Sport Structure and Goal Oriented Motivation

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Abstract

The aim of this study was to assess differences in goal orientation between athletes practicing two different sports. These sports differ structurally in how they are performed and in regard to factors influencing goal orientation. The achievement goal theory (AGT) states that individuals’ motivational orientation is made up of two aspects, task oriented motivation and ego oriented motivation. These two goal orientations are independent of one another and are affected by several factors. The effect on goal orientation by factors influenced by coaches, parents and peers is well documented. The two hypotheses were that climbers would be more task-oriented than squash players and secondly that squash players would be more ego-oriented than climbers. The study was conducted as a quasi-experimental between group comparison. 81 sport practitioners, 43 rock climbers and 38 squash players, took the Task and Ego in Sport Questionnaire (TEOSQ) in connection with performing their sport. Independent t-tests of both sub scales showed a difference in ego-motivation between groups, but not in task-motivation.

Keywords: goal orientation, sport structure, TEOSQ, rock climbing, squash

Abstrakt


Nyckelord: målorientering, sportstruktur, TEOSQ, klättring, squash
Motivation is defined as “the direction and intensity of one's effort” (Sage, 1977 as cited in Weinberg and Gould 2015). Motivation is the reason why we do things and there are several theories concerning motivation. In different ways, they explain why we are motivated and describe what factors influence our motivation (Ford, 1992; Roberts et al., 2007). When we engage in an activity, we do so for different reasons, these reasons or motives are our achievement goals. Achievement goals are related to what we think is the purpose of the activity and what we count as success. They give meaning to what we do (Kaplan & Maehr, 2007; Nicholls, 1989). What goals we have for engaging in an activity influence our achievement behaviour, meaning that the goals influence how we strive for success and how we demonstrate our level of competence and ability in that activity (Nicholls, 1989).

The Achievement Goal Theory (AGT) says that we see ability in at least two different ways (Nicholls, 1989), as undifferentiated or differentiated. Seeing ability in an undifferentiated way is what a child does, i.e. ability equals the effort you put in. A differentiated view of ability means that ability is instead seen as capacity and that ability can mean being better than somebody else. Depending on how you see ability it will also decide in what way you assess success and in what way you are motivated. From the two views of ability the AGT distinguishes between two kinds of motivational goal orientations and how these interact with perceived ability to produce achievement behaviour (Nicholls, 1984, 1989). These two orientations are task-oriented motivation and ego-oriented motivation and they describe the two different ways individuals can conceptualize their ability and what is demanded of them for success. An individual with a task-oriented motivation has an undifferentiated concept of ability and strives to master the task at hand, learn new skills and improve her own performance. The athlete judges her performance compared to her own past performance, not to others. An athlete who has an ego-oriented motivation on the other hand has a differentiated concept of ability and sees ability as capacity which means that a high level of ability is perceived when the athlete is successful when little effort is being used. The athlete is driven by comparing herself to others, a desire to be better than others and proving herself. For an individual with an ego oriented motivation, the difficulty of a task is not rated in respect to one's own level of mastery and competence but to how hard the task is rated by others, i.e. normatively (Nicholls, 1984, 1989).

A high task oriented motivation correlates with several positive aspects of performing a sport, such as longer adherence to the sport, greater mastery of skills, better performance, better physical health, greater control, less anxiety, greater enjoyment and functional coping strategies. A high ego orientation is instead related to maladaptive behaviours, dropping out, lowered self-esteem when losing, attributing failure to low ability, not asking for help in a learning situation, challenge avoidance, learned helplessness, self-handicapping and cheating (Biddle et al., 2003; Harwood et al., 2015; Ferreira et al., 2016; Jaakkola et al., 2016; Harwood & Chan, 2010; Butler, 1987; Kavassanu & Roberts, 2001; Cervelló, 2007; Cervelló & Santa-Rosa, 2001; Ames, 1992b; Elliott & Dweck, 1988; Leondari & Gonida, 2007; Van Yperen, 2011).

The two orientations are independent of one another meaning that an individual’s disposition can be high on both task orientation and ego orientation, low on both or high on one and low on the other (Fox et al., 1994; Roberts et al., 1996; Lochbaum et al., 2016). Goal orientation is affected by goal involvement and motivational climate. The more often an athlete is either task or ego involved in activities, the athletes’ goal orientation will lean towards either task or ego orientation (Nicholls, 1989). Motivational climates also affect athletes goal orientations.
(Cecchini et al., 2014; Papaioannou, 2007; Nicholls, 2016) i.e. depending on what motivational factors are present the motivational climate will differ and thereby influence the athletes’ goal orientation.

Several factors are important for what kind of involvement an individual will engage in. (Roberts et al., 2007; Cury et al., 1996; Ames & Archer, 1988). Some of these factors are inherent in the task while others can be modified (Treasure & Roberts, 1995; Hanrahan & Cerin, 2009; Kaplan & Maher, 2007). There are a lot of studies on how coaches can influence climate to make athletes more task or ego oriented (Granero-Gallegos, 2017; Treasure & Roberts, 1995), but less on how the structure of the sport in itself affects athletes’ goal orientation (Harwood et al., 2015; Hanrahan & Cerin, 2009).

The following are examples of factors that affect goal involvement and orientation. A sport can be performed by the athlete performing either open or closed skills. Closed skills are performed when the task is consistent and non-changing. The same technique can be used every time and the athlete can herself decide what pace/speed/time to use for the task. Open skills are needed when the environment is changing and the athlete needs to adapt to events that are not under her control (BBC, 2020). It has been suggested that closed skills will facilitate task oriented motivation and open skills will facilitate ego oriented motivation (Hanrahan & Biddle, 2002). Closed skills sports are objective in the sense that the athlete will judge performance and success in relation to her own past performance (running times, jumping lengths etc.) and open skill sports are subjective and performance is judged in relation to opponents (Hanrahan & Biddle, 2002). Assessing success in relation to others encourages social comparison thus facilitating ego oriented motivation (Rosenholtz & Simpson, 1984; Treasure & Roberts, 1995). The type of task and how the task is performed affects what kind of involvement the performer is most likely to engage in. Diverse tasks facilitate task involvement. If a task is too hard and the performer will be evaluated after completing the task, focus will move from mastery of task to social comparison and thereby increase the likelihood of ego involvement. When several athletes are practicing together and they are allowed to do different tasks this will lessen the need for social comparison and thereby also lessen the likelihood of ego involvement (Papaioannou & Kouli, 1999; Roberts et al., 2007; Rosenholtz & Simpson, 1984; Kaplan & Maher, 2007; Treasure & Roberts, 1995). The amount of time performers have to complete a task affects what involvement is most likely. If there is a time limit it increases the likelihood of ego involvement, but if the performers themselves set the pace for accomplishing a task this facilitates task involvement (Treasure & Roberts, 1995; Kaplan & Maher, 2007). Task involvement is more likely if the athletes themselves can choose and control what task to perform and themselves be responsible for monitoring and evaluating their own performance. If on the other hand performers have no saying in what task is to be performed ego involvement will be more likely (Treasure & Roberts, 1995; Kaplan & Maher, 2007; Vallerand, 2007). The way success is rewarded also influences the motivational climate. Rewards given for personal development increases task orientation and rewards given for outcome increases ego orientation (Deci & Ryan, 1980; Treasure & Roberts, 1995). If a training environment is structured towards competition it makes participants focus on their own capacity and therefore this structure facilitates ego involvement (Koumpoula, 2011; Nicholls, 1989). Task involvement is more likely when tasks are performed individually or in small groups where the performer can focus on the applied effort rather than social comparison (Ames, 1992a; Treasure & Roberts, 1995). If focus is on personal improvement and effort, evaluation enhances task orientation. Is evaluation instead focused on outcome it enhances ego orientation (Treasure & Roberts, 1995; Butler, 1987). For example, ranking could be something that would foster ego orientation (Hanrahan & Cerin, 2009). Clear and reachable goals help performers to
understand and clearly see what they need to practice in order to achieve the task. This fosters task orientation because it facilitates self-reference (Weinberg & Gould, 2015; Treasure & Roberts, 1995; Martin & Elliot, 2016). If the performers progress is harder to evaluate, they have only social comparison to resort to which fosters ego orientation (Weinberg & Gould, 2015).

These different factors are more or less prevalent in different types of tasks and therefore different sports should, because of how they performed, facilitate either more of task orientation or more ego orientation (Ames, 1992b; Hanrahan & Biddle, 2002; Hanrahan & Cerin, 2009).

Rock climbing is defined as a sport where practitioners are climbing up a wall of natural or artificial rock formations. The main objective is to reach the top of the wall without falling (Wikipedia, 2020). The goal is to complete a fixed route in your own pace with as many tries as you want. It is a closed skill sport and therefore focus will be on the performer’s progress rather than social comparison. In climbing athletes can easily monitor and evaluate their own progress in relation to their own past performance thanks to graded routes. The graded routes also make goal setting easy since the next level for a climber is clearly marked. Climbing is often performed in groups where climbers together try to solve climbing problems (cruxes), and give each other feedback when facing a new problem (i.e. small groups where everybody works on individually specified tasks at their own level). The structure of rock climbing matches several of the factors mentioned above that induce a task oriented motivation. Squash is a ball and racket sport and is performed by two or four players where the objective is to score points by hitting balls your opponent cannot rebound inside a four-walled court. The winner is the player that first reaches an on beforehand agreed score, often 11 i.e. every game has a time limit in the sense that it finishes when one of the players is declared the winner (Rulesofsport, 2020). This can make it hard for players to evaluate their own progression since success and failure is dependent on the opponent’s performance on that specific day. Squash is an open skill sport with a salient element of competition, and therefore social comparison is evident. In squash, you cannot decide yourself what kind of exercise you wish to do, rather you play the game the opponent gives you and control over task is therefore low. The structure of squash matches several of the factors mentioned above that induce an ego oriented motivation.

Regarding the differences in how these sports are structured and performed it should therefore be interesting to assess differences in goal orientations between rock climbers and squash players. Earlier studies have investigated differences in goal orientations between groups (Hanrahan & Cerin, 2009), and found differences between individual sports and team sports regarding ego scores. However, no one has yet investigated the difference between rock climbers and squash players regarding goal orientation. This study will examine these two groups of athletes and compare them in regards of achievement goal orientation to see if athletes’ goal orientations differ depending on what sport they perform.

Hypothesis 1: There will be a significant difference on the task subscale of the TEOSQ, with climbers scoring higher than squash players.

Hypothesis 2: There will be a significant difference on the ego subscale of the TEOSQ, with squash players scoring higher than climbers.
Method

Participants
The sample consisted of 81 women and men that are members of the sport facility IKSU in Umeå. There were 43 Rock climbers and 38 squash players who volunteered to answer a questionnaire either before or after their planned exercise. Their age ranged between 18 to 61 years. Recreational rock climbing as it is usually performed at IKSU does not involve head to head competition. All of the routes are graded according to the French grading system and there is a wide variety of routes to choose from. Squash at IKSU is most often played by two people at a time where the winner is the one too first reach a certain amount of points.

Instruments and Materials
The questionnaire used for this study is an already existing standardized questionnaire called: Task and Ego Orientation in Sport Questionnaire (TEOSQ). TEOSQ is used in many similar studies (Castillo et al., 2010) and is the most commonly used questionnaire for measuring task and ego orientation as defined by the AGT (Alfermann, 2016). Studies have been made to assess the validity and reliability of the TEOSQ scale with supporting results for the instrument as a valid and reliable measurement for task and ego orientation in sports and between groups (Chi & Duda, 1995; Castillo et al., 2010). Added to the questionnaire were questions on background variables such as age, gender, main sport, how many years the participants had practiced their sport, if it is practiced at least once a week, if the sport is practiced on a recreational level and if they filled in the questionnaire prior to their exercise or after. The TEOSQ consists of 13 statements related to success in sport that the participants answered by ticking the most appropriate option of the 5 step Likert scale. Before the statements there is a sentence asking participants to think of when they feel most successful in sport. These statements are divided into 6 task respective 7 ego statements. Calculating the mean value of these statements gives the levels of task-motivation and ego-motivation respectively.

Procedure
Permission to do this study at IKSU’s facilities was obtained prior to data collection. The questionnaire was handed out by two experiment leaders outside the climbing hall and squash halls at IKSU during four separate days and for three hours each day. The days were one Monday and one Tuesday along with two Fridays. The groups were assigned by availability of people who volunteered to participate and who were within the criteria of this study. Before filling in the questionnaire, participants were informed about the researchers and of the purpose with the study, and assured of their anonymity. Nobody under 18 years of age was allowed to participate and they had to practice their main sport at least once a week on a recreational level. Another criterion for participating was to read the introduction letter which also constitutes as an informed consent. The questionnaire study upheld anonymity by not collecting personal data from the participants. It was handed in by placing it in respective folder (Before or After exercise) and so not directly handled by the researchers, this to avoid the possibility of connecting participants to specific questionnaires and to uphold a high standard of confidentiality for the participants in the study.
Statistical analysis

The study is a quasi-experiment with a quantitative between-group comparison to assess if goal orientation differs between rock climbers and squash players. Background variables such as gender, if participants filled in the questionnaire before or after training and the groups’ mean scores of task- and ego-orientation were compared using independent sample t-tests. Descriptive data and t-tests were calculated with JASP statistical software.

Results

The rock climbers and squash players together (N=81) had a mean age of (M=26.59) with a standard deviation of (SD=6.80) see Table 1 and Table 2 for group descriptives. There were (N=20) females and (N=61) men participating and there was no significant age difference between genders.

Table 1 Age of rock climbers and squash players

<table>
<thead>
<tr>
<th></th>
<th>Climbing</th>
<th>Squash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>43</td>
<td>38</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>27.35</td>
<td>25.74</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>5.16</td>
<td>8.27</td>
</tr>
<tr>
<td>Minimum</td>
<td>18.00</td>
<td>18.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>42.00</td>
<td>61.00</td>
</tr>
</tbody>
</table>

In the climbing group there were 27.90% females (N=12) and 72.09% males (N=31). In the squash group there were 21.05% females (N=8) and 78.94% males (N=30).

The data as analysed with independent t-tests showed no significant difference in task-motivation levels between the rock climbers and the squash players. In levels of ego-motivation there was a significant difference between rock climbers and squash players. See Table 2 and Table 3.

Table 2 TEOSQ scores for rock climbers and squash players

<table>
<thead>
<tr>
<th></th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>Climbing</td>
<td>43</td>
<td>4.33</td>
<td>0.49</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>Squash</td>
<td>38</td>
<td>4.19</td>
<td>0.47</td>
<td>0.08</td>
</tr>
<tr>
<td>Ego</td>
<td>Climbing</td>
<td>43</td>
<td>2.44</td>
<td>0.82</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td>Squash</td>
<td>38</td>
<td>2.86</td>
<td>0.67</td>
<td>0.11</td>
</tr>
</tbody>
</table>
For the full sample, there was an even distribution of participants filling in the TEOSQ before \((N=38)\) and after \((N=43)\) their exercise. There was a significant difference \((t(79) = 2.42, p=.018)\) in task-motivation levels between participants filling in the TEOSQ before \((M=4.13)\) and after \((M=4.38)\) their exercise. There was no significant difference in ego motivation between participants filling in the questionnaire before or after their exercise. Of the climbers 40\% \((N=17)\) filled in the questionnaire before their exercise, and 60\% \((N=26)\) afterwards. Of the squash players 55\% \((N=21)\) filled in the questionnaire before their exercise, and 45\% \((N=17)\) filled it in afterwards.

Rock climbers had significantly \((t(79) = 3.77, p<.001)\) more years in the sport \((M=3.07, SD=2.38)\) than the squash players \((M=1.45, SD=1.26)\). There was no significant difference between genders in how long they had been practicing their sport.

### Discussion

The aim of this study was to assess differences in goal orientation between athletes practicing sports that are performed differently in regards of factors influencing goal orientation. The two hypotheses were that climbers would be more task-oriented than squash players and secondly that squash players would be more ego-oriented than climbers. The result showed no significant difference between the two groups in regards of task-orientation. The first hypothesis was therefore rejected. This indicates that the two sports are equally task-involving and that athletes performing these sports do not differ in task-orientation. These results are surprising given the factors related to task-involvement that are inherent in rock climbing and absent in squash. The absence of a difference in task-orientation could however be explained in a number of ways. The study did not control if participants were also engaged in other sports, this means there could have been carry over effects from other sports or activities which could have increased the squash players task-orientation or decreased the rock climbers task-orientation. The individual impact of factors on involvement and orientation is unclear. Even though goal-orientations are orthogonal, the factors affecting goal-orientation and involvement are not. Time for example cannot both be limited and unlimited simultaneously.

A set time facilitates ego-involvement and hinders task-involvement, but what does this actually mean in terms of TEOSQ scores? It is unknown if it lowers task-orientation as much as it increases ego-orientation. The task facilitating factors inherent in rock climbing and the absence of the same factors in squash might not have enough impact on goal orientation for there to be a significant difference in the two present groups. All of the constructs in the present study such as goal orientation are established and have been used in many studies (Alfermann, 2016). However, the factors that affect goal orientation were in the present study only confirmed to be or not to be inherent in climbing or squash. It is possible that they in some cases should rather have been measured as being on a continuum. The factor “control” for example was assessed to be inherent in climbing but not in squash, but a speculation is that there might very well be a subjective feeling of control in athletes regardless of main sport. This would of course increase the levels of task motivation in the athletes experiencing
control. Hanrahan and Biddle (2002) suggested that individual closed skill sports would facilitate task orientation in athletes after seeing higher task-scores in track and field athletes. Their reasoning was that track and field athletes could easily monitor progress and this would facilitate task motivation. Rock climbers can also very easily monitor their own progress because of graded routes. However, track and field athletes can monitor every measurable advance whereas rock climbers might be restricted to monitoring only fully completed routes. The result showed a significant difference between the two groups and the second hypothesis was therefore accepted. Squash players at IKSU have a higher ego motivation than rock climbers. This indicates that the two sports are not equally ego-involving and that athletes performing these sports will differ in ego-orientation. The results are not surprising given the many factors related to ego-involving inherent in squash compared to the absence of the same factors in rock climbing. Average goal orientation scores in this study are similar to earlier findings where participants’ task scores were on average higher than their ego scores. In the present study, the female average task-score was higher than the male average and the male average ego-score was higher than the female average. These differences were not significant and data suggests no differences between male and female goal orientations. Earlier studies have found that women have a higher task motivation than men (Hanrahan & Cerin, 2009) and that men have a higher ego motivation than women (Gill et al., 1991). There were however few female participants in relation to male participants (1:3) in this study. For such a small sample, there was a considerable spread of age of participants. This might have had an effect on results. The present study assessed participant goal orientation either before or after their training. An independent t-test showed a significant difference in task-motivation depending on if the questionnaire was taken before or after training. This could have been a confounding variable if there had been differences between the groups in when they took the test, but in the present study there was an equal distribution between participants filling in the questionnaire before and after training. Some limitations in the present study were observed. The gender distribution was not equal with only one in four participants being female. Since earlier studies have suggested differences in goal orientation between the genders, the gender distribution could have affected the presents study’s result. The sample size in this study was small, and a larger sample could have provided more clarity on the questions addressed by this study. As mentioned above, the presence of factors influencing goal orientation was in the present study only recognized as being inherent or not in the two sports. There was no actual measurement of athletes’ experience of these factors. A pilot study could have assessed what factors are believed by the participants to be present and in what magnitude to further clarify how structures influence goal orientations. The lack of knowledge on how the different factors separately affect goal orientation could be an interesting area for future research and thereby clarifying the relationship between sport structures and athletes goal orientation. Further studies could investigate possible differences in goal orientation if the TEOSQ test is taken before rather than after the training. For coaches the insight that it is not only social climate that affects goal-orientation, but also the actual structures of the sport being performed could inspire to animation of sports to further facilitate task-involvement. Also from the insights gathered by these results the pool of knowledge has been added to, but more specifically a new pool has been made in the area of motivation and sport structure. This study is the first to investigate effects from type of sport and how it affects achievement goal orientation in rock climbers and squash players. The results of this study indicate that sport structure affects ego-motivation but not task-motivation.
Reference list


