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**Sunday 1<sup>st</sup> July**

16:00 Afternoon Tea  
19:00 Welcome Reception  
20:00 Dinner



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### Monday 2nd July: Theory & Measurement

<b>Session Chair</b>	Joanne Thatcher
09:30-10:30	<b>Michael Apter (Keynote Lecture): The reversal process: Going to the heart of Reversal Theory</b>
10:30-10:55	<b>Rob Robson &amp; Steve Carter:</b> The Apter Leadership Profiling System (ALPS): Internal consistency and prediction of employee engagement
10:55-11:15	<b>Break</b>
<b>Session Chair</b>	Rhys Thatcher
11:15-11:40	<b>Tony Young &amp; Stephanie Ellis:</b> Using the day reconstruction method to explore and map RT state changes through a day
11:40-12:05	<b>Richard Mallows:</b> The Telic Dominance Scale (TDS), Negativism Dominance Scale (NDS) and the Apter Motivational Style Profile (AMSP): Do they relate where one might expect?
12:05-12:30	Stephanie Ellis & <b>Tony Young:</b> Pilot of eight rooms writing technique
12:30-13:30	<b>Lunch</b>
<b>Session Chair</b>	Ruth Hughes
13:30-14:30	<b>Steve Carter Keynote Lecture: Me, you, we, them: Transforming the key relationships of work through Reversal Theory</b>
14:30-14:55	Cindy Sit, <b>Koenraad Lindner</b> , Michael Apter, Gregory Michel & Richard Mallows: Further development of the Motivational Style Profile for Children
14:55-15:15	<b>Break</b>
<b>Session Chair</b>	Sven Svebak
15:15-15:40	<b>Volodymyr Xhomyk:</b> Motivational colours of student-activists in the orange revolution
15:40-16:05	<b>Mitzi Deselles:</b> A new approach to qualitative research based on Reversal Theory
16:05-16:30	<b>Break</b>
<b>Session Chair</b>	Kathryn Lafreniere
16:30-16:50	<b>Richard Mallows:</b> Emotion at the cinema
16:50-17:15	<b>Toshihiko Amemiya &amp; Yoshie Ikuta:</b> The development of the Japanese telic-paratelic dominance scale
17:15-17:40	<b>Jennifer Tucker:</b> Reversal theory and the motivational dynamics of scientific data sharing
19:00	Dinner
	<b>Evening: Gregynog Treasure Hunt (for the adventurous)</b>



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**Tuesday 3rd July: Sport**

- Session Chair** Steve Carter
- 09:30-10:30 **John Kerr (Keynote Lecture): Twenty years of Reversal Theory sports and exercise research: A critical review**
- 10:30-10:55 **Joanne Thatcher**, Yusuke Kuroda & Rhys Thatcher: Psychophysiological responses to exercise in relation to metamotivational dominance
- 10:55-11:15 **Break**
- Session Chair** Michael Apter
- 11:15-11:40 **Yusuke Kuroda**, Joanne Thatcher & Rhys Thatcher: Metamotivational dominance and state in relation to stress, emotion and cortisol during exercise
- 11:40-12:05 **Kathryn Lafreniere**, Kenneth Cramer, Donna Winch & Keith Rivard: Motivational and personality predictors of positive exercise outcomes in a personal training setting
- 12:05-12:30 **Juliette Lloyd** & Michael Apter: Motivation in extreme environments: The case of Pen Hadow, polar explorer
- 12:30-13:30 **Lunch & Posters**
- Session Chair** Richard Mallows
- 13:30-14:30 **Workshop (John Kerr): Rugby Union's 2003 World Cup Final: Reversal Theory insights into a game balanced on a knife-edge until the very end**
- 14:30-14:55 **Guido Geisler** & Larry Leith: A cross-cultural perspective on metamotivational states in intercollegiate soccer
- 14:55-15:55 **Break & Demonstration by AD Instruments (Conference Sponsor)**
- Session Chair** Denny Mallows
- 15:55-16:20 **Michelle Pain** & Randall Braman: A case history of burnout in an elite tennis player
- 16:20-16:45 **Rob Robson**: When all is not what it seems: Two contrasting tales of parental pressure and anxiety in youth sport
- 16:45-17:45 **Reversal Theory Society meeting and next conference**
- 19:00 Dinner
- Evening: BBQ (Welsh weather permitting) & Croquet tournament (for the competitive)**



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**Wednesday 4th July: Self, Development & Education**

<b>Session Chair</b>	Joanne Thatcher
09:30-10:30	<b>Rod Martin (Ken Smith Memorial Lecture): Humour and mental health: A Reversal Theory perspective</b>
10:30-10:55	<b>Ioannis Makris &amp; Etienne Mullet:</b> The decision to become an orchestra conductor: A systematic inventory of motives
10:55-11:15	<b>Break</b>
<b>Session Chair</b>	John Kerr
11:15-11:40	<b>Kenneth Cramer, Kathryn Hodwitz &amp; Kathryn Lafreniere:</b> Teleducation: Tracking telic states and lecture engagement
11:40-12:05	<b>Denny Mallows:</b> Using Reversal Theory to improve the management of behaviour in school
12:05-12:30	Kathryn Hodwitz, <b>Kenneth Cramer</b> & Kathryn Lafreniere: Evolutionary psychology meets Reversal Theory: Dancing with Darwin
12:30-12:55	Klabber, Bosma, van den Akker, Boxtel, Kempen, <b>Mark McDermott</b> & van Eijk: Measuring rebelliousness and conformity: Psychometric evaluation of the Social Reactivity Scale
12:55-13:30	<b>Lunch</b>
13:45-18:30	<b>Trip to Powys Castle</b>
19:30	<b>Evening: Conference Dinner (for the food connoisseur)</b>



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Thursday 5th July: Health

<b>Session Chair</b>	Ken Cramer
09:30-10:30	<b>Sven Svebak (Keynote Lecture): The psychobiology of reversal theory: Implications for morbidity and mortality</b>
10:30-10:55	<b>Kelli Kramer</b> & Sue Popkess-Vawter: Psychometric evaluation of computer-administered tension scales for weight management in rural telehealth settings
10:55-11:15	<b>Break</b>
<b>Session Chair</b>	Mitzi Deselles
11:15-11:40	Blythe Williams, <b>Kenneth Cramer</b> & Kathryn Lafreniere: Exercise dependence and social functioning: Aerobic erosion
11:40-12:05	<b>Michael Apter</b> : Six ways of dealing with stress
12:05-12:30	Bianca Segatto, <b>Kathryn Lafreniere</b> & Kenneth Cramer: Reversal Theory predictors of exercise motivation and body esteem in university students
12:30-12:55	<b>Sven Svebak</b> : The significance of motivational styles and resistance training in elite junior cross-country ski performance
12:55-13:55	<b>Lunch and closing comments</b>

## Keynote Presentation

### The reversal process: Going to the heart of Reversal Theory

Michael Apter

Apter International, UK, USA

As the name "Reversal theory" suggests, the reversal concept is fundamental to the theory. And in drawing attention to reversals the theory identifies a psychological phenomenon that has been entirely overlooked in other theories but which is essential to a full understanding of human experience and behaviour. Indeed, by emphasising the dynamic nature of personality, this concept is what makes reversal theory not only distinctive, but distinctively useful in a variety of applied contexts where change is called for. The paper will first briefly review the kinds of evidence that we already have for the existence of reversals. This evidence includes interview and questionnaire data, data based on experimental manipulation, and the experiences of coaches and counsellors in helping people to actually manage their reversals. Secondly the paper will call for the collection of a new kind of evidence: the evidence of personal experience in everyday life. In doing so, the idea will be introduced that 'mental ethology' - the observation of mental processes in everyday settings - would be a perfectly legitimate way of doing psychology. (This would parallel ethology proper, which is about the observation of overt behaviour in natural settings.) The author will exemplify this with illustrations of reversals drawn from his own experience. One suggestion for systematically developing such a mental ethology would be the setting up of a website for the communal collection and analysis of reversal "sightings." Thirdly, the development of a novel psychometric scale will be described. This is a scale that measures how easily, and therefore frequently, people reverse between states - in other words, how "reversible" they are. This is clearly a different concept from that of dominance. The scale consists of a set of concrete scenarios, with alternative outcomes given, these outcomes representing for each scenario a reversal and a non-reversal response. The respondent is asked to judge, in each situation, which response would be more likely for them and how confident they are in their judgement. The responses can be scored in such a way as not only to measure reversibility in general for a given respondent, but also reversibility with respect to each of the eight types of reversal (telic to paratelic, paratelic to telic, conformist to negativistic, etc). It is also possible to measure reversibility for each respondent in relation to each of the three possible causes of reversal: situation, frustration and satiation. This scale provides a wholly new kind of measure that could lead to new directions in personality research.

## Keynote Presentation

Me, you, we, them: Transforming the key relationships of work through Reversal Theory

Steve Carter

Apter International, UK, USA

Global organisations have become the single biggest force shaping the lives of virtually all the people on our planet. At the same time life within many of those organisations has become moved away from the predictability and mechanistic certainties of the 20<sup>th</sup> Century production line to a much more ambiguous environment increasingly dependent upon the decisions and actions of a broad range of individuals. The effect of this has been to put the 'person' back into the workplace. This has led to the rise of the 'talented individual' particularly in organisations where US management culture dominates. Parallel to this is the developing notion of social capital which focuses upon the notion that communities of relationships play in economic success. This address looks at how Reversal Theory has a special role in both understanding these factors and intervening within them. The address will look at practical examples of how this has been done.

## Keynote Presentation

### Twenty years of reversal theory sports and exercise research: A critical review

John Kerr

Kokushikan University, Tokyo, Japan

In 1987 the first short paper involving reversal theory research in sport was published. It was modest in ambition, scope, methodology, and was published in a modest journal. However, that paper on the telic dominance personality characteristics of professional, serious amateur and recreational sports performers sparked an international interest in reversal theory-based sports and exercise research that has grown steadily over the intervening 20 years. A look at the current reversal theory bibliography reveals just how far that interest has spread. In addition to Britain and Europe, important research studies and publications have come from people working in Australia, China, Japan, South Africa, Canada and the US. The journal publications (85+) have appeared in a number of well-regarded general psychology journals and virtually all the major sport and exercise psychology journals. This review will highlight some of the most interesting and important research findings from this work focusing in particular on what the research has: (a) achieved in terms of confirming or extending the some of the main concepts in reversal theory, (b) added to our knowledge of the psychological processes involved in sport and exercise, and (c) produced unexpected results that might not have been uncovered without the framework of reversal theory.

## Workshop

Rugby Union's 2003 World Cup Final: Reversal Theory insights into a game balanced on a knife-edge until the very end

John Kerr

Kokushikan University, Tokyo, Japan

Video film and players' statements will be used in a reversal theory analysis of the 2003 Rugby Union World Cup, especially the final between England and Australia. England won the final by the narrowest of possible margins in the last minutes of extra time, denying Australia a third World Cup trophy. The analysis will focus mostly on the England team and concentrate on such topics as player behaviour, the coach's approach to motivating particular players, the role of the captain, the strength of relationships in the England team, and the psychological profiles of particular players. Delegates will be asked to take part in this analysis using their knowledge of psychology in general and reversal theory in particular to make meaningful conclusions about the personality, motivation and emotion of those involved.

Ken Smith Memorial Lecture  
Sponsored by the British Academy

Humour and mental health: A Reversal Theory perspective

Rod Martin

University of Western Ontario, Canada

Since its formulation in the 1970s, Reversal Theory has offered one of the most comprehensive and satisfactory theoretical models of humour. Employing the concepts of cognitive synergy, diminishment, the paratelic state, and emotional arousal, the RT account of humour addresses a number of issues that have long perplexed theorists, and integrates the findings from much of the early empirical research. However, recent research on the role of humour in mental health has highlighted some aspects that are not as well explained by previous RT formulations. These include the interpersonal functions of humour as a mode of communication and social influence, and its potentially detrimental as well as beneficial effects on psychological well-being (e.g., avoidant or aggressive uses of humour). Drawing on these research developments, I will explore strengths and limitations of the RT account of humour, and will tentatively propose some possible refinements, including attention to other metamotivational states besides the paratelic.

Keynote Presentation  
Sponsored by AD Instruments

The psychobiology of reversal theory: Implications for morbidity and mortality

Sven Svebak

The Norwegian University of Science and Technology, Norway

This review will focus upon psychophysiological correlates of metamotivational dominance and states as well as brain substrates that are likely candidates for being involved in neurobiological processing of dominance and states. Most of the pioneering psychophysiological research focused upon the telic versus paratelic states and dominances. It involved studies of skeletal muscle tension patterns, autonomic nervous system response patterns as well as electroencephalographic differences across the two opposite states. Implications for morbidity have indicated increased risk of enduring musculoskeletal tension and pain problems with telic dominance and risk of acute musculoskeletal overload in paratelic dominance. The differential preference for activities among telic and paratelic dominant individuals appears also to put individuals with opposite dominances at different risk for health hazards. Brain substrates of states and dominances have been indicated from research that has not been initiated from assumptions in reversal theory. Nevertheless, the fronto-parietal dimension appears to be strongly implicated in the telic versus paratelic distinction. Other substrates may have strong implications for the negativistic versus conformist distinction, whereas research on brain substrates for empathy appears to identify areas involved in the alloic versus autic pair of states. Correspondingly, research on brain substrates for caring behaviour appears to identify areas implicated in the mastery versus sympathy pair of opposite states. Neurotransmitter systems of the brain also contribute to our understanding of individual differences as seen from reversal theory. These systems involve both excitatory and inhibitory synaptic functions and pathways as well as transmitters involved in pleasant versus unpleasant mood states. All these biological differences provide consequences for psychological differences, may reflect genetic dispositions, and present as everyday lifestyle differences that put individuals at different risks related to morbidity as well as mortality. Some of them are reflected in psychopathology and present as forms of personality disorders where there still is no effective cure.

## The Apter Leadership Profiling System (ALPS): Internal consistency and prediction of employee engagement

Rob Robson and Steve Carter

Apter International, UK, USA

The Apter Leadership Profiling System (ALPS) was developed to as an alternative to current views of leadership that focus on the aptitude or qualities of a leader. Instead it focuses on the microclimate that the leader creates around them and measures the extent to which they create eight key conditions that contribute to satisfaction and performance. This paper examines two psychometric properties of ALPS; Internal consistency, and concurrent (or predictive) validity. To measure internal consistency the alpha coefficients for each of the ALPS subscales (conditions) was calculated, for both leader (n=197) and staff responses (n=1109). For the leader responses, alpha coefficients ranged from .67 to .87, while all subscales scored above .80 for staff responses. Possible improvements in one subscale are suggested. Concurrent validity was assessed by measuring the relationship between ALPS and employee engagement using the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006). Stepwise multiple regression demonstrated that the ALPS conditions of Energy (paratelic state) and Individual Contribution (self-oriented mastery) best predicted engagement ( $r=.47$ ). Other analyses of subscales are discussed. The implications of these findings are that a) ALPS as a measure of motivational climate is powerful predictor of employee engagement, and b) that current measures of employee engagement focus on a limited number of motivational states (primarily telic, self and mastery).

## Using the day reconstruction method to explore and map Reversal Theory state changes through a day

Tony Young and Stephanie Ellis

Louisiana Tech University, USA

The study was designed to test the utility and suitability of the Day Reconstruction Method (DRM) (Kahneman, et al, 2004) for large scale studies of everyday RT states and to compare several aspects of episodes examined by the method. DRM is designed to measure how people spend their time and how they experience the various activities and episodes of their lives. Persons reconstruct their activities and experiences of the preceding day using procedures designed to reduce recall biases. The DRM instrument has been found to be a useful technique for the study of emotions, diurnal patterns of emotional functioning, and measuring the experiences of various settings in a person's life. One hundred one college students completed the standard Day Reconstruction Method (DRM) protocol augmented with items to measure predominant RT states for the episodes on a weekday. Several analyses were completed: 1) Weighted day scores for RT states were compared to AMSP scores; 2) Comparisons were made between emotional scores, from the standard DRM item set, and RT state scores; and 3) Analyses were run comparing the specific activity of the episode and RT states.

### Reference:

Kahneman, D., Krueger, A. B., Schkade, D., Schwarz, N., & Stone, A. A. (2004). A survey method for characterizing daily life experience: The Day Reconstruction Method (DRM). *Science*, *306* (3 December 2004), 1776-1780.

**The Telic Dominance Scale (TDS), Negativism Dominance Scale (NDS) and the Apter Motivational Style Profile (AMSP): Do they relate where one might expect?**

Richard Mallows

York St John University, UK

The AMSP measures four pairs of metamotivational states and in a sense encompasses the TDS and NDS. Whilst comparisons have been made with instruments outside reversal theory e.g. Eysenck Personality Questionnaire (EPQ) and Myers Briggs Type Inventory (MBTI) no comparisons have been made within reversal theory. This paper will report on comparisons between the TDA, NDS and AMSP. It is expected that there will be, for example a strong correlation between telic dominance as measured by the TDS and AMSP but that the AMSP will probably only strongly correlate with proactive negativism as measured by the NDS.

## Pilot of eight rooms writing technique

Stephanie Ellis and Tony Young

Louisiana Tech University, USA

This project is a pilot study on a new use of the Eight Rooms technique which will convert the Eight Rooms technique from an imagery exercise to a written exercise. The study seeks to determine the adequacy of eight writing prompts in eliciting cognitive reflection from each state. The protocol for the pilot includes first securing a group of approximately 20 undergraduate students and instructing them in the basics of Reversal Theory and the traditional Eight Rooms technique. Then they will be directed to write about a previously experienced traumatic event using eight prompts that are intended to give structure to their writing based on the state principles. Follow up questions will be asked after each writing sample in order to examine the efficacy of the prompts in eliciting a subjective experience of having been processing information from the desired state. Though the data for this project have not yet been collected, the data will be available by early summer. Specifically, it is expected that the prompts will inform the writing of most of the participants, allowing them to cognitively and emotionally process their experience from multiple points of view, consistent with the eight RT states. It is also expected that some modification based on participant feedback will be needed to make the technique maximally effective. There are many possible future uses for this technique. Currently in consideration is a project comparing the effects of this technique with traditional expressive writing techniques in dealing with traumatic events.

## Further development of the Motivational Style Profile for Children

Cindy Sit<sup>1</sup>, Koenraad Lindner<sup>1</sup>, Michael Apter<sup>2</sup>, Gregory Michel<sup>3</sup> and Richard Mallows<sup>4</sup>

<sup>1</sup>The University of Hong Kong-Pokfulam, China, <sup>2</sup>Apter International, UK, USA, <sup>3</sup>UniversitéAlsace, France and <sup>4</sup>York St John University, UK

The Motivational Style Profile for Children (MSP-C) was designed to measure metamotivational orientations, saliences and dominances in children aged eight to fifteen years. Data from previous samples were further analyzed statistically and a 15-paired version was developed and further piloted on Hong Kong and French samples. Further reliability testing and factor analysis of the 50-item, 25-paired, and 15-paired versions for cultural samples suggest the MSP-C to be a viable and reliable instrument for the measurement of metamotivational characteristics of children between 9 and 15 years of age. Significant cultural differences in metamotivational characteristics were found in that Hong Kong children were more telic-, arousal avoidance-, and mastery-dominant compared to the British and French children, suggesting an influence of Chinese Confucian values. The 15-paired version of the MSP-C yielded a sound factor structure superior to that of the 25-paired one. While a few Cronbach Alphas were still below recommended magnitude, the meaningful factor structure and the brevity and convenience of the new format warrant its adoption. Future research is recommended to test the psychometric properties of the 15-paired version of the measure for different cultural samples.

## Motivational colours of student-activists in the orange revolution

Volodymyr Xhomyk

Lesia Ukrainka Volyn State University, Ukraine

The aim of this research was to analyze the metamotivational states of student-activists who took part in the Orange Revolution in the Ukraine, doing this from the joint perspectives of Reversal Theory and cognitive developmentalism. For this purpose the "MMS Interview and Coding Schedule" (O'Connell, et al.) was used, together with the "Subject-Object Interview" (Lahey et al.). The participants were 25 activist youths. The combination of the negativistic and mastery states helped students of the 3<sup>rd</sup> order of cognitive development (Lahey et al.) to enter into the realm of phenomenological control, in which a perceived lack of fairness in political affairs was experienced in a fatalistic way. These students did not want to change the Constitution amendments and would not have experienced this as a gain. In other words, these individuals did not perceive themselves as able to alter the situations to fit their personal needs but instead derived satisfaction in the alloic mastery states from aligning themselves with more powerful others, and in this way they were able to share in their accomplishments. They wish these others to be "on the edges" for them, relieving themselves of the necessity to take risks (McCormick, 2002). It is interesting that Ukraine means, literally, "on the edge", a frontier. Being stuck in the identification with motivations, preventing their own awareness by blocking other MMS and lessening their urge to and ability to confront, resolve whatever is disturb them in the holding environment from the experience of mismatching the preferred and actual levels is a factor of such kind of phenomenological fatalism. Motivational division of activists' labor would be much better when they "play the game of life" on the whole phenomenological field on behalf of their fullest selves but not on some of its parts. In the activists of 4<sup>th</sup> order of mental complexity the experience of a feeling of wanting to violate rules forms the differentiation from the culture of "suffrage abuse". The negativistic state here involves understanding correctly the situations one is faced with. A better recognition of what is separated from students means that they want and can be related to the culture of *Maidan* rather than fused with it, detaching themselves from "the flux of truth" (M Gandhi) in order to open those predefined enclosures of culture which restrict their wholeness. Students with a high level of cognitive development made efforts to overcome fatalism, recognising injustice, and inclined to act on that recognition. They preferred looking for perceived injustice in the autic mastery state combination, making the transformation of injustice their own project, rather than merely enduring it as alien imposition. What might appear to be large-scale politics here is more the self's aim in the telic state rather than its source of self-definition. The mastery state being defined in terms of its relation to identity development of youth activists, can equally take as many different forms as are their stages of identity development. Student-activists therefore took part in the Orange Revolution in different ways, these different ways corresponding to their point in the continuum of cognitive development. How they understood "the culture of civil disobedience" depended to a great extent on the motivational states that they were in and the complexity of their meaning-making system (Kegan). The cognitive abilities underlying the range of possible actions in the mastery state were able to result in a lowering or heightening of vicariance (Loonis,1999). What mastery and negativism mean to students may change from one stage of development to the next, and provide different forms of both gratification and disappointment in the playing out of their contradictory motivational states.

## A new approach to qualitative research based on Reversal Theory

Mitzi Deselles

Apter International, UK, USA

This paper describes an approach to qualitative research that has been developed over recent years at Apter International. It provides a set of methods for uncovering peoples' motivations, with respect to some issue or choice, whether as voters, customers, employees or in some other way. It does this by identifying key emotional themes that run below the surface, knowledge of which gives insight into the 'real' reasons why people behave in certain ways. This is particularly useful where there is a disconnect between what people say and what they do (e.g. voting for a nationalist candidate but expressing liberal views). Examples of emotional themes would be: "I am frightened by guns," "I am proud of the company I work for, or "I feel guilty when I eat chocolates." Interviews take place in informal surroundings so as to place interviewees at their ease. Various techniques are used to get beyond the superficial level of socially desirable responses, or of rationalisations. These include such techniques as emotion card sorts, projective stories, and question-answer inversions. Reversal theory guides the content of questions and tasks, ensuring that the comprehensive set of motivations identified in the theory are all given opportunities for expression. It also guides the analysis of the data, by providing a structured way to code and describe the emotional themes that emerge. An example would be the project on gay marriage that was carried out for the Human Rights Campaign in Washington. This provided new insights into why many people say to pollsters that they are in favour of gay marriage, but then in fact vote against it. A subsequent advocacy campaign made effective use of these insights. Another example would be the project on road safety behaviour, carried out for the South Carolina highway commission, focussing on seat belt usage and drinking under the influence. This showed why many people believe in the need to drive safely, but then drive without seat belts or when they are intoxicated. Our belief is that this general approach has wide potential applicability, both in pure research and applied situations, and represents an important application of reversal theory.

## Emotion at the cinema

Richard Mallows

York St John University, UK

Apter has suggested that all emotions are enjoyed, even supposedly unpleasant ones like fear and anger and horror, grief and disgust in the presence of detachment. This paper will report on an exploratory questionnaire survey of a general population sample on emotion at the cinema. In particular individuals were asked what emotion or emotions they experienced related to a particularly memorable moment in a film and to what extent these were 'enjoyed'. Suggestions will be made for developing this study for a more focussed interview.

## The development of the Japanese telic-paratelic dominance scale

Toshihiko Amemiya<sup>1</sup> and Yoshie Ikuta<sup>2</sup>

<sup>1</sup>Kansai University and <sup>2</sup>Kinki University, Japan

In English speaking countries, telic or paratelic dominance scales have been widely used in many reversal theory investigations (Apter, 2001). We tried to develop a Japanese telic-paratelic scale based on the previous scales in English. Participants were 213 undergraduate students. There were 86 males and 127 females. The average age of all participants was 18.5. A four-point Likert type scale was used. The questionnaire consists of 80 items. Thirty items were the Japanese translation of paratelic dominance scale (Cook & Gerkovich, 1993). Seventeen items were selected from the Japanese translation of telic dominance scale (Murgatroyd et al., 1978). The item selection was executed based on the results of preliminary survey, which was conducted on 184 undergraduate students. Thirteen items were selected from among 62 items offered by reversal theory researchers. Finally 20 items were adopted from a Japanese version of sensation seeking scale (Shibata, 2007). Principal factor procedure was applied. Three factors were chosen by the scree criterion. Promax rotation was applied to the Varimax solution. Sixty five items have factor loadings greater than 0.35. These items were selected for the second factor analysis. Second factor analysis was applied to 65 items. Eigen values were 11.27, 8.04, 4.88, 3.36, 2.79 and 2.36 in sequence. Three factors were chosen by the scree criterion. About 30.3% of the total variance was explained by the first three factors. Factor loading pattern above 0.40 indicates that near simple structure was attained. Inter-factor correlations were as follows: between first factor and second factor was 0.217, between first factor and third factor was -0.186, between second factor and third factor was 0.068. Based on the results of second factor analysis, we made up three subscales. Each subscale consists of 12 items. First subscale was named "let it be" orientation. Second subscale was named arousal seeking. Third subscale was named planning and deliberation orientation. Three subscales showed high internal consistency. Cronbach's alpha coefficients were as follows: "let it be" orientation ( $\alpha = 0.884$ ), arousal seeking ( $\alpha = 0.844$ ), planning and deliberation orientation ( $\alpha = 0.868$ ). Total paratelic score was the sum of "let it be" orientation score, arousal seeking score and the reversed score of planning and deliberation orientation. Cronbach's alpha coefficient for the total paratelic score was 0.847. Our three subscales correspond to the three aspects of telic paratelic contrast (Apter, 1982) and previous subscales in English. "Let it be" orientation consists with seriousness-playful subscales and corresponds well to the means-ends aspect of telic paratelic contrast. Arousal seeking overlaps with arousal seeking-avoidance subscales and corresponds well to the intensity aspect of telic paratelic contrast. Planning and deliberation orientation consists with planning-spontaneous subscales and corresponds well to the temporal aspect of telic paratelic contrast.

## Sharing states: Reversal Theory and the motivational dynamics of scientific data sharing

Jennifer Tucker

Otto Kroeger Associates, USA

This paper will present, and seek feedback on, proposed research methods for using Reversal Theory to better understand – and impact - the motivational dynamics involved in scientific data sharing in the field of bioinformatics, specifically in the domain of cancer research. Bioinformatics involves the integration of information technology and the biological sciences, particularly in the area of genetics. In today's cancer research enterprise, which relies heavily upon data gathered at the molecular level, the field of bioinformatics has enjoyed explosive growth. Broader scientific problem-solving using bioinformatics, however, depends on the availability – and sharing – of large data sets among scientific researchers. What motivates individual researchers to share their data sets with others? Willingness to share data to support the larger goals of cancer research may seem obvious; however, this is not always the case. Establishing technical and political structures and processes required to transfer large scientific data sets are difficult enough; breaking down the cultural barriers to doing so is harder. In the U.S. scientific enterprise, for example, scientists have always been rewarded for their individual contributions – not for their generosity to the research of others. How can Reversal Theory serve as a tool for understanding, and potentially altering, discourse related to scientific data sharing in cancer research? An initial review of the literature related to data sharing, as well as conversations with individuals in this field, suggest that the eight motivational states of Reversal Theory may provide a valuable frame through which to analyse and impact the motivational states at play when considering the benefits and possible risks of exchanging data. By “detecting” motivational states in justification statements, objections, and metaphor, we may be able to suggest new arguments that trigger alternative states and ultimately different actions - reshaping both discourse and culture, one state at a time. This presentation supports a current dissertation research project, which will be in its early phases of data gathering at the time of the conference. I wish to present my research methods and any early results, and receive feedback from the audience.

## Psychophysiological responses to exercise in relation to metamotivational dominance

Joanne Thatcher, Yusuke Kuroda and Rhys Thatcher

University of Wales, Aberystwyth, UK

The aim of this study was to examine associations, during exercise, between attention style, rating of perceived exertion (RPE), heart rate (HR), metamotivational state and dominance. Twenty eight regular exercisers (18 males and 10 females; mean age =  $22.64 \pm 5.06$  years) completed the study: 8 telic dominants (Paratelic Dominance Scale [PDS] mean score =  $7.13 \pm 2.10$ ), 10 paratelic dominants (PDS mean =  $23.75 \pm 1.36$ ) and 10 non-dominants (PDS mean =  $15.35 \pm 0.75$ ). All participants completed a maximal exercise test to determine their Gas Exchange Threshold and calculate the speed at which they completed the main trial. This trial involved 30 minutes running on a treadmill. Participants reported their metamotivational state prior to and at 5 minute intervals throughout the trial. RPE, metamotivational state and attention style (associative or dissociative) were measured at the same intervals (5, 10, 15, 20, 25, 30 minutes). Heart rate was recorded at 5 minute intervals beginning at minute 3. MANOVAs revealed no significant differences between groups or group by time interactions. However, the time main effects for RPE, HR and metamotivational state were significant [ $F(5,120) = 20.65$ ,  $p < 0.05$ , and,  $F(5,110) = 60.24$ ,  $p < 0.05$ ] indicating that throughout the trial RPE and HR increased and participants became more telic [ $F(7, 147) = 6.14$ ,  $p < 0.05$ ]. Correlation analyses ( $p < 0.05$ ) revealed that, regardless of dominance, the paratelic state was associated with lower RPE and a more dissociative attention style (except at 5 minutes for the latter). A dissociative attention style was associated with lower RPE (except at 5 minutes) and lower HR (at 20, 25 and 30 minutes). Higher HR was associated with the telic state (at 25 and 30 minutes) and with higher RPE (except at 5 minutes). When these relationships were analysed by group, the majority could be attributed to the non-dominant group with only a few significant relationships remaining for the telic and paratelic dominant groups. Exercising in a paratelic state or using a dissociative attention style, particularly for non-dominants, may help to facilitate more comfortable exercise experiences. Future research should extend this line of inquiry by manipulating metamotivational state or attention style to determine causal effects.

## Metamotivational dominance and state in relation to stress, emotion and cortisol during exercise

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Cortisol is a stress hormone and increased levels of cortisol are associated with states such as anxiety and depression. This study examined cortisol, stress and emotion in relation to metamotivational state and dominance prior to and following exercise. Data were collected across 2 studies. Study 1 included 15 telic dominance (TD; PDS mean =  $6.19 \pm 2.51$ , age =  $25.7 \pm 8.63$  years) and 14 paratelic dominance (PD; PDS mean =  $24.0 \pm 0.85$ , age =  $20.9 \pm 5.55$  years) participants. Participants completed isometric leg exercise with a telic (TS) and paratelic state (PS) manipulation prior to and during exercise. The TSM and the TESI were completed and saliva samples were collected at baseline, pre- (10 min. after the manipulation) and post- exercise. Study 2 included 16 TD (PDS mean =  $5.93 \pm 2.37$ , age =  $25.3 \pm 8.5$  years) and 13 PD (PDS mean =  $23.93 \pm 0.84$ , age =  $21.2 \pm 5.71$  years) participants who completed isokinetic leg exercise using the same protocol as in study 1. For the whole sample, salivary cortisol levels were positively correlated with: TSM preferred arousal ( $r = .229$ ,  $P < 0.01$ ), TSM total score ( $r = .239$ ,  $p < 0.01$ ), and TESI provocativeness ( $r = .268$ ,  $p < 0.01$ ). For TD participants, cortisol was positively associated with TSM planning-spontaneous ( $r = .241$ ,  $p < 0.05$ ), TSM total score ( $r = .226$ ,  $p < 0.05$ ), and TESI sullenness ( $r = .214$ ,  $p < 0.05$ ) but negatively with TESI excitement ( $r = -.213$ ,  $p < 0.05$ ). TSM total score was positively correlated with TESI external effort stress. For PD participants, cortisol was positively associated with TSM felt arousal ( $r = .292$ ,  $p < 0.05$ ), TSM preferred arousal ( $r = .456$ ,  $0.01$ ), TSM total score ( $r = .301$ ,  $p < .05$ ), TESI excitement ( $r = .402$ ,  $p < 0.01$ ), TESI provocativeness ( $r = .438$ ,  $p < 0.01$ ), and TESI pleasant somatic ( $r = .369$ ,  $p < 0.01$ ). PD participants' TSM total score negatively correlated with TESI stress items. For TDs, cortisol level may be associated with an unpleasant paratelic state, while in PDs cortisol may be associated with a pleasant paratelic state, which in turn was associated with low self-reported stress. Possibly, in PDs cortisol is an index of pleasant mood and perceived challenge.

## Motivational and personality predictors of positive exercise outcomes in a personal training setting

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The purpose of this study is to examine personality and motivational characteristics that predict exercise motivation and positive exercise outcomes in a personal training exercise setting, and to examine whether changes in metamotivational states occur over the course of a personal training program. This is an ongoing study in which individuals who exercise in a personal training exercise setting are tested repeatedly over the course of 10 consecutive training sessions. The *Motivational Style Profile*, the *Multidimensional Health Locus of Control Scale*, the *Big Five Inventory-10*, the *General Self-Efficacy Scale*, the *Behavioural Regulation in Exercise Questionnaire*, *Self-Efficacy for Exercise Scale*, and a background information questionnaire were administered at an initial testing session. Following this, a fitness assessment was conducted. For 10 consecutive exercise training sessions, before and after each session, participants completed an exercise-specific metamotivational state measure and the Telic/Paratelic State Inventory. Between the pre- and post-test administration of these measures, a training session of approximately 40 to 45 minutes took place, in which the participant engaged in a variety of cardiovascular and strength-training exercises under the supervision of a personal trainer. After completion of the 10 sessions, participants were re-tested for fitness assessment, and the *General Self-Efficacy Scale*, *Behavioural Regulation in Exercise Questionnaire*, *Self-Efficacy for Exercise Scale*, and an exercise outcomes measure were re-administered to assess change. Analyses will examine which personality characteristics and motivational styles are associated with better exercise outcomes. In addition, pre- and post-exercise metamotivational states will be examined to determine if the exercise sessions elicit switches, and whether a pattern of states, or switches in states, over time is associated with better exercise outcomes.

## Motivation in extreme environments: The case of Pen Hadow, polar explorer

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As humans gradually peel back the layers of what is and what is not possible in terms of human performance, there is a yearning to understand why and how dangerous activities are undertaken and even enjoyed when these are activities that are widely considered to be unpleasant, risky or both (Apter, 1992). An extreme example of such behaviour is that of polar exploration. Why would anyone willingly undertake such a daunting task, and how would they continue to motivate themselves in the course of facing up to a challenge of this kind over an extended period of time? The present researchers were fortunate in being able to investigate this question by using interview and questionnaire methods with Pen Hadow whose recent solo expedition to the North Pole has excited much interest worldwide and written a new chapter in the annals of polar exploration. The aim was to document his thoughts and feelings as recollected shortly after an historically important expedition. It was then hoped to analyse specific information about the explorer's motivation during his expedition to the North Pole. The framework of reversal theory (Apter, 1982) was used to provide a systematic and comprehensive structure for studying such motivation in an extreme environment. Quantitative data was obtained by using the Apter Record of Motivational States. Qualitative data came from interviews structured in terms of reversal theory. The results can be summed up by the explorer himself, "Actually, I wasn't really motivated by one single force, it was more like a cocktail of forces to get me to the Pole, that I was constantly drawing on". What we found was that all the states recognised in reversal theory were experienced at all the stages of the endeavour. Having said that, it was also clear that some motivational states were experienced more frequently and enduringly than others - the telic and autic states were the two that occurred most frequently during this expedition – and different states were experienced and taken advantage of in different ways. From a practical perspective, the results obtained in this study show the complex and multifaceted nature of motivation as it displays itself over the course of an enduring and difficult task. Whereas the commonsense view may be that people need to find one motivating force to sustain them throughout a major project, the truth may be more that explorers, particularly during long events, are likely to experience different motivational states. This is true even though different states can prioritise incompatible and opposite desires - achievement or fun, keeping to rules or breaking rules, and so on. The key is to be able to switch between states so that, over time, different and even contradictory states can be experienced, meaning that the possibility exists for all motivations to be brought to bear on the project at suitable moments.

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A cross-cultural perspective on metamotivational states in  
intercollegiate soccer

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This exploratory, qualitative study used the State of Mind Indicator for Athletes (SOMIFA; Kerr & Apter, 1999) to examine the in-event metamotivational states of 179 intercollegiate soccer players in Canada, Germany, and Japan. Open-ended questionnaires were also administered to determine players' thoughts about the university soccer environment in each country and to identify possible links with motivational profiles. SOMIFA data were converted into percentages and simply presented as descriptive information; impressions of intercollegiate soccer were addressed via content analysis. The results suggest that all participants were oriented toward the mastery and conformity states during games. In addition, Canadian and Japanese players were considerably more telic than paratelic, but the Japanese reported the strongest endorsement of the telic state and were more sympathetic and alloic than the Canadian and German cohorts. German players were the most paratelic of the three. Regarding the salience of states, Canadian players were most aware of the mastery orientation. In Japan it was the telic state that was most dominant, and in Germany it was spread out between the alloic, autic, and mastery states. Other findings revealed that university soccer in Canada and Japan fosters both a social and performance-focused atmosphere while in Germany it is perceived as more social and recreational than in the other two countries. These findings suggest that thoughts about intercollegiate competition are associated with players' metamotivational orientations, and provide a preliminary foundation for more rigorous follow-up work. However, for coaches of intercollegiate soccer players and those in multicultural settings, the current study can help inform the development of team motivational climates that reflect the motivational orientations of players. Future research should examine the metamotivational states of more elite competitors and the correlation of these states with winning and losing over time.

## A case history of burnout in an elite tennis player

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Going counter to the popular assumption that the crucial determinant of burnout is lack of rewards, a hypothesis is offered that burnout occurs typically in serious telic-conformist dominant individuals who actually find their activities too rewarding. This hypothesis suggests that burnout can occur as the result of simply spending too much time in a single, physically demanding activity. Although spending too much time in a single, physically demanding activity could produce burnout in anyone, the hypothesis is that only telic-conformist dominant individuals are prone to do this. People who are not telic-conformist dominant would reverse periodically into a playful paratelic-negativistic state, and thus would not likely stay committed to a single activity. Most obvious is that those who are paratelic-negativistic dominant would certainly become bored doing the same thing over and over, no matter how pleasurable it is, and would switch to other activities long before they burn out. Thus the hypothesis is that burnout is most likely to occur to the telic-conformist dominant individual who finds a physically demanding activity or occupation especially rewarding, for example, a telic-conformist dominant nurse in a maternity ward, a ballet dancer, an elementary school teacher, a police officer on the street, or an athlete. This presentation will examine the responses of an Australian elite female tennis player to a questionnaire designed to elicit feelings and experiences on leaving the professional tennis circuit. The questionnaire is a product of a study commissioned by Tennis Australia. This presentation examines in detail the responses of tennis player Number 63, who describes herself as experiencing burnout and recovering from it in the way in which the hypothesis would predict.

## When all is not what it seems: Two contrasting tales of parental pressure and anxiety in youth sport

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This presentation contrasts two male, teenage athletes. Both felt the need to perform well for their parents and both reported high levels of anxiety in performance. According to frameworks and measures commonly employed by sport psychologists or borne out of the sport psychology literature (e.g., Multidimensional State Anxiety and the CSAI-2; Martens et al, 1990), these two athletes may have looked much the same; and the focus of intervention would often be the anxiety (either cognitive or physiological). Using Reversal Theory as a framework for analysis, however, allows greater scope for a more systematic exploration of the motivational and emotional experience of athletes over time and, it is argued, a more powerful insight into the causes of unpleasant emotions such as anxiety. Subsequently, it is argued, more appropriate interventions can be developed, and the different approaches taken with each athlete are discussed. There is also something of a theoretical debate inherent in this comparison of cases: in particular, when is someone really competing in the alloic state? The fact that both of these athletes wanted to please their parents had the potential to mask very important differences in their motivational states.

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## The decision to become an orchestra conductor: A systematic inventory of motives

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The present study aimed at examining the various motives that may lead an individual to becoming a classic orchestra conductor. In view of the diversity of potential motives, it was decided to use the broad framework offered by the Reversal Theory (Apter). The theoretical framework for the examination of personality was based on the Big Five Theory (Goldberg, 1992). One hundred and one conductors (17 females and 81 males, 50 of them Greeks) first filled in a questionnaire composed of 92 items referring to possible motives one may have for becoming an orchestra conductor. The same sample then filled in a 50-item questionnaire which dealt with personality matters and then filled a third questionnaire with questions salient to the personal characteristics of the participants. A confirmatory factor analysis was conducted on the raw data as that derived from the Reversal Theory. The model tested was correlated on the eight-factor model. It was proven that much of what participants claimed in their answers was largely based on their personal characteristics.

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## Teleducation: Tracking telic states and lecture engagement

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After initial assessment of telic/paratelic dominance, we repeatedly administered a brief 7-item questionnaire in a social psychology class of 84 students. Using a five-point Likert scale across six administrations at 10-minute intervals, the questionnaire tapped four essential elements of telic vs. paratelic states and three items concerning student regard for the lecture, namely relative focus, interest, and engagement. Mean scores of telic state and lecture engagement were derived for each administration. Results showed that whereas all six telic moments were moderately intercorrelated ( $\alpha=.80$ ), and whereas all six engagement moments were moderately intercorrelated ( $\alpha=.93$ ), the cross-variable correlation was significant principally at the identical moments. That is, the fourth telic measure was correlated chiefly with only the fourth engagement measure. Educational implications and future directions are discussed.

## Style: Using Reversal Theory to improve the management of behaviour in school

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This paper is based upon the application of six research projects linking reversal theory with behaviour management in school. Research methods included questionnaires (the MSP and the AMSP), observations, interviews and case studies. The participants were student teachers, newly qualified teachers and experienced teachers in both primary and secondary schools. The original objective was to find those student teachers who were most likely to have behaviour management weaknesses in order to give them personal support before undertaking their final teaching experience. Further projects looked at those students with behaviour management strengths and finally at behaviour management strategies and the production of materials to support the application of the research findings in schools. This work is to be published shortly as a single authored book. This paper shows how reversal theory can be used to improve behaviour and support learning whether working with children or young people. The skills of good management are fundamental when taking responsibility for others. This is especially important when dealing with difficult behaviour in school. This paper challenges the behaviourist approach, depending upon rewards and punishments. It is proposed that when teacher self-reflection and knowledge of the reversal process is related to classroom experience better behaviour management can be facilitated. Reversal theory gives us a picture of the range of possibilities through making use of all metamotivational states. Each motivational state is considered with a corresponding educational activity and associated value. Becoming aware of the states we do not use sufficiently can illuminate our vulnerabilities. Suggestions and examples are given to help trigger reversals. Style is a quality easier to recognise than define. It has been suggested that style is the art of making difficult things look easy. Teaching is certainly not easy and teacher stress has been well documented. Reversal theory explanations and stress management techniques go further than many others as the model addresses both the organisational climate of the workplace and the individual's response to this climate. This paper will consider school climate, stress-prone mode and possible stress emotion. By recognising personal motives and understanding the motives of learner teachers are more able to support development of the emotionally rich relationships necessary to teach with style.

## Evolutionary psychology meets Reversal Theory: Dancing with Darwin

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Reversal theory and evolutionary psychology propose contradictory assumptions about the stability of personality. Reversal theory holds that our goals and preferences fluctuate, whereas evolutionary psychology posits that we have stable predispositions towards how we think behave. In regards to mate preference, evolutionary psychology states that the characteristics we seek in long term partners are determined by our genetic fitness and thus remain stable over the course of our existence. Reversal theory, on the other hand, states that our preferences change more quickly and would therefore assume that our mate selection criteria would also fluctuate regularly. Herein we address both theories and suggest three possible studies to compare the assumptions of each with respect to mate selection criteria.

## Measuring rebelliousness and conformity: Psychometric evaluation of the Social Reactivity Scale

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The Social Reactivity Scale measures two opposite responses to social requirements: rebelliousness and conformity. These concepts are likely to be related to health behaviours and health outcomes. Previous studies of the scale were based mainly on student samples. The aim of the present study was to further examine the psychometric properties of the Dutch version of the Social Reactivity Scale in more heterogeneous populations. Survey data were used from three population-based Dutch samples (N=5,001, N=301, and N=238) from 2004 - 2006. Underlying dimensionality was tested by confirmatory factor analysis; internal consistency and test-retest reliability were estimated using Cronbach's  $\alpha$  and intraclass correlations (ICC's); and construct validity was determined by Kruskal-Wallis testing. The findings substantively supported the originally hypothesized proactive and reactive rebelliousness factors. There was only moderate support for internal consistency ( $\alpha$  ranged from 0.44 to 0.61) and test-retest reliability (ICC = 0.51 for reactive and ICC= 0.60 for proactive rebelliousness). Rebelliousness was a predominantly male characteristic, it decreased with age, and it was related to higher levels of smoking, alcohol consumption, and hostility. Conformity was associated with lower socioeconomic class. Rebellious individuals reported poorer mental health, whereas conformist individuals reported more heart diseases. Construct validity thus was partly confirmed. The study findings emphasize the importance of the concept of rebelliousness/conformity with regard to health behaviours and health and contribute to an ongoing emergence of a solid construct. Its role in socioeconomic inequalities in health (behaviours) needs to be further established in future longitudinal research.

## Psychometric evaluation of computer-administered tension scales for weight management in rural telehealth settings

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Currently, measures are lacking to assess the parameters of the multifaceted problem of overweight and obesity. Earlier study suggests that measures are needed to assess overeating tension, exercise tension, and feelings tension as contributing factors to the obesity epidemic in America. The objective of this pilot study was to evaluate the computer-administration and psychometric analysis of the three tension scales, Overeating Tension, Exercise Tension and Feelings Tension, in three rural settings served by the University of Kansas Telehealth Program. Computer-administration measures were evaluated for readability, content validity, usability, human-computer interface, and performance (Phase 1) and psychometric evaluations of internal consistency reliability and construct validity were conducted with 61 participants (Phase 2). Phase 1 established: readability at a 5<sup>th</sup> grade level using a linguistics expert; content validity using reversal theory experts, content validity index, and kappa score; usability, human-computer interface, and performance using expert evaluation; and participant evaluation. In Phase 2, internal consistency reliability and construct validity were supported. Participants with higher Body Mass Index (BMI; [kg]/height [m<sup>2</sup>]) had higher tension scores on the Overeating Tension, Exercise Tension, and Feelings Tension Scales compared to those with lower BMI. This study established the computer-administration, internal consistency reliability and content validity of the three scales. Future work will continue to establish convergent validity of these three scales and their ability to assess overeating tension, exercise tension and feelings tension in rural telehealth weight management patients.

## Exercise dependence and social functioning: Aerobic erosion

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The aim of this study was to determine if primary and secondary exercise dependent individuals vary between themselves and in comparison to an asymptomatic group with regards to social functioning and Reversal Theory measures in a sample of 92 participants. Results showed that while a cluster analysis identified primary, secondary, and asymptomatic groups, these groups did not differ significantly with regards to self-esteem, anxiety, life satisfaction, loneliness, or Reversal Theory dominances. Results also showed that Negativism and Alloic Sympathy were related to problematic eating behaviours. Overall our findings indicate that while these groups may vary dramatically in their behaviours, there appear to be few adverse effects with regards to everyday functioning.

## Six ways of dealing with stress

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Most approaches to stress equate stress with anxiety, and then attempt to deal with such stress by lowering arousal. There are two ways of doing this: attempting to cope with whatever is causing the arousal (e.g., marital breakdown), or dealing directly with the arousal itself, e.g., through relaxation exercises or drugs. Reversal theorists have long argued that there is an alternative to lowering arousal. This involves the more radical strategy of inducing a reversal to the paratelic state, so that the high arousal is experienced as pleasant excitement rather than as unpleasant anxiety. This means that there are in principle three different possible ways of dealing with stress. However, a more thorough examination of stress from the reversal theory perspective discloses that there are in fact three other kinds of change that could be called on to help to overcome stress, thus opening up new possibilities in therapy and counseling. These are:

Refocusing, i.e., changing which of the four active states at a given time the individual is most aware of (e.g., refocusing from the telic to the mastery state, with no reversals).

Reorienting, i.e., changing which aspect of the focal active state is privileged - emotion, feeling or value (e.g., reorienting in the telic state from anxiety to felt significance or to feelings of progress towards achievement).

Changing the concrete satisfier, i.e., changing the particular object of desire (e.g., in the paratelic state changing from one source of excitement to another.)

This paper will discuss all six of these ways of dealing with stress, and place them in a systematic reversal theory structure. Each may be particularly appropriate in different circumstances.

## Reversal Theory predictors of exercise motivation and body esteem in university students

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The purpose of this study was to examine motivation for exercise among university students in relation to metamotivational dominance and body esteem. Participants in this study were 106 undergraduate students who were recruited from their psychology departmental participant pool and from the campus exercise facility at a medium-sized Canadian university. Fifty five of the students (52%) were classified as “high frequency exercisers”, based on self-reported exercise of three or more times per week, and 51 (48%) were “low frequency exercisers”, who reported exercising two or fewer times per week. Participants completed an inventory that included the *Motivational Style Profile*, *Big Five Inventory-10*, *Behavioural Regulation in Exercise Questionnaire*, and the *Body Weight and Image Self-Esteem Evaluation Questionnaire* to assess personality, exercise motivation, and body esteem. High-frequency exercisers were found to be more paratelic dominant than low-frequency exercisers, and scored significantly higher on intrinsic, identified, and introjected regulation, indicating that they exercised for enjoyment, valued exercise outcomes, and wanted to avoid negative emotions associated with not exercising. Among high-frequency exercisers, positive body esteem was associated with high intrinsic and low extrinsic motivation for exercise, paratelic dominance, negativism dominance, and low neuroticism. Exercisers who were paratelic dominant were higher on intrinsic motivation and more likely to report exercising to increase muscle mass. Exercisers who scored high on autic sympathy dominance were more likely to report exercising to make themselves more attractive to others, and showed more introjected regulation of exercise and a tendency to display poorer body esteem. Results will be discussed in terms of healthy and unhealthy motivations for exercise, and recommendations will be made for tailoring health promotion strategies to metamotivational dominance.

## The significance of motivational styles and resistance training in elite junior cross-country ski performance

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Previous research has reported associations between preference for sports and dominant motivational styles. This research mostly has addressed motivational styles among amateurs. The Telic Dominance Scale (TDS) is oriented to telic versus paratelic motivational styles in general without focussing on sports. It therefore may be that scores on a sport-specific questionnaire for assessing motivational styles may better explain performance among strongly committed elite athletes than will scores on a scale for assessing motivational styles among a non-selected population. The present study compared scores on the TDS with scores on the Sport Orientation Questionnaire (SOQ) as predictors of performance among elite cross-country junior cross-country skiers. Fifteen females and 13 males, all elite cross-country skiers, took part in a resistance-training program to test effects on ski performance. They were randomized to a maximal versus endurance resistance program, with half of the participants training for 9 weeks and the rest for 5 months. All completed survey measures on motivational styles included the SOQ, with sub-scales on goal-, win-, and competition-orientation, as well as the TDS, with sub-scales on planning orientation, serious mindedness and arousal avoidance. They also completed the Negativism Dominance Scale (NDS) derived from reversal theory, with sub-scales on reactive and proactive negativism, and the Life Orientation Scale (LOT: Dispositional optimism) and the Short Sensation Seeking Scale (SSSS). Survey scores were tested in multiple regression analyses as predictors of racing scores in the season following the training intervention. Results supported the conclusion that optimism and the sport-specific measure of competitiveness predicted excellence when effects of type of resistance training, length of intervention and gender were eliminated.

## States métamotivationnel and substance use in adolescence

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Some studies shown an existence of a relation between tobacco addiction and some metamotivational states (paratelic, opposition, mastery, sympathy) and insist on the influences of these metamotivational states. On the order hand, substance use in adolescent can associated with several factors as, for example, anxious and depressive state. Consequently, the aim of this study is examined the link between métamotivationnel states, substance use in adolescence, particularly tobacco, alcohol and drugs consumption's and the anxiety and depressive level. The Motivational Style Profile for Children (MSP-C) was used to measure metamotivational orientations. The MSP-C measures eight orientations trough 25 items, each on 4-point Likert scale ranging from 1 (never) to 4 (always). The teenagers have answered a questionnaire concerning their consumption of tobacco, alcohol and marijuana. The state of anxiety is evaluated by the State-Trait Anxiety Inventory for Children (STAI-C, Spielberger, 1973) and the depression level with Children Depression Inventory (CDI, Ponanski, 1985). The sample consisted of 448 French adolescents in 6th to 9th grade (6th: 28.1%; 7th: 26.3%; 8th: 23.7%; and 9th: 21.9%, ages 9-16 years (M = 12.78, SD = 1.304), 50.2% girls and 49.8 % boys. The adolescents came from schools in France (Tours). These schools were selected with proportional and stratified representation of the various area territories. 36 adolescents use tobacco actually and 161 have alcohol consumption, this consumption is more important in the 9<sup>th</sup> students. The results show that its exist a relation between the metamotivational states (arousal avoidance, alloic sympathy, mastery...), the level of anxiety and depression and drugs consumption. This study underlines that the adolescents who use alcohol and tobacco have a different metamotivational style profile in comparison with the non users of these drugs. Furthermore, the level of anxiety and depression is more important at the adolescents substance use.

## Motivational styles of exercise dependent runners in Hong Kong Chinese athletes

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Whilst exercise dependence and eating disorders have been well researched in western populations, little research has been conducted among Asian cultures. As a result, the understanding of its existence, underlying motivations and cultural differences are relatively unknown. The purpose of this investigation was to firstly identify the existence of Primary and Secondary Exercise Dependence in an Asian population. Secondly, by using Reversal Theory (RT) it was hoped to gain an understanding of the underlying motives of individuals who show exercise dependence, and how they differ from previous research in western populations. A sample of 465 male and female competitive and recreational runners from various sports clubs completed the motivational style profile (MSP), an exercise dependence questionnaire (EDQ) and Eating Attitude Test (EAT). After data was 'cleaned and filtered' for total exercise hours per week, the data for the remaining 117 athletes were analysed. Results support the existence of Primary exercise dependence in an Asian population, but clinical eating disorders (and therefore secondary exercise dependence) were found to be relatively uncommon. Although metamotivational orientations reported are typical of those postulated by RT, dependent group differences did not identically reflect those seen in Western studies. Results support the notion that cultural differences may indeed exist for pathological behaviour whereby Asian's exhibit less specific psychopathology than their Western Counterparts. Although further investigation is needed, the results also confirm RT as a good theoretical base to investigate the intricate experiential nature of Primary and Secondary exercise dependence.

## Breastfeeding or bottlefeeding: Reversal Theory and motivations

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In France, whereas many doctors agree that breastfeeding offers many advantages for the baby and the mother, only 50% of women choose to breastfeed; of those, many abandon breastfeeding in the early weeks following birth. The goal is to understand current French attitudes concerning breastfeeding. The objective is to describe motivations of mothers who choose to breastfeed compared with those of mothers who choose to bottlefeed. 247 women who gave birth two days previously; 129 having chosen breastfeeding and 118 having chosen bottlefeeding. Three questionnaires were created: (1) a short questionnaire of personal information; (2) a questionnaire entitled "A woman will breastfeed her baby because" (34 items based on the motivational states of Reversal Theory); (3) a questionnaire entitled "A woman will not breastfeed her baby because..." (34 items based on the motivational states of Reversal Theory). Mothers rated agreement level using a four-level Likert-scale. The motivations typically cited by the mothers who choose to breastfeed are diverse: Sympathy (breastfeeding is pleasant for the baby), Telic (breastfeeding is important for the health of the baby), Paratelic (breastfeeding is pleasant for the mother), Mastery (breastfeeding is an obligation), Autic (breastfeeding is good for the health of the mother), and Alloic (breastfeeding was advised). The mothers who choose to bottlefeed cited primarily Sympathy motivations (bottlefeeding makes it possible to remain in harmony with the baby). The mothers who choose breastfeeding do not have the same motivations as the mothers who choose bottlefeeding. Institutions should address these factors while pursuing higher initiation and duration rates.

## The female Casanova: A Reversal Theory perspective

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This discussion paper explores the theoretical possibility of a female counterpart to the male Casanova. A reversal theory perspective is applied to two case studies. Marion, an example of a female Casanova, and Anthony, a partner of another female Casanova are discussed utilizing reversal theory concepts. Inappropriate shifts in motivational styles and situational state balance are identified along with suggestions for therapy. Suggestions are made to assist therapists in the identification of any pathology and possible treatment interventions.

Relationships of reported state measures of performance  
to self-perceived teaching competence:  
An intrapersonal analysis of ten adult educators

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This study investigated intrapersonal self-reported, perceived teaching competence. This study applied a methodology of identifying the performance variable(s) that influence an adult educator's perceptions of their teaching competence. Each of ten adult educators' teaching competence was analysed in a qualitative/quantitative study within ten interactive teaching sessions. Self-reported influences of performance variables pertaining to perceived arousal discrepancy, effort, performance state self-esteem, and telic/paratelic metamotivational states were related to self-perceptions of teaching competence. From a reversal theory perspective, the investigator determined telic/paratelic situational state balance by primarily utilising the Telic State Measure (Svebak & Murgatroyd, 1985), and conducting the Metamotivational State Interview Coding Schedule (O'Connell et al., 1991) to code psychological lability and subjective experiences of the educator's perceived competent and "less" competent teaching sessions. In seven of the ten adult educators, shifts in telic and paratelic states were linked to self-recorded changes in their perceived teaching competence. The seven educators revealed changes within the performance context, demonstrating a higher perceived teaching competence when rating themselves nearer to their ideal teaching state. The inducing/change agents of frustration, satiation, and contingent events were present in the follow-up interviews. The current study utilises reversal theory to challenge the conventional performance psychology literature through investigating intrapersonal rather than interpersonal self-reported perceptions of teaching competence. Movement toward a preferred telic/paratelic situational state balance (in a teaching mode) was demonstrated with seven adult educators demonstrating the most lability. These seven adult educators perceived more teaching competence when they shifted into their preferred teaching state. Performance state self-esteem was identified as a variable that may, in some instances, be linked with self-perceived teaching competence. This was demonstrated in four adult educators. Findings that reveal an individual to have only one significant variable related to a perceived shift in competence, instead of two or three variables, does not limit or weaken the recommendations for that particular individual. The current study utilised a phenomenological method of exploring the adult educator's self-report in an actual teaching environment. This investigation promotes a more contemporary and intrapersonal direction toward perceived competence assessment and evaluation.

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