

## **The prediction of Academic Buoyancy Based on Perception of Competence and Cognitive Emotion Regulation Strategies in students**

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### **Abstract**

**Objective:** The aim of the present study was to predict academic Buoyancy of students based on perception of competence and cognitive regulation of emotion.

**Method:** The method of this study was descriptive correlational. The statistical population of the study consisted of second grade of high school students of Isfahan in their first educational semester in 2018. 200 students were selected using Morgan Table and multi-stage cluster sampling method. Chari and Dehghanizadeh questionnaire of academic Buoyancy (2012), Perceived Competency Questionnaire (PCS) and Cognitive Emotion Regulation Questionnaire of Garnefski et al. (2001) were used as instruments of the study. Data were analyzed using Pearson correlation coefficient and multivariate regression and the use of SPSS 23 software.

**Results:** The results of the study revealed that among the cognitive dimensions of emotion, rumination of thoughts, others blaming, evaluation and acceptance and also perception of competence are able to predict academic Buoyancy ( $p < 0.001$ ).

**Conclusion:** It can be concluded that if specialists be able to boost perception of competence as well as positive cognitive emotion regulation strategies in individuals, academic Buoyancy will be increased in a significant manner. The results of this research might be useful for prediction of academic Buoyancy in schools.

**Keywords:** Academic Buoyancy, Perception of Competence, Cognitive Emotion Regulation, Students

## Introduction

In the educational system of this era, schools are considered as the most important source of knowledge acquisition and promotion of talents and insights of students and also they have always been the main focus of mental health specialists and advisers (Ashani & Mostoli, 2014). Research has shown that the dynamism of schools depends on an appropriate learning environment, capable teachers, motivated and hardworking students (Thapa, Cohen, & Guffey Higgins-D'alessandro, 2013). Among those mentioned factors, attention to students as the main wealth of schools is more emphasized and due to the developmental changes of students in higher educational levels, they need more attention (York, Gibson & Rankin, 2015). High school students undergo many changes due to their new experience of shifting from childhood to adolescence and its resulting changes (Santos & Toomey, 2018). These changes may be the cause of various sources of stress which can affect students' academic performance (Tuominen-Soini, & Salmela-Aro, 2014). One of the important topics in the school psychology is the understanding of student efforts facing academic problems and feeling of Buoyancy at school (Mega, Ronconi, & De Beni, 2014 )

In this regard, it is important to study factors related to the ability to adapt to stressful academic situations which are referred to as academic Buoyancy (Graham, 2018). Academic Buoyancy is defined as the ability of students to overcome academic obstacles and challenges that are common in their curriculum. In addition it is referred to a positive, adaptive response to a variety of educational challenges and obstacles experienced by students (Putwain, Connors, Symes, & Douglas-Osborn, 2012). Results of Studies showed that students with the academic Buoyancy are less prone to quit the school, and also, they have received higher scores in educational planning and commitment (Camerford, Batteson, & Tormey, 2015).

Academic Buoyancy as a supporting factor can protect the student from the academic hardships. As a result, researchers need to put the domain of education and training, identifying factors related to academic Buoyancy and the relationship between these factors into their own research projects. Among individual traits, cognitive emotion regulation as one of the factors affects learning (Sheikh al-Islami & Taheri, 2017; Jafari & Bahrami, 2016; Khoobyari & Khoobyari, 2016; Martin, Gins, Brackett, Malmberg & Hall, 2013). Cognitive emotion regulation is a particular form of self-regulation and has been defined as the external and internal processes involved in revision, evaluation, and modification of the appearance, intensity, and duration of emotional response. Efficient cognitive emotion regulation is associated with academic achievement; in addition, having a problem with cognitive emotion regulation is associated with academic impairment, as well as malfunctioning in cognitive emotion regulation is related to mental disorders, which can affect teenagers academic Buoyancy and lead to academic failure (Yeager et al. 2014). Trezise and Reeve (2014) examined the role of cognitive processes and emotions in students' mathematical problem solving. The results revealed that there is a significant positive relationship between cognitive processes and students' mathematical problem solving ability and that there is a significant positive relationship between positive emotions and students' mathematical problem solving ability and a significant negative relationship between negative emotions and students' mathematical problem solving ability. Mikaeli, Rajabi, Abbasi, and Zamanlo (2014) also conducted a study with title of investigating the relationship between emotion regulation and positive and negative emotions with academic performance and fatigue in students. Pearson correlation coefficient showed that there is a significant relationship between emotion regulation and positive and negative emotions with academic performance and fatigue. Moreover, the results of variance analysis showed that there was a significant difference between the two groups in emotion regulation, higher positive emotions and academic fatigue. In fact girls had higher emotion regulation and positive emotions and less academic fatigue in comparison with boys. However, the two groups had no significant differences in negative emotions and academic performance (Mikaeli et al. 2014).

It can be said that the regulating emotion via self-producing thoughts is related to the planned emotions and activities which moves rotatory in the direction of achieving personal goals and generating a sense of competence in the individual (Pfeifer & Berkman, 2018). Sylvester (2011)

pointed out that fulfillment of feelings of self-esteem and independency of students is an ability which can predict their mental Buoyancy (Arabzadeh, 2017). In another word, it is predicted that having a sense of pride about abilities might cause some people to achieve a higher level of mastery and promotion. Perception of competence may act as a protection shield against environment and events of a stressful life as well as developing cognition. People with lower competence perceptions show greater internal problems such as loneliness, social isolation, and anxiety and also are rejected by their peers. These may have long-term negative effects on students' educational achievements (Hertzberg & Zeborowski, 2012).

As one of the important factors affecting educational performance and achievements of students, studies related to Academic Buoyancy comes to the scene. Due to age status of high school students, they may face more cognitive and emotional problems, which can affect their Academic performance. In addition, due to lack of study of the relationship between Academic Buoyancy and competence perception and cognitive emotional regulation, this study examines the question of whether the competence perception and cognitive emotion regulation have the ability to predict Academic Buoyancy.

## Method

The research method was descriptive correlational. Therefore, perception of competence and cognitive emotion regulation were considered as predictor variables and academic Buoyancy as the criterion variable. The statistical population of this study consisted of all second-grade high school students (female) of Isfahan in their first educational semester in 2018-2019 (22000 person).

The sample size is determined based on Muller's theory (1996, cited in Ghasemi, 2012) done with the estimation of sample size using the sample volume to free parameter ratio. The minimum of the ratio is 5 to 1, the average is 10 to 1, and the maximum is 20 to 1. According to the 10 free parameters of this study and its upper limit, 200 students of Esfahan were selected via multi-stage cluster sampling. First of all, 2 educational areas of Esfahan out of 6 were randomly selected, in the next stage 2 high schools from each area and then 2 classes from each school were randomly selected, finally all students of these 8 classes were analyzed.

Instruments of this study are listed below:

*Chari and Dehghanizadeh questionnaire of academic Buoyancy (2012)*: Hossein Chari and Dehghanizadeh (2012) developed this questionnaire with 9 items, patterning the academic Buoyancy scale of Martin and Marsh (2006), which had four items. The questionnaire is rated on a 5-point Likert scale ranging from strongly agree (5) to strongly disagree (1). Cronbach's alpha coefficients scored 0.80 by omitting one item and the reliability ratio was 0.73. In addition, the correlation coefficients of the items with total score ranged from 0.51 to 0.68. These results indicate that the items have internal consistency and acceptable stability. In order to investigate the factor structure (validity) of the questionnaire, principal component analysis with varimax orthogonal rotation method were used at the level of the item which indicated appropriate validity of the questionnaire.

*Perceived Competency Questionnaire (PCS)*: To measure perceived competence, Harter's Perceived Competency Scale (1982) was used. The scale consists of 4 questions and a 7-degree Likert scale that assesses subjects' sense of competence in learning activities. To obtain the perceived competence score, scores of each question are summed. A higher score means more competence perception. Williams and Desi (1996) reported reliability of the scale using Cronbach's alpha of 0.80. In the study of Yarahmadi, Asadzadeh, Ahadi and Bani Jamal (2010), the reliability of this questionnaire was reported 0.83.

*Cognitive Emotion Regulation Questionnaire of Garnefski, Kraaji & Spinhoven (2001)*: This questionnaire was developed by Garnefski et al. (2001). This questionnaire is a self-report instrument consists of 36 items. Cognitive emotion regulation scale has 9 strategies: self-criticism, acceptance, rumination, positive refocusing, refocusing on planning, positive re-evaluation, viewpoint acceptance, catastrophizing and health evaluation of others. The questionnaire asks the

individual to specify their reaction to recently experienced life-threatening and stressful events by answering 5 questions that evaluate strategies to control and regulate emotions. Questionnaire scoring is based on the Likert scale, never (1), rarely (2), sometimes (3), often (4), always (5). Garanski et al. (2002) reported an acceptable validity and reliability for the questionnaire. The Persian version of this scale was validated by Samani and Jokaar (2007). The Alpha coefficient for the subscales of this questionnaire was reported 0.71 to 0.81 by Garnefski et al. (2001).

## Findings

Participants of the study were 200 students, 32% in pre-university, 33% in tenth grade and 34% in eleventh grade. 49.5% of participants were studying in literature major, 16.5% in mathematics and 34% in experimental fields. Table 1 shows the mean and standard deviation of the research variables.

Table 1: Mean and standard deviation of the research variables

Variables	Mean	SD
Academic Buoyancy	17.63	6.60
Competency Perception	7.09	3.61
Positive Focusing/Planning	30.42	5.45
Positive evaluation / Broader Viewpoint	18.88	3.63
Self-Blaming	8.17	2.43
Others Blaming	8.28	2.21
Rumination of thoughts	13.93	3.42
Catastrophizing	12.81	2.65
Acceptance	13.57	2.72
Cognitive Emotion Regulation	108.70	17.56

The results of regression analysis in Table 2 showed that predictive model of academic Buoyancy based rumination of thoughts, others blaming, positive evaluation and acceptance is significant and the score 38.3% shows the variance of academic Buoyancy.

Table 2: Step-by-step regression analysis, predicting academic Buoyancy via cognitive emotion regulation dimensions

Step	Variables entered into equation	Regression coefficient	Square root	F	Df	Sig.
1	Rumination of thoughts	0.468	0.219	45.114	161	0.0001
2	Blaming Others	0.527	0.278	13.143	160	0.0001
3	Positive Evaluation	0.597	0.356	19.263	159	0.0001
4	Acceptance	0.619	0.383	6.497	158	0.009

The results of regression and statistics of standard Beta in Table 3 show that rumination of thoughts, blaming others, positive evaluation, and acceptance were able to predict academic Buoyancy in a significant manner ( $p < 0.05$ ).

Table 3: Raw and standard coefficients of regression equation to predict academic Buoyancy via cognitive emotion regulation dimensions

Variable	Raw Coefficient(B)	Standard error	T	Sig.
Constant value	5.014	2.648	1.893	0.050
Rumination of thoughts	-0.624	0.144	-4.323	0.0001
Blaming others	-0.445	0.265	-5.447	0.0001
Positive evaluation	0.753	0.145	5.185	0.0001
Acceptance	0.480	0.182	2.636	0.009

The results of regression analysis in Table 4 shows that predictive model of academic Buoyancy based on perception of competence is significant which can explain 53.5% of variance of academic Buoyancy.

Table 4: Step-by-step regression analysis, predicting academic Buoyancy via perception of competence

Step	Variables entered into equation	Regression coefficient	Square root	F	DF	Sig.
1	Perception of competence	0.657	0.535	424.550	153	0.0001

The results of regression and statistics of standard Beta in Table 5 shows that perception of competence is able to predict academic Buoyancy in a significant manner ( $p < 0.05$ ).

Table 5: Raw coefficients and standard regression equation for predicting academic Buoyancy via perception of competence

Variable	Raw Coefficient(B)	Standard error	T	Sig.
Constant value	6.973	0.601	11.602	0.001
Perception of competence	1.508	0.073	20.605	0.001

## Conclusion and Discussion

This study aimed to investigate the role of perception of competence and cognitive emotion regulation in predicting academic Buoyancy of high school students. The results showed that among the components of cognitive emotion regulation, rumination of thoughts, blaming others, positive evaluation, acceptance and also perception of competence are able to predict academic Buoyancy of second grade high school students.

The results of the study match with the Sylvester (2011) and Camerford, Batteson, and Tormey (2015) on the role of competence in Academic Buoyancy. Students with higher competence perception have better focus on Academic matters and with proper educational performance can benefit more from the educational environment. These situations lead to success and Buoyancy for such students. Explaining the role of perception of competence in students' academic Buoyancy, it should be stated that perception of competence in individual level includes creation and preservation of competitive superiority through a specific combination of knowledge, skills, structures, strategies and processes (Arabzadeh, 2017; Zheng, Ward & Stanulis, 2020). When a person has a higher perception of competence, they would try more to develop their knowledge and theoretical information via education and also they would have more ability to put their science in practice and repeat the application of knowledge in the real life (Hertzberg & Zeborowski, 2012; Iranmanesh, 2014) and consequently, this person will be able to act compatibly for their success dealing with barriers and academic challenges that are in the way of a normal academic life. It can also be said that the perception of competence is related to one's motivation, beliefs, values and passions (Pfeifer & Berkman, 2018; K uhl et al. 2017). When a person has a high level of perception of competence, they would direct their motivation, beliefs, values, and passions to their abilities and capabilities. When a person's abilities match their goals, they would be able to cope with their academic challenges better and as a result have greater academic Buoyancy.

Regarding the role of cognitive emotion regulation in Academic Buoyancy, the results of the study match the researches of Sheikh al-Islami and Taheri (2017), Jafari and Bahrami (2016), Khoobyari and Khoobyari (2016) and Bathaei (2013). Although this research has been done in a university research template; adaptive components of cognitive emotion regulation, including positive refocusing, refocusing on planning, positive re-evaluation and acceptance improve stress and educational problem compatibility of students. As Rameli and Kosnin (2018) emphasized,

students who solve their educational problems with the proper planning and evaluation will continue their education with more motivation. Martin et al. (2013), in addition to explain the role of compatible self-regulatory factors in Buoyancy, about the matter of incompatible factors of cognitive emotion regulation emphasized that students who respond to stress by blaming themselves and others or catastrophizing gradually may experience educational failure, which reduces the benefits of Academic Buoyancy.

rumination of thoughts means focusing attention on thoughts and depending on the content thoughts that one may have (positive or negative or related to past or future) can create different emotional states (stress, anxiety, depression and anger) in the person or intensify these conditions (Yeager et al. 2014; Salehi, Baghban, Bahrami & Ahmadi, 2011). In another words, continuous thinking about feelings and thoughts along with unpleasant events without any effort to modify the environment is related to high level of negative emotions and low levels of positive ones. Therefore, a student who is continuously doing rumination of thoughts about his failures and weaknesses will be reported by low academic Buoyancy. In addition, blaming others is the way of thinking which is based on the theory that others are responsible for bad things that happens to us. Studies have shown that all samples who experiences bad events believe others are responsible for that events and blame them. As it is said, blaming others is related with low emotional well being and it joints with behavioral problems in the operational level (Garnefski, Koopman, Kraaij & Cate, 2009). Therefore, students who blame others for the unfortunate academic events and challenges cannot adapt to academic barriers in an effective way due to the interference of negative emotions in the problem-solving process and consequently experience a reduction in academic Buoyancy.

Giving a positive meaning to unfortunate events as an adaptive strategy can help dealing with academic challenges in an effective manner and boost the sense of academic Buoyancy via reducing stress in academic situations and creating positive emotions. Acceptance is a coping strategy which has a positive and modifying effect on optimism and self-esteem (Garnefski, Koopman, Kraaij & Cate, 2009). A person who uses the acceptance strategy will accept their weaknesses and strengths and expects theirselves according to their abilities. This person evaluates the situation according to their abilities and as a result, they face academic challenges in an effective way and report higher academic Buoyancy. According to the fact that previous researchers have not studied the role of competence perception and cognitive emotion regulation in Academic Buoyancy of teenagers, the results of this study can increase the research resources related to it. In addition, the results of this study highlighted the dimensions of cognitive emotion regulation and competence perception in order to increase the Academic Buoyancy of students.

In general, according to the findings of the current study, identifying the contribution of perception of competence and emotion regulation strategies in predicting academic Buoyancy, allows psychologists and instructors to prevent academic fatigue of students via developing academic packages with the goal of improving perception of competence and cognitive emotion regulation strategies in them. Since the statistical population of this study was limited to second grade high school students in Isfahan, it has some limitation to generalize the results to the whole community. In addition, these results are correlational and do not specify any cause-and-effect relationship, which shows the necessity of further research in this area.

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