



## Papers presented at the Seventh International Conference on Reversal Theory

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### THE PAPERS

- **A Reversal Theory Explanation Of Emotions In Competitive Sport.**
  - George V. Wilson & Matthew Phillips. Department of Psychology, University of Tasmania.
- **The Affect Of True Dominance And Telic State Measures In Baseball And Karate.**
  - Evan Stewart, Jeff Summers and Greg Thorne. University of Southern Queensland, Toowoomba, Australia
- **Stress, Emotion, And Performance In Elite Slalom Canoeists.**
  - Jonathan Males and John Kerr. Centre for Organizational Health and Development, Department of Psychology, University of Nottingham, England; and Institute for Health and Sport Sciences, The University of Tsukuba, Japan.
- **Researching Surf Lifesaving, Australia**
  - B.J. Kerr. Clinical Psychologist. Queensland, Australia.
- **The Experience Of Sports Competition Amongst Elite Slalom Canoeists.**
  - John Kerr, \*, Jonathan Males\*\* and Mary Gerkovich\*\*\*. \*Institute for Health and Sport Sciences, The University of Tsukuba, Japan. \*\*Centre for Organizational Health and Development, Department of Psychology, University of Nottingham, England. \*\*\*Midwest Research Institute, Kansas City, Missouri, USA.
- **The Development Of The Personal Orientation Profile.**
  - Michael Apter, Richard Mallows and Steve Williams. Georgetown University, USA; University College of Ripon and York UK; Resource Systems, Harrogate, UK.
- **Australian Validation Of The Personal Orientation Profile.**
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- **Development Of The Tension Stress Scale.**
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- **Cardiovascular Reactivity and Mode-Dominance Misfit: The Pressures of Being Seriously Playful.**
  - John Spicer and Antonia Lyons. Department of Psychology, Massey University, New Zealand.

- **Electrophysiological and Subjective Correlates of Hypnosis: A Pilot Study.**
  - By Joao Neves (APS Prize winner), Swinburne University of Technology, Melbourne, Australia.
- **A Pilot Study to Investigate Brain Electrical Activity and Metamotivational States.**
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- **Studying Dynamic Psychological Phenomena in Real-World Settings.**
  - Jim McLennan. School of Social and Behavioural Sciences, Swinburne University of Technology, Australia. Mary M. Omodei. School of Behavioural Health Sciences, La Trobe University, Australia
- **Changing Health Habits: The Metamotivational Differences Between Resisting Urges and Initiating New Behaviours.**
  - Kathleen A. O'Connell and Evelyn Brooks. University of Kansas Medical Center, Kansas City Kansas, USA,
- **The Role of Reversal Theory in Explaining Sexual Risk Taking by College Students.**
  - Mary M. Gerkovich. Midwest Research Institute, University of Kansas.
- **Metamotivational Dominance and Addictive Substance Use Among Adolescents.**
  - Sharon Turner. Swinburne University of Technology, Melbourne, Australia.
- **Using All the Metamotivational States: Which Pairs Are the Most Important Predictors of Resisting the Urge to Smoke?**
  - Kathleen A. O'Connell, University of Kansas Medical Center, Kansas City, Kansas, USA. Mary M. Gerkovich and Mary R. Cook, Midwest Research Institute, Kansas City, Missouri, USA.
- **Effects of Smoking on the Brain Depend on State and Gender.**
  - Mary R. Cook, Mary M. Gerkovich, Steven J. Hoffman, F. Joseph McClemon. Midwest Research Institute, Kansas City, Missouri. Kathleen A. O'Connell. School of Nursing, University of Kansas Medical Center, Kansas City, Kansas
- **Helping Athletes Perform: Integrating Reversal Theory and Psychosynthesis in Applied Sport Psychology.**
  - Jonathan Males, Sporting Bodymind, Hampstead, England.
- **Autic Negative Selves As An Adjunct To The Treatment Of Bulimia Nervosa.**
  - Bruce Wilson, PhD. Liz Luther, M,Ed, The University of New South Wales, Sydney, Australia.
- **The Relationship between Metamotivational State and Eating.**
  - Rick Howard and Joanne Ong, Dept. of Social Work and Psychology, National University of Singapore.
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  - Michael J, Apter, Georgetown University, USA,
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  - Mitzi Apter-Desselles, Mobil Corporation, Virginia, U.S.A.
- **Multiple Selves Operating Within Relationships.**
  - Bruce Wilson, PhD. Liz Luther, M.Ed. The University of New South Wales, Sydney, Australia.
- **On Metamotivational Analysis.**
  - Michael J. Apter, Georgetown University, USA,
- **Some Observations on Self-Report Measures on Reversal Theory Concepts**
  - Ken Heskin, Swinburne University of Technology, Melbourne, Australia.
- **Expertise and Psychological Reversals in Sport: Attempting to Solve The Problems Through Golf.**
  - Ian Purcell, Curtin University of Technology, ACT, Australia. South Wales, Sydney, Australia.

## ABSTRACTS

### **A Reversal Theory Explanation Of Emotions In Competitive Sport.**

**George V. Wilson & Matthew Phillips. Department of Psychology, University of Tasmania.**

Emotional responses to a competitive sport setting were investigated using a reversal theory framework. Male squash players (n = 60) involved in normal pennant roster matches were asked to complete questionnaires concerned with aspects of match performance, metamotivational mode, metamotivational dominance, and felt emotion, at periods before, during, and after their match. Subjects who subsequently won or lost were relatively similar in telic state score and in reported emotions measured before and during matches. Post match a clear difference was exhibited: winners experienced more pleasant emotions and a significant decrease in telic state score, while losers experienced more unpleasant emotions and remained at the same telic state level. Also, after a close game and irrespective of outcome, subjects who were in the paratelic state post match tended to report lower levels of unpleasantness and dissatisfaction than subjects in the telic state post match. Partial support was found for match closeness and strength of opponent as contingent variables able to moderate metamotivational mode and emotional responses. The results were generally consistent with the predictions based on reversal theory.

### **The Affect Of True Dominance And Telic State Measures In Baseball And Karate.**

**Evan Stewart, Jeff Summers and Greg Thorne. University of Southern Queensland, Toowoomba, Australia**

Arousal, anxiety and stress have long been known to affect the performance of an athlete. The aim of the present set of studies was to examine the effect that telic dominance and telic state have on these variables in a field setting. A group of 50 baseballers completed the TDS, the SCAT and a series of questionnaires measuring stress and mood disturbance. As predicted by Reversal Theory, telic dominant subjects revealed a positive linear relationship between stress (athletic negative life events and weekly hassles) and mood disturbance (Profile of Moods State), whereas paratelic dominant subjects revealed a curvilinear relationship. A subset of 14 baseballers completed the TSM, CSAI-2 and the Linear Arousal and Stress Scale (LASS) immediately prior to performance for an eight game period. Two of these athletes completed the TSM and the LASS six times throughout a particular game. In the second study, thirty-seven karate athletes completed the SCAT and the TDS. Neither study showed a relationship between competitive trait anxiety and telic dominance. Ten of the karate athletes completed the TSM, CSAI-2 and the LASS prior to an important competition. The arousal and stress of 4 of these athletes was tracked across each bout they fought during three major competitions. Some interesting trends were evident in these data that suggest that telic dominance may play a mediating role in the inter-relationship of arousal, stress, anxiety and performance. Experimental studies involving more athletes need to be undertaken before major conclusions can be drawn.

## **Stress, Emotion, And Performance In Elite Slalom Canoeists.**

**Jonathan Males and John Kerr. Centre for Organizational Health and Development, Department of Psychology, University of Nottingham, England; and Institute for Health and Sport Sciences, The University of Tsukuba, Japan.**

This paper examines the relationship between pre-competitive affect and sports performance using elements of reversal theory (Apter, 1982). Nine elite male slalom canoeists completed a modified version of the Tension and Effort Stress Inventory (TESI) (Svebak, Ursin, Endresen, Hjelmen & Apter, 1991) prior to each event of a competitive season which included the world championships. Results were analysed using a time-series model to make comparisons of each subject's best and worst performance of the season. Predicted variations in pre-competitive levels of pleasant and unpleasant mood did not occur, despite variations in subsequent performance. As predicted, good performances were preceded by low discrepancies between felt and preferred arousal levels but there was no support for the hypothesis that a large discrepancy between perceived stress and coping efforts would precede a poor performance. A version of this paper will appear in The Sport Psychologist in June or September 1995.

## **Researching Surf Lifesaving, Australia**

**B.J. Kerr. Clinical Psychologist. Queensland, Australia.**

Competitive surf lifesaving has evolved from a community based organisation involving volunteers patrolling Australian beaches since 1907. At present, there are 257 surf clubs and 70,000 active participants throughout the six states of Australia. The movement is administered by professional officers at each state centre and coordinated by a national body of professional management responsible to a volunteer national council. Consequently, professional management and the strategic planning of a volunteer organisation has produced concerns inherent with surf lifesaving as a sport. Today, large companies fund and sponsor competitions involving elite "ironpersons" such that the extent of media coverage of events is second only to that of cricket.

What began as a relatively limited study, as part of a doctoral dissertation, has become a consultative process that will be an ongoing involvement to integrate the many aspects of the lifesaving movement. Reversal theory has been the theoretical basis for such research which investigated the telic orientation of key stakeholders of the organisation; (a) administrators, (b) Competitive/Patrol lifesavers, (c) The Junior movement. Further, questionnaires and interviews formed part of the qualitative data base of the research. The paratelic dominance scale was administered to over 400 members representative of administrators, competitors (males and females), and country lifesavers in order to consider differences in telic/paratelic dominance and the metamotivational status maintained by each subgroup. Hypotheses regarding the paratelic dominance of groups were not supported whilst data collected, formed the basis of the inaugural Australian conference attended by every club president of Australia in May, 1994 which considered the issues raised. The subsequent policy statements are now in place and these, as well as recommendations from further research, will form the basis of the second conference to be held in May, 1995. Results and discussion of research will be presented to highlight the relevance of reversal theory to this major Australian service and sporting organisation.

## **The Experience Of Sports Competition Amongst Elite Slalom Canoeists.**

**John Kerr, \*, Jonathan Males\*\* and Mary Gerkovich\*\*\*. \*Institute for Health and Sport Sciences, The University of Tsukuba, Japan. \*\*Centre for Organizational Health and Development, Department of Psychology, University of Nottingham, England. \*\*\*Midwest Research Institute, Kansas City, Missouri, USA.**

Most qualitative sports psychology research has applied the principles of grounded theory and used an inductive analysis of interview data to identify and extract themes of experience. In contrast the present study used the phenomenological structure posited by reversal theory to explore the experience of elite sports people. Interviews were carried out with nine male slalom canoeists after each event of a full competitive season which included the world championships. Interview transcripts were then analysed using a modified version of the Metamotivational State Coding Schedule. Analysis suggested that the successful athletes were able to maintain an autic mastery state in which they were focused primarily on their own performance, making little comparison with other competitors. This usually combined with a conformist state. The situation regarding the telic and paratelic dimensions was less clear cut. Athlete's experience in the pre-race period was often paradoxical and contained elements consistent with both the telic and paratelic states. Several tentative solutions are proposed: that they experienced a paratelic frame that allowed feelings such as nervousness to be enjoyed; that they were in a telic state but willing to seek out high arousal as a necessary condition of achieving their goals; that they rapidly reversed between telic and paratelic states so that their later report was an amalgam of the two; and finally that reversal theory and the coding schedule need to be adapted to include such paradoxical states.

## **The Development Of The Personal Orientation Profile.**

**Michael Apter, Richard Mallows and Steve Williams. Georgetown University, USA; University College of Ripon and York UK; Resource Systems, Harrogate, UK.**

The development of a 70 -item measure of a number of personality features derived from reversal theory is reported. The Personal Orientation Profile (POP) measures the dominance of all five pairs of meta-motivational states as derived from the theory of psychological reversals, together with tendencies towards arousability, effortfulness and optimism/pessimism. The POP also measures the overall salience of each pair of states within the individual's conscious experience over time. The scale is seen as more consistent with the temporal orientation of reversal theory than some previous dominance scales. An original 140 -item version of the measure was trialled on a sample of American Students (N = 276). Following item analysis the items were reduced to 70 and the resulting sub-scales, with the exception of the alloic mastery scale, produced acceptable alpha coefficients. Further testing of two new versions on a mixed sample of American and British participants (N= 548) incorporating alternative alloic mastery sub-scales produced an acceptable version of this sub-scale which is now part of the current version of the POP (3.0). Test retest reliability was assessed over a twelve week inter test interval and this produced substantial coefficients. Concurrent validation data was obtained by comparison with the MBTI and the EPQ revealing significant correlations between the telic and arousal seeking scales with extraversion. The autic and alloic states were also significantly correlated with extraversion as measured by the MBTI. Factor analysis of the POP items suggests a five factor structure.

## **Australian Validation Of The Personal Orientation Profile.**

**Veronica E. Power, Bruce Findlay, Ken Heskin. Swinburne University of Technology, Melbourne, Australia**

An Australian validation of the Personal Orientation Profile (POP) was conducted against the student version of the Work Preference Inventory (WPI), and the Positive and Negative Affect Scale (PANAS) on 413 first year undergraduates (320 females and 98 males). It was expected that telic/paratelic, and autocentric/allocentric metamotivational constructs would be related to the intrinsic and extrinsic scales of the WPI, and that arousal/avoidance would be related to affect. Whilst principal components and varimax factor analysis of the POP indicated a number of items cross loaded across the factors there were a number of scales that were clearly defined. Results were also compared to student expectations and actual academic results.

## **Construct Validity of the Telic/Paratelic State Instrument: A Measure of Reversal Theory Constructs.**

**Judith E. Calhoun, Emporia State University, Emporia, Kansas, USA and Kathleen A. O'Connell, University of Kansas Medical Center, Kansas City, Kansas, USA**

A review of reversal theory research indicates that five types of state measures have been used to obtain data pertaining to the telic and paratelic states. However, few, if any, of the measures have met all the recognized measurement criteria for validity, reliability, and utility. There also has been not only limited understanding of the telic and paratelic states at the mid-range level of felt arousal but also uncertainty as to whether arousal level affects the accuracy of determining state. Therefore, the purposes of this research were to develop the Telic/Paratelic state Instrument (T/PSI) and to assess the construct validity of the T/PSI as a measure of the telic and paratelic metamotivational states at low, mid-range, and high levels of arousal. Based on suggestions provided by six experts in reversal theory and state measures, the T/PSI was developed to consist of two subscales, serious-minded/playfulness (12 items) and arousal-avoidant/arousal seeking (8 items). scenarios, also reviewed by the same six experts, were used to elicit memories or feelings experienced by subjects during actual or imagined telic or paratelic states at low, mid-range, or high levels of arousal. Data were obtained from a sample of 572 adults, with each subject completing four T/PSIs from the perspective of the scenario provided with each T/PSI. Each subject also completed the Paratelic Dominance Scale and a 13 item version of the Marlowe-Crowne Social Desirability Scale. Data analysis is currently being completed. Findings and implications resulting from the analysis will be presented.

## **Towards An International Scale of Telic-Paratelic Dominance.**

**Gotts, G.H., Wangeman, J.F. and Kerr, J.H. Swinburne University of Technology, Melbourne, Australia; University of Tsukuba, Japan.**

The original Telic Dominance Scale (TDS) developed by Murgatroyd, Rushton, Apter and Ray (1978), was found to have limited effectiveness when used on international samples. In an attempt to address its shortcomings, Cook, Gerkovich, O'Connell and Keele (1994) developed the Paratelic Dominance Scale (PDS) using American and U.K samples. The authors reported the scale as having a three-factor structure; the factors identified as playfulness, spontaneity and arousal seeking. Since it was thought desirable to have a scale that would be internationally relevant an attempt was made to develop an acceptable single instrument that would confirm if possible to the three factor structure of the PDS. a number of factor analyses were performed on TDS and PDS data from a combined Australian, Netherlands and USA sample (N=1465). Items of the TDS proved to be of limited value in that a large number of factors (some unique), each accounting for little variance, emerged. Analyses of PDS items were more useful. However, sound two-and three-factor structures, replicable across validation and Australian, Netherlands and USA samples, emerged only when reduced item sets were used. The derived factors of the two-factor analyses, using 14 items, corresponding to the Planning orientation and Arousal seeking dimensions found earlier accounted for 47.2% of the total item variance (31.0 and 16.2% respectively). Three-factor analyses, using 21 items, accounted for 42.1% of total item variance. Factors clearly identifiable as Planning orientation, Arousal seeking (20.8 and 13.1% of variance respectively) and Playfulness (8.2% of variance) were resolved. The two-and three-factor sub-scales each returned suitable internal consistency values for the total sample and for individual country sub-samples. The advantage of shortened scales for international comparability are obvious.

## **Development Of The Tension Stress Scale.**

**Sue Popkess-Vawter, Shannon Engler and Shirley Wendel. University of Kansas, Kansas City**

Emotional distress consistently has been found to be related to overeating. Apter defined tension stress as feelings of discomfort resulting from a discrepancy between where we are and where we want to be. Overweight women, who overeat to cope, manifest tension stress from negative feelings of anxiety, boredom, anger, and feeling out of control. Current measures of tension stress do not appraise individuals' reports of both how they felt and how they wanted to feel in a given situation. The Tension Stress Scale (TSS) was developed to directly reflect Apter's definition of the construct by creating a discrepancy score from scores representing reported feelings and desired feelings. The TSS is a semantic differential consisting of 12 item word pairs placed on a 10-point scale. Word pairs were generated directly from the theory and interviews containing information about expressed tension stress. Eight subscales provide situation-specific tension stress information for each metamotivational state. Three rounds of instrument development with a total sample of 578 have resulted in Cronbach's alpha coefficients ranging from .78 to .44, mastery-alloic being the most problematic subscale. Experts agreed on the content validity of the revised Scale for the fourth round of testing currently underway (n=130). Results should provide data for using the instrument with other known groups who manifest tension stress. Long term use of the TSS in my research includes identification of subjects' negative feelings that trigger overeating, intervention using mode-specific coping skills training to reduce tension stress, and evaluation of their progress over time.

## **Reliability and Validity in Using Rorschach Signs for Identifying Telic/Paratelic State.**

**O. Randall Braman. University of Guam, Guam, U.S.A.**

The basic assumptions of reversal theory that behaviour is essentially inconsistent and that it is the result of subjectively determined states bring with them difficulties in establishing the reliability and validity of procedures for measuring reversal theory phenomena. And due to the subjective nature of many Rorschach concepts, problems of inter-examiner reliability are persistent, as are problems of validity. Thus in attempting to find relationships between Rorschach responses and reversal theory's metamotivational states, one of necessity confronts difficulties establishing reliability, and even greater difficulties establishing validity. This paper describes the methods used and degree of success attained in overcoming problems of reliability while attempting to identify Rorschach signs for telic and paratelic states; it presents examples of how reversals between the telic and paratelic states may affect Rorschach responses; and it reports on the failure to establish the validity of the Rorschach signs for the telic and paratelic states including discussions concerning crucial aspects of this failure.

## **Cardiovascular Reactivity and Mode-Dominance Misfit: The Pressures of Being Seriously Playful.**

**John Spicer and Antonia Lyons. Department of Psychology, Massey University, New Zealand.**

Reversal theory provides a systematic approach to the study of cardiovascular reactivity, a physiological mechanism which may help explain associations between various psychological attributes and risk of cardiovascular disease. We present results from an experiment which examined the joint effects of telic dominance, telic mode, arousal and anxiety on diastolic blood pressure reactivity during conversation in 102 female students. Reactivity was highest in participants who were telic dominant, but in paratelic mode and experiencing relatively high anxiety. Analyses of telic-paratelic mode reversals across experimental conditions further suggested that these reversals were associated with greater reactivity. Discussion focuses on the notion of misfit as a promising way of applying reversal theory to cardiovascular reactivity.

## **Electrophysiological and Subjective Correlates of Hypnosis: A Pilot Study.**

**By Joao Neves (APS Prize winner), Swinburne University of Technology, Melbourne, Australia.**

Despite its ancient origins and decades of research, hypnosis is a phenomenon which, to this day, continues to baffle researchers. This pilot study, utilising Steady State Probe Topography, aimed to provide some insights into the electrophysiological and psychological basis of the hypnotic state. Specifically, the present study aimed to determine whether there is a characteristic electrophysiological activity associated with the hypnotic state. A further aim was to investigate whether the subjective experiences reported during hypnosis are unique to that particular state, or whether they are similar to changes in everyday life experience such as those postulated by reversal theory. Subjects were six right-handed females, who were both highly experienced and susceptible to hypnosis. Analysis of the electrophysiological data revealed hypnosis to be associated with bilateral increases in slow wave activity, particularly within the alpha frequency band. Contrary to expectations there were no suggestions of laterality or anterior to posterior shifts in brain activity. Finally, the present study revealed that as individuals attained deeper levels of hypnosis their experiences closely resembled the paratelic-conformist metamotivational state, as delineated within reversal theory. The apparent link between reversal theory and hypnosis should be pursued in the future as, if legitimate, it may provide a theoretical framework for understanding the nature of hypnotic experiences.

## **A Pilot Study to Investigate Brain Electrical Activity and Metamotivational States.**

**Adele Bailey, Richard Silberstein & Ken Heskin. Swinburne University of Technology, Melbourne Australia.**

A pilot study was conducted to investigate brain electrical activity and associated patterns as a function of telic/paratelic meta-motivational states.

The experimental paradigm involved 95 subjects, of whom 10 subjects underwent the recording of brain electrical activity, utilising the Steady-State Visually Evoked Potential technique (SSVEP). Presentation of a cognitive perceptual task was aimed at inducing subjects' into a telic state of mind, and utilisation of a funny film was aimed at inducing subjects' into a paratelic state of mind. Telic and paratelic states of mind were measured by a self-report questionnaire, namely the Swinburne Telic State Measure (STSM).

Scores on the STSM revealed that manipulation of the independent variables had a significant effect on inducing subjects' into telic and paratelic states of mind respectively.

Brain patterns for the 10 subjects when induced into a telic state of mind, showed an increase in the SSVEP in the occipital-parietal regions whilst 8 of the 10 subjects when induced into a paratelic state of mind showed an attenuation of the SSVEP in the occipital-parietal regions. These results suggest a decrease in brain activity in the telic state and an increase in brain activity in the paratelic state (in the occipital-parietal regions).

This pilot study revealed differences in brain patterns between the telic and paratelic states of mind. Based on these findings, further research should be conducted to investigate the possible shift in brain activity during the reversal process from the telic to the paratelic state.

## **Studying Dynamic Psychological Phenomena in Real-World Settings.**

**Jim McLennan. School of Social and Behavioural Sciences, Swinburne University of Technology, Australia. Mary M. Omodei. School of Behavioural Health Sciences, La Trobe University, Australia**

While applied psychologists working in real-world settings must deal with dynamic phenomena, most traditional psychological concepts and methodologies are ill-suited to the task. In part because of applied psychology's deep roots in mental testing and classical psychometric theory, the concepts and methods of applied psychology are better suited to dealing with hypothesised stable and de-contextualised dispositional attributes. One of the promises of Reversal Theory is a conceptual framework for a truly dynamic psychology. However, distinctive methodologies for investigating the utility of Reversal Theory in real-world settings have been slow to evolve.

Telemetric monitoring of psychophysiological change is one way that psychologists can investigate dynamic phenomena. However, such procedures are limited in their capacity to address the phenomenological aspects of Reversal Theory. In this presentation we will describe, demonstrate and discuss an innovative methodology for studying dynamic phenomena in real world settings. The procedure involves (a) using a light-weight head-mounted video camera to capture the individual's visual field of action on the environment during the activity being studied, and (b) using this video record to assist the individual to recall the experiences associated with these particular actions. The video images taken from an individual's own perspective have been shown to be powerful stimuli for the recall of moment-by-moment experiences. Findings from studies in the fields of sport (orienteers and Australian Football umpires) and emergency services (firemen) will be presented.

## **Changing Health Habits: The Metamotivational Differences Between Resisting Urges and Initiating New Behaviours.**

**Kathleen A. O'Connell and Evelyn Brooks. University of Kansas Medical Center, Kansas City Kansas, USA,**

In the process of developing new scales for assessing mastery/sympathy states, the investigators noticed that subjects who succeeded in resisting the urge to resume an old habit, such as overeating, often reported both positive and negative feelings associated with this success. Subjects who succeeded at engaging in a new habit, such as exercise, reported more uniformly positive feelings associated with success. This led us to investigate the experience of overcoming old habits as compared to adopting new ones. Using newly developed scales that assessed the mastery/sympathy, telic/paratelic, and negativistic/ conformist states, 242 subjects described their feelings during recalled instances where they either succeeded or failed to engage in a new health behaviour or to resist the urge to resume an unhealthy habit. Subjects who succeeded at resisting an urge to resume an old habit had significantly higher scores on the Sympathy Losing Scale (measuring the extent to which the subject feels forgotten, deprived, neglected, and not cared about) than subjects who succeeded at engaging in a new behaviour. Subjects who failed at resisting an urge had significantly higher scores on the Sympathy Gaining Scale (measuring the extent to which subjects felt affectionate, appreciated, cared about, tender, and kind to self) than subjects who failed to engage in a new behaviour. Subjects who failed at resisting an urge were more likely to be paratelic than subjects who failed at engaging in a new behaviour, while subjects who succeeded in engaging in a new behaviour were more likely to be paratelic than subjects who succeeded at resisting an urge. These findings indicate that metamotivational states and feelings associated with success and failure at changing health behaviour vary as a function of the type of behaviour. The results shed light on why changing addictive behaviours is especially problematic. The implications for changing health behaviours and for assessment of mastery/sympathy states will be discussed.

## **The Role of Reversal Theory in Explaining Sexual Risk Taking by College Students.**

**Mary M. Gerkovich. Midwest Research Institute, University of Kansas.**

Over ten years has passed since the initial identification of the human immunodeficiency virus (HIV) as the cause of acquired immunodeficiency syndrome (AIDS). In that period of time, much has been learned about how the virus is transmitted and what behaviours put people at risk. Much effort has also been expended in disseminating information about HIV transmission with the goal of eliminating risk behaviours. There is evidence that these efforts have been successful in changing sexual behaviours in samples of male homosexuals; more recent results, however, indicate that young male homosexuals are not making these behavioural changes. Increasingly at risk are, heterosexuals, for whom the rate of new HIV infection is increasing faster than for any other group. This increase is primarily due to the failure of this group to identify itself as being at risk of HIV infection. This failure to perceive the real risk of infection results in a failure to change risky sexual behaviours.

The theory of psychological reversals has the potential to be extremely important for understanding a variety of paradoxical behaviours. Of particular importance is its relevance to understanding why people continue to engage in risky sexual behaviour when they know the risk of HIV transmission and AIDS. An earlier questionnaire study of college students found that sexually experienced people were more parasitic and arousal seeking than were those who were sexually inexperienced. In addition, parasitic dominance was also related to the reasons for not using condoms.

The proposed presentation will report results of a new questionnaire study that examined the relationships among parasitic dominance, sexual behaviour, alcohol use, health attitudes and knowledge of HIV transmission and AIDS. Hypotheses were tested using data from 371 college students. Tests of whether results from the first questionnaire study were replicated will be presented. In addition, information will be presented from a preliminary test of an interview designed to obtain metamotivational, situational and behavioural data during both safe and unsafe sexual experiences.

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## **Metamotivational Dominance and Addictive Substance Use Among Adolescents.**

**Sharon Turner. Swinburne University of Technology, Melbourne, Australia.**

This study investigated differences in metamotivational dominance among adolescents who engaged in different levels of substance use. It specifically aimed to establish whether individuals who labelled themselves as 'heavy' alcohol consumers or cigarette smokers would be more paratelic and negativism dominant than those who labelled themselves 'non-drinkers' or 'non-smokers'. Ninety-three Year 9 and 10 secondary school students participated in the study (68 males, 25 females). One way analyses of variance revealed heavy drinkers were significantly more paratelic dominant than non-drinkers, while heavy smokers were significantly more paratelic and negativism dominant than non smokers. Paratelic dominant adolescents who engaged in heavy smoking may have done so because smoking is defined by society as a risky behaviour, and therefore provides arousal.

Education and preventative campaigns which focus on health hazards of smoking, may in fact, increase the likelihood of this behaviour by paratelic dominant individuals.

## **Using All the Metamotivational States: Which Pairs Are the Most Important Predictors of Resisting the Urge to Smoke?**

**Kathleen A. O'Connell, University of Kansas Medical Center, Kansas City, Kansas, USA.  
Mary M. Gerkovich and Mary R. Cook, Midwest Research Institute, Kansas City, Missouri, USA.**

Descriptions of highly tempting episodes given by 56 subjects who were attempting to quit smoking were coded for all four pairs of reversal theory states, telic/paratelic, negativistic/conformist, mastery/sympathy, and autic/alloic. In addition, the episodes were coded for the four versions of the autic/alloic pair: intra-autic, autocentric, allocentric, and pro-autic. Using logit modeling, the following research questions were addressed (1) Are the four pairs of states orthogonal to each other as Apter has posited? (2) Does the combination of the four states provide an adequate model to account for smoking or abstaining during the episodes? (3) Which pairs are more important in predicting smoking or abstaining during the episode? Results of the study indicated that the telic/paratelic, negativistic/comformist and mastery/sympathy pairs were orthogonal to each other. Too few instances of alloic states were available in this data set to include the autic/alloic pair in the analysis. However, the version of the autic state the subject was in was significantly related to two of the pairs, The combination of the three metamotivational state pairs and the versions of the autic state provided an adequate fit to the data that included lapse/abstain as the dependent variable. The combination of the telic/paratelic pair and the interaction of mastery/sympathy with intra-autic/autocentric versions the autic state provided the most parsimonious model, This study provides one of the few instances in which all four pairs of reversal theory's metamotivational states were applied to the same data set. The findings indicate that the four pairs of states provide nonoverlapping information and illustrate the usefulness of reversal theory in identifying variables that are relevant to resisting the urge to smoke.

## **Effects of Smoking on the Brain Depend on State and Gender.**

**Mary R. Cook, Mary M. Gerkovich, Steven J. Hoffman, F. Joseph McClemon . Midwest Research Institute, Kansas City, Missouri. Kathleen A. O'Connell . School of Nursing, University of Kansas Medical Center, Kansas City, Kansas**

Reversal theory has been shown to predict lapses in smoking cessation. Individuals are more likely to lapse if **they** are in the paratelic state than if they are in the telic state. The literature indicates that people can smoke in such a way as to either increase or decrease central nervous system arousal; smoking in the telic and paratelic states might therefore differentially affect the resting electroencephalogram, as quantified by Discrete Fourier Analysis.

At the last conference, we reported the results of an experiment designed to test this hypothesis. When people smoked in the telic state, theta power was decreased. When people smoked in the paratelic state, beta 2 power was increased, but only for men. We have now completed an additional study that contributes further understanding of the relationships between state, smoking, and brain activity.

Men and women who were beginning a smoking cessation program came to the laboratory prior to the "quit date". After the volunteer gave informed consent, sensors were attached to the scalp to measure brain activity from four sites (left and right frontal and parietal). The volunteer then participated in a study of the effects of breathing maneuvers on brain waves. At the end of the breathing maneuver study, each subject smoked a cigarette of his or her own brand. Brain activity was measured before and after smoking.

Smoking decreased theta activity more for telic than for paratelic subjects, supporting the results of the first study. The effects of smoking on Beta 2 power, however, were more complex than observed in the first experiment. In general, smoking increased Beta 2 power regardless of gender or state. For men, increases in Beta 2 activity were greater on the left side for subjects in the telic state, and greater on the right side for subjects in the paratelic state, perhaps reflecting differences between arousal and activation systems. No differential effects on Beta 2 power as a function of state were found for women. Implications of the results for health behavior and reversal theory will be discussed.

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## **Helping Athletes Perform: Integrating Reversal Theory and Psychosynthesis in Applied Sport Psychology.**

**Jonathan Males, Sporting Bodymind, Hampstead, England.**

Reversal theory is a model for understanding human experience but how does it help athletes improve their performance? Several case histories are discussed that illustrate how reversal theory can be used by an applied sport psychologist. In particular it is suggested that reversal theory can be combined with aspects of psychokinesis, a humanistic approach to therapy and self development that seeks to help an individual integrate a complete range of personal qualities. From a reversal theory perspective, psychokinesis aims to allow a full and free movement across a range of metamotivational combinations that are appropriate to the situation the individual finds him or herself in, without getting stuck in any particular mode combination. Successful sports performance appears to depend on such flexibility so that the individual's attentional, cognitive and emotional resources are congruent with the prevailing task demands. The author is an applied sports psychologist whose clients include the British Olympic Canoe team, world ranked squash players, rowers and professional pool players.

## **Autic Negative Selves As An Adjunct To The Treatment Of Bulimia Nervosa .**

**Bruce Wilson, PhD. Liz Luther, M,Ed, The University of New South Wales, Sydney, Australia.**

The DSM IV diagnostic criteria for bulimia nervosa (307.51) is primarily concerned with binge eating and compensatory behaviours (self-induced vomiting, misuse of laxatives, diuretics, enemas, or other medications, fasting, or excessive exercise) to prevent weight gain. These criteria are helpful for diagnosis, however, give minimal guidance to possible treatment strategies. In the treatment of the bulimic, there is a need to identify more of the psychological antecedents contributing to the pathology.

Recently, Apter (1994) outlined positive and negative selves that correspond to the ten metamotivational states associated with the theory of psychological reversals. This paper proposes additional criteria (to 307.51 of the DSM IV) utilising two of these negative selves in the analysis of four case studies where the diagnosis is bulimia nervosa. These criteria delineate how negative autic selves (mastery and sympathy) identified by Apter might assist therapists in the treatment of clients diagnosed as bulimic.

## The Relationship between Metamotivational State and Eating.

Rick Howard and Joanne Ong, Dept. of Social Work and Psychology, National University of Singapore.

Background, While the relationship between emotional state and eating has been extensively investigated, with conflicting and inconclusive results, it has not, to our knowledge, been studied in the context of reversal theory. This study aimed to look at the relationship between metamotivational state and eating by experimentally manipulating affective tone and arousal to induce: (i) *boredom* (paratelic low arousal); (ii) *anxiety* (telic high arousal); (iii) *excitement* (paratelic high arousal); and (iv) *relaxation* (telic low arousal).

Method, Groups of extreme telic (N = 19) and paratelic (N = 17) dominant Ss were selected using the Paratelic Dominance Scale. Half of each group were randomly assigned to an exciting/challenging task (Go / No Go avoidance) and half to a boring/de-arousing task (auditory oddball). After 15 minutes task performance was interrupted while the experimenter "set up a new task". S was then given the opportunity to eat chocolates *ad lib* for 10 minutes. Ss completed the Telic State Measure (TSM) and the Stress Arousal Checklist (SACL) both on arrival and following the "delay" period to verify that the appropriate emotional state had been induced. The chocolates were weighed before and after the "delay" period to give a measure of amount consumed. Results. SACL and TSM scores indicated that the appropriate emotional state had been induced by the 2 tasks, i.e. Go / No Go in telics: low hedonic tone, high arousal (*anxiety*); Go / No Go in paratelics: high hedonic tone, high arousal (*excitement*); Oddball in paratelics: low hedonic tone, low arousal (*boredom*); Oddball in telics: high hedonic tone, low arousal (*relaxation*). Eating was found to vary with arousal in the telic state (maximal with relaxation, minimal with anxiety), but not in the paratelic state (high in both excitement and boredom). Overall, paratelics ate more than telics.

Conclusion, A negative emotional state does not necessarily either facilitate or suppress eating; rather, its effect depends on the prevailing metamotivational state in which it is experienced.

## **Motivations For Overeating In Overweight And Normal Weight Females.**

**Sue Popkess-Vawter, and Shirley Wendel, University of Kansas-Kansas City. USA.**

Research indicates that nearly one fourth of all females in the United States are overweight despite numerous approaches to weight control. Women suffer the negative physical, psychological, and financial consequences of weight cycling, the experience of repeated periods of weight loss followed by weight regain. The purpose of the study was to compare overweight women who weight cycle with normal weight women who do not weight cycle on overeating and resisting overeating situations. Apter's reversal theory, a theory of arousal, motivation, and action, provided the theoretical bases for the study and semi-structured interview schedule. Fifteen overweight subjects had been on significantly more diets ( $t=3.22$ ,  $p<.004$ ) and had more negative body images ( $t=-5.48$ ,  $p<.0001$ ) compared to 16 normal weight subjects. From interview data, most overeating situations for weight cycles were precipitated by angry feelings, while situations for normal weight subjects were pleasant. Using chi-square analyses, weight cycles were found to be focused on stressful interactions with others before overeating ( $p<.03$ ). During the desire and decision to overeat, cycles were serious minded and planning ahead ( $p<.05$ ) while normal weight subjects were feeling tender and nurturing toward themselves ( $p<.04$ ). When deciding to resist overeating and during resisting, normal weight women were tough minded and in control ( $p<.006$ ). Findings provided evidence that weight cycles and normal weight women were in different motivational states at distinctive times during overeating and resisting overeating situations. The ultimate research objective of this study and other planned studies is to develop nursing interventions to assist overweight women to stop overeating and weight cycling.

## **Performing A Life: Some Guidelines From Reversal Theory.**

**Michael J, Apter, Georgetown University, USA,**

Many of the papers at this conference will have examined particular kinds of human performance from reversal theory perspective: performance at sport, performance at intellectual problems, etc. The aim of the present paper is to look at the performance of life as a whole in terms of reversal theory, and to ask what it is that leads to successful performance in the sense of the accomplishment of personal happiness and fulfilment.

In this respect,, Curt Free and I,, in writing "Our Eight Selves" (in preparation), identified some general reversal theory **guidelines**,, and these will be discussed in this paper. They include the following: 1) Seek 'psychological completeness' by trying to experience all the metamotivational states with some regularity; 2) Identify those metamotivational states which lead to superior performance in different domains of your life, and try to be in the 'right' state at the 'right' time; 3) If some recurrent situation is stressful, try to experience it as often as you can through the opposite metamotivational state; 4) Avoid behaviors which satisfy the needs of one metamotivational state at the expense of others; 5) Avoid behaviors which satisfy the needs of one metamotivational state at the expense of the metamotivational states of other people; 6) Avoid stereotyping yourself - or others - in terms of the metamotivational states which are currently active (this may be termed chronotyping 1) ; 6) Choose life projects through which all your metamotivational states may, at different times, find coherent expression; 7) Become part of, and relate to, contexts which are complex enough to satisfy all your metamotivational states at different times. Much of all this may be summarised by saying that psychologically healthy people display motivational versatility, temporal coherence and behavioral competence. These guidelines will be illustrated with concrete examples, and ethical and other issues which arise will also be examined.

## **Toward a Typology of Consumer Motivation.**

**Mitzi Apter-Desselles, Mobil Corporation, Virginia, U.S.A.**

In 1991, the DDB Needham Lifestyle Study included selected items from all the metamotivational dominance subscales of the Personal Orientation Profile (POP) - The study was administered to 4,000 adult men and women in the United States, chosen so as to be representative of the national population in terms of such demographic variables as age, sex, household income and geographical location. The main purpose of the study (which is administered annually) is to document this consumer and lifestyle habits of Americans, and to provide a data base for analysis of relationships between demographic, consumer and lifestyle variables.

The data from the 1991 study will be used to explore the possibility of relationships between the various kinds of dominance identified in reversal theory and 1) consumer variables (i.e. purchase and consumption of various types of products) and 2) lifestyle activities (e.g. leisure activities, credit card use, holiday choices). The overall aim is to see whether metamotivational dominance can provide a new framework which would help those working in marketing and advertising to improve their understanding, and ability to predict, consumer behavior.

## **Multiple Selves Operating Within Relationships.**

**Bruce Wilson, PhD. Liz Luther, M.Ed. The University of New South Wales, Sydney, Australia.**

Recently, Apter (1994) has suggested that understanding multiple bistable selves (metamotivational states), each having positive and negative aspects, may help therapists explain human behaviour. The issues presented by couples in relationship therapy could be seen as an example of Apter's negative (dysfunctional) multiple selves.

For example, couples appear to be locked in a struggle between issues of self (independence) and issues of belonging (dependence). This struggle serves as the catalyst to either growth or destruction within the relationship. The purpose of this paper was to clarify the role of multiple selves and their influence on each partner within the relationship. The authors believe Apter's criteria provides the relationship therapist with specific information regarding client diagnosis and intervention strategies.

Three case studies are examined to illustrate the functional utility of Apter's criteria in relationship therapy. The authors conclude that identifying negative selves will help therapists in the diagnosis of client issues, while clarifying positive selves will assist in possible solutions.

## **On Metamotivational Analysis.**

**Michael J. Apter, Georgetown University, USA,**

In many areas of both pure and applied psychology the question arises: "Why do people perform this kind of behavior?" The question may be asked because: 1) The behavior is puzzling in some way (eg. gambling, watching horror movies); 2) We want to increase its frequency (e.g. driving carefully, buying a certain product) ; 3) We want to decrease its frequency (e.g. smoking, risky sexual behavior),

The advantage of reversal theory in relation to this kind of "Why?" question is that it provides a comprehensive way of looking at all the different possible basic psychological needs (metamotives) and exploring how they might relate to that behavior, In other words, unlike some other approaches, it is not hit-or miss, or limited by certain narrow assumptions,, but forces the researcher to consider, in a systematic way, a wide range of different motivational possibilities, We may suitably refer to this process as metamotivational analysis',

Examples of this type of analysis will be given from three highly diverse questionnaire studies, The first study was designed to answer, among other things, the question "Why do people ever voluntarily engage in the dangerous activity of parachuting?" The second study sought an answer to the important practical question: "Why do people volunteer to donate blood?" And the central interest of the third study, which was about sexually ambiguous situations, was : "Why do women sometimes display token resistance to sexual advances which they in fact welcome?" It will be argued that metamotivational analysis is a technique with wide application, and that it can be used with advantage even by those who do not specifically subscribe to the tenets of reversal theory.