Full Length Research Paper

Self-Regulated learning processes utilized by Omani Physical Education candidates in mastering sport skills

Nasser Al-rawahi

Sultan Qaboos University, College of Education, Curriculum and Instruction Department, Sultanate of Oman, Muscat, P.O.Box 32, Oman.

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The purpose of this study is to investigate self-regulated learning strategies and self-motivational factors used by Omani physical education candidates to master sport skills. In addition, the study highlights the relationship between self-regulated learning strategies and self-motivational factors and gender differences of self-regulated learning processes. The research was conducted using questionnaire as a method of collecting data based on self-regulated learning theory. The questionnaire was divided into two main parts titled self-regulated learning strategies and self-motivational factors. The total participants were 113 undergraduate physical education students enrolled in the Department of Physical Education at College of Education, Sultan Qaboos University. Descriptive analysis revealed that the learning strategies mostly used by participants to learn sport skills were planning and evaluation learning strategies while reflection and self-monitoring learning strategies were the least used. In addition, the result revealed that effort strategy was the most affective variable motivating participants to learn sport skills. Furthermore, there is positive and high correlation between self-regulated learning strategies and self-motivational factors.

Key words: Self-regulated learning, strategies, physical education, sports, performance, self-motivation, gender.

INTRODUCTION

Studying at a university level requires candidates to apply self-regulated learning processes in order to acquire knowledge and skills derived from multiple miscellaneous learning resources. The university candidates should understand a variety of self-regulated learning processes and how to practice them effectively in order to achieve the targeted learning performance and achievement. Self-regulated learning is a self-directive and self-motivational proactive processes implemented by learners to acquire academic skills and direct their learning processes (Zimmerman, 2008).

Self-regulated learning processes are active and constructive processes whereby learners set their learning goals and then endeavor to observe, control, and manage their motivation, cognition, and behavior (Wolters et al., 2003). Applying self-regulated learning processes facilitates accuracy of motor performance in physical education classes and improving achievement (Elbe et
According to Kolovelonis and Goudas (2013), the mastering of motor and sport skills is an intricate and challenging process that needs time investment as well as the demonstration of effort. The growth of skills in sports and physical education requires not only native talents and advanced instruction but also the development and integration of the self-regulatory skills (Ommundsen and Lemyre, 2007). This indicates that the assessment of self-regulated learning development in sport activities and physical education is of great interest.

Self-regulation is considered to have significant impact on the individual's success as well as in several domains such as academics and sports (Super et al., 2014). Jonker et al. (2011) recognized six skills that are significant in self-regulatory processes. They include planning, monitoring, effort, self-evaluation, self-efficacy and reflection. It is shown that the self-regulatory learners have high score on these dimensions and are capable of acquiring knowledge and skills in diverse domains. The self-regulation skills may be regarded as an internal asset that may assist individuals to get ready for a healthy and productive adulthood. The sport context can be an environment in which these exercises are undertaken and as such, it may offer opportunities for individuals to gain several self-regulatory skills and may be used in other settings. These are self-regulation learning processes that enable students to plan, organize, monitor, guide and reflect on their learning (Andreson, 1997; Baumeister and Vohs, 2004; Bund, 2006; Lider and Singer, 2005; Kolovelonis et al., 2013).

Latest educational as well as psychological research highlights the role of several affective variables and particularly, the motivation towards learning in order to achieve certain goals. Self-regulated learning may be conceptualized in three distinctive ways. First is the ability of the learner to use metacognitive strategies to control cognition. Rheineberg et al. (2000) recognize these metacognitive strategies with control strategies including emotion, attention, motivation, and decision control. Second is the learners’ capability of using both metacognitive and cognitive learning strategies. Strategies such as organizational, rehearsal, and elaboration are recognized as significant cognitive strategies and are associated with different learning styles of students. The third perspective shows the significance of incorporating motivation, cognitive, and metacognitive learning components (Tanner and Jones, 2003).

Recent research shows that there is relation between motivation and self-regulated learning and more particularly that motivates and sustains self-regulated learning (Rheinberg et al., 2000). Empirical evidence demonstrates that the high efficacious middle school students who had beliefs that their course work was interesting, significant and essential and adopted a mastery goal orientation are more likely to participate in several cognitive and metacognitive activities for the purpose of improving their learning process as well as their comprehension (Wolters and Rosenthal, 2000). Philippou and Marcou (2005) conducted a research on 5th and 6th graders to find out the relationship between the motivational beliefs and self-regulated learning. It was found that all the three components of self-regulated learning were significantly and positively connected to all dimensions of motivational beliefs. Moreover, it was found that the elementary school students, who knew that they hold high efficacy belief in respect to problem solving and were confident in their skills, were more likely to realize higher achievement. Kitsantas et al. (2000) noted that self-regulatory practice has positive effects on motivational beliefs of secondary girls. However, these positive effects were not consistent with elementary boys and girls (Kolovelonis et al., 2010; Kolovelonis et al., 2012). According to Kolovelonis (2007), the elementary students normally report higher motivational levels for engaging in physical education in comparison to secondary ones. Therefore, the treatment effects was challenging in the studies that used elementary students. The physical educators should therefore be focused on teaching elementary students the self-regulatory process since the students are willing to take part in physical education.

Several theoretical frameworks have been proposed to identify self-regulated learning processes based on the social cognitive theory (Borkowski, 1996; Winne and Hadwin, 1998; Boekaerts and Niemivirta, 2000; Pintrich, 2000; Zimmerman, 2000). Similarities and differences occur in all frameworks, but most of them provide supportive evidences for developmental of learners’ achievement and performance. One of the famous frameworks proposed in physical education context is the Zimmerman model. He described self-regulated learning as a cyclical process occurs in three interactive phases; prethought, performance, and self-reflection. During the first phase, the self-regulated learner implement a preparatory processes in advance of performing skill and express beliefs toward specific intended learning sport skills. These include goal-setting, planning and self-efficacy beliefs. At the performance stage, self-regulated learner exhibit processes or techniques during the practice of sport skills aiming at improvement of the sport skills acquiring like self-control, self-effort, and imagery. In the last phase, self-reflection, learners implement standards and criteria to evaluate their performance (Zimmerman and Schuck, 2007; Kitsantas and Dabbagh, 2010). Successful execution of sport skills requires implementation of self-regulated learning processes such as planning, self-monitoring, reflection, effort and evaluation (Ertmer and Newby, 1996).

Within physical education context, it has been affirmed that mastering sport skills is a complex, time consuming process that involves a lot of effort in implementation of self-regulated learning strategies (Kolovelonis and Goudas, 2013). Thus, physical education candidates should be trained on different processes of self-regulated
learning alongside high quality instruction. Physical education lecturers should understand students’ self-regulated learning processes including motivational factors that influence learners and how these variables interact with each other for the best performance and achievement. A cross-sectional study performed by Jonker et al. (2011), showed that pre-university students were best athletes who scored high on effort, planning and reflection as compared to the their pre-university but non athletic counterparts. In this study, it is hypothesized that participation in sport leads to improvement of self-regulatory proficiency of youths which results in improved life prospects of these youths. Another study was conducted by Jonker et al. (2011) on a total of 160 male and 178 female students to examine the role of six regulatory skills in academic and sport performances. The studied skills include self-monitoring, planning, reflection, evaluation, self-efficacy and effort. The results indicate that the elite youth athletes have well developed self-regulatory skills particularly reflection and enhance the value of participating in junior elite sports. It was shown that the elite youth athletes reflect more on their past performance for the purpose of learning and make effort for successful accomplishment of their respective tasks. Hence, the researcher recommends the use of self-regulatory skills to help the elite youth athletes in combining their extensive investments in sports with their educational roles.

Investigating into physical education candidates self-regulated learning strategies at Omani context are very limited. To the best knowledge of the researcher no attempt has been made to explore self-regulated learning processes used by Omani candidates to learn different sport skills. Thus, this investigation aims to explore the self-regulated learning processes implemented by Omani physical education candidates to acquire sport skills. The study is aimed at providing solution for optimum realization of sporting goals among the university students. We could implement teaching styles and create learning opportunities which enhance students’ performance and achievement. It specifically aims to answer the following questions;

What are the self-regulated learning processes utilized by Omani physical education candidates to master sport skills? What is the relationship between self-regulated learning strategies and self-motivational variables? Do candidates self-regulated learning processes differ according to different gender?

MATERIALS AND METHODS

Participants

The total population of undergraduate physical education candidates at the College of Education, Department of physical education at the Sultan Qaboos University in Oman was 145 in 2013/2014 academic calendar year. Participants in this study were 113 candidates; 61 males and 52 females who volunteered to fill out the research scale. They were drawn from four academic years (Year one 28% (n=32); Year two 21% (n=24); Year three, 22% (n=25) and Year four, 28 % (n= 32). For the purposes of this study, it was required that all participants have enrolled at least in three activity courses from their Bachelor’s degree program.

Instrument

This study employed a quantitative research approach. A self-report questionnaire was used as data collection method aiming at eliciting physical education candidates’ self-regulated learning strategies and self-motivational factors affecting execution of sport skills. The study was based on social cognitive learning theory in investigating self-regulated learning strategies.

The study scale was constructed and divided into two main domains; self-regulated learning strategies and self-motivational factors. The self-regulated learning strategies domain comprises of four sub-strategies; Planning, Self-monitoring, Evaluation, and Self-control while the self-motivational factors included two affective categories; Effort and Self-efficacy. All sub-scales included in this instrument aimed to measure self-regulated learning processes utilized by Omani physical education candidates for mastering sport skills. The scale was initially designed by the researcher and then reviewed by ten physical education and psychological lecturers from Sultan Qaboos University who have wide and alternative experience in teaching and supervising in the field of physical education. Their responses were used to assess the scale’s content and to determine whether the statements stated would elicit the information needed to answer the research questions. After carrying out modifications, the final form of the scale was approved and sent to random sample consisting of 30 physical education candidates to check its reliability. These 30 physical education candidates were not among the 113 participants recruited in this study. A coefficient Alpha was employed to measure internal consistency of each sub-scale components and for the total scale itself. The internal consistency for all scale was 0.95, while for Planning was 0.87, Self-monitoring (.79), Evaluation (.82), Reflection (.82), Effort (.81), and Self-efficacy (. 87).All these results indicate high and acceptable level of reliability.

RESULTS

The criteria used to determine levels of implementation of self-regulated learning processes are based on criteria determined by (Al-Qamesh and Al-kharsbsheh, 2009). When the mean scores of each self-regulated learning process occur between 1 and 2.61, it is described as low implementation while if it occurs between 2.62 and 3.42, it is described as moderate implementation. The highly implementation of self-regulated learning processes are those whose means occur above 3.43.

Self-regulated learning processes implemented by Omani PE candidates

Descriptive statistics in Table 1 shows that the most self-
Table 1. Means and standard deviation for self-regulated learning processes.

<table>
<thead>
<tr>
<th>Scale components</th>
<th>Sub-scales</th>
<th>M</th>
<th>S.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-regulated learning strategies</td>
<td>Planning Strategy</td>
<td>3.70</td>
<td>.709</td>
</tr>
<tr>
<td></td>
<td>Self-monitoring Strategy</td>
<td>3.21</td>
<td>.480</td>
</tr>
<tr>
<td></td>
<td>Evaluation Strategy</td>
<td>3.52</td>
<td>.729</td>
</tr>
<tr>
<td></td>
<td>Reflection Strategy</td>
<td>2.81</td>
<td>.591</td>
</tr>
<tr>
<td></td>
<td>Effort Strategy</td>
<td>3.78</td>
<td>.765</td>
</tr>
<tr>
<td></td>
<td>Self-efficacy Strategy</td>
<td>3.33</td>
<td>.781</td>
</tr>
<tr>
<td>Self-motivational factors</td>
<td>Effort Strategy</td>
<td>3.78</td>
<td>.765</td>
</tr>
</tbody>
</table>

Table 2. Pearson correlation results of self-regulated learning processes.

<table>
<thead>
<tr>
<th>Self-regulated learning Strategies</th>
<th>Self-motivational factors</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 3.31 S.D .627</td>
<td>M 3.55 S.D .773</td>
<td>.823( **)</td>
<td>.000</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).

regulated learning strategies utilized by candidates to learn sport skills are Planning strategy (M=3.70, SD=.709) followed by Evaluation strategy (M=3.52, SD=729). The moderate self-regulated learning strategies implemented by the participants are Self-monitoring and Reflection Strategies, hence the mean and standard deviation of these two strategies where lower in comparison with other self-regulated learning strategies (M=3.21, SD=.480) and (M=2.81, SD=.591) respectively. On the other hand, the result demonstrated that that Effort variable (M=3.78, SD=.765) is the most and highly affective self-motivational factor utilize by Omani physical education candidates to learn sport skills in comparison to Self-efficacy factor(M=333, SD=.781).

Relationship between self-regulated learning strategies and self-motivational factors

The result in Table 2 shows that there is positive and high correlation between self-regulated learning strategies and self-motivational factors implemented by participants to master sport skills in Omari context. The pearson correlation result reached .82 which indicates high correlation.

Gender differences of self-regulated learning processes

The result in Table 3 indicates no statistical differences between male and female candidates in implementation of all self-regulated learning processes except in evaluation strategy which appears that females are better in this strategy compared to their counterpart.

DISCUSSION

The self-regulated learners are usually motivationally, behaviorally and metacognitively active participants in their learning processes. They are capable of planning, organizing, self-instructing, self-monitoring and self-evaluating in the learning process. They see themselves as proficient, self-effectual and independent. Hence, they are therefore likely to succeed in school and become lifelong learners than the non-self-regulated learners (Zimmerman, 2002).

This study shows that Omani physical education candidates use Planning and Evaluation learning strategies more than other strategies. A possible explanation to this result is that the candidate may realize the importance of planning and evaluation processes as an essential, logic and organized mechanisms to develop performance of sport skills. Nevertheless, candidates use these strategies in order to highly perform sport skills and consequently reach satisfied achievement level. It might also be attributed to traditional teaching methods which applied in most undergraduate course where emphasis of planning and evaluation occurs frequently. Lecturers usually encourage students to plan and evaluate their own performance in order to achieve high grades.

Planning may help the students have well thought out goals and strategies to become successful (Schunk, 2011). Planning strategy takes place in three stages that include setting of a goal for a certain learning task,
establishment of the strategies for achievement of the goal and determination of the amount of time and resources required in realization of the set goal (Zumbrunn et al., 2011). In addition, there is likelihood that the students may become self-regulated learners when they are capable of evaluating their own learning, independent of teacher’s summative assessments. The practice allows the students to assess their learning strategies and make adjustments for the same tasks in the future (Zumbrunn et al., 2011). According to Zimmerman (2004), teachers may promote self-evaluation within the classroom by assisting the students monitor their learning goals and strategy use as well as make changes to the set goals and strategies depending on the learning outcomes.

In contrast, the result shows that Self-monitoring and Reflection strategies are less implemented by candidates and less emphasized on these strategies during performance assessment. These are yet another strategies whereby the students assume ownership for their learning and accomplishments (Kistner et al., 2010). The self-regulated learners take on this task by effort and monitoring their performance towards the learning goals. These processes comprise all of the above mentioned strategies. The learners should set their goals, plan ahead, motivate themselves autonomously, focus their effort on task at hand and utilize the learning strategies to ease their understanding of material (Zimmerman, 2004). The teacher may motivate for example self-monitoring through having the students record the number of times on working on certain learning tasks, strategies employed and time spent (Zumbrunn et al., 2011).

With regards to motivational factors, the study reveals that Effort and Self-efficacy play crucial role in direct Omani physical education candidates toward mastering sport skills. According to Alalyani (2008), motivational factors and self-regulated processes are closely connected. This is because the judgment by students of their abilities in accomplishing tasks may mediate between their knowledge and actual action of self-regulation. Therefore, high self-efficacious students are more likely to apply self-regulated learning strategies in the improvement of their learning. The past research on the relationship between motivation and self-regulated learning has constantly shown that the two variables considerably and positively interconnected (Alalyani, 2008). In a certain study to show the relationships between self-regulated learning and chosen motivational beliefs including self-efficacy, control beliefs and anxiety carried out on 322 Malaysian students. The results obtained in the study showed that self-regulated learning is connected to motivational beliefs (Ng et al., 2006). The students with high self-efficacy believed that they were capable of improving their academic performance through employment of several strategies such as self-monitoring strategies. The control beliefs were also definitely associated with self-regulated learning.

In terms of gender differences, the result of this study tends to show that female students may have a clear vision about their learning objectives and, in turn, they keep on with evaluation of their learning process regularly. Research indicates that, there is relationship between gender, frequency, and type of the strategies used. According to Zimmerman and Martinez-Pons (1990) girls make use of transformation and organization strategies more frequently compared to boys. Moreover, they keep records and utilize monitoring compared to boys. They use more metacognitive strategies and many of them have beliefs in the significance of cognitive strategies (Peklok and Pecjak, 2002). There exists gender differences in the affective-emotional components of self-regulated learning though the research results are less constant. Pajares (2002), also confirmed that gender differences in student’s self-efficacy and self-regulated learning typically are in favor of female students. In a certain study where students in Grades 5, 8 and 11 were interviewed, the girls showed more goal setting and planning strategies and kept records and conducted self-monitoring than the boys (Usher & Pajares, 2008). The theoretical and empirical recommendation that female students indicate higher levels of confidence in their self-regulatory capacities than males may be an expression of the underlying mean differences. Girls normally show more positive feelings towards learning and that they are more inherently inspired (Peklok and Pecjak, 2002). However, the researchers have not excluded the possibility of inadequate specification of measurement models or factor structure may have contribution to the

<table>
<thead>
<tr>
<th>Self-regulated learning Processes</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>T-Value</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Male</td>
<td>3.6</td>
<td>.770</td>
<td>-.737</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>3.7</td>
<td>.634</td>
<td>-1.618</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>3.29</td>
<td>.472</td>
<td>.000*</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Male</td>
<td>3.47</td>
<td>.761</td>
<td>-.2714</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>3.59</td>
<td>.691</td>
<td>.000*</td>
</tr>
<tr>
<td>Reflection</td>
<td>Male</td>
<td>2.67</td>
<td>.406</td>
<td>-.604</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>2.98</td>
<td>.722</td>
<td>.103</td>
</tr>
<tr>
<td>Effort</td>
<td>Male</td>
<td>3.74</td>
<td>.770</td>
<td>-.217</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>3.83</td>
<td>.663</td>
<td>.000*</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>Male</td>
<td>3.19</td>
<td>.480</td>
<td>-.141</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>3.51</td>
<td>.778</td>
<td>.132</td>
</tr>
</tbody>
</table>
difference (Usher and Pajares, 2008). On the other hand, Peklaj and Pecjak (2002) did not find any differences in self-efficacy between girls and boys; Feltz et al. (2008) note that females may show lower self-efficacy levels since their performance is normally inferior in comparison to the male. The demands of a task may be underestimated by males while the females devalue their capabilities (Feltz et al., 2008).

**Conclusion**

This result demonstrates that Omani physical education candidates’ self-regulated learning processes utilized to learn sport skills are a combination of self-regulated learning strategies and self-motivational factors. From the results obtained it is clear that self-regulated learning is paramount in mastering of sport skills by Omani physical education candidates. It is demonstrated that planning strategy is most self-regulated strategy used by the physical education candidates followed by Evaluation strategy. Self-monitoring and reflection are moderate self-regulated strategies. Moreover, there is a positive correlation between self-regulated learning strategies and self-motivational factors by the participants. However, there is no statistical difference between male and female in the implementation of all self-regulated processes except the Evaluation strategy.

The Zimmerman model is notable for its role in emphasizing the function of socializing agents in the self-regulated learning development. Therefore, in the sporting domain, physical educators may play a very essential role on the promotion of the students’ self-regulated learning. The model may be easily integrated and implemented in sport as well as the physical education domain since it consists of processes as well as techniques common in sports such as modeling, goal setting and feedback. Furthermore, in the performance phase, the students may use several self-control techniques in enhancing their performance.

**Conflict of Interests**

The author has not declared any conflict of interests.

**REFERENCES**


applications, New York: Erlbaum pp.111-139.


