Chapter Two

THE REVIEW OF LITERATURE
Chapter II

THE REVIEW OF LITERATURE

Sincere efforts have been made by the research scholar to locate literature related to the present study. The relevant studies found from various sources, which the investigator has come across, are enumerated below.

Despite the apparent importance of mental toughness, limited research has been conducted on Volleyball. In particular, there is a lack of mental toughness measures that have been evaluated in relation to even minimum levels of psychometric criteria—reliability, factor structure, and construct validity. Sport psychologists (researchers and practitioners), volleyball coaches, sports commentators, sports fans, and volleyball players acknowledge the importance of mental toughness in sporting performance (Goldberg, 1998; Hodge, 1994; Tunney, 1987; Williams, 1988). In early work on the issue, Loehr (1982, 1986) emphasized that Volleyball players and coaches felt that at least fifty percent of success is due to psychological factors that reflect mental toughness. Similarly, Gould, Hodge, Perterson, and Petlichkoff (1987) emphasized that coaches feel that mental toughness is important in achieving success, while Norris (1999) has emphasized the importance of mental toughness in developing champion Volleyball players. Phenomenological research design, employing the qualitative in-depth interview was used. Constant comparative analysis, as applied to grounded theory, was used to guide data collection and analysis. Champions were asked to describe their processes toward championship achievement, and what facilitated their athletic and psychological development. Of particular interest was how they traced their development, which included the following themes: The roles of parents, teachers, coaches and mentors,
conceptualizations of mental toughness, process versus outcome orientations to
competition, the zone, triumphing when not in the zone, sportsmanship, regulation of
emotion, self-talk, self-knowledge, self-complexity, motivation, confidence, dreams
and childhood imaging, goal setting, acting skills when competing, humor,
independent thinking, discipline, the history of their personal competitiveness, and
their achievement of successfully contending with the psychological pressures of
competitions.

Ramzaninezhad, et. al. (2009) conducted a study to establish the relationship
between collective efficacy, group cohesion and team performance in professional
volleyball teams. 13 male volleyball teams (N=153) at Iran Volleyball clubs
professional league (2008) were selected as the subjects. Collective Efficacy
Questionnaire (CEQ) and the Group Environment Questionnaire (GEQ) were
administered. Both the questionnaires were administered in the second half-season of
the league. ANOVA with repeated measures and Tukey’s post hoc test was used to
compare the group cohesion levels of successful, less successful and unsuccessful
teams. They found significant differences between cohesion levels of successful, less
successful and unsuccessful teams. Successful teams had more team cohesion than
less successful and unsuccessful teams. The findings revealed that task cohesion
positively and significantly correlated to collective efficacy and the social dimension
of cohesion did not significantly correlated to collective efficacy. Therefore players
who perceived their teams high in task cohesion tended to rate their teams higher in
collective efficacy. The significant and positive relationship was found between
collective efficacy and group cohesion (r=0.57). Elite male volleyball player’s
perceptions of collective competence in coordinated group activities increased their
feelings about their personal and group involvement with their teams' tasks and objectives. Result further revealed that players from successful teams rated high in collective efficacy and group cohesion than less successful teams and players from less successful teams rated high than unsuccessful teams. Positive relationship was found between collective efficacy and group cohesion. Both collective efficacy and group cohesion were found influencing team performance.

Kuan and Roy (2007), examined the association between group profiles, mental toughness on performance outcomes among Wushu athletes. This study examined the association between goal orientation and mental toughness and its influence on performance outcomes in competition. Wushu athletes (n=40) competing in Inter University Championship in Malaysia completed Task and Ego Orientations in Sports Questionnaire (TEOSQ) and Psychological Performance Inventory (PPI). Using cluster analysis techniques including hierarchical methods and the non-hierarchical method (k-means cluster) to examine goal profiles. Chi-square ($\chi^2$) test revealed no significant differences among athletes with different goal profiles on performing outcomes in the competition. However, as for as the mental toughness was concerned, significant differences were observed between the medalists and non-medalists athletes. The medalists were rated higher than the non-medalists.

Zakrajsek, et. al., (2007), conducted a study to establish relationship among coaches' and athletes' perceptions of coaching staff cohesion, team cohesion and performance. Eighteen NCAA Division I, II and III teams from the mid Atlantic region of the United States, 52 coaches (33 male and 19 female) and 355 athletes (154 male and 201 female) where chosen as the subjects. Coaching Staff Cohesion Scale (CSCS); (Martin, 2002) and modified APCSCS, the Group Environment
Questionnaire (GEQ); (Carron, 1985) and an item of perceived team performance were administered to obtaining the data. Bivariate correlations between the CSCS and APCSCS revealed a moderately strong relationship ($r=0.603$, $p<0.01$). An independent samples $t$-test revealed a significant difference between athlete’s perceptions of coaching staff cohesion and coaches perceptions of coaching staff cohesion ($t=7.162$, $111.13$, $p<0.001$). The results of the study was, coaches perceptions of coaching staff cohesion were higher ($M=16.34$, $SD=3.7$). Over all, coaches’ perceptions of staff attraction, staff unity and shared values were higher than athletes’ perceptions. A significant relationship was also found with the components of CSCS with GEQ and performance. Significant relationship was found between coaching staff cohesion scale and athletes’ perception and performance. Significant differences between athletes’ perception of CSC and coaches’ perception of CSC were also found. Significant relationships were found between coaching staff cohesion and team cohesion in ATG-T scale and APCSCS & GEQ, ATG-T & GI-S and also ATG-S and APCSC. The team cohesion and performance had strong positive relationship.

Marcos, et. al., (2010), established the relationships among cohesion, self efficacy, and coaches’ perceptions of their players’ efficacy at the individual level and the athletes’ perceptions of their teammates’ efficacy. 76 subjects selected from four semi professional Spanish soccer and basketball teams were selected as subjects. This included 4 coaches also. A version of Multidimensional Sport Cohesion Instrument (MSCI); (Yukelson et. al. 1984) and Banduras’ (2006) Questionnaire to measure players’ and coaches’ perceptions of team members’ efficacy levels were used. Data was analysed through correlation methodology. The findings revealed that coaches’
perceptions of their athletes' efficacy significantly associated with all variables, including teammates' efficacy ratings ($r=0.88,$ $p<0.01$), individual athletes' own self efficacy ratings and the four dimensions of cohesiveness, with all correlations exceeding $r > 0.30$ ($p < 0.01$). Results indicated significant correlations between self efficacy and task cohesion and social cohesion. A Regression Analysis result suggests task cohesion was positively related to coaches' and teammates perception of efficacy. These results have implications for practitioners in terms of the importance of team building to enhance team cohesion and feelings of efficacy.

Murphy (2001), conducted a study on the effect of one-time team building exercise on team cohesion when working with a NCAA Division I Women's Basketball team. The subjects were fourteen players (six freshman, four sophomores, three juniors and one senior) of NCAA Division I Women's Basketball team. Team cohesion was measured by using Group Environment Questionnaire (GEQ) (Carron, et al., 1985). A one group pretest and post test design was used to collect data for this exploratory study. The GEQ was administered one week before the team building exercise and one following the team building exercise. The small random sample size ($n=14$) restricted the statistical analysis and simple mean comparisons between pretest and post test data along with X chart was generated by using Microsoft Excel with Stat Plus software. The results revealed that there was slight increase in cohesion in Group Integration - Social (GI-S) and Group Integration - Task (GI-T). No change in Attraction to Group - Social (ATG-S) and positive score was found in pretest than post test as for as Attraction to Group - Task (ATG-T) was concerned.

Tripathi and Singh (2010), established the relationship of perceived motivational climate to goal orientation and mental toughness of male and female
student athletes. A sample of 253 student athletes (125 male and 128 female) from various colleges located in Bhopal (MP) were selected as subjects at random. The Task and Ego Orientation in Sports Questionnaire (TEOSQ); (Duda & Nicholls, 1992) was used to measure the goal orientation. The Perceived Motivation Climate in Sports Questionnaire (PMCSQ); (Seifriz, Duda & Chi, 1992) was used to measure the perceived motivational climate on two domains, mastery and performance. To measure the mental toughness, the Psychological Performance Inventory (PPI); (Loehr, 1986) was used. One way ANOVA, revealed that there were significant differences between task goal orientation, F (1,152) = 445.63, p < 0.001 and ego goal orientation F (1,152) = 110.68, p<0.001, of male and female students. Significant difference between male and female students’ perception of motivational climate was observed for both mastery climate F (1,152) = 72.51, p<0.01 and performance climate F (1,152) = 25.60, p<0.01. Motivational climate was perceived as more mastery oriented by female students (M=4.10, SD=0.52) than male students (M=3.54, SD=0.52). In mental toughness male students have showed greater control than female in self confidence, negative energy control, attention control, positive energy control and attitude control. The female had shown better control in visual and imagery control and motivational levels. Pearson’s Coefficient Correlation was used to establish the relationship. The findings of the present study revealed that there were relationship between perceived motivational climate and goal orientations, different dimension of mental toughness, motivational climate and goal orientation.

Hoigaard et. al., (2006), examined the relationship between group cohesion, group norms and perceived social loafing among 118 soccer players playing junior league in Norway. A GEQ questionnaire to assess group cohesion (task cohesion and
social cohesion) team norms (productive norms, role involvement and social support norms), and perceived social loafing were used to collect the data. Correlation and multiple regression analysis were used as statistical procedure. The findings revealed that all cohesion and team norm sub scales were negatively correlated with perceived social loafing. Furthermore, the results showed that the player’s attraction to their teams’ task as well as their perception of the productive—and social—support norm predicted perceptions of social loafing. A significant three way interaction between task cohesion, social cohesion and performance norm emerged. The analysis showed that the combination of high social cohesion, low task cohesion and low team norms seems to underlie perceptions of social loafing.

Nizam et. al., (2009), explored the affect of higher score of mental toughness in the early stage of the league towards winning among Malaysian football players. 132 subjects (88 first round, 22 quarter final, 11 semi final and 11 finals) football players from the prestigious Malaysian Football Cup Championships were selected as subjects. The Psychological Performance Inventory (PPI); (Loehr, 1986) was administered to collect the data. The difference between the mental toughness between the categories of elite and non elite, professional and amateur players was measured. Other than that, the relationship between the player’s category, status and achievement with the seven dimensions of mental toughness was evaluated. The descriptive analysis showed that the mental toughness of Malaysian Football players was at an excellent level. T-test showed that there was no significant difference on the mental toughness from the aspect the players’ category, but there was a significant difference on the status of the players. One way ANOVA and Post Hoc Test showed a significant difference between the four dimensions of mental fitness among the
players from various teams of different achievements. The findings showed that there was no significant difference on the dimensions of mental toughness. Pearson correlation analysis shows a low and significant association between the status and mental fitness of the players. Further the results showed that the mental toughness of Malaysian football players is at an excellent level.

Carron, et. al., (2002), conducted a study on to use index of agreement to examine the degree to which individual perceptions of cohesiveness reflect shared beliefs for group cohesion in sport teams. Further they examined how the type of cohesion, the task interactive nature of the group, and the absolute level of cohesion are related to the index of agreement. 2107 athletes from 192 teams were selected as subjects and were tested on Group Environment Questionnaire to collect the data. The data was analysed by using descriptive statistics. The findings revealed that the average index of agreement values were greater for the Group Integration (GI) manifestations of cohesiveness (GI–task, $r_{wg(i)}=0.721$; GI–social, $r_{wg(i)}=0.694$) than for the Individual Attractions to the Group (ATG) manifestations (ATG – task, $r_{wg(i)}=0.621$; ATG – social, $r_{wg(i)}=0.563$). No differences were found in index of agreement values for team's differential on the basis of task interdependence (i.e., interactive sport teams versus coactive/independent sport teams). Finally a consistent pattern of relationships was observed between the absolute level of cohesiveness and the index of agreement; consensus increased as the amount of cohesiveness present in the team increased. The results were discussed in terms of this implication for the aggregation of individual perceptions of cohesion to represent the group construct.

Gany, Belal and Azim (2010), conducted a study to develop psychological and mental abilities of the elite junior players through applying a program of mentoring
and some techniques of Neuro Linguistic Programming (NLP). 15 junior national Basketball players represented Egypt were selected as subjects. The NLP programme was adopted to the subjects in 18 sessions for the development of psychological and mental abilities. They found significant improvement in all the dimensions of mental and psychological skills after applying programme of mentoring and NLP and there was positive effect on the level of psychological and mental abilities such as emotional intelligence, mental toughness belonging and citizenship.

Karthikeyan, et. al., (1999), made an effort to compare group cohesion differentials between high and low performers of south west zone inter university volleyball tournament for women. 81 volleyball players representing Calicut, Shivaji Mahathma Gandhi, Madras, Sri Krishna Devaraya, Nagpur, Annamalai and Manonmanian Sundernar Universities who reached the quarter finals stage were selected as subjects. Group Environment Questionnaire (GEQ); (Carron, 1985) was administered to collect the data prior to the competition. The four teams who entered the league phase of the tournament acted as high performers and the losers of the quarterfinal match acted as low performers. ‘t’ test was used to find out the significant difference between high and low performers of south west zone inter university volleyball tournament. The findings revealed that the ‘t’ value of 6.56 which was more than that of the table value of 1.67 at 0.05 level. A glance at the mean score of both high performers and low performers clearly showed that high performers had higher score than the low performers. The results of the study revealed that high performers of south west zone inter university volleyball tournament indicated significantly higher level of cohesion than low performers.
Mann, Mann and Sonia (1999), conducted a study on the influence of cohesion on the swimmers. 51 male swimmers from different colleges of Punjab University, Chandigarh were selected as subjects. Group environment Questionnaire (Carron A.V. et al., 1985) to measure all the dimensions of team cohesion among the swimmers at the university inter collegiate level was administered to collect the data. 't' test was used to find out the significant difference between the high and low performers. The findings revealed that the mean value and standard deviations recorded for ATG-T variables of GEQ found significant and 't' value was 5.15. For GI-T the 't' value was 0.83 was not found significant. ATG-S and GI-S were found statistically significant. The results of the study showed the high performance group swimmers were found significantly better on ATG-T, ATG-S, GI-S, Task Integration combined and Social Integration combined than low performers group. But no significant differences were found between high and low performance group as for as G.I-T variable of GEQ is concerned.

Kumaran, Sidhu and Hasrani (1999), conducted a study to investigate the effect of player status (starters and reserves) and performance outcome (success or failure) on team cohesion among the Inter-University Basketball players. 96 male basketball players of 8 university teams who reached quarter final stage of West Zone Inter University Basketball tournament 1993-94 were selected as the subjects. The data pertaining to team cohesion was collected by administering Group Environment Questionnaire (GEQ); (Carron, Widmeyer and Brawley, 1985) on the subjects. To determine the players’ status the list of starting players and reserve (substitutes) was collected from the respective coaches. The result of all quarter final matches showed the performance outcome such as winners and losers. The data was analysed
statistically by using ‘t’ test. It was found there was significant difference in cohesiveness between the winners and the losers (calculated ‘t’ value 4.18 was greater than the tabulated ‘t’ value 1.98). Significant differences were found in ATG-T, ATG-S and GI-S, whereas no significant difference was found between winners and losers in the cohesive aspect of Group Integration – Task. Further the findings revealed that there were significant difference in ATG-T and no significant difference in ATG-S, GI-T and GI-S aspects of team cohesion of high and low status players. The results of the study clearly indicated that the winners were more cohesive than the losers.

Rathore, Singh and Dubey (2009), conducted a study to compare the Mental Toughness of Team and Individual players of different CBSE schools of Rajasthan. 30 players of team game and 30 players of individual game belong to different CBSE schools of Rajasthan were randomly selected as subjects. Mental Toughness Questionnaire by Alan Goldberg (1998) was administered to collect the data. To analyse the data cluster X and ‘t’ test was employed. The statistical findings revealed that there were significant difference in mental toughness between the players of team games and individual games of different CBSE schools of Rajasthan. The calculated ‘t’ value 3.49 was found to be more than tabulated value 2.00 at 0.05 level. Thus the data provides sufficient evidence to ensure that the mean value of players of team games were significantly higher than the mean value of the players of individual games.

Ahmed and Hend (2009), made a study find out the differences in the mental toughness and mental skills to focus attention and relaxation between the groups and individual games and athletes’ at higher levels. 37 male Egyptian athletes 18 from Soccer Egyptian Telecom Club and 19 from National Bowling team, Cairo were
selected as subjects. Mental Toughness Questionnaire (Loehr 1988; Mohammed Allawi and Ahmad Salah 1996), Muscle Tension Levels Chart (Nideffer – 1985; Mohammed El Arabi and Magda Esmail – 1986) and Grid Concentration Test (Harris – 1984; Mohammed El Arabi and Magola Essmail – 1996) were used to collect the data. ‘t’ test, means and standard deviations were used as the statistical tools. The findings indicated that there were significant differences in the scientific mental toughness and focus attention for the group games, but there were significant differences in the relaxation for the individual games. The results of the study showed that there were superiority of the group games on the individual games in all the aspects of mental toughness and the mental skills of the athletes.

Singh and Rupani (2000), conducted a study to assess the mental hardiness on national level Roll ball players. 28 players, 7 each from East, West, North and South Zone participated at the National Roll ball competitions, randomly selected as the subjects. Standardized mental hardiness available in the website www.psychtests.com was selected as the tool. The mental hardiness questionnaire with 26 questions in total was administered on the subjects to collect the data. The data was statistically tabulated by using the percentile method. The results revealed that mental toughness was identified as one of the important component for both individuals and team games. Therefore, necessary care needs to be taken in physical education programmes to enhance the mental toughness of players irrespective of their game.

Dubey, Rathore and Dubey (2009), made an effort to compare the mental toughness between Theist, Atheist and Diest belief among sports persons. 60 players from individual and team games were selected as subjects. 20 players in each group (Theist, Athiest and Diest) were administered with Dr.Alan Goldberg’s Questionnaire
on mental toughness to collect the data. Mean standard deviation and ANOVA was used to compare the Mental Toughness between the three groups. The level of significance was set at 0.05 level of confidence. The findings revealed that no significant difference was found among Theist, Athiest and Diest belief sports person in relation to mental toughness (F=0.192) as obtained ‘F’ value was less than required ‘F’ ratio to be significant at 0.05 level with (4.57) degree of freedom. Several studies have showed that mental toughness has positive relationship with religion/prayer but on the basis of present findings it was concluded that mental toughness has no relation with theism, athietism or deism.

Mathai and Subramanian (2009), investigated the distribution of the variables Anxiety, Mental Toughness and Self efficacy in the high and low achieving intervarsity athletes and the extent to which mental toughness and self efficacy is related to anxiety. 82 athletes (42 female and 40 male, age–17 to 22 years) from all the 6 universities in Kerala who participated at the 2008 athletic meet were randomly selected as subjects. The generalised self efficacy scale, by Mathias Jerusalem and Ralf Schwarzer, a 10 item scale (1993 revised 2000) and Sports Competition Anxiety Scale, a 15 item scale developed by Martens (1977), designed to measure an individual’s state–Trait anxiety disposition to being in a competition, and the mental toughness questionnaire, a 30 item questionnaire used to measure mental toughness, developed by Pamela Lynn Enders (1990) were used to collect the data. The collected data was statistically analysed by using SPSS package. Mean was used as central tendency and standard deviation was used to measure the dispersion. The relationship between mental toughness and self efficacy with anxiety was found by using Pearson’s Coefficient of Correlation. The findings revealed that anxiety level was
moderate among the sample studied, self efficacy and mental toughness are found to be lower than average. There was significant negative correlation between self efficacy and mental toughness with anxiety. Athletes with low self efficacy and mental toughness were found to be highly anxious. The results also showed that high achievers have higher levels of self efficacy, mental toughness and lower levels of anxiety than low achievers. Therefore implications were made for further ways of improving self efficacy feeling and ways of passive and active toughening which reduces the level of anxiety and leads to better performance.

Stalin (2009), conducted a study to determine whether implementation of a team building–intervention–programme can be enhanced by improving and ensuring team cohesion which in turn can be fostered by a three pronged strategy of team goal setting, open communication and team prayer. 96 volleyball players in which 48 players (24 men and 24 women) in experimental group and 48 players (24 men and 24 women) in control groups from four teams were selected as subjects for this study. Group Environment Questionnaire (GEQ); (Carron, Widmeyer and Brawley, 1985) was administered to collect the data. The GEQ was administered at both the beginning and end of the programme. The team building intervention programme was given to the experimental group for twelve weeks. The data was analysed by using ‘t’ ratio. The findings revealed that significant differences were found between the pre-intervention test and post-intervention test in experimental group and not in the control group. Overall results indicated that the team building intervention programme using team goal setting, open communication and team prayer was an effective team building tool for enhancing cohesiveness in sports teams.
Krishna, Vinay and Singh (2009), investigated to find out the effects of mental practice on selected football skills. 30 university level football players (boys) were selected as subjects. The age ranged between 20-23 years with a mean and SD 21.4 ± 1.41. The subjects were divided into experimental and control groups and each group consisted of 15 players. The selected soccer skills were juggling, dribbling and wall volley kicking and Start’s (1960) technique of mental practice. The technique of mental practice was carried out for six weeks, three days a week. Pre and Post test scores were taken, to find out the effect of mental practice between the groups. The data was analysed statistically by using analysis of covariance (ANCOVA) revealed that post adjusted mean of experimental groups trained by mental imagery practice, showed better efficacy on selected soccer skills mainly juggling (F = 4.75), dribbling (F=4.46) and wall volley (F=5.89) which were higher than the tabulated F ratio 4.21 needed to be significant. There was no change found in control group because the control group was not edged in any type of mental imagery practice as the experimental groups were.

Ghuman (1999), compared the group cohesion in sportsman and non sportsmen. 300 male students of University of Rajasthan, Jaipur (150 sportsmen and 150 non sportsmen) were selected as subjects. The subjects were selected on the Random Sampling Methods. The Dimensions of Friendships scale of Chandana and Chadha (1986) was used to collect the data. The different dimensions of cohesion, enjoyment, acceptance, trust, respect, mental assistance, confinding, understanding and spontaneity were measured. The ‘t’ test was applied to determine the differences of mean in the scores of each test between sportsmen and non-sportsmen. The findings revealed that the sportsmen showed significantly higher scores on cohesion
with mean 53.15 and SD 5.14 and non-sportsmen mean 47.94 and SD 7.35. The mean difference is 5.21. It shows higher scores in favour of sportsmen and ‘t’ value is 7.11 which is significant on 0.01 level. The results have shown that the sportsmen were higher in cohesion than non-sportsmen on the components like employment, acceptance, trust, respect, mutual assistance, confinding, understanding and spontaneity. Further the results showed more cohesiveness in sportsmen than non-sportsmen.

Parthiban, Nageswaran and Palaniswamy (2006), conducted a study to analyse the effects of mental training on selected Psychological variables of university soccer players. Thirty two men soccer players participated in the Bharathidasan University inter collegiate soccer tournaments were selected as subjects. The subjects were randomly assigned equally into two groups. Group–I underwent mental training (n=16) and Group II (n=16) acted on control group. All the subjects were administered with mental skill questionnaires by Hardy and Nelsons (1996) to assess the mental skills variables. The collected data were statistically examined by using ‘t’ test and analysis of covariance (ANCOVA) to determine differences, if any, among the adjusted post test means on selected criterion variables separately. The level of significance was fixed at 0.05 level of confidence, to test the ‘f’ ratio obtained by ANCOVA and magnitude of improvement was also computed for all the groups on selected criterion variables. The results of the study revealed that there were significant differences between the mental training group and the control group in all the components of mental training like imagery ability, mental preparation, self confidence, anxiety, worry management, concentration ability and relaxation ability. The mental training group was found better than control group.
Ollah et. al., (2011), conducted a study on the comparison of mental toughness in men and women athletes at different levels of skill. The study aimed at comparing the mental toughness in men and women athletes at different levels of skill (novice, sub elite and elite). The design of this study was descriptive in nature. To determined sample size, first of all a preliminary study was conducted using 180 male and female athletes at three skill levels. At the end, according to the p value of 95% and with power test 80%, 300 athletes were selected as the study sample. A Two Way ANOVA and Tuckey Post Hoc Test based on the significant level of alpha 5% were conducted for data analysis. Data analysis was conducted using statistical software version SPSS 17. The result of this research indicated that the main effects of gender and different levels of skills were significant. However, the interaction effects of gender and skill levels were not significant.

Rana (2010), made an effort to compare the mental toughness among high and low achievers in Indian Wrestling. The author examined the mental toughness and its influence on performance outcomes in competition. For this study 60 Indian Male National Wrestlers competing in National Championships at Indira Stadium, Una Himachal were selected as the subjects. The subjects were divided in two groups as per performance outcomes in competition. One is successful wrestlers who had won the medals (n=30) and other one is non successful wrestles who had not won any medals in national championship 2009. Psychological Performance Inventory (PPI); (Loehr, 1986) was administered to measure the mental toughness to both the groups in this study. Descriptive statistics were computed for all the sub scales of mental toughness with the help of SPSS 11.5 version and the mental toughness was compared.
by using ‘t’ tests. The findings of the study revealed that the successful wrestlers scored significantly higher in all the subscales than the unsuccessful wrestlers.

Anizu et. al., (2002), made a study to determine whether mental toughness can be used as psychological predictors of athletic injuries in Malaysian Football players involved in the 2001 Malaysian Professional Football League. 250 players, 25 from each team from five teams were selected as subjects for this study. One set of Questionnaire like the NEO Five–Factor Inventor (Personality Traits) by Paul. T. Costa, Jr. and Robert R. McCrae (1992). The State – Trait Anxiety Inventory (STAI) by Charles D. Speilberger and Rogoelio Diaz–Guerrero (1976), Self–Esteem Questionnaire (SEQ) by Christine Bennette (1999) and Mental Toughness Questionnaire (MTQ) by Alan Goldberg (1998) were used apart from observation and interview for the collection of data. A descriptive method of research was used to determine the psychological predictors of injury among the selected state team players. A pilot study was carried out to test the validity and reliability of the questionnaire. Chi – square test was used to know the association between injured and non-injured players and injuries. Then, Univariate and Multivariate Logistic Regression was also used to identify psychological predictors of injuries by using SPSS–11.0 versions. The findings of the study indicated that majority of the Malaysian professional football players involved in Malaysian Football League has problems with mental toughness. Most of them had poor emotional stability with poor impulse control. Analysis also showed that these players had the highest incidence of injuries. In conclusion, the result indicated that mental toughness can be used as one of the psychological predictors of injuries in Malaysian Professional Football League.
Crust and Keegan (2010), tested the relationship between mental toughness and attitudes towards risk-taking in undergraduate student athletes attending two universities in the North of England. A sample of 69 men (M age=22.2 years, s=5.28) and 36 women (M age=24.6 years, s=7.76) participated and ranged from club to national level in a variety of sports were selected as the subjects. Standardised questionnaires on mental toughness (Alan Goldberg 1998) and Attitude towards risk were administered on the subjects to collect the data. Pearson’s Product Moment Correlations found significant and positive correlations between overall mental toughness and attitudes towards physical risks, but no relationship with psychological risk. Regression analysis found the mental toughness subscale of the ability to handle pressure to be the most significant predictor of attitudes towards physical risk. Independent ‘t’ tests found men reported significantly higher in overall mental toughness, confidence in abilities, the attitudes towards both physical and psychological risks than women student athletes. These results are discussed with regard to previous research findings and future researches are encouraged to consider employing experimental methodologies in order to manipulate contextual factors to more fully understand any individual differences.

Thomas et. al., (1996), investigated the psychological and psychomotor skills associated with ten-pin bowling, and a number of characteristics identified by Gould, Eklund, and Jackson (1993), and Gould, Finch, and Jackson (1993) are present and suggested in the study. For all of the dimensions and mental skills suggested from previous literature, the ability to apply these skills when it matters most is when mental toughness has been achieved. Meeting the demands and handling the pressures is vital and one lapse can cause huge consequences. Thomas et. al., (1996)
created a 37 item questionnaire incorporating specifically the factor of mental toughness to evaluate concentration and coping with pressure during competitive bowling. It was found that the subsection of mental toughness showed one of the highest results for reliability with a coefficient of 0.80 for internal reliability and 0.87 for test-retest reliability. Also 89% were correctly classified as skilled bowlers from the responses to the items in the seven subscales of the Ten-Pin Bowling Performance survey, with mental toughness one of the major components. From this 89%, successful players like these reported that they perform well under pressure, have no difficulty handling the pace, can concentrate for long periods, and often come from behind to win. Although the previous studies provide insights into the mentally tough performer, there are none that attempt to define mental toughness, while also stating sufficiently all the characteristics associated with mental toughness. It has been found that only 9% of coaches have been successful in developing or changing mental toughness in performers they worked with, therefore Jones et. al., (2002), and Gould et. al., (2002) attempted to clarify how to achieve such goals, and did so with relative success. Through using participants that had achieved full honors and represented their country in the Olympics or commonwealth games, Jones et. al., (2002) implemented interviews to try and complete a profile of the mentally tough performer. The procedure was carried out in three stages. In stage 1 the athletes were drawn into a focus group and asked to discuss (a) a definition of mental toughness, and (b) a list of qualities and attributes of the ideal mentally tough performer. In stage 2, individual interviews were carried out on each athlete where they were asked for their definition of mental toughness, views on the focus group definition, and sentiments regarding the attributes associated with mental toughness. Stage 3 involved the researchers independently then collectively reviewing the
participants; comments. The definition and attributes of the ideal mentally tough performer were presented to all participants in the form of questionnaires for agreement rating of definitions and rank orders of the attributes.

Fourie and Potgieter (2001), investigated the components of mental toughness as reported by 131 expert coaches and 160 elite athletes from 31 sport codes. The written statements of coaches and athletes were analysed by means of an inductive content analysis. This resulted in the identification of 12 components of mental toughness. These are: motivation level, coping skills, confidence maintenance, cognitive skill, discipline and goal-directedness, competitiveness, possession of prerequisite physical and mental requirements, team unity, preparation skills, psychological hardiness, religious convictions and ethics. The coaches regarded concentration as the most important characteristic, while the athletes regarded perseverance as most important. The coaches rated the effectiveness of coaches and sport psychologists in strengthening the characteristics of mental toughness more highly than athletes did.

Gould, Dieffenbach and Moffett (2002), chose to investigate the psychological characteristics, and their development, of Olympic champions. Both questionnaire and interview data from 10 Olympic champions (winners of 32 Olympic medals), their coaches (n=10), parents, guardians and/or significant others revealed that these athletes could be characterized by: the ability to cope with and control anxiety; confidence; sport intelligence, the ability to focus and block out distractions; competitiveness; a hard-work ethic; the ability to set and achieve goals; coach-ability, high levels of dispositional hope; optimism, adaptive perfectionism; and mental toughness/resilience. Results also revealed that a number of individuals
and institutions influenced the athletes' psychological development, specifically the athlete's community and immediate family, non-sport as well as sport environment personnel, and the sport process itself. Coach and family influences were particularly important and ways in which these sources influenced the athletes were both direct, such as teaching or emphasizing certain psychological lessons, and indirect, such as involving modeling or unintentionally creating certain psychological environments.

Bull, Shambrook and James, (2003), focused specifically on mental toughness in cricket and addressed two main objectives. First, to obtain a better understanding of what mental toughness is within cricket. Second, to identify how existing mentally tough English cricketers developed their mental toughness. Twelve English cricketers identified by 101 English cricket coaches as being among the mentally toughest during the previous 20 years were interviewed. Analysis of their 1:1 focused interview transcripts identified the following four themes which were subsequently used to disseminate findings to England's cricket coaching and playing population. Environmental Influence, parents, childhood, need to 'earn' success, opportunities to survive early setbacks, exposure to foreign cricket; Tough Character: resilient confidence, independence, self-reflection, competitiveness with self as well as others; Tough Attitudes: never-say-die mindset, go-the-extra-mile mindset, thrive on competition, belief in making a difference, exploit learning opportunities, willing to take risks, belief in quality preparation, determination to make the most of ability, self-set challenging targets; Tough Thinking: Think Clearly - good decision-making, keeping perspective, honest self-appraisal; Robust Self-Confidence-overcoming self-doubts, feeding off physical conditioning, maintain self-focus.
Burke (2003), carried out a study to identify both mental skills and training done during the preparation by the Mount Everest climbers. The main factor that was identified to be program planning, mental fitness, imagery, focus, short term goal, previous experience, supports from experienced climbers, believe in one's self and ability and the relationship of physical and mental. This research had shown that mental skill is not only important for the athletes in the competition but it should also be mastered by mountain climbers. Therefore, there is no exemption for football players to understand mental skills. The position and medals won are the predictor of the team's achievement in this study. Many previous studies stated that medals (Gould et. al., 2000; Jones et. al., 2007) and the success of the athletes (Gucciardi et. al., 2008) are what measure their success in sport in various level.

Martin et. al., (2004), investigated the psychological performance inventory, is mental toughness test tough enough. They evaluated the construct validity of responses to Loehr (1986) sport psychology performance inventory (PPI) by 263-student athlete from an elite sports high school. When they pursued, exploratory factor analysis that resulted in 5-factor model that fitted the data well. However, further analysis showed that key correlates of M.T were more strongly correlated with the factors based on the original structure these factors based on the alternative structure in conclusion neither the original PPI nor the subset of PPI items in the better-fitting alternative model was a round measure of mental toughness, indicating that a good fits a necessary but not sufficient condition for construct validation. Hood instrumentation must be strong in terms of conceptual / theoretical consideration, psychometrics properties and relationship to key correlates hypothesized to be meaningfully related to it.
Middleton and Colleagues (2004), have not only presented a new definition of mental toughness, they have also developed a Mental Toughness Inventory (MTI) and a model of mental toughness that is both multi-dimensional and hierarchical. Middleton, Marsh, Martin, Richards, & Perry (2004a) asserted that the Jones et. al., (2002) definition was inadequate in that it only described the outcomes of being mentally tough and did not define mental toughness itself. Based on their qualitative research with 33 participants (25 elite athletes and eight non-athletes with extensive elite level sport experience as either sports scientist, coach, psychologist or management), they concluded that "mental toughness is defined as an unshakeable perseverance conviction towards some goal despite pressure or adversity" (Middleton et. al., 2004). The authors contend that this definition states not only what mental toughness is but also identifies the actions of mental toughness (e.g., emotion management, perseverance, and task focus) as well as the role of some the factors that orient individuals to be mentally tough (self-belief, determination, commitment, attitude and task familiarity). In total they identified 12 mental toughness characteristics namely, self-efficacy, mental self-concept, potential, task-specific attention, perseverance, task familiarity, personal bests, task value, goal commitment, positivity, stress minimisation, and positive comparisons.

Mohamad et. al., (2009), was to explore the affect of higher score of mental toughness in the early stage of the league towards winning among Malaysian football players. The instrument used in this study was the questionnaire of Psychological Performance Inventory (PPI) by Loehr, 1986. The difference between the mental toughness between the categories of elite and non-elite, professional and amateur players was measured. Other than that, the relationship between the players' category,
status and achievement with the seven dimension of mental toughness (Self confident (SC), Negative energy control (NE), Attention control (AT), Visual imagery control (VI), Motivational (MT), Positive energy control (PE) and Attitude control (AC) was evaluated. The results from the descriptive analysis showed that the mental toughness of Malaysian football players is at an excellence level. T-test had been conducted and the results shows that there is no significant difference on the mental toughness from the aspect the players' category, (p=0.136>0.05), but there is a significant difference on the status of the players, (p= 0.02< 0.05). One way ANOVA and Pos Hoc test show a significant difference between the four dimensions of mental fitness among the players from various teams of different achievements. The results obtained are NE [(3,128) = 7.768, P < 0.05], AT [(3,128) = 8.828, P < 0.05], VI [(3, 128) = 5.789, P < 0.05] and PE [(3,128) = 4.896, P < 0.05], There is no significant difference on the dimensions of SC, MT and AC (P > 0.05). Pearson Correlation analysis shows a low and significant association between the status and mental fitness of the players (r = -0.262, p = 0.02, < 0.01). The findings who the dimension of SC (r = -0.270, p = 0.002 < 0.01); NE (r = -0.175, p = 0.045 < 0.05); AT (r = -0.249, p = 0.004 < 0.01) and VI (r=-0.176, p = 0.043 < 0.05) have a low correlation and inversed relationship between the dimensions and the status of the players. Overall, this study shows that the mental toughness of Malaysian football players is at an excellent level. Status is seen as a factor that gives a lot of impact on the player especially in motivating them to attain their best achievement and also affect their mental toughness. This means that the mental toughness of the players could be enhanced if the players really understand the professionalism of the game and put it into practice.

Burke (2002), conducted a study on "confidence, concentration, and competitive performance of elite athletes: A Natural Experiment On Olympic
Gymnastic." During the Women's all round gymnastic final the 2000 Olympics, the vault was inadvertently set 5cm too low for a random half of the 36 gymnasts. The error was widely viewed as undermining their confidence and adversely affecting their subsequent performance. The paper examined whether the vault problem had such a carry over effect. Both pre test and post test scores were evaluated on vault, bars, beam and floor. Manipulation checks established that the error had experimental impact on vault performance. However it was clear that the vault error had little if any effect on later performances or on final standings. Elite athletes in a closed skill sport apparently learn to concentrate so well that most can recover from a mishap refocus successfully for the next effort.

Jones, Hanton and Connaughton (2002), conducted a qualitative study of elite athletes, aiming to define mental toughness and to determine the essential attributes required to be a mentally tough performer. The definition that emerged from their analysis concluded that: Mental toughness is having the natural or developed psychological edge that enables you to: 1) Generally, cope better than your opponents are with the many demands (competition, training, lifestyle) that sport places on a performer; and, 2) Specifically, be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure.

Graham (2002), studied the literature on mental toughness is characterized by a general lack of conceptual clarity and consensus as to its definition, as well as a general failure to operationalize the construct in a consistent manner. This study addressed two fundamental issues surrounding mental toughness: how can it be defined and what are the essential attributes required to be a mentally tough performer? Ten international performers participated in either a focus group or one-
to one interviews, from which a definition of mental toughness and the attributes of
the ideal mentally tough performer emerged. The resulting definition emphasized
both general and specific dimensions, while the 12 attributes covered self-belief,
desire/motivation, dealing with pressure and anxiety, focus (performance-related),
focus (lifestyle-related), and pain/hardship factors.

Williams (1982), Examined whether team cohesion in women's intercollegiate
field hockey is a cause or an effect of successful performance and what the
relationships are among cohesion, satisfaction, and performance. Also, the study
compared a cross lagged panel correlation analysis with partial correlations and path
analysis. 132 female intercollegiate field hockey players completed the Sport
Cohesiveness Questionnaire. The high, significant individual correlations between
cohesion and performance and performance and cohesion, combined with the failure
of the cross-lagged correlation to indicate any causal predominance, suggested a
circular relationship between cohesion and performance. Examination of the
satisfaction correlations suggested that satisfaction may mediate the cohesion-
performance relationship. Support for this model broke down, however, when the
partial correlation and path analysis data were examined. The only causal flow, and
this only in a few select circumstances, was from success to increased cohesiveness
and greater satisfaction and from increased cohesiveness to greater satisfaction.

Slater and Sewell (1994), conducted a study to assess, whether team cohesion
in university-level field hockey was a cause for, or an effect of, successful
performance. The tool used was the Group Environment Questionnaire. A quasi-
experimental longitudinal design with cross-lagged correlation analysis was adopted
and measures of cohesion and performance were taken midway and later in the
season. The results of the synchronous correlations showed a positive relationship (with good stationarity) between team cohesion and performance outcome. Although non-significant cross-lagged differentials indicated a circular relationship, the magnitudes of both the cross-lagged correlations and the partial correlations, together with multiple-regression analyses, revealed that the stronger flow was from cohesion to performance. The socially oriented aspects of cohesion, in particular, had significant associations with performance. The results imply that cohesion-performance relationships should be examined within a circular model, in which cohesion and performance are interdependent. Haberl (2001) conducted a study to gain an in-depth understanding of selected psycho-social factors associated with the gold medal winning peak performance of the 1998 Women's Olympic Ice Hockey Team. These psycho-social factors were grouped into six specific purposes: cohesion and coaching, team confidence, team-specific ideal performance states, individual confidence, individual task-specific ideal performance states, Olympic stress, and coping methods. In-depth interviews using a two-part interview guide were conducted with all 20 team members. Hierarchical content analysis procedures were used to analyze the interview data. Method triangulation in the form of quantitative instruments, source triangulation, analyst triangulation, and member checks were utilized to support the credibility of the interview data. Results showed that the team was highly cohesive and confident. Primary sources of cohesion were the commitment to a common goal, mutual trust and acceptance, and coaching actions.

Chang (2001), examined the multidimensionality of group cohesion and group performance, (b) investigated the relationship between group level task and social cohesion (Carron, Widmeyer, Brawley, 1985) and group effectiveness (Hackman,
1990), and (c) examined the longitudinal changes in cohesion and performance and the direction of effect between cohesion and performance. Eighty students from a third year organizational psychology course participated in this study on a voluntary basis. The nine group integration items in the Group Environment Questionnaire (GEQ) (Widmeyer, Brawley, & Carron, 1985) were modified to measure group level task and social cohesion in the student work teams. Firstly, he hypothesized that both task and social cohesion would predict positively all dimensions of group performance. Secondly, that a stronger relationship would be observed between task cohesion and task effectiveness, and social cohesion and system viability. Thirdly, that all dimensions of cohesion and performance would increase over time. Finally, that cohesion would be both the antecedent to better performance.

Esa et al., (2009), in a case study, examined High group cohesion is considered to be beneficial and lead to better performance. This qualitative case study describes a case in which high social cohesion led to a deterioration in a team's performance. The aim of the present study was to investigate the relationships between performance in a team sport and social psychological group phenomena such as cohesion, conformity, groupthink, and group polarization. The participants were members of a junior-league ice-hockey team, consisting of three adult coaches and 22 players aged 15 to 16 years. The data were derived from an interview with the main coach, continuous observation by the principal researcher, and a diary based on observations during one ice-hockey season. The Group Environment Questionnaire was used to assess group cohesion quantitatively. The qualitative data were analyzed by identifying themes that illuminated the research problem. In this study, the team
did not perform as expected, and their performance deteriorated during the autumn. Social cohesion was high. In addition, the need to evaluate performance declined because of increased pressure to conform. Pressure to conform, groupthink, and group polarization increased owing to the high level of social cohesion which in turn was associated with the deterioration in the group's performance. Based on the findings it appears that high group cohesion may not always be beneficial to the team and does not necessarily lead to better performance in all situations.

Heuze (2006), examined the relationship between cohesion and collective efficacy in professional basketball teams. A total of 66 male and 54 female French-speaking professional players from 20 teams completed Heuze and Fontayne's (2002) Questionnaire and a collective efficacy measure designed to assess the athletes' perceptions of their team efficacy in offense, defense, and total. Index of agreement, intra-class correlation, and eta-squared statistic supported the existence of group perceptions for the constructs. At group level, several positive correlations were found between the dimensions of cohesion and collective efficacy. However, sequential multiple regression analyses indicated that only Group integration-task was a significant predictor of collective efficacy and explained 38% to 65% of the variance of the collective efficacy scales. The implications of the results are discussed and future studies using multilevel statistical methodologies are recommended.

Kozub (2000), examined the relationship between perceived cohesion and collective efficacy in rugby teams. Ninety-six athletes from seven rugby union clubs completed Widmeyer, Brawley, and Carron's (1985) Group Environment Questionnaire and a collective efficacy measure designed to assess the athletes'
perceptions of their team's functioning in seven performance areas. Multiple regression analyses indicated that the cohesion dimensions accounted for a significant proportion of the variance (i.e., 32%) in the collective efficacy scores. Inspection of the standardized regression coefficients revealed that the task measures of cohesion were stronger predictors of collective efficacy than were the social measures of cohesion. The results were consistent with Spink's (1990) study of elite volleyball teams and supported Zaccaro, Blair, Peterson, and Zazanis (1995) contention that properties of the group have great potential to contribute to a team's sense of efficacy.

Amanuel et al., (2009), examined the relationships among team conflict, conflict management, cohesion, and team effectiveness. Data are collected longitudinally from 53 teams, and the results indicate that conflict management has a direct, positive effect on team cohesion and moderates the relationship between relationship conflict and team cohesion as well as that between task conflict and team cohesion. These results suggest that a high level of conflict management not only has a direct impact on team cohesion but also alters the negative and positive effects of relationship conflict and task conflict, respectively, on team cohesion. They also found team cohesion to be positively related to perceived performance, satisfaction with the team, and team viability. Theoretical and practical implications are discussed. Shields et al., (1997) studied the relationship between leadership behaviors and team cohesion among baseball and softball players at two school levels and analyzed in relation to predictions based on Chelladurai and Carron (1978) Multidimensional Model of Leadership (MML). Athletes (n=307) completed the perceived and preferred versions of the Leadership Scale for Sports (LSS) and the
Group Environment Questionnaire (GEQ). Athletes' coaches (n=23) completed the self-perceived version of the LSS. Task and social cohesion were assessed in relation to the scales of the three individual versions of the LSS and in relation to two types of discrepancy scores: value and perceptual. Although the concept of discrepancy is prominent in MML theory, the perceptual discrepancy score represents an innovation. Results indicated that, in general, team cohesion was most strongly related to the perceived LSS version and the perceptual discrepancy scores. The relation between leader behavior and cohesion in natural groups has received scant empirical attention. In a military context, the cohesiveness of combat groups has been investigated in relationship to the behavior of unit leaders (Bartone & Kirkland, 1991). In the therapeutic context, evidence suggests that leaders who are less directive and exhibit more personal warmth have groups with higher cohesiveness.

Judy et. al., (2007), studied the relationship between team cohesion and hazing. Hazing has been widespread throughout history as a form of initiation into fraternities, service clubs, schools, and sport teams. Legislation and anti-hazing programming have been in effect for a number of years to reduce the negative effects and occurrence of sport hazing (Mac Lachlan, 2000). Although hazing is illegal in most states, some contend that hazing continues for a number of social reasons that serve important team functions such as enhancing team cohesion. The purpose of this research was to evaluate the contention that hazing is associated with enhanced team cohesion. Athletes (N=167) completed a modified version of the Group Environment Questionnaire (GEQ; Widmeyer, Brawley, & Carron, 1985), the Team Initiation Questionnaire (TIQ; Hoover, 1999), and a social desirability scale (Crowne & Marlowe, 1960). Results indicated that the more appropriate team building behaviors
that athletes were involved in the more socially cohesive they perceived their team to be. The more hazing activities they reported doing or seeing, the less cohesive they perceived their team to be in sport-related tasks. The results of this study suggest that the argument that hazing builds team cohesion is flawed. Hazing is associated with less, not more, team cohesion.

Julie et. al., (2008), conducted a study to determine whether the implementation of a season-long team-building intervention program using team goal setting increased perceptions of cohesion. The participants were 86 female high school basketball players from 8 teams. The teams were randomly assigned to either an experimental team goal-setting or control condition. Each participant completed the Group Environment Questionnaire (GEQ; Carron, Brawley, & Widmeyer, 2002; Carron, Widmeyer, & Brawley, 1985), which assessed cohesion at both the beginning and end of the season. Overall, the results revealed a significant multivariate effect, Pillai's trace $F(12, 438)= 2.68, p=.002$. Post hoc analyses showed that at the beginning of the season, athletes from both conditions did not differ in their perceptions of cohesion. However, at the end of the season, athletes in the team goal-setting condition held higher perceptions of cohesion than athletes in the control condition. Overall, the results indicated that team goal setting was an effective team-building tool for influencing cohesiveness in sport teams.

Spink (2010), examine the relationship between perceptions of team cohesion assessed in one season to the actual return of the players to the team for the following season. Within an activity setting, perceptions of cohesion have been linked with individual membership both within the group (e.g., attendance) and outside the original context of the group (e.g., intention to return to the group in the future).
However, research has yet to examine whether perceptions of cohesiveness within the group would be associated with the return of individuals to a group after it has disbanded. Subjects selected for the study was Elite male ice hockey players (N=122) on 8 teams completed the Group Environment Questionnaire to assess cohesion. Team rosters were examined the following season to determine the players who did and did not return to their teams. Discriminant function analysis revealed that players who returned to play for the team in the following season held significantly greater perceptions of task cohesion, with the function accounting for 16% of the variance in actual return and correctly classifying 70% of the participants. These results extend research on the cohesion/intention to return relationship to the actual return of individuals to a previous group.

Van Vianen et. al., (2001) examined the relationship between personality composition in teams and social cohesion and team performance. This study was a continuous research of the study by Barrick, Stewart, Neubert, & Mount, 1998. Results from the Barrick et. al., sample (N=50) were compared with data from two new samples, one comprising drilling teams in the US (N=24), and e other comprising student teams in The Netherlands (N=25). Furthermore, this study examined the relationship between personality composition and task cohesion, usually considered to be a stronger predictor of team performance than social cohesion. Results partly confirmed the relationships between personality composition, cohesion, and team performance that were found previously. Minimum levels of conscientiousness and agreeableness contributed positively to both task cohesion and team performance. High mean levels of extraversion and emotional stability contributed positively to social cohesion. Some results differed across the three samples, stressing the
importance of task characteristics as a factor influencing relationships between team personality, team processes, and team performance. Although significant relationships were found between social cohesion, task cohesion, and performance, cohesion measures did not mediate relationships between personality composition and team performance.

Woerkom (2010), conducted a study to explore the effects of disagreement and cohesiveness on knowledge sharing in teams, and on the performance of individual team members. Data were obtained from a survey among 1,354 employees working in 126 teams in 17 organizations. The results show that cohesiveness has a positive effect on the exchange of advice between team members and on openness for sharing opinions, whereas disagreement has a negative effect on openness for sharing opinions. Furthermore, the exchange of advice in a team has a positive effect on the performance of individual team members and acts as a mediator between cohesiveness and individual performance. Managers who want to stimulate knowledge sharing processes and performance within work teams may be advised to take measures to prevent disagreement between team members and to enhance team cohesiveness. Although some gurus in organizational learning claim that disagreement has a positive effect on group processes such as knowledge sharing and team learning, this study does not support this claim.

Nikos Ntoumanis (2004), examined the psychometric properties of the Group Environment Questionnaire (GEQ) adapted to the Greek language. The sample consisted of 586 male and female volleyball players of elite and regional level status. Data were analysed from three time points of a competitive season. For each time point, seven competing first-order and second-order factor structures were subjected
to confirmatory factor analyses. The results revealed that the Greek GEQ demonstrated high internal reliability coefficients, good convergent validity and, for most of the competing models, acceptable fit indices. However, very high factor correlations rendered problematic the discriminant validity of the questionnaire. Multi-sample analyses examining the invariance of the seven models across competitive level and gender revealed that the models were largely invariant. Further psychometric testing is needed to examine whether the Greek GEQ relates to conceptually important personal and team correlates of group cohesion.