The effects
4:20pm	Surrey Jackson	A microanalysis of body weight as a Moti
4:40pm	Joshua Benseman	The Monty Hall Dilemma: Pigeons, Probabi
5:00pm	Stuart Michael McGill	Analysing the Effect of Acquisition Cont

Conference Dinner 7:30pm Tandoori Palace (Ilam Rd)

SUNDAY

Chair	Mary Foster	
8:40am	Yaden Liu	Improving Social Skills in a Child with
9:00am	Sehar Moughal	Increasing social connections for young
9:20am	Timothy Edwards	Using Giant African Pouched Rats and Beh
9:40am	Kate Southcombe	Target training as an intervention for h
10:00am	Anne Macaskill	The multiple effects of slot machine “of

Chair	Celia Lie	
10:50am	Lorance Taylor	Free is not enough
11:10am	Jonas Chan	Reinforcer rates and the role of trials
11:30am	Sarah Cowie	Reinforcers and stimuli in adaptation an
11:50am	Karen Sluter	Persistence of Behaviour during Differen
12:10pm	Vikki Bland	Impact of signalled alternative reinforc

Chair	Anne Macaskill	
1:30pm	Ludmila Miranda-Dukoski	Contingency instead of context might aid
1:50pm	Mary Foster	Effects of reinforcer duration on the pr
2:10pm	Doug Elliffe	Milk lipid supplementation may partially
2:30pm	Patricia Luque Carreiro	A Functional Analysis of Corruption from
2:50pm	Emma-Leigh Hodge	Snapshots of Social Networks: Researchi

3:30pm Prizes and Business Meeting

POSTERS (daily, 12:30)

SATURDAY

SUNDAY

Amanda Fernandez	Direct assessment of	Matthew Westbury	Studying gene - envi
Ariel Yang	Suboptimal Choice Be	Rana Asgarova	Experiential probabi
Bartlomiej Swebodzinski	Polish Society for B	Melissa Janson	Making Recycling Pos
Celia Lie	Effects of an Online	Renee Lee Cachia	Mindfulness, Stress
Grace Walker	Increase minority st	Anne Macaskill	Are tones reinforcer
Sinead Bicknell	The Relation Between	Stacey ter Veer-Burke	Judgement Bias in He
Kate Pennell	Delay discounting of	Steph Bremner	Performance of Brush
Jessica Cameron	Slot machines: colou	Stuart Michael McGill	Within-session reinf
Katrina Clarke	Brushtail Possums	Victoria Hancox	Replication of Zenta
Hannah Waddington	Teaching an 8-year-	Vincent Thor Allen	Automated Technology
Kim van der Toorn	The effect of econom		
Lauren Colls	The near win effect		

REGISTRATION

Everyone attending or presenting at NZABA 2015 will need to register. The registration fee is \$130 for those on an income (“waged” in the survey) and free for others. The conference dinner is on a pre-paid basis, and you will need to pay this (\$35.00) at registration. The registration desk will be operating at the welcome function and on Saturday (from 8:00am, during morning tea, and lunchtime). Payment can be by cash (exact change will be appreciated) or, for those with NZ bank accounts, by cheque. We cannot handle payment by credit card.

WELCOME FUNCTION

On Friday 21 August, NZABA invites you to a welcome function upstairs in the Ilam Homestead (UCant Staff Club) from 6:00pm. There will be some pizza and nibbles provided. The Registration Desk will be operating during this occasion.

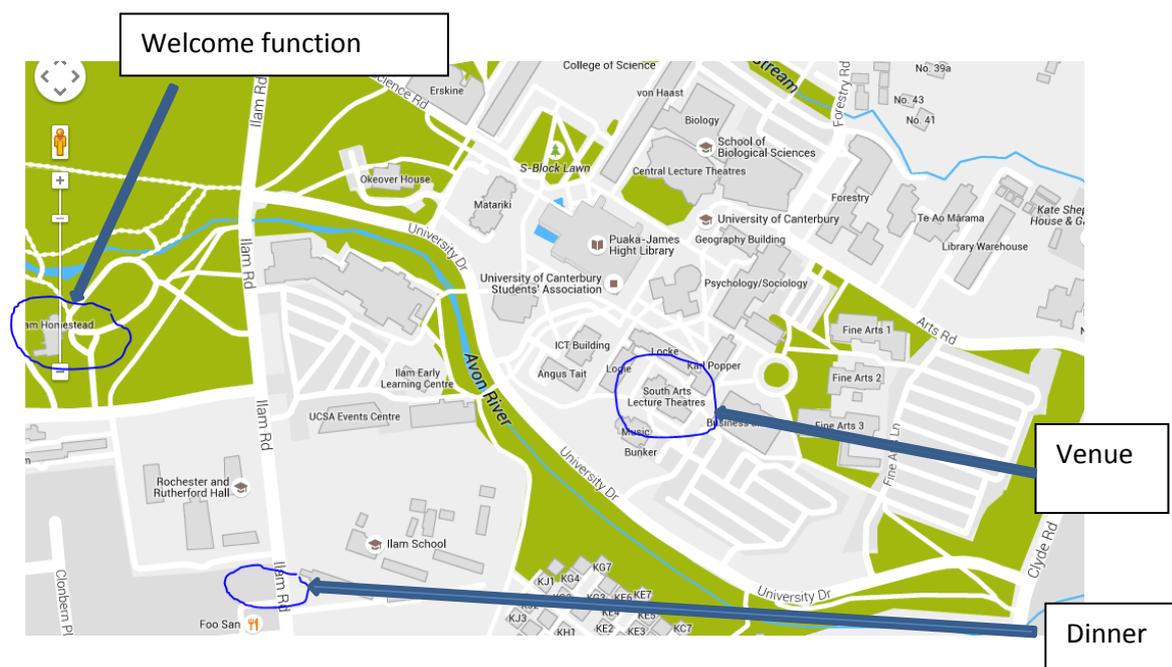
CONFERENCE DINNER

The conference dinner will be at Tandoori Palace, Ilam Rd (opposite Ilam School) 7:30pm Saturday. It is a buffet, and the cost is \$35 per person, to be prepaid at registration. BYO is available for wine only (there will be a \$4 charge per BYO wine-drinker, levied on the glass you get to drink it from). Other drinks can be purchased from the counter. All drinks charges are on a cash basis (i.e., are not included in the \$35).

The buffet will offer a selection of starters (some will be vegetarian, some items will contain gluten), followed by a selection of curries (some with meat and some vegetarian; we will avoid any positively gluten-containing curries).

LUNCHES

Lunches and morning/afternoon teas are provided. There will be ample vegetarian and GF options at the lunches.



ABSTRACTS

TALKS

SESSION 1 (Chair Neville Blampied, 08:40 – 10:20)

Sunk time: Effects of absolute and relative delays to reinforcement (peer reviewed)

John Bai

University of Auckland

The sunk cost effect is defined as the tendency to persist in an unfavourable endeavour because of a prior investment, and despite low or no future payoff. Recent demonstrations of 'sunk-cost' decisions in non-human animals suggest that the sunk cost effect is influenced by fundamental behavioural processes. We systematically replicated a recent extension of the sunk cost paradigm by Magalhaes and White (2014) which suggested that prior investments of time can also bias pigeons to persist in a suboptimal course of action. Pigeons were presented with discrete trials separated by 1-s inter-trial intervals (ITI). Each trial arranged a fixed interval (FI) schedule and ended after a single reinforcer. Trials could either arrange a short or long FI, and were not differentially signaled. Short trials were always more probable. Additionally, each trial arranged a concurrently-available 'escape' key which, when pecked, terminated the current trial and started the ITI. Therefore, the optimal strategy in long trials would be to persist until the duration of the short FI elapsed and then escape to the next trial. Furthermore, a sunk time effect could be measured by persistence in long trials without escaping. Across conditions, we varied the absolute and relative durations of the short and long trials. Persistence in long trials was observed with a 1:5 short-to-long ratio and not with a 1:20 ratio. Absolute durations did not seem to influence molar measures of persistence. However, local analyses of within-trial patterns of responding suggest that the duration of the short FI governed both peak responding on the food key and the latency of escape responses. Overall, the present data suggests a primary role of relative delays to reinforcement in the sunk time paradigm. However conditions arranging extinction in long trials did not systematically reduce persistence, thereby challenging a strictly sunk-cost interpretation of the data.

Delay discounting in humans with neurological diseases (Peer reviewed)

Bartłomiej Swobodzinski

University of Social Science and Humanities Warsaw

The aim of this study is to answer the question whether focal damage within the cerebral cortex of different locations has an impact on the rate of discounting of delayed positive reinforcement. The pilot study was done in a sample of 26 patients with focal brain damage. Patients were divided into groups based on neuroimaging data. The study involved 14 women and 12 men. Patients were asked to choice between different amount of money, hypothetically received immediately or after a certain delay. The dependent variable was the subjective value of delayed reward. Independent variables were: location of neurological damage within the cerebral cortex (frontal lobe vs. other areas of the brain), the size of the reward (2000 PLN or 200 PLN) and the delay of the reward (three days, one week, one month, 3 months, 6 months, one year). A significant interaction was the damage location and size of the reward. There was big difference between means of subjective value in two groups of patients but only for bigger reward. The patients with the frontal location of damage compared to patients with damages in other areas of the brain, discounted bigger reward

faster but slower the small one. Bigger rewards were discounted more slowly than smaller only in patients with injuries located not in the frontal lobe cortex.

Evidence of a magnitude effect in probability discounting with pigeons (peer reviewed)

Randolph Grace
University of Canterbury

A magnitude effect in probability discounting is well established with humans, in which the value of a larger reward decreases more with uncertainty than the value of a smaller reward. We report two experiments which show that an analogous result is obtained with pigeons choosing between probabilistic food rewards in a two-component concurrent-chains procedure. In Experiment 1, the terminal links delivered large (4-s access to food) and small (2-s access) rewards with either 100% or 50% probability across components. Preference for the larger reward was greater in the 100% component. In Experiment 2, the terminal links delivered reinforcement on 100% or 50% of terminal links and the rewards were large (4-s access to food) or small (2-s access) across components. Preference for the 100% alternative was greater when rewards were large. In both experiments, results indicate that the value of the larger reward decreased more when its probability was 50% than the value of the smaller reward, confirming the magnitude effect, and were similar regardless of whether the food/no-food outcomes for the 50% terminal links were differentially signalled. Results were predicted by an extension of the cumulative decision model (D. R. Christensen & Grace, 2010; Grace & McLean, 2006) which accounts for the effects of magnitude and probability on choice, and which can also explain the apparently contradictory results of prior research on the magnitude effect in delay discounting with pigeons. The model shows that a single process can account for delay and probability discounting in nonhumans, including the opposite effects of reward magnitude.

Discounting of reinforcer value and student success

Rebecca Olsen
Victoria University of Wellington

Delay discounting refers to the fact that reinforcers lose value if they occur following a delay. This concept may be relevant to studying, however no task measuring delay discounting of academic outcomes currently exists. We developed a measure of academic discounting modelled on tasks successfully used in the discounting literature. We piloted two versions of the academic discounting task and identified the superior version; all participants showed systematic discounting. We also compared impulsivity of participants completing their participation requirement at the end of semester one with those who completed it at the end of semester two. If participants from early in the semester are less impulsive on the academic discounting task compared to participants from later in the semester then this would provide support for the conclusion that our academic discounting task is indeed capturing procrastination. Results will be discussed. Secondly, research has shown that large delayed rewards are discounted less steeply than small delayed rewards (the magnitude effect). We investigated whether the magnitude effect exists in studying. If the magnitude effect occurs then this might indicate possible interventions to reduce procrastination. Finally, we determined which of the quantitative models of delay discounting in the literature (the hyperbolic versus the hyperboloid) best described discounting of academic outcomes. Results will be discussed. Researchers have argued about whether impulsivity may be viewed as a stable trait. Future research will contribute to this impulsivity debate by assessing whether a person who is relatively impulsive in one situation may tend to be relatively impulsive in other situations.

A study of the relationship between experiential avoidance, delaying of aversive outcomes, and brief, immediate relational responding.

Joseph Graddy
Waikato University

The Implicit Relational Assessment Procedure (IRAP) is a relatively new tool for measuring brief, immediate relational responding. It has shown to be useful in detecting stereotyping, and other verbal behaviour that people normally can't, or won't, report. The potential clinical utility of the IRAP is of much interest, partly due to the difficulty in faking IRAP results. This exploratory study investigated the relationship between IRAP performance, self-control, and psychological flexibility. Twenty-nine university students completed two IRAPs, an aversive delay-discounting task (ADDT), and the Action and Acceptance Questionnaire II (AAQ-II). All results for the IRAP tasks were as expected – participants were significantly faster to respond when told to respond consistent with presumed social norms. There were no significant correlations found between scores on the AAQ-II and the other measures. There was a significant correlation between scores on the ADDT and the IRAP on gender stereotyping around household chores, but not the IRAP on emotions. The results suggested the more impulsive a person was, the more likely they were to be inflexible around gender roles, demonstrating a potential link between psychological inflexibility and self-control.

SESSION 2 (Chair Randolph Grace 10:50 – 12:30)

Are the third-generation counselling approaches promoted by Acceptance and commitment therapy, Mindfulness therapy and Dialectical behaviour therapy changing behavioural counselling so much as to make it unrecognisable to Skinner?

Brett Furlonger
Monash University

Skinner (1972) argued that a counsellor needs special technical skills in order to see the opportunity to arrange a way of life that will be primarily positive for the client. Behavioural psychology has made significant technical contributions to the field of counselling, including an understanding of the applicability of classical and operant conditioning to therapy, the role of reinforcement in coping, systematic desensitisation, modelling, contingency contracting and self-management. Despite introducing these technical skills to the counselling environment and providing evidence of both their utility and success the behavioural approach to counselling has slipped from prominence it enjoyed in the early 1960s. The increasingly popular third generation of behaviour therapies while to some degree cumulative and overlapping with first and second-generation therapies by virtue of defining themes and common characteristics, contain within them radical differences that challenge our assumptions about behaviour therapy. The questions about the relevance of behavioural counselling today, and whether new-generation behavioural therapies are at odds with Skinner's assumptions about the role of the behavioural counsellor, will be examined.

Childrearing as the Behaviorist Viewed It: John B. Watson's Advice in Perspective

Edward K. Morris & Katheryn M. Bigelow

Childrearing is among a culture's most vital practices, so vital in fact that it has spawned supporting practices, among them, childrearing advice. This advice is based on family traditions, folk psychologies, developmental theories, and medical science, but rarely on a science of behavior and

its practice. In this presentation, we describe the first “behaviorist” advice on childrearing -- John B. Watson’s (1928) *The Psychological Care of Infant and Child* – and lessons we might glean from it and its representation then and now. Specifically, we review Watson’s advice in the context of 20th century America, its childrearing practices, and its childrearing advice, where Watson’s advice became more infamous than famous (e.g., “pathological”). We relate the broad range of Watson’s advice in his time (e.g., mealtime and nighttime routines), yet its restrictive coverage in today’s historiography, where only his infamous advice is conveyed (e.g., his “punitive” advice). And, we address Watson’s little-known perspective on his advice: His advice was both contingent and essential. It was contingent on children’s cultures and survival in them, but essential in rearing “problem-solving” children who can survive in most any culture. We conclude, briefly, with “Why Watson’s childrearing advice?”

An analysis of the contingencies operating during teacher education programmes

John Church
University of Canterbury

Observational studies of classrooms suggest that core classroom teaching practices have changed very little during the past 50 years. Classroom teaching consists of set of complex performance skills. Mastery of these skills requires the opportunity to observe expert performance, it requires much practice, and it requires the differential reinforcement of increasingly skilled performance. This paper analyses the training conditions provided during the typical 3-year teacher education programme in an attempt to understand why classroom teaching practice has been so little influenced by 50 years of behaviour analysis research into the variables on which the motivation and skill acquisition of both children and their teachers depends.

IOA: What is it good for?

Katrina Phillips
University of Auckland

ABA practitioners and researcher use data to make informed decisions. It is therefore important that the data be of sufficient quality to ensure that the decisions are correct. In other natural and social sciences data quality has been assessed using a range of methods including calibration and correlational coefficients (e.g. Kappa). In ABA data quality is predominately assessed by interobserver agreement (IOA). This presentation will briefly discuss the history of IOA and the suggested alternatives. Data will be presented from direct observations conducted by caregivers and students of socially significant behaviours. The behaviours varied in their level, topography, and the dimension of interest. This data will highlight the strengths and weaknesses of IOA and recommendations will be discussed.

To average or not to average? – that is the question

Neville Blampied
University of Canterbury

At its inception in the work of Skinner the nascent field of behaviour analysis eschewed between-subject (group) averaging, Skinner (1938) remarking that [this] kind of science ... belongs on the non-statistical side (p443), and that individual prediction is of tremendous importance so long as the organism is to be treated scientifically (p444). Sidman (1960) strongly endorsed this, while allowing group averaging in specific circumstances. Nevertheless, from time to time, eminent behaviour

analysts have called for the field to adopt group statistical methods requiring group averages, often on pragmatic grounds that this will help the field engage more with mainstream research. This paper will first consider why Skinner and Sidman argued as they did, and then consider several more recent arguments that support their position. The first is an argument that extends and generalizes Sidman's from a biological perspective, noting that it is variability that drives natural selection, the most central process in biology, and that natural selection is blind to the average. Stephen J Gould argues that pre-occupation with group averages risks overshadowing proper attention to variability. The second argument considers the dangers of attempting to make inferences about within-subject processes from between-subject data (Quetelet's fallacy), and the third, relatedly, considers the implications of measurement theory that specifies that inter-individual variation can only be used to explain intra-individual variation when the measurement system is ergodic. Most measurement in psychology and behaviour analysis, however, is non-ergodic. I conclude that the field should continue to eschew group averaging as a matter of principle, except in the instances that fit the conditions specified by Sidman.

SESSION 3 (Chair Ludmila Miranda-Dukoski 1:30-3:10pm)

A Comparison of Outcomes from Descriptive and Experimental Analyses of Verbal Behavior

Anastasia Marie Sawchak
Victoria University at Wellington

The effectiveness of experimental verbal operant analyses were investigated in the current study and compared with descriptive assessments of verbal behavior to determine the extent to which the two methods would yield data supporting similar conclusions. Specifically, we compared a functional analysis technology based on that reported by Lerman et al. (2005) with outcomes measured on the Verbal Behavior Milestones Assessment and Placement Program (VB-MAPP; Sundberg, 2008). Five preschool to primary school age children diagnosed with Autism Spectrum Disorder participated in this research. Using stimulus control ratios as the dependent measure, we examined the relative strength of control across four primary verbal operants - mands, echoics, tacts, and intraverbals - for each participant using descriptive and experimental data collected within a week of each other. As with previous research that compared similar analyses of problem behavior (Lerman & Iwata, 1993; Thompson & Iwata, 2007), we found discrepancies across descriptive and experimental measurements of the verbal behavior emitted by each of the five participants. Implications for evaluation and treatment are discussed.

Using behavior chain interruption to teach mands for actions for children with autism who communicate using an iPad-based speech-generating device

Amarie Carnett
Victoria University of Wellington

The current study aimed to extend the literature on teaching advanced manding skills by evaluating methods for teaching mand for actions for using an iPad-based speech-generating device (SGD). Using behavior chain interruption strategy, we taught three nonverbal children with autism to mand for actions. We also assessed for generalization to a novel stimulus. Specifically, a behavior chain interruption (blocking assess format) was used to contrive the motivating operation. A multiple probe across participants design was used to evaluate the effectiveness of this intervention. All three participants acquired the target mand, however generalization to a novel stimulus only

occurred for one participant. These results suggest that action mands can be taught to children with autism using SGDs and the behavior chain interruption strategy.

The treatment of vocal stereotypy using response interruption and redirection

Emma Baker
University of Auckland

Vocal stereotypy (VS) is defined as repetitive, persistent, and inappropriate vocal responses that serve no social function. VS can be problematic in learners because it restricts acquisition of new skills and prevents social interactions. This study conducted a functional analysis that identified the VS was maintained by automatic reinforcement. Response interruption and redirection (RIRD), was implemented to decrease the VS in Andrew, a 4 year old boy autism spectrum disorder. RIRD consisted of the immediate prompting of on-topic phrases contingent upon the occurrence of vocal stereotypy. In addition, functional communication training (FCT) was used to teach the learner manding and tacting as a replacement behaviour for VS. VS and appropriate vocalisations (AV) in the form of manding and tacting were measured.

Using video modelling to teach social skills to children with autism

Joanne Wong
University of Auckland

Children with autism often struggle interacting in social situations, despite having adequate language (Krantz, Ramsland & McClannahan, 1989). The lack of social skills hinders a child's ability to form relationships, leading to a reduced quality of life. Several intervention methods have been shown to be effective in increasing the social skills of children with autism, and Video Modelling (VM) is one such intervention method (Ayers and Langone, 2005). VM is a method which uses videos where actors demonstrate the target behaviour(s), and the learner imitates the actor's behaviour (Gresham, 1981). However, most of the studies that have used VM to teach social skills, did not program for stimuli and/or response generalization. Moreover, there has been little to no studies that used VM to teach greeting responses, personal space, verbal requests and turn taking. This study aims to; a) use VM to teach the four social skills mentioned above to children aged between ten to fifteen and diagnosed with autism, b) contribute towards the existing literature on the efficacy of VM, c) program for response and stimuli generalization by using scripts that demonstrate the target behaviour in various ways, and creating the videos with different people, items and settings. A multiple baseline design across participants and social skills is being used. Early results indicate that VM has made positive influence in teaching greeting responses.

An intervention package comprising of video modelling, video feedback and peer mediation to teach adults with ASD social and work skills in a vocational context (peer reviewed)

Richard Dagher, Sadhana Gounden, Shu Fen Chan, & Derek English
Monash University

As individuals with Autism Spectrum Disorder (ASD) transition into adulthood, one of the main challenges they face is obtaining and maintaining employment. The current study aims to explore the efficacy of a new treatment package focused on helping adults in an employment setting gain work-related skills. The treatment package consisted of combining video modelling, video feedback and peer mediated intervention to teach adults diagnosed with ASD social and vocational skills in an employment setting. It was hypothesised that the intervention would result in acquisition of the

target skills. Participants included four adults with ASD between the ages of 18 to 22. The study employed a multiple baseline across participants design. Social skills taught included conversation initiation, responding and continuation. Vocational skills included weeding, picking & planting. Results indicated that participants managed to reach at least 80% criterion level across all target skills, thus the intervention package was successful in promoting acquisition of skills among participants as hypothesized. These findings may have implications for future vocational training packages aimed at improving employment opportunities for adults with ASD, as well as the creation of inclusive work environments.

SESSION 4 (Chair Douglas Elliffe 3:40 – 5:20pm)

Do they stay or do they go? (Peer reviewed)

Anthony McLean
University of Canterbury

As normally interpreted, preference pulses suggest a win-stay strategy among pigeons trained in concurrent schedules. Their shape implies that preference for a key is unusually strong right after reinforcement, decreasing as reinforcement recedes into the past. This implies a win-stay pattern – an unusually low switch probability immediately after reinforcement, increasing thereafter (or, put differently, a transient lengthening of visits). In the present study we sought to remove an artifact, identified by McLean et al (2014), from preference pulses so as to clarify the local effects of reinforcement on choice. In a simplified version of the mixed concurrent schedule procedure, 50% of arranged reinforcers were delivered, and the rest were withheld. Two sets of preference pulses were constructed. Preference pulses following both delivered and omitted reinforcers showed the expected pattern, but the latter unfolded more rapidly. In residual preference pulses, constructed by subtracting one from the other, clear effects of delivery (vs omission) became apparent at about Position 10, consistent with a visit-lengthening effect of reinforcement. Switch probability at Position 1 was about the same for delivered as for omitted reinforcers, sometimes higher (win-shift). Such results might result from a combination of poor contingency discrimination and a visit-lengthening effect of reinforcement.

To switch or not to switch?: The effects of changeover delays on choice (peer reviewed)

Stephanie Gomes-Ng
University of Auckland

A changeover delay (COD; Herrnstein, 1961) is a brief period of nonreinforcement instigated by a subject switching between alternatives in a concurrent schedule. Generally, the rate of switching between alternatives is lower when a COD is arranged relative to when no COD is arranged, and choice is closer to strict matching with a COD. Additionally, responding during the COD differs systematically from responding outside of the COD. The reasons for these effects of the COD on choice are not well understood. One variable that may be responsible for the effects of the COD on choice is the likely availability of reinforcers across time. Although the COD instigates a period of nonreinforcement after all switches, it also alters the local reinforcer ratio in the seconds immediately after a reinforcer delivery. When a COD is arranged, the local reinforcer ratio exclusively favors the just-reinforced alternative in the seconds immediately after a reinforcer. Thus, the effects of the COD on choice may be due to changes in the local reinforcer ratio that occur after a reinforcer delivery. Indeed, Krägeloh and Davison (2003) obtained a brief period of heightened preference (a preference pulse) towards the just-reinforced alternative in the seconds immediately after a reinforcer delivery when a COD was arranged. Without a COD, no preference pulses were

obtained. This pattern of preference is consistent with the pattern of changes in the local reinforcer ratio created by the COD. However, it is presently unclear whether Krägeloh and Davison's preference pulses were the result of the COD changing the local reinforcer ratio, or the result of the COD's effects on extended-level variables, such as mean visit length. The present experiment investigated the effects of the COD on local choice by varying the type of COD used across conditions. In one condition, the COD operated only after switches not preceded by a reinforcer, whereas in another condition, the COD operated only after switches preceded by a reinforcer. For comparison, conditions arranging no COD and a standard COD were also conducted. The COD only creates a change in the local reinforcer ratio when it operates after a reinforcer. Hence, any effects of the COD obtained when the COD does not operate after reinforcer deliveries must be due to changes in variables other than the local reinforcer ratio. These conditions therefore allowed us to assess the time scale at which the COD has its largest effects.

A microanalysis of body weight as a Motivating Operation

Surrey Jackson
University of Waikato

Motivating Operations (MOs) are frequently manipulated (by altering access to commodities and manipulating other variables such as body weight) in order to change responding. This study aimed to investigate the effect of altering body weight on concurrent schedule performance of hens. Six hens held at $85\% \pm 5\%$ were shaped (three via the method of successive approximations and three via autoshaping) to respond on an infra-red screen for food reinforcers. Hens then worked for the same reinforcer under concurrent VI VI schedules with a range of reinforcer ratios, with body weight held at $85\% \pm 5\%$, $95\% \pm 5\%$ and $100\% \pm 5\%$, in separate conditions. In an additional condition, while bodyweight was held at $85\% \pm 5\%$, hens were pre-fed with 40cc wheat, 40 minutes prior to experimental sessions. Results show that consistent differences between the three body weights, across all hens, were not found. However response rates, inter-response times and video analysis of the timing of the individual components of the hens pecking responses showed consistent patterns across individual hens, between different bodyweights.

The Monty Hall Dilemma: Pigeons, Probabilities, and Prizes

Joshua Benseman
University of Auckland

The Monty Hall Dilemma presents subjects with three initial response alternatives, one randomly determined to produce a reward. After the initial choice, one alternative that was not chosen and does not lead to a reward is removed. Subjects then choose to either stay on their initial alternative or switch to the other remaining alternative. When rewards are equally probable across the three alternatives, the initial choice is inconsequential and rewards are more probable following a switch than a stay. Prior evidence suggests that pigeons eventually learn to do this. Using 12 pigeons, we modified the probability of reward so that both initial and stay/switch choices affect the probability of reward. Results show that both types of choices are controlled by their consequences.

Analysing the Effect of Acquisition Context on Human Choice Behaviour by combining EAB with EEG

Stuart Michael McGill
University of Auckland

The acquisition of choice behaviour within humans was examined in two contexts: additional non-contingent reinforcement (Gifts) and under the delivery of contingent stimulus events (Events). Recent theoretical developments have provided a new conceptual framework for contingency based on information theory. Under the information-theoretic framework, contingency can be divided into two categories: retrospective and prospective. The retrospective contingency relates to the probability that a response precedes a reinforcer, while the prospective contingency involves the probability of reinforcer delivery given a response. The Gifts were predicted to degrade the retrospective contingency, attenuating the development of preference compared to the Events context. Relative reinforcer probability was varied between 3:1 and 1:3 using a two-alternative-choice procedure. Scalp electroencephalography was recorded to investigate any difference between Event-Related Potentials (ERP) evoked by reinforcers, Events and Gifts. Prior research has suggested the reward-positivity and the P300 to be neural-responses related to reinforcement, with the reward-positivity amplitude linearly associated to the log (stay / switch) response ratio. Acquisition of response preference in each context was assessed via a change point procedure. Preliminary results were consistent with predictions, indicating that preference was affected by context, with the provision of Gifts attenuating preference acquisition.

SESSION 5 (Chair Mary Foster 8:40 – 10:20 SUNDAY)

Improving Social Skills in a Child with Autism Spectrum Disorder through Self-management Training (peer reviewed)

Yadan Liu, Dennis W. Moore, & Angelika Anderson
Monash University

Aim & Hypotheses: The aim of this study was to assess the effects of a parent-implemented self-management intervention incorporating video-modelling for discrimination training, on improving social skills in a child with Autism Spectrum Disorder (ASD). It was hypothesised that: (1) the application of this intervention would improve three social skills in the training setting; (2) the improvement would generalise to non-training settings; (3) the improvement would maintain during the fading of the intervention and in follow-up; and (4) the social validity of the intervention would be high. **Method:** The participant was a nine-year-old girl with ASD. A multiple baseline across behaviour design (no interruption, asking for opinions, and appropriately greeting unfamiliar adults) was used to assess the effects of the intervention. There were four experimental phases: Baseline, Intervention, Fading and Follow Up. In addition, several generalisation probes for each target behaviour were obtained across the four phases. Effect size was estimated by calculating Percent Non-Overlapping Data (PND). **Results & Discussion:** Results showed (a) the intervention was associated with improvements in all target behaviours in the training setting with a strong overall treatment effect (the overall PND was 93%, indicative of this being a very effective intervention); (b) the behavioural gains were generalised to non-training settings and maintained in both Fading and Follow Up phases; and (c) social validity measured by the Behavior Intervention Rating Scale-Adapted version (pre and post intervention) was high. **Limitations and recommendations for future studies include:** (1) the application of single subject design resulted in limited external validity; therefore, systematic replication is required; (2) the Follow Up phase was conducted only one month after the completion of the intervention; therefore, more extensive maintenance probes in future

research is needed; (3) social validity was assessed based on self-reporting, which might negatively impact the reliability of the findings; therefore, future research examining how we might better assess the social validity is clearly justified; (4) only self-recording and self-monitoring were involved in this intervention; it may also be valuable to explore the feasibility and utility/ value-add of incorporating other self-management procedures (e.g., goal setting, self-evaluation, and self-reinforcement) into parent-implemented self-management interventions. Conclusion: The intervention was effective in improving social skills with this participant, with good generalisation and maintenance effects and high social validity.

Increasing social connections for young migrant women in the New Zealand community using video self modeling

Sehar Moughal, Oliver Mudford, Peter Dowrick, & Fiona Howard
University of Auckland

Social Isolation is a cause for concern in migrant women who are survivors of domestic violence. One way to increase social connections for these women is to improve their conversational skills. The current study identified four basic conversational skills for training – asking conversational questions, positive self-disclosure statements, negative self-disclosure statements and praise. In addition, silences, latencies, and speech rate were included as corollary measures of conversational skills. Three young migrant women aged 17 – 24 years with a history of recent domestic abuse participated in the study. Video self modeling was identified as an appropriate method to improve conversational skills of these young women. The effectiveness of video self modeling was assessed by employing a concurrent multiple baseline across behaviours incorporating a withdrawal phase. Conversational partners and an independent rater gave molar (overall performance) and molecular (specific conversational skill) ratings to each participant for randomly selected conversations. At various points in the study, all three participants filled a questionnaire about their social connections outside the study. Results show that video self modeling was moderately to highly effective in improving target behaviours for all three participants. Latency and rate of silence decreased for two out of three participants. Mixed results were observed for speech rate in all three participants. Conversational partners' and independent judge's ratings validated the improvement in skills due to training most of the time. The participants indicated speaking to more people as the study progressed. Therefore, the results of this study show that video self modeling may be an effective method at improving conversational skills for young migrant women.

Using Giant African Pouched Rats and Behaviour Analysis in Humanitarian Applications

Timothy Edwards
University of Waikato

APOPO (Anti-personnel Landmines Detection Product Development), a Belgian non-profit organization headquartered in Tanzania, trains and deploys giant African pouched rats (*Cricetomys ansorgei*) for the detection of landmines and tuberculosis in sub-Saharan Africa and Southeast Asia. *Cricetomys* are well-suited for this type of work because of their keen olfaction, long lifespan, trainability, and propensity to habituate to human handling. Behaviour analysts working for APOPO have used behaviour analytic principles and research methods to fine-tune the performance of the rats and to assess their ability to serve as detectors for other humanitarian purposes. An overview of APOPO's work and an example of recent behavioural research conducted at APOPO will be presented in this paper. This work exemplifies the potential breadth of applied behaviour analysis and demonstrates the power of creative thinking in combination with behavioural science.

Target training as an intervention for horses with float-loading problem behaviour.

Kate Southcombe
University of Auckland

Float loading horses can be stressful and the use of negative reinforcement may lead to both safety and welfare concerns. Horses may display unwanted behaviours in an attempt to escape the float. When horses have existing problem behaviours associated with loading, dangerous behaviours may escalate with the use of negative reinforcement. Previous research concluded that positive reinforcement was an effective way to train horse with problem behaviours. They suggested future research could consider training the owners. Increasing the owners' training knowledge may help improve horse welfare and owner safety during loading. Six problem loaders and one naive horse were trained to load by their owners using target training and positive reinforcement. Five equines reached terminal criteria, loading within 15 seconds for three trials across two consecutive sessions. Generalization was embedded in the training procedure and factors considered likely in the natural environment were included. Findings show appropriate loading behaviour was maintained up to nine months after training. Social validity data indicates that owners were using the techniques with other horses and sharing the information. Results show that positive reinforcement can enable safe and ethical loading reducing the likelihood of injury to horse or owner during the process.

The multiple effects of slot machine “off-line” wins (peer reviewed)

Anne Macaskill
Victoria University of Wellington

Modern slot machines allow gamblers to bet on multiple lines – in New Zealand, typically 20. If a gambler bets on only a portion of lines, they may see winning combinations on the other lines. Termed, “off-line wins”, there is speculation in the literature that these outcomes might be aversive – and thus explain why gamblers typically bet on all available lines (i.e. to avoid off-line wins). We used simulated slot machines to explore the effects of off-line wins in the laboratory. Counter to the hypothesis that off-line wins are aversive, participants consistently preferred slot machines that displayed them. This suggests that off-line wins, like other forms of near wins, might become conditioned reinforcers under some conditions. We also examined a second, less-explored effect of off-line wins, that is, we examined their impact on the location and amount of the participants' next spin. Participants were more likely to gamble on a slot machine line on which an off-line win had recently occurred. In a second experiment, participants also made larger bets on lines that had recently produced an off-line win. Thus off-line wins appeared to have discriminative effects. This is striking because all slot machine events are independent and so off-line wins do not signal an increased likelihood that a win will occur. The ways in which wins and off-line wins are presented on slot machines may lead gamblers to nevertheless make an incorrect contingency judgment and conclude that off-line wins do predict upcoming wins.

SESSION 6 (Chair Celia Lie 10:50-12:30)

Free is not enough
Lorance Taylor
Victoria University of Wellington

One feature of slot machines that has received almost no experimental analysis is the “free spins” type of feature that is commonly central to modern slot-machine designs. Self-report and survey type research has shown that the presence of free-spins features are important determinants of

which slot machine people choose to gamble on, and that gamblers say free spins cause them to play longer than they would otherwise. Previous experimental research in our lab has shown that participants prefer slot-machine simulations with free spins, but only when the free spins incorporated additional features such as sounds, animations, and an increased win frequency. Subsequent experiments have shown that the “freeness” of the free spins is not a major driver of preference, and that participants playing with real money behave similarly to participants playing for hypothetical money. Future research will investigate whether free spins increase the persistence of slot-machine gambling. This will be investigated experimentally using techniques from the behavioural momentum literature that have been adapted to a slot-machine task.

Reinforcer rates and the role of trials in the acquisition of conditioned responding

Jonas Chan

The University of Sydney

Trial based learning theories predict that the number of presentations of a conditioned stimulus (CS) will influence the rate of acquisition, while time-based learning theories assert that only the overall reinforcer rate influences acquisition. Here, we compared the rate of acquisition between two variable CSs differing in number of trials but with matched cumulative reinforcer rates. The novel feature of the current experiment is that rats were exposed to an extended pre-training phase with a third CS, in order to allow magazine activity levels to stabilise prior to the introduction of the target CSs.

Reinforcers and stimuli in adaptation and performance (peer reviewed)

Sarah Cowie

University of Auckland

Both performance and adaptation appear to be controlled by discriminability of the response-reinforcer relation. Discriminability of the stimulus-reinforcer relation is important in performance, but its role in adaptation is less clear. We implemented a procedure where the local reinforcer differential reversed after a fixed amount of time had elapsed since the most recent reinforcer, and thus the likely availability of a reinforcer was signaled by elapsed time. In Phase 1, a transition between conditions involved a change in the overall reinforcer rate, but the local reinforcer differential remained unchanged across conditions. Phase-1 conditions thus assessed the extent to which adaptation depends on local and extended properties of the schedule of reinforcement. In Phase 2, discriminability of the stimulus that signaled the likely availability of a reinforcer was manipulated in two ways: By changing the time at which the schedule reversal occurred; and in some conditions, by preceding or accompanying the schedule reversal by a keylight color change. In Phase 1, changes in the overall reinforcer rate produced systematic changes in bias, and some indication of a change in discrimination. These changes generally occurred in the first session after a transition. In Phase 2, choice began to change earlier, and took fewer sessions to reach stable values, under more highly-discriminable stimulus conditions. Thus, environmental conditions that enhance discriminability of the stimulus-reinforcer relation appear to lead to faster adaptation.

Persistence of Behaviour during Differential Reinforcement

Karen Sluter
University of Waikato

Investigation into the persistence of behaviour has significance in both applied and experimental areas of behaviour analysis. Greater reinforcement in a particular stimulus context, whether contingent on the target response or not, seems to be sufficient to increase the resistance to change, or persistence, of the original target response (Nevin & Shahan, 2011). Such procedures are commonly applied in differential reinforcement of alternative behaviours (DRA), and whilst success at decreasing target problem behaviours have been identified, research also suggests that persistence of that target behaviour may actually increase due to the increased amount of reinforcement in the context (Mace et al., 2010; Nevin, Tota, Torquato, & Shull, 1990). Mace et al. (2010) suggested alternative context training as a method of reducing the reinforcement overall, thereby reducing the persistence of the target behaviour, which was then replicated and extended by Podlesnik, Bai, and Elliffe (2012). This paper will examine related literature and investigation into this area currently underway

Impact of signalled alternative reinforcement on persistence of target responding

Vikki Bland, John Y.H. Bai, Jane A. Fullerton and Christopher A. Podlesnik
University of Auckland

Behavioural Momentum Theory suggests that behaviours trained in the presence of a stimulus context associated with a relatively higher rate of reinforcement will be relatively more persistent during disruption. Persistence and preference are further proposed to be convergent expressions of behavioural strength. Research suggests that organisms may prefer signalled to unsignalled schedules of reinforcement. Therefore, signalled availability of reinforcement may increase behavioural persistence relative to behaviour that is maintained by unsignalled reinforcement. Applied implications include the therapeutic effectiveness of Functional Communication Training following differential reinforcement of alternative behaviour (DRA). The present study investigated the impact of signalled availability of alternative reinforcement on persistence of target responding. There were two DRA components with equal overall rates of reinforcement, and one Control component. For only one DRA component, availability of response-dependent alternative reinforcement was signalled using a discrete stimulus (signalled component). In four of five disruption conditions, there was overall less persistence of target responding in the signalled component relative to the unsignalled component. This finding does not support the predictions of Behavioural Momentum Theory. One explanation is that the wider stimulus context of the signalled component acquired inhibitory properties during the frequent absence of the discrete stimulus signalling availability of alternative reinforcement.

SESSION 7 (Chair Anne Macaskill 1:30 – 3:10pm)

Contingency instead of context might aid our understanding of the processes underlying relapse

Ludmila Miranda-Dukoski
The University of Auckland

Relapse, the recurrence of responding following extinction or some other disrupting condition, can be brought about by a change in context. Context renewal, where the global physical context is

manipulated in 3 phases is an example of context-change relapse. Differences between different forms of context renewal, however, has hinted towards discriminatory processes underlying this form of relapse. Specifically, ABA context renewal, in which training and relapse phases occur within the same physical context, induces more relapse than ABC renewal, where the training and relapse phases occur within different physical contexts. Similar effects of disparities between the context of the training and relapse phases have been implied in relapse by reinstatement, where the contingencies of reinforcement are signaled by discrete rather than contextual stimuli. The present talk will discuss similarities between relapse induced by changes in contextual and discrete stimuli to conceptualize the importance of stimulus-control processes in governing relapse.

Effects of reinforcement duration on the previous and upcoming ratios on between-ratio pausing in Fixed-Ratio schedules (peer reviewed)

Rachael Young, T Mary Foster and Lewis Bizo
University of Waikato

The performance of hens under multiple fixed-ratio fixed-ratio schedules was examined when the consequences were two different durations of reinforcement. The components of the multiple schedule were arranged so that the four possible transitions between reinforcer durations occurred (short to long, long to short, short to short and long to long). The response requirement in effect was the same in both components and varied over conditions. The between-ratio pauses increased with response requirement increases for all transitions. The pauses were consistently longest when the previous reinforcer duration was long and the upcoming duration was short. The next longest between-ratio pauses occurred when both the previous and the upcoming reinforcer durations were short. The between-ratio pauses were short when the upcoming reinforcer duration was long, tending to be shortest when the previous duration was short rather than when it was long. These data showed that the upcoming reinforcer had the greatest affect, although the previous reinforcer also had some effect on pause length. Longer between-ratio pauses were not the result of having just received access to a longer reinforcer. When the discriminative stimuli were removed and the response requirement was varied, between-ratio pauses again increased with FR increases. They were now similar and longer when the previous reinforcer duration was long and similar and shorter when the previous duration was short, regardless of the upcoming reinforcer duration. Thus pauses following a longer reinforcer were longer than those following a shorter reinforcer, as is seen with the magnitude of reinforcer effect. The range of pause lengths was reduced when compared to that with the multiple schedule, with the shorter pauses being longer and longer pauses being shorter.

Milk lipid supplementation may partially counteract age-related memory deficits in rats

Doug Elliffe
University of Auckland

Aged rats solved the Morris water maze more slowly than young control rats. They also made more initial heading errors, and fewer entries to the platform zone during test trials, suggesting impaired memory. Feeding old rats a milk-based supplement of complex phospholipids improved performance in test trials to levels similar to young control rats. Supplementation also improved vascular density, dopamine output and neuroplasticity. Milk really is good for you.

A Functional Analysis of Corruption from a Behavioral-Economic Perspective

Patrícia Luque Carreiro
University of Brasilia – Brazil

One of the most significant aspects of the Behavioural Perspective Model (BPM) is to reveal that behaviour produces, simultaneously, multiple positive and negative consequences. For this reason, the BPM seems to be very useful to investigate corruption, a world-wide anomaly, which brings serious negative outcomes for a country's economic development and impacts citizens' lives, but also conveys some great advantages to those particularly involved in a corrupt deal. In a typical corrupt act, the two main characters, the official and the briber, face both rewards and punishment, which differ in probability of occurrence, as a result of their actions. This paper offers an analysis of the corruption phenomenon by using concepts derived from the BPM. Contingencies will be depicted, including the setting and individual learning history as antecedents, and the manifold consequences to the crime, divided into informational and utilitarian categories.

Snapshots of Social Networks: Researching Cyberbullying through Observation.

Emma-Leigh Hodge & Rebecca J. Sargisson
University of Waikato

Over recent years, researchers have sought to better understand cyberbullying, which is increasingly recognised as a social problem. To date, the cyberbullying researchers have focused on the experiences of young people using self-report methodologies that may misrepresent or underestimate the extent of cyberbullying behaviour. In addition, various definitions of "cyberbullying" are in use, which can be problematic for intervention and policy development in this area. I conducted a content and thematic analysis of 800 public comments made on 40 different YouTube® videos featuring young people (18 or under) in a singing or dancing performance. I coded each comment according to nine factors, including its positivity/negativity towards both the performer in the video, as well as towards the other commenters. Using these observations of online behaviour, I aim to further quantify and operationally define cyberbullying. Interestingly, analyses have shown that comments made to other commenters were, on average, more negative than those to the performers featured in the videos. The mitigating, escalating, or maintaining effect that bystanders have on cyberbullying is therefore a current focus of this research.

POSTERS - SATURDAY

Direct assessment of mild challenging behaviours with typically developing Australian primary school-age students

Amanda Fernandez
Monash University

Though functional analysis is expected when assessing the function of a behaviour, indirect functional assessments and descriptive assessments often obtain information which indicates the same function as functional analyses. Furthermore, a functional analysis might be excessive to assess mild challenging behaviour at the Tier 2 level in the Positive Behaviour Support framework; descriptive assessments may be more practical in this context. Despite this, much of the literature has focused on functional analyses and children with severe problem behaviour such as those with developmental disabilities and ASD, and neglected indirect and descriptive assessments especially with typically developing children who usually display these mild challenging behaviours. To address this gap in the research, functional behaviour assessments were conducted for three typically developing children with mild off-task and disruptive behaviours in an Australian primary school. Functional behaviour assessments consisting of indirect assessments (questionnaire and interviews) and descriptive assessments (ABC recording) were conducted over a period of two weeks across three different subjects: Maths, Literacy and Religion. Functions were identified for all off-task and disruptive behaviours and a self-management intervention was implemented. The self-management intervention significantly reduced the occurrence of off-task and disruptive behaviour and increased on-task academic behaviours.

Suboptimal Choice Behaviour across Different Reinforcement Probabilities

Ariel Yang
University of Waikato

Six roosters' choice behaviour was investigated across a series of five experimental conditions and a series of replication. Stagner and Zentall found that pigeons prefer to choose an alternative with highly reliable discriminative stimuli but with less food over an alternative with non-discriminative stimuli but with more food. The current research systematically changed the probability of reinforcement associated with the discriminative stimulus. This experiment was based on Stagner and Zentall's (2010) study in which the suboptimal alternative with discriminative stimuli was associated with 100% reinforcement on 20% of the trials, and non-reinforcement on 80% of the trials; the optimal alternative with non-discriminative stimuli was associated with both 50% reinforcement on all trials. At the beginning, the probability of getting access to reinforcement was the same for each discriminative stimulus, thus, what was seen for the first time was that both alternatives were associated with non-discriminative stimuli. The results showed that four of the roosters had suboptimal choice behaviour in the first five conditions. Only two of them maintained suboptimal behaviour in the replication conditions. This result does not support the idea that the suboptimal choice behaviour with strong discriminative stimuli is a robust effect.

Polish Society for Behavioral Psychology - yesterday, today and tomorrow

Bartłomiej Swebodziński
Polish Society for Behavioral Psychology

The poster presents the mission, structure and history of the Polish Society for Behavioral Psychology (PTPB). Selected events and accomplishments in the years 2002-2014 are listed. The

poster also includes a list of major events related to behavior analysis in Poland. The first specialization in ABA (in Poland) is described as well as a joint program of studies (with California State University Stanislaus and Bangor University) focusing on behavior analysis. Lastly, future plans are listed.

Effects of an Online Learning Platform on Exam Performance and Student Satisfaction (peer reviewed)

Celia Lie

University of Otago

In the past decade, there has been a huge increase in the development and use of online technologies in tertiary education. In a recent review, Siemens et al. (2015) found that online learning was at least as effective as face-to-face learning on student academic performance. Students also valued online courses that were well-designed, asynchronous, had timely and informative feedback, and with interactive and engaging content that incorporated relevant tasks and examples. These characteristics resemble some of the basic principles of programmed learning that Skinner (1954) identified, such as the use of immediate feedback and the ability to pace oneself when learning. Other principles, such as the use of small steps (from simple to complex) and extrinsic motivation (rewards), are often listed as characteristics of good course design. In the present study, we trialled kuraCloud (an online learning platform) as an optional supplement to traditional face-to-face lectures for one of the four lecture blocks of an introductory Psychology course at the University of Otago. The four lecture blocks were: 1) Biological Bases and Memory; 2) Perception and Neuropsychology, 3) Learning, and 4) Developmental Psychobiology. We predicted there would be an improvement in exam performance for the block with kuraCloud lessons when compared to the other three lecture blocks without kuraCloud lessons. To examine this, eight online kuraCloud lessons were created for Block 2 only. These online lessons consisted of learning objectives, short video clips of the lecturer teaching, and interactive, self-pacing questions with immediate feedback available. These questions were a mixture of drag-and-drop labels and categories, annotate images, and multiple-choice and text-answer questions. Overall, we found a small increase in exam performance for Block 2 (with kuraCloud lessons) when compared to the other lecture blocks without kuraCloud lessons. However, this finding is hard to interpret for a number of reasons, e.g., exam performance and kuraCloud use were both linked to general student ability. In the future, an arrangement that randomly allocates kuraCloud access to half the students may be more informative. The addition of more kuraCloud questions may also lead to greater improvements in exam performance. Overall, students rated kuraCloud very highly and made many positive comments about their online learning experiences. Despite this, students still indicated a preference for face-to-face lectures over online lecture content when asked directly. This suggests that a blended learning approach that combines online and face-to-face learning may be worthwhile investigating in the future.

Increase minority students use of support services through metaphors

Grace Walker

Victoria University of Wellington

Student support services have proven to be effective at increasing the positive experiences and performance of students who utilize them within tertiary institutions. However despite the abundance of support services within tertiary institutions there is a disparity in completion rates between New Zealand European, Maori and Pasifika students. A lack of social and academic support which result in negative experiences are key factors that contribute to the disparity in completion rates displayed by minority students. This proposal has developed metaphors based on acceptance and commitment therapy which can be utilized when advertising for support services, to increase

the use of services by minority students. Therefore the purpose of increasing the use of support services is to transform minority student's negative relational frames through social and academic support. An increase in support and transformation of tertiary relational frames should result in more positive experiences and contribute to the success of minority students studying towards a tertiary qualification.

The Relation Between Preference and Price of Different Amounts of food with Hens (Preference and Price)

Sinead Bicknell

The University of Waikato

Six hens responded on VI60-s concurrent schedules leading to 2 s access to wheat. The same hens then responded on concurrent chain schedules of reinforcement for two different durations of access to wheat (2 s and 8 s). The initial links (IL) were VI 60-s schedules and the terminal links (TL) were equal FR schedules ranging from FR 1 to 128. Responding and time allocation was greater on the key associated with the 8 s duration reinforcer in the ILs. Preference followed the 8-s reinforcer when the key associated with that reinforcer was changed. The TLs had higher overall response rates and shorter post-entry pauses with the shorter duration of reinforcement at the small FR values. These data indicate that differences in overall response rate, do not reflect the preference seen in the ILs.

Delay discounting of video: Effects of reward quality and order of experienced outcomes

Kate Pennell

Victoria University of Wellington

Humans discount high quality rewards less steeply than low quality rewards. The effect of quality is robust in hypothetical tasks but is not yet well explored in experiential tasks. To investigate the effect of reward quality, a video discounting task was used with two conditions. In the low quality video (LQV) condition, participants watched a comedy show with a partially obscured soundtrack. In the high quality video (HQV) condition, the soundtrack was presented normally. It was predicted that HQV would be discounted less steeply than LQV. Results showed an effect of quality as predicted and also an interaction between the order of conditions and quality. When the order was LQV followed HQV, both conditions discounted at almost the same rate with similar sensitivity to each delay (hyperbolic model fit $k=.24$, $k=.21$). When the order was HQV followed by LQV, the discounting rate and the sensitivity to delays were dissimilar ($k=.27$, $k=.11$), such that HQV was discounted much less steeply. This suggests that the quality of rewards as well as the order of their receipt interact in delay discounting in humans.

Slot machines: colour change signalling increased reinforcement rate

Jessica Cameron

Victoria University of Wellington

Given the choice to bet on two concurrently-available slot machines play preference is commonly observed on slot machines with free spins. This preference maybe because free spins are accompanied by a higher expected return creating a learnt association between winning and free spins. We investigated whether this was a driver of preference by removing all additional features during free spins excluding the higher expected return. Experiment 1 was conducted on 15 psychology students who were not problem gamblers. Participants played two slot machines that differed in expected return rates during periods of colour change, which mimicked previously reported free spins features, and had the choice to switch machines after the practise phase. The colour change was designed as a signal to indicate a period of higher expected return increasing the reinforcement rate, although, the signal correlated with the increased reinforcement rate on only one slot machine. While the alternative slot machine signal was uncorrelated with the increased

reinforcement rate. Results found participants showed no systematic preference for either slot machine suggesting that the higher expected return is not the driving factor behind preference for free spin slot machines. Free spin sequences present a range of images and sounds as well as having a higher expected return, therefore, these other additional features could be possible explanations for the free spins preference.

Brush-tail possums (*Trichosurus vulpecula*) counting using response sequences under ratio reinforcement.

Katrina Clarke

University of Waikato

This study used the Mechner Counting Procedure to investigate whether the brush-tail possum is able to achieve the complex task of counting. Six brush-tail possums participated in six conditions, using a series of Fixed Ratio (FR) targets. Lever press responses were required in order to gain access to food reinforcement. Reinforcement was delivered either upon the completion of an FR response requirement on Lever A, or on the completion of the FR on Lever A, followed by an additional response on Lever B. The results of this experiment indicated that it is likely possums do have the ability to count the number of responses that they emit. The mean response on Lever B typically occurred slightly above the FR response requirement across conditions. The first five compared to the last five days showed a decrease in variability of the response switches around the target FR, indicating improvement in counting accuracy over sessions. The five days training versus no training conditions showed that training was not necessary for the possums to achieve high accuracy for switching at the response requirement. The latency to switch for all conditions showed that it is unlikely the possums were using time to predict their change from Lever A to Lever B, and therefore it is likely that the possums were counting their responses. This research provides further support for the Mechner procedure as a method for measuring counting in animals.

Teaching an 8-year-old boy with autism spectrum disorder to approach communication partners in order to request preferred items using an iPad®-based speech generating device (peer reviewed).

Hannah Waddington

Victoria University of Wellington

Children with autism spectrum disorder (ASD) are reported to have difficulty generalising skills across settings and people. In this study, a multiple baseline across settings with a different communication partner in each setting, was used to determine whether the participant could learn to approach communication partners at varying distances in order to request preferred items using an iPad®-based SGD. The participant was an 8-year-old boy who had a diagnosis of ASD. The main settings were a therapy room at a university clinic, a special education room at school and the kitchen at his home. The settings used for generalisation were an office at the clinic, Jeremy's mainstream classroom and the living room in his home. The communication partners in each setting were: the primary researcher (clinic), his teacher aide (school) and his mother (home). During baseline, two trials took place at each distance (end of table, middle of room, and end of room). At the start of each trial, Jeremy was seated at a table and the iPad®-based SGD was placed in front of him. The iPad® displayed an icon with a photo of the selected toy and another with a photo of paper (distractor). The communication partner stood at the set distance and held up the toy and the piece of paper and waited 10s. Regardless of Jeremy's response, the communication partner gave Jeremy 30s of access to the toy. Generalisation to a novel environment in each setting was also assessed. Intervention sessions were identical to baseline except graduated guidance was used if Jeremy activated the distractor icon, or did not approach the communication partner with the iPad®. Furthermore, all six trials took place at one distance. The distance was increased when Jeremy approached the communication partner and activated the correct icon for 80% of trials over three sessions. Following intervention, generalisation probes were conducted in the novel setting, as well as for distance to iPad®, in which Jeremy was required to retrieve the iPad®, which was

approximately 3m away, before approaching the communication partner. Results suggest that the participant was able to learn to approach communication partners to make requests in all settings. Results also suggest that Jeremy's learning generalised to a novel room within each of the settings and to retrieving the iPad® prior to approaching the communication partner. Acquisition was fastest in the home environment and slowest in the clinic. These findings suggest that children with ASD can learn to approach communication partners to make requests for preferred items using an iPad®-based SGD and learning to do so in one setting may facilitate learning in additional settings with different communication partners.

The effect of economy type (open vs closed) on the demand for foods by hens

Kim van der Toorn

University of Waikato

Extensive research has examined the demand for food when 'price' was varied by increasing the required number of responses. This experiment compared (using increasing fixed-ratio schedules and domestic hens) the use of 40 reinforcer/40 minute sessions with body weight controlled (open economy) and of 9 hour sessions with body weight allowed to vary (closed economy) using two foods (Wheat and Puffed Wheat). Both conditions gave bitonic overall response rates functions, decreases in running-response rates, and increases in PRPs with increasing fixed-ratio value for both foods. There were higher overall response rates and shorter PRPs for Puffed Wheat than Wheat at low fixed-ratio values and higher response rates for Wheat than Puffed Wheat at high fixed-ratio values. These differences were more pronounced in the data from the long sessions than from the short sessions. When rate of reinforcement was the measure of consumption, these differences resulted in demand functions in which the initial intensity was much higher for Puffed Wheat than for Wheat in the long sessions than it was in the short sessions. The essential value of Wheat was generally larger than for Puffed Wheat in the short sessions, but it was generally smaller than that for Puffed Wheat in the long sessions. Thus, the shape of the demand functions was affected by the different procedures.

The near win effect in simulated slot machine gambling: the role of conditioned reinforcement

Lauren Colls

Victoria University of Wellington

The proposed study will investigate the near win effect in slot-machine gambling. The aims of the study are: (1) to develop a simulation that involves an 'observing-response procedure' to measure the putative reinforcing properties of near wins, and (2) to investigate whether Pavlovian processes underlie any reinforcing effect of near wins. In the piloting phase we will develop a task that is first sensitive to win rate. If the expected effect of wins is found then this task will be used to test the effect of near wins. In this task participants will first experience a multiple schedule of two components signalled by different backgrounds that are each associated with a high or low rate of near wins. In the following observing-procedure phase, the multiple schedule will become a mixed schedule and an observing button will be available. The observing button can be used to briefly reveal the background colour of the active component. The dependent measure will be the number of observing responses made across the two components. If this task is sensitive to the near win rate, the background stimuli associated with more near wins will become the stronger conditioned reinforcer. In a further experiment, the near-win to win ratios across the slot machine components will be varied. The ratio should have an effect if Pavlovian processes underlie the reinforcing effect of near wins.

POSTERS -- SUNDAY

Studying gene - environment interactions in a rat model of depression

Matthew Westbury

Victoria University of Wellington

Major depressive disorder is a severely disabling disease, characterised by low mood and loss of pleasure. The differential susceptibility hypothesis (DSH) proposes that genetic “risk” factors for depression can be protective factors depending on environmental influences. Non-human animals are integral for such research into depression, however it is difficult to assess their mood. The proposed study aims to test the DSH by utilising recently developed behavioural paradigms to assess mood in rats with genetically compromised serotonin transporter (SERT) expression, who experience nurturing or stressful environments during development. To assess pleasure, we will use a scent paired with palatable food to elicit a reduction in the acoustic startle response. Greater reductions reflect greater pleasure. A second paradigm will assess motivation for reward by pairing a light cue with palatable food. More 50 kHz ultrasonic vocalisations made by rats during the cue presentation indicate greater motivation for the food. We expect that SERT knock-outs who experience the stressful environment will show the greatest depression-like behaviour, while SERT knock-outs who experience the nurturing environment will perform better than genetic control rats from the same environment. Such results would contend that genetically compromised SERT activity does not necessarily predispose an individual to depression.

Experiential probability discounting of gains and losses

Rana Asgarova

Victoria University of Wellington

In hypothetical probability discounting using monetary amounts, participants showed a greater preference for risky options in the loss as opposed to gain scenarios. This has not been investigated using an experiential procedure. We used two probability discounting tasks which varied on whether the consequences of the choices were experienced or hypothetical. Both tasks included a gain and loss scenario. The first task was an experiential ski game where the participants could accumulate points through completing in-game objectives. The participants were regularly prompted to choose between a smaller number of points with a 100% chance of occurrence, and a larger number of points with one of five probabilities of occurrence. The second task aimed to replicate prior findings and consisted of successive discounting options between hypothetical monetary amounts, the outcome of which was not experiential. We fitted the hyperbolic function to data which produced systematic discounting on both tasks. A notable finding was that the participants showed a greater preference for risk-free options on the loss as opposed to gain scenarios on the ski task, contrary to the reverse findings from the money task. The results suggested that probability discounting rate may be influenced by the experience of chance outcomes.

Making Recycling Positive Immediate and Certain, Using a Recycling ‘Arcade’ in a Public Place.

Melissa Janson

University of Waikato

This study aims to increase rates of recycling by embedding an intervention in the town centre of Raglan. While currently Raglan manages to recycle 75% of its waste, the community’s goal is to achieve zero waste by 2020 (<http://xtremezerowaste.org.nz/>). The study will consist of an ABCAC design. In the experimental phase a ‘Recycling Arcade’ (C) is used, in which players can insert recyclables and play a fun electronic arcade game. This aims to make the consequences for recycling Positive Immediate and Certain (PIC) (Daniels, Tapscott, & Caston, 2000). Recently, some Behaviour

Analysts as well as other researchers have suggested that using games is one powerful avenue to promote pro-environmental behaviour change (Calvillo-Gómez, Cairns, & Cox, 2010; Cohen & Harvey, 2014; McGonigal, 2010; Morford et al., 2014). In the process of gamification, activities which are not games are re-designed in the style of a game (Morford, Witts, Killingsworth, & Alavosius, 2014). One powerful example of gamification which developed ecological behaviours was the game World Without Oil, which simulated a global oil crisis and invited its players to take actions in the real world to survive the crisis (Cohen & Harvey, 2014; McGonigal, 2010) {Harvey, 2014 #251; McGonigal, 2010 #227}. Players had to create blogs, take pictures and videos, and comment online about survival behaviours such as starting to grow their own food, or using post-oil transport, such as bicycle. Overall 1,800 players participated. Many of these players reported engaging with this environmental issue passionately, with some reporting lasting behaviour change (Cohen & Harvey, 2014; McGonigal, 2010). In designing the arcade, research was conducted into a wide range of Behaviour Analytic methods to establish and increase pro-environmental behaviours. One study has shown that comparative feedback, comparing a group's energy use to another group improved energy efficient behaviour more so than comparing a group's energy use with itself over time (Siero, Bakker, Dekker, & Van Den Burg, 1996). To apply this concept, we will use a scoreboard which exhibits the highest player's score, and then flashing the current player's score. In another study, close proximity of recycling receptacles was found to be a simple measure to increase recycling (Brothers, Krantz, & McClannahan, 1994). The location for the arcade was therefore decided to be a central one – that is in close proximity to all pedestrians in town. Another key component will be the social environment of participants and their peers – that is, when a player is watched and cheered on by a group of friends, they may be more likely to engage with the game longer and recycle more (Guerin, 1994, 2001, 2004, 2005).

Mindfulness, Stress and Well-being in Parents of Children with Autism Spectrum Disorder: A Systematic Review

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Parenting a child with Autism Spectrum Disorder (ASD) is often associated with reduced quality of life, high stress, depression and anxiety due to the ongoing nature of care. This review systematically investigated the efficacy of mindfulness interventions in reducing stress and increasing psychological wellbeing in parents of children with ASD. A comprehensive electronic database search was conducted for relevant articles. Only studies investigating parental stress or a measure of psychological wellbeing in parents of children with ASD post a mindfulness-based intervention were included. Ten studies met inclusion criteria; each was examined for treatment fidelity. All included studies contributed at least one self-report finding supporting the efficacy of mindfulness interventions in reducing stress and increasing psychological wellbeing. Three studies included physiological measures of reduced stress and emotional responses. Two reported concomitant improvements in child behavior. Mindfulness-based interventions potentially have long-term positive effects on stress levels and psychological wellbeing of parents of children with ASD, in addition to enhancing their child's behavior. Future research is needed to develop a cost and time effective intervention aimed at maximising efficacy of current interventions in children with ASD and their parents.

Are tones reinforcers for rats?

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Previous research has found that brief, contingent tone presentations increase rats' reinforcement rates- and thus have reinforcement-like effects. However, when Bai and colleagues attempted to replicate this effect with pigeons and brief keylight flashes, pigeons' response rates were not

affected by the added stimuli. Our study replicated the original procedure with rats and brief tone presentations to investigate these divergent results further. Eight rats responded on a multiple random interval 60 –random interval 60 schedule of food presentations. During one of the two components, lever presses also produced 500ms tones on an independent random interval 60 second schedule. Subsequently, we presented non-contingent food during the inter-component intervals to explore the effects of tone presentations on resistance to change. Results presented in this poster will indicate whether the original result was an anomaly, or whether it reflects the fact that some pitches of sound do act as unconditioned reinforcers for rats, perhaps because they resemble socially communicative sounds rats make.

Judgement Bias in Hens

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When an animal has learned a discrimination (go/no go) between two stimuli on the same dimension, exposing the animal to intermediate stimuli will produce a generalisation gradient. If responding on intermediate stimuli deviates from this model, then a bias exists. Increases in responding close to the S+ are called positive judgement biases; while increases close to the S- are called negative judgement biases. Interest in the use of judgement bias for testing animal welfare has prompted many investigations. While initial studies showed that exposure to poor conditions produced negative biases, not all of the literature has supported this. This study aims to clarify inconsistencies in the literature, using a within-subjects design and short-term 'known' aversive events. Chickens will be trained under multiple schedules with two stimulus locations on an infrared overlay. Baseline judgment bias data will be collected using three intermediate locations. Phase 1 will involve 45 min exposure to white noise at 100dB, followed immediately by judgement bias testing. Phase 2 will involve judgment bias testing, interrupted by 45 min white noise at 100dB. According to early studies, chickens in phase 1 should show a negative bias. If release from stressful conditions produces a positive judgement bias, we should see a negative judgement bias in phase 2 only.

Performance of Brushtail Possums (*Trichosurus Vulpeca*) on Concurrent DRL VI Schedules of Reinforcement

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Differential reinforcement of low rate (DRL) schedules are used to reduce target behaviours (Austin & Bevan, 2011). This study aims to examine whether presenting a VI schedule can bring adjunctive behaviour under operant control, and to determine whether responding on this schedule will improve performance on the DRL schedule. Overall the possums were more efficient when the DRL and VI schedules were independent than when they were dependent, although they were less efficient than the previous study which did not provide adjunctive behaviour. The number of VI responses relative to efficiency for each possum at selected DRL values indicates that adjunctive behaviour was not brought under operant control, and that introducing a VI lever, both dependent and independent of the DRL schedule did not have a positive effect on efficiency rates.

Within-session reinforcer differentials in a free-operant psychophysical procedure

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The free-operant psychophysical procedure (FOPP) was developed to assess timing in pigeons by arranging a regular shift in reinforcer location within discrete trials. Left-key responding is reinforced

on a variable interval (VI) schedule during the initial 25-s half of each 50-s trial, while right-key responding is not reinforced. At the 25-s midpoint, the contingencies reverse so that left-key responding is no longer reinforced and right-key responding is reinforced on a separate VI schedule. Responding generally follows the contingencies of reinforcement, with the proportion of right-key responding starting low and increasing in a sigmoidal function. Right-key responding generally surpasses left-key responding around the midpoint unless unequal reinforcer rates are arranged in each half. We arranged three sets of reinforcer rates (rich-to-lean, lean-to-rich, and equal) in FOPP trials within the same session using a multiple schedule. Hierarchical Bayesian logistic regression was used to model the probability of right-key responding as a function of time and component. Responding shifted to the right-key earlier in the lean-to-rich component than the equal component, and later in the rich-to-lean component. Overall, responding in FOPP trials was biased by reinforcer differentials arranged within sessions, rather than across conditions as in previous studies.

Replication of Zentall & Stagner's (2011) procedure of Sub-optimal choice behaviour

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This study replicated Zentall and Stagner (2010), examining sub-optimal choice using possums. Gambling generally involves selecting suboptimal outcomes. It is assumed that animals will not choose suboptimal outcomes as this aligns with a biological model. Studies, using avian species and dogs, have shown that they prefer a choice that does not optimise their total amount of reinforcement, as do humans. This study determined whether brushtail possums do the same. Condition 1 provided two alternatives. Selecting the 'low probability' alternative gave, on 20% of the trials, a stimulus that signaled access to 3.5-s of food under FR1, or, on 80% of the trials, a stimulus that signaled no food. Selecting the 'high probability' alternative gave one stimulus on 20% of the trials and another on 80% of the trials, both leading to 1-s access to food under FR1. In Condition 2, the 'high probability' alternative stayed the same, but selecting the 'low probability' alternative gave the same stimuli at the same probability as previously (20% vs. 80%), both now gave 3.5-s access to food 20% of the time. This checked that any preference shown in Condition 1 was not a product of the different reinforcer/stimulus associations. The data show little preference in either conditions, and so do not support previous research findings.

Automated Technology Based Behavioural Intervention to Promote Exercise Adherence: A Pilot Study to Ascertain Efficacy

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The purpose of this study was to design and evaluate an automated technology based behavioural intervention to increase physical exercise adherence. Exercise has been shown to be an effective treatment for a range of physical and mental health problems. Development of automated exercise therapy options will result in greater accessibility of treatment for those who would be otherwise unable to access it. The study was run as a non-concurrent multiple baseline across participants design over a 12 week period. Nine participants (2 male, 7 female) aged 18 to 34 ($M = 23.11$) took part in the study. Effectiveness of the intervention was evaluated using measures of duration and intensity of exercise activity, and the 18 item Exercise Self-Efficacy Scale. For most participants there was a significant increase in exercise activity and exercise self-efficacy scores. These results show that an automated technology based behavioural intervention can increase exercise behaviour in such a way that promotes long term adherence. Using a smartphone app as the delivery method for the intervention would allow for additional features to be added, and more effective delivery of the aspects of the intervention that have been shown to work.