RELATIONSHIP BETWEEN GOAL ORIENTATION, CRITICAL THINKING, META-COGNITIVE AWARENESS AND SELF-REGULATED LEARNING OF IRANIAN STUDENTS

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ABSTRACT
The aim of this study was to investigate the direction of the relationship between goal orientation, meta-cognitive awareness, and critical thinking in order to understand the impact of these three constructs on students’ self-regulation. The participants were 129 M.A. students of Tabriz University in Iran. Four types of questionnaire, named, meta-cognitive awareness inventory, Board’s self-regulated learning questionnaire, Elliot's A GQ Questionnaire, and California’s critical thinking inventory, were distributed among the students. Data were analyzed through correlation and regression. Though all four variables were highly correlated, the main finding was that goal orientation, meta-cognitive awareness can predict subsequent self-regulation. Because of the high dependency of the learners to the teacher in school years and the necessity to develop autonomous learners, the implications of the results for school years are discussed.

KEYWORDS: goal orientation, meta-cognitive awareness, critical thinking, self-regulation

INTRODUCTION
So far, a lot of research had been done on students’ performance in educational context in order to create self-dependent, autonomous learners. Studies have been directed towards finding out appropriate cognitive processes and self-regulation. The knowledge of cognitive process has provided researches with evidence that meta-cognitive awareness and critical thinking ability can increase learners’ attendance to learning materials and help them take account of their learning process. Achievement goal orientation theories have provided some explanation of the processes that lead students to engage in academic tasks. According to these theoretical constructs, several findings have provided empirical evidence which supports the role of self-regulation, meta-cognitive awareness, goal orientation, and critical thinking in predicting learners’ effective performance in educational context (Minnaert & Janssen, 1999; Pintrich & De Groot, 1990; Simons, Dewitte, & Lens, 2004; Vermunt, 2005; Koenig and Harris 2005).

Furthermore, some studies have revealed the interrelatedness between self-regulation and goal orientation (Kaplan, Lichtinger, & Gorodetsky, 2009; Zimmerman, 1999; Cleary & Zimmerman, 2004), goal orientation and cognitive process (Simons et al., 2004; Galand, Raucnet, & Frenay, 2010). Other studies also have shown a significant link between self-regulation and cognitive processing strategies (Neuville, Frenay, & Bourgeois, 2007; Pintrich, 1999; Pintrich & De Groot, 1990). Educational polices have been directed towards educating self-dependent learners who can cope with different learning situations and problems all by themselves (Dochy, 2001). Learners are expected to develop self-regulated, autonomous competences to develop lifelong learning (Poldner, Simons, Wijngaards, & vander Schaaf, 2012). In the same vein,
several studies have emphasized the need for development of effective learning process which contributes to learners’ autonomy (Clump, 2005; Johnson & Spicer, 2006; Young, 2005). There are only a few researches studying the important factors affecting self-regulated learning in relation to a group of different factors which all together are closely related.

Therefore, in this study the components of goal orientation, meta-cognitive awareness, critical thinking, and self-regulation will be investigated to find out significant relationships. Thus, the main focus of this study is to investigate the relationship between goal orientation, meta-cognitive awareness, critical thinking, and self-regulation of Iranian students and the direction of the relationships in the prediction of learners’ autonomy.

Before dealing with this study, a brief review of literature on self-regulation, goal orientation, meta-cognitive awareness, and critical thinking will be presented.

**Self-regulated learning**
The term ‘learner autonomy’ is generally defined as ‘one’s taking responsibility of his own learning, willingness and capacity to control or oversee her own learning’. In social psychology researches, Deci (1995) defined autonomy,” feeling free and volitional in one’s actions” as a basic human need. David Little (1991) views learner autonomy essentially as a matter of the learner's psychological relation to the process and content of learning, a capacity for detachment, critical reflection, decision-making, and independent action. In another definition, Elias and MacDonald (2007, p.2518) have defined self-regulation as the ways in which an individual controls and directs his or her own actions. There are also several researches having been operated to find out, whether learners self-regulate or not.

Researches on autonomous and self-regulated learning indicated that learners success is not solely based on their cognitive skills and abilities, but also based on such factors as self-regulative, motivational profiles of the learners (Schunk, 2005; Dahl, Bals, & Turi, 2005; Nota, Soresi, & Zimmerman, 2004). Other consistent empirical evidences from cognitive psychology support the view that self-regulation is crucial to understand student’s learning and academic performance (Minnaert and Janssen 1999; Nota et al., 2004; Pintrich & De Groot, 1990).

The necessity of training self-regulated learning also provoked a bunch of numerous studies in various fields of postsecondary education such as Engineering (Hutchison, Follman, Sumpter, & Bodner, 2006), Marketing (Young, 2005), Math (Pereis, Dignath, & Schmitz, 2009), Nursing (Kuiper & Pesut, 2005), and Teacher Education (Perry, Phillips, & Dowler, 2004), to name a few. Self-regulation involves students being proactive with regard to their learning behavior or strategies to achieve self-set goals (Cleary & Zimmerman, 2004). Such self-regulative processes can be affected by students’ goal orientations, intrinsic or extrinsic.

**Goal orientation**
Over the recent decades, one of the most prominent theories in the field of motivational research has concentrated on achievement goal theory (Elliot & McGregor, 2001). Dweck and Leggett (1988) defined goal orientation as the goals individuals implicitly pursue while attempting to attain certain performance outcomes. According to Pintrich (2003, p. 676), goal orientation is defined as “the reasons and purposes for approaching and engaging in achievement tasks”.

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Achievement goal orientation identifies the reasons and the purposes of why students engage in learning tasks and performances. Two distinct types of achievement goal orientation are traditionally distinguished, namely mastery and performance goal orientation (e.g., Ames, 1992; Dweck & Leggett, 1988; Elliot, 1999; Elliott & Dweck, 1988; Nicholls et al., 1989).

Mastery goal orientation represents a focus on learning and mastering the task, developing new competences toward self-improvement. On the other hand, performance goal orientation represents students concern to show his/her competence and attempt to surpass others (Button, Mathieu, & Zajac, 1996; Elliot, McGregor, Holly, & Gable, 1999; VandeWalle, Brown, Cron, & Slocum, 1999). Also a third dimension to goal orientation, which is suggested to be considered, is task or performance-avoidance goal (Ames, 1992; Elliot, 1997, 1999; Elliot & Church, 1997; Harackiewicz, Barron, Pint rich, Elliot, & Thrash, 2002). According to, Fenollar, Romajn, and Cuestas (2007, p. 877), work avoidance can be referred to the concern “to get work done with a minimum amount of effort”.

Studies on goal orientation, regarding mastery goal orientation has consistently indicated positive outcome in academic achievement (Bong, 2005; Simons et al., 2004) and long term retention (Elliot & McGregor, 1999), intrinsic motivation (Elliot & Church, 1997; Elliot & Harackiewicz, 1996), absorption during task involvement (Elliot & Harackiewicz, 1996), help seeking (Ryan & Pintrich, 1998), persistence (Pintrich, 2000), and high performance outcomes (Elliot & Church, 1997).

Performance-approach goals also has been revealed to have positive outcomes such as absorption during task involvement (Elliot & Harackiewicz, 1996), high performance outcomes (Elliot & Church, 1997), academic self-concept (Pajares, Britner, & Valiante, 2000; Skaalvik, 1997), task value (Wolters, Yu, & Pintrich, 1996), and intrinsic motivation (Elliot & Church, 1997; Elliot & Harackiewicz, 1996). Performance-approach goals have also been connected to negative outcomes such as test anxiety (Elliot & McGregor, 1999; Middleton & Midgley, 1997), low self-efficacy (Skaalvik, 1997), and higher avoidant help seeking (Middleton & Midgley, 1997; Ryan & Pintrich, 1998).

Finally, task- avoidance goals have been linked with negative outcomes, such as low absorption during task engagement (Elliot & Harackiewicz, 1996), an unwillingness to seek help with schoolwork (Middleton & Midgley, 1997), and reduced intrinsic motivation (Elliot & Church, 1997), lower level performance (i.e. Fenollar et al., 2007), underdeveloped in relations with other achievement goal (Kumar & Jagacinski, 2011). Inconsistency of performance goal orientation on academic achievement has been reflected on many Studies (Meece & Miller, 1999, 2001; Seifert, 1996; Harackiewicz, Barron, Tauer, & Elliot, 2002; Galand & Frenay, 2005; Shim et al., 2008; Galand et al., 2010).

In recent years, the achievement motivation literature has focused on identifying how different types of goal orientations influence various self-regulatory processes and strategies.

**Meta-cognitive awareness**

Recent years have witnessed a host of studies on the ability of the learners to perceive their learning process termed meta-cognition or meta-cognitive awareness. Ever developing societies
call for learners who can take account of their learning and awareness of their cognition which helps them control their learning. Generally Gana (2004) defined meta-cognition as a person’s thinking about thinking or cognition about cognition. Meta-comprehension research traditionally emphasizes the importance of making judgments about one’s own learning. This field of research typically focuses on three types of judgments: ease of Learning judgments, Judgments of Learning and Retrospective Confidence Judgments. Meta-cognition is a form of cognition and a high level thinking process that involves active control over cognitive processes (Wenden, 1998). It is also considered as the ‘seventh sense’ and one of the mental characteristics that successful learners use (Birjandi, 2006). Schraw and Dennison (1994), referred to meta-cognition as the ability to reflect, control and understand, in a self-aware mode, one’s own learning and cognition.

O’Neil and Abedi (1996) have regarded meta-cognition as the conscious and periodic self-checking of whether one’s goal is achieved and when necessary, selecting and applying different strategies. As a result, meta-cognitively aware learners are more effective learners, show higher performance levels, use more strategies and better regulate their own learning (Hammann and Stevens, 1998). According to Zimmerman (2001, 2002), what characterizes self-regulating students is their active participation in learning from the meta-cognitive, motivational, and behavioral point of view. According to, Brown et al. (1983), the term meta-cognition has two major components including meta-cognitive knowledge and meta-cognitive strategies. Meta-cognitive knowledge refers to what learners know about their learning, while meta-cognitive strategies are general skills through which learners manage, direct, regulate, and guide their learning. There exist a lot of evidence that learners’ meta-cognition can directly affect the process and the outcome of their learning (Boekaerts, Pintrich, & Zeidner, 2000; Bolitho et al., 2003; Eilam & Aharon, 2003; Mokhtari & Reichard, 2002; Palmer & Goetz, 1988; Victori & Lockhart, 1995; Zimmerman & Schunk, 2001; Purpura, 1997, 1998). Further research on meta-cognitive skills focused on their impact on learning outcomes. Kim, Park, and Baek (2009) found a significant effect on gaming and learning performances in virtual environments via problem solving. Additionally, it was shown that the generation of meaningful hypotheses increases when meta-cognition is performed (Kim & Pedersen, 2011). Therefore, meta-cognition and success in problem solving are somehow correlated (Taconis & Ferguson-Hessler, 2001) According to wenden (1998) meta-cognitive knowledge influences the self-regulation of learning in planning; monitoring and evaluating skills and these skills can constitute self-directed language learning. It is also suggested that language learning strategies are the key factors in accomplishing autonomy (Wenden, 1991; Brown, 1994; Oxford, 1996; Skehan, 1998; Yang, 1998) and that meta-cognitive strategies increase learner autonomy and its direction toward more individualized instruction (Fewell, 2010).

**Critical thinking**
More recently, the Partnership for 21st Century Skills has identified critical thinking as one of several learning and innovation skills necessary to prepare students for post-secondary education and the workforce. In addition, the newly created Common Core State Standards reflect critical thinking as a cross-disciplinary skill vital for college and employment. Despite widespread recognition of its importance, there is a notable lack of consensus regarding the definition of critical thinking.
The basic characteristic of human being is the ability of thinking. Thinking is defined in the intransitive sense as a process “to exercise the powers of judgment, conception, or inference” (Miriam Webster, 2006). One of the important thinking abilities that should be acquired by learners in school and university is the ability of a critical thinking. Some scholars (Paul & Elder, 2005; Giancarlo, Blohm & Urdan, 2004; Silverman & Smith, 2002; Scriven & Paul, 1996; Angelo, 1995; Rudinow & Barry, 1994; Wilson, 1988; Primacy, 1986; Glaser, 1985; Modjeski & Michael, 1983) viewed critical thinking as the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. Researchers do not agree on the definition of critical thinking (Kennedy, Fisher & Ennis, 1991). Lyutykh (2009) refers to critical thinking as "a right way of thinking". Bowell and Kemp (2005) refer to critical thinking as an individual's engagement in making decision on responsibility for their actions in daily life. Some researchers believe that critical thinking is determined by especial skills such as ability to evaluate the presented reasons sensibly (Mason, 2008). Citing Bloom, Page (2007) believes that critical thinking relates to high level cognitive thinking such as analysis, synthesis and evaluation. Bullen (1998) says that critical thinking is a focus on what we believe and what we do. Facion (1994) suggests that critical thinking includes evaluation, inference, analysis, deductive reasoning and inductive reasoning. Some researchers believe that the investigation of the relationship between critical thinking skill and style will be of benefit to education (Sternberg & Lubart, 1995, Zhang, 2003).

The studies on the relation between self-regulation goal orientation, meta-cognitive awareness and critical thinking

Years of studies have revealed the fact that self-regulation, goal orientation, meta-cognitive processing strategies and critical thinking are correlated. In current models of self-regulated learning, motivational and cognitive elements of learning are integrated, in order to show how achievement goals and learning expectancies influence students’ use of cognitive processes (Covington, 2000; Nicholls, Patashnick, Cheung, Thorkildsen, & Lauer, 1989; Pintrich, 2003; Schunk, 2005; Schunk & Zimmerman, 2001). The underlying assumption of these models is that achievement motivations and goals to a great extent determines the type of cognitive process learners apply in different educational context the outcome of the learning is dependent on students information processing (Craik & Lockhart, 1972; Entwistle, 1979, 1988).

The correlation between achievement goal orientation and self-regulation (Zimmerman, 1999) and cognitive strategy (Simons et al., 2004) has been documented in several studies. Other studies have also provided consistent empirical evidence supporting the view that self-regulation and cognitive strategies are correlated (Pintrich, 2003).

Achievement goal theorists hypothesize that highly mastery goal oriented students will engage in deep cognitive processing to increase their comprehension (e.g., Ames & Archer, 1988; Bouffard, Bouchard, Goulet, Denoncourt, & Couture, 2005; Bruinsma, 2004; Phan, 2009a; Dweck, 1985; Graham & Golan, 1991; Fenollar et al. 2007; Nicholls et al., 1989; Pintrich & DeGroot, 1990). According to several studies, mastery goal orientation is positively correlated with the use of self-
regulation strategies (Pintrich, 1999; Shell & Husman, 2008; Patrick, Ryan, and Kaplan 2007). Pint rich (1999, p. 467) concluded that “If students set as their goal self-improvement and learning, then they will be much more likely to continue to engage in various cognitive and met cognitive activities in order to improve their learning and comprehension”. Phelps et al (2001) depicting a connection between met cognition and the concept of the expert learner, argued that the autonomous learner needs to be meta-cognitively aware.

There is extensive evidence that learners’ meta-cognition can directly affect the process and the outcome of their learning (Boekaerts, Pintrich, & Zeidner, 2000; Bolitho et al., 2003; Eilam & Aharon, 2003; Mokhtari & Reichard, 2002; Palmer & Goetz, 1988; Victori & Lockhart, 1995; Zimmerman & Schunk, 2001; Purpura, 1997, 1998). There is a need for meaningful and goal-oriented environments, which can be used for the assessment of complex constructs in various domains and which take into account meta-cognitive aspects of learning (e.g., Funke & Frensch, 2007; Lee, 2010; Yen & Lee, 2011).

Halogen (1995) identifies meta-cognition as the ability to monitor the quality of critical thinking. Similarly, Halpern (1998) casts meta-cognition as monitoring thinking and strategy use by asking the following kinds of questions Schraw et al. (2006) draw connections between meta-cognition, critical thinking, and motivation under the umbrella of self-regulated learning, which they define as “our ability to understand and control our learning environments” (p. 111). Self-regulated learning, in turn, is seen as comprising three components: cognition, meta-cognition, and motivation. The cognitive component includes critical thinking, which Schraw and associates explain consists of identifying and analyzing sources and drawing conclusions.

**The present study**

Although, there are some studies have been carried out investigating the relationship between self-regulation and some other factors such as goal orientation, cognitive processing, there is no study on the relationship between self-regulation, meta-cognitive awareness, goal orientation, and critical thinking which considers them all together in Iranian educational context. In this study, it was attempted to find out how different sub parts of self-regulation is related with goal orientation, met cognitive awareness, critical thinking. Investigations like this could provide a better understanding of the Learning process and could therefore allow for a better promotion of students’ effective learning.

**RESEARCH QUESTIONS**

Based on the aim of the study the following questions have been made:

1) Does the importance of the relationship between goal orientation, meta-cognitive awareness, critical thinking, and self-regulated learning differ in significant way in Iranian higher educational context?
2) In every factor being analyzed, which of the subcomponents of the factors suit well together and have significant relationship?
3) Which relationships seem to have the highest value in developing self-regulated learner (the direction of the relationship)?

**METHODOLOGY**

*Participants*

The participants of this study were 129 Iranian M. A (Master of Arts) students from Tabriz University majoring in different fields of study. The participants were all male students aged around 22 to 25. All the students were assured of the confidentiality of their responses.

*Instrument*

Four different types of questionnaire were used to collect data in this study. Each one of them was designed to assess different factors consisting of California’s critical thinking inventory, Straw and Dennison (1994). Assessing meta-cognitive awareness inventory, Board’s self-regulated learning questionnaire, and Elliot's A GQ Questionnaire. Questionnaires were translated to Persian to reduce the ambiguity that may be caused by participant’s lack of English proficiency. All items of the questionnaire were rated on five-point Liker-type-scales (Critical thinking and meta-cognitive awareness: 1= never to 5= always; self-regulated learning and achievement goal orientation: 1 = strongly disagree, 5 = strongly agree). Table 1 shows the factors representing each variable in this study. The Cronbach alpha of this questionnaire was .754.

<table>
<thead>
<tr>
<th>Subparts</th>
<th>Number of items</th>
</tr>
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<tbody>
<tr>
<td>Critical thinking</td>
<td></td>
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<tr>
<td>Analysis</td>
<td>4</td>
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<tr>
<td>Comprehension</td>
<td>2</td>
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<td>Evaluation</td>
<td>3</td>
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<tr>
<td>Meta-cognitive awareness</td>
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<tr>
<td>Monitoring</td>
<td>5</td>
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<tr>
<td>Knowledge</td>
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<td>Self-regulation</td>
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<td>Executive strategy</td>
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<tr>
<td>Cognitive strategy</td>
<td>3</td>
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<tr>
<td>Evaluation</td>
<td>2</td>
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<tr>
<td>Goal orientation</td>
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<tr>
<td>Mastery goal</td>
<td>5</td>
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<tr>
<td>Performance goal</td>
<td>4</td>
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</table>
RESULT AND DISCUSSION

Descriptive statistics is first and prime step for quantitative analysis because they provide information about the distribution of scores (i.e., average and mean scores) thus helping to discover any inconsistency in data.

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Mean</th>
<th>Std. Deviation</th>
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<tbody>
<tr>
<td>crit</td>
<td>3.9553</td>
<td>.30420</td>
<td>129</td>
</tr>
<tr>
<td>meta</td>
<td>4.0408</td>
<td>.39877</td>
<td>129</td>
</tr>
<tr>
<td>selfr</td>
<td>4.0977</td>
<td>.33090</td>
<td>129</td>
</tr>
<tr>
<td>goal</td>
<td>3.9212</td>
<td>.35555</td>
<td>129</td>
</tr>
</tbody>
</table>

Table 2 represents the mean scores of students for the variables of goal orientation, self-regulation, met cognitive strategies, critical thinking.

<table>
<thead>
<tr>
<th>Table 3: correlations</th>
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<tbody>
<tr>
<td>SELFR</td>
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<tr>
<td>Self-regulation(SELFR)</td>
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<tr>
<td>Pearson Correlation</td>
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<tr>
<td>Sig. (2-tailed)</td>
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<td>N</td>
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<tr>
<td>goal orientation</td>
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<tr>
<td>Pearson Correlation</td>
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<td>Sig. (2-tailed)</td>
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<td>N</td>
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<td>critical thinking</td>
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<td>Pearson Correlation</td>
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<td>Sig. (2-tailed)</td>
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<tr>
<td>Meta-cognitive</td>
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<tr>
<td>awareness</td>
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<td>Pearson Correlation</td>
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<td>Sig. (2-tailed)</td>
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<td>N</td>
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In the analysis and commenting the data; by using the Pearson product moment correlation statistical technique, P<0.05 significance has been taken. SPSS (Statistical package for social sciences) has been used in the evaluation of the data and finding the estimated values.
The results of correlation matrix show, that there is positive and significant relationship between self-regulation and goal orientation, meta-cognitive awareness, and critical thinking. As seen in Table 3, there is a significant relationship between self-regulation and goal orientation (r=.728**, P< 0.05). It is revealed that there is a significant relationship between the self-regulation and critical thinking (r=.672**, P< 0.05). It is revealed that there is a significant relationship between the self-regulation and meta-cognitive awareness (r=.713**, P< 0.05). It is revealed that there is a significant relationship between the goal orientation and critical thinking of the students. (r=.858**, P< 0.05). It is revealed that there is a significant relationship between the goal orientation and meta-cognitive awareness (r=.678**, P< 0.05). It is revealed that there is a significant relationship between the critical thinking of the students and meta-cognitive awareness orientation and relationship need of the students engaged in team sports (r=.700**, P< 0.05). The correlation of subcomponents of self-regulation, goal orientation, critical thinking, and meta-cognitive awareness is presented in the table 4.

Table 4: The correlation of subcomponents of self-regulation, goal orientation, critical thinking, and meta-cognitive awareness

<table>
<thead>
<tr>
<th></th>
<th>AN</th>
<th>COM</th>
<th>EVEL</th>
<th>EXCU</th>
<th>COG</th>
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<th>PERF</th>
<th>AVOI</th>
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<tr>
<td>EXCU</td>
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<td>.469**</td>
<td>.468**</td>
<td>1</td>
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<tr>
<td>COG</td>
<td>.393*</td>
<td>.410**</td>
<td>.360**</td>
<td>.387**</td>
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<tr>
<td>SELEV</td>
<td>.540</td>
<td>.501</td>
<td>.412**</td>
<td>.418**</td>
<td>.499**</td>
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<tr>
<td>MS</td>
<td>.754</td>
<td>.669</td>
<td>.517**</td>
<td>.472</td>
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<td>.557**</td>
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<td>PERF</td>
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<td>.477**</td>
<td>.539**</td>
<td>.788**</td>
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<tr>
<td>AVOI</td>
<td>.657*</td>
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<td>.552**</td>
<td>.536**</td>
<td>.497**</td>
<td>.519**</td>
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<td>MONI</td>
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<td>.602**</td>
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<td>.566**</td>
<td>.522**</td>
<td>.740**</td>
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</tbody>
</table>

As seen in Table 4, there is significant positive relationship between almost all of components except that, cognitive strategy which is considered to be one of the sub-components of self-regulation is only moderately correlated with analysis(393**), evaluation (360**) of critical
thinking, performance goal (.477), avoidance goal (.497**) of goal orientation and monitoring (.468**) of meta-cognitive awareness.

Multiple regression analysis was used in order to identify the role of the goal orientation, critical thinking and Meta cognitive awareness in prediction of self-regulation.

The results of the regression indicated that three predictors explained .619% of the variance (R²=.619, F= 67.616, p<.000). As can be seen in table of coefficient, the goal orientation and meta-cognitive awareness scales had significant positive regression weights, indicating students with higher scores on these scales (goal orientation=.453; Meta-cognitive awareness=.406) were expected to have higher self-regulated learning skills, after controlling for the other variables in the model. Thus self-regulated learning is predictable through linear combination of the goal orientation and met cognitive awareness of the students. Critical thinking had negative non-significant regression weight (-.001), so it did not contribute to the multiple regression model.

**Discussion**

This study aimed to broaden our understanding of self-regulation, goal orientation, meta-cognitive awareness, and critical thinking in higher education. The main concern was to
determine how these four constructs are related to each other. The three precise assumptions here were that goal orientation, meta-cognitive awareness and critical thinking will predict self-regulated learning and that they will be interrelated. The results provided some evidence on these points. The analyses carried out have provided part of the answer to the questions put forward above. Multiple linear regression and correlation were conducted in this regard. The findings revealed that:

First, there is a significant correlation between self-regulation and three independent variables. This means that, for instance, self-regulated learning improves in accordance with goal orientation. In other words if students establish better learning goal their autonomous learning ability will be improved too.

Second, confirming our assumption and the results of previous studies (Fenollar et al., 2007; Phan, 2009a; Young, 1997), Goal orientation proved to be a consistent predictor of self-regulated learning. Accordingly, it can be concluded that a student who is interested in improving his competence in a study will therefore enhance his thinking activities in order to achieve a deeper understanding of the task hence gain autonomy in learning.

Third, the results also indicated that students with high meta-cognitive awareness will develop autonomous (self-regulated) learner. Forth, the results revealed that students’ critical thinking ability cannot predict the learning autonomy of them. It is revealed that critical thinking is highly correlated with goal orientation and meta-cognitive awareness and its ability to predict self-regulation is not direct.

CONCLUSION

The study and results indicate that the ability of each individual in setting certain goal on their learning and reflecting on the role of their meta-cognitive characteristics could be a useful instrument in the development of the autonomous lifelong learner. Because the participants of this study ware mostly Ma students, they have all passed university entrance exam with high ranks, the results showed that they have already developed autonomy in their learning. Because of, the close relationship between meta-cognitive awareness and critical thinking it was expected that they both can predict self-regulation, but the result did not confirm the assumption that critical thinking can predict self-regulation. Thus it was found out that students who control their learning and are aware of the way and quality of their studies can develop autonomy in their lifelong learning even if they don’t think critically. Critical thinking can be helpful to develop meta-cognitive awareness but not necessarily learning autonomy.

The overall results provide evidence for the justification that it seems fruitful for the learners to integrate goal orientation, meta-cognitive awareness and critical thinking in their educational programs and classes from school years.
Limitations of the study

Although the study resulted in some significant conclusions, yet some limitations exist. There are a number of important limitations in this study regarding the characteristics of the participants, Generalizations from this study, the administration tools, sex difference between the participants and the limitedness of this study on groups with certain age range. Because the participants were all male students within certain age range, the possible effect of age and sex type were ignored in this study, revealing an obvious necessity to take these issues into consideration in future studies. Other studies to find out the appropriate styles and strategies with reinforce autonomous learning in earlier stages of school years may reveal much more important results which can be helpful in identifying effective factors in training autonomous learners. Generalizations of the findings of this study should be taken with caution because of the participants and data collection tools. The data collection tools and procedures can be improved by the use of other data collection tools like interviewing, observation,... etc.

REFERENCES


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