Prediction of Academic Engagement Components based on Personality Characteristics and Psycho-social Climate of Classroom among High School Students

Masoumeh Rashedi¹*, Khadijah Abolmaali², Fatemeh Shaterian³

¹MA, Islamic Azad University, Saveh, Iran  
²Assistant Professor of Educational Psychology, Islamic Azad University, Roudehen branch, Iran  
³Assistant Professor of Educational Psychology, Islamic Azad University, Saveh, Iran

*Corresponding Author: Masoumeh Rashedi

ABSTRACT The purpose of this study was to predict of academic engagement in mathematics based on personality characteristics and psycho-social climate of classroom among high school students in Dameghan city in Iran. Participants were randomly selected via multi-stage cluster (513 boys and girls). They simultaneously completed 3 questionnaires: the MSLQ academic engagement, Michael and Goupil PSCC and personality characteristics of NEO-FFI. For data analyzing was used to multiple regressions. The findings indicated that academic engagement and its components could be predicted by personality characteristics (neuroticism, openness, extroversion and conscientiousness), but agreeableness couldn’t be predict academic engagement. Also psycho-social climate of classroom can be predicting academic engagement positively.

KEYWORDS Academic Engagement, Psycho-Social Climate of Classroom (PSCC), Personality Characteristics.

INTRODUCTION

This article attempts to understand the correlation between personality characteristics, psycho-social climate (PSCC) of the classroom and academic engagement in mathematics. At all academic levels, teachers and educational authorities seek to engage students in academic and learning activities. Engagement is described as “energy in action, the connection between person and activity”. The academic engagement emphasized on students’ tendency for participating in school activities, such as following teacher’s directions, attending class, and effort for completing tasks. Educators have often emphasized on three dimensions for academic engagement: affective, behavioral and cognitive. Affective engagement parallels the construct of situational interest and is task specific and is less stable than personal interest (Hidi & Renninger, 2006). Disaffected children are passive, do not try hard, and give up easily in the face of challenges [they can] be bored,
Depressed, anxious, or even angry about their presence in the classroom; they can be withdrawn from learning opportunities or even rebellious towards teachers and classmates (Skinner & Belmont, 1993). Affective or motivation component could be explained by three perspectives: self-determination theory, achievement goal theory and social-cognitive theory (Urdan & Schoenfelder, 2006). Self-determination theory (SDT) is a macro theory of human motivation and personality, concerning people’s inherent growth tendencies and their innate psychological needs. It is concerned with the motivation behind the choices that people make without any external influence and interference. SDT focuses on the degree to which an individual’s behavior is self-motivated and self-determined (Deci & Ryan, 2002). Achievement goals theory represents the kinds of goals that direct to achievement (Wentzel & Wigfield, 2009). Social cognition theory traditionally focused almost exclusively on intentional goal-directed information processing (Wyer, 1997) and how can individuals gain knowledge, skills, rules, strategies, beliefs and emotions by observation and interaction with self and others (Pintrich & Schunk, 2002). The cognitive academic engagement is viewed as cognitive and meta-cognitive strategies for learning. Cognitive and psychological engagement were considered less observable and gauged with more internal indicators, including self-regulation, relevance of schoolwork to future attempts, value of learning, personal goals and autonomy as indicators of cognitive engagement and feelings of sense of school belongingness, and relationships with teachers and peers as indicators of psychological engagement (Christenson et al., 2008).

The behavioral academic engagement represents students’ active involvement in classroom activities. Klem and Connell (2004) found that engaged students tend to earn higher grades, perform better on tests, and drop out at lower rates, while lower levels of engagement place students at risk for negative outcomes such as lack of attendance, disruptive classroom behavior, and leaving school. The cyclical nature of engagement implies that both early efforts to engage students, as well as the failure to do so, may have led to drastically different outcomes later in a student’s educational career (Christenson et al., 2008; Fredericks et al., 2004; Appleton et al., 2006).

Student's personality is another important factor that affects her/him academic engagement, learning and academic performance. Feist and Feist (2002) introduced personality as a relatively stable pattern of traits, tendencies or characteristics that give durability to the behaviour of individuals. Neurotic people do not use suitable methods for coping with stressful situations; they believe that stress has a meaningful relationship with their performance in examinations, absence from class and illness. Researchers showed that conscientiousness predicted both of intrinsic and extrinsic motivation, but openness to experience predicted only intrinsic motivation. Moreover, as expected, academic motivation mediated the relationship between openness to experience and conscientiousness with academic performance (such as Hazrati-Viari et al., 2012).

O'Connor and Paunonen (2007) showed that conscientiousness, in particular, to be most strongly and consistently associated with academic success. In addition, openness to Experience was sometimes positively associated with scholastic achievement, whereas extraversion was sometimes negatively related to the same criterion, although the empirical evidence regarding these latter two dimensions was somewhat mixed. Chamorro-Premuzic et al (2007) found that the deep approach to learning was associated with emotional stability, openness, and agreeableness. These personality traits were also negatively related to the surface approach to learning, whilst conscientiousness was associated with deep and achieving learning approaches. Also they showed that preference for interactive teaching was associated with a combination of Emotional Stability, Agreeableness, and deep learning approach.
Soubelet and Salthouse (2010) investigated why people with high levels of openness/intellect tend to have higher levels of cognitive functioning than people with lower levels of openness/intellect. Concluded that, there is a positive relationship between openness/intellect and cognition might be attributable to more open people being more likely to engage in cognitively stimulating activities that are beneficial for cognitive functioning.

Psycho-social climate of the classroom (PSCC) is a primary micro context in which students and teachers interact. The quality of social and emotional interactions in the classroom between and among students and teachers (e.g., teacher and peer support, student autonomy) creates the classrooms positive emotional climate (Daniels & Shumow, 2003; Jia et al., 2009; Ryan & Patrick, 2001).

Teachers in a positive classrooms aware of their students’ emotions and needs, and help them in classroom activities (Hamre & Pianta, 2007). Classrooms high in positive climate and low in negative climate are characterized by a sense of connectedness and belongingness, enjoyment and enthusiasm, and respect. Prior research shows that students in classrooms with these characteristics engage more in learning and exhibit fewer problem behaviors (Crosnoe et al., 2004). Students are more likely to succeed in school when their needs for relatedness, competence, and autonomy are met (Connell & Wellborn, 1991). Teachers who create positive PSCC regard student perspectives and encourage positive interactions (Curby et al., 2009; Marks, 2000; Rimm-Kaufman et al., 2005; Skinner & Belmont, 1993; Wentzel, 1998; Woolley et al., 2009).

Researchers showed that students in emotionally supportive classrooms report greater interest, enjoyment, and engagement (Curby et al., 2009; Marks, 2000; Rimm-Kaufman et al., 2005; Skinner & Belmont, 1993; Wentzel, 1998; Woolley et al., 2009). Klem and Connell (2004) reported that students who report having better quality relationships with their teachers, another characteristic of emotionally supportive climates, also report being about three times more engaged than students who report having poor relationship. Howes and Smith (1995) concluded that students in emotionally supportive classrooms environments also tend to choose more complex cognitive. According to above issues the main purpose of this research is to predict academic engagement and its components based on psycho social climate of classroom and personality characteristics among high school students.

MATERIALS AND METHODS

The method of this research was to descriptive-correlational. The statistical population consisted of all second grade and junior high school students studying a mathematical and science course in the city of Dameghan in Iran. Five hundred thirteen (310 girls and 203 boys) was randomly selected via cluster method.

Data Measuring Tools

**Academic engagement questionnaire:** The questionnaire had 32 questions to measure behavioural, emotional and cognitive aspects of academic engagement. It is one of the subscales of motivation strategies for a learning questionnaire (MSLQ) produced by Pintrich and De Groot in1990. In Iran, Rastgar (2007) and Abedini (2008) reported reliability of this test with internal consistency, and Chronbach alpha coefficients were reported for behavioural dimensions (effort), emotional (the task), cognitive strategies and meta-cognitive strategies as 0.69, 0.90, 0.69, and 0.75, respectively. In the present study, reliability of this test with internal consistency was obtained, in the above order, at 0.59, 0.66, 0.59 and 0.73.

**Psycho-social climate of classroom (PSCC) questionnaire:** A PSCC questionnaire used to measure the psycho-social climate of the classroom was made in
1990 by Michaud et al. PSCC assesses two dimensions: perception and expectation. In this research only perception was assessed. The reliability of internal consistency of this test, for the dimension of perception, was about 0.68 and specialists emphasized its content validity.

**Personality questionnaire - short form (NEO-FFI):**

This questionnaire assesses the personality characteristics of neuroticism, extraversion, openness, agreeableness and conscientiousness. Cronbach's alpha coefficient was measured between 0.68 and 0.86 from neuroticism to openness. In Iran in 1995, Garoosi-Farshi (1999) obtained Cronbach's alpha coefficient at 0.84, 0.75, 0.74, 0.75 and 0.83, respectively. In the present study, Cronbach's alpha coefficient in the above dimensions was measured at 0.678, 0.594, 0.531, 0.509, and 0.738, respectively.

### Results

**Table 1.** Descriptive indices of studied variables.

For analyzing of data, the first indices of studied variable were reported and then data is analyzed with multiple regression tests.

<table>
<thead>
<tr>
<th>Studied Variables</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism</td>
<td>17.25</td>
<td>5.82</td>
<td>-0.13</td>
<td>-0.42</td>
</tr>
<tr>
<td>Extraversion</td>
<td>22.04</td>
<td>4.86</td>
<td>-0.36</td>
<td>0.11</td>
</tr>
<tr>
<td>Openness</td>
<td>11.35</td>
<td>2.83</td>
<td>-0.65</td>
<td>0.55</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>12.06</td>
<td>4.22</td>
<td>-0.13</td>
<td>0.06</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>33.84</td>
<td>6.99</td>
<td>-0.47</td>
<td>-0.16</td>
</tr>
<tr>
<td>PSCC</td>
<td>15.22</td>
<td>2.64</td>
<td>-0.54</td>
<td>0.36</td>
</tr>
<tr>
<td>Academic engagement</td>
<td>107.9</td>
<td>13.46</td>
<td>-0.48</td>
<td>0.27</td>
</tr>
<tr>
<td>Affective academic engagement</td>
<td>23.08</td>
<td>4.97</td>
<td>-0.902</td>
<td>0.512</td>
</tr>
<tr>
<td>Behavioral academic engagement</td>
<td>15.25</td>
<td>2.77</td>
<td>-0.633</td>
<td>0.669</td>
</tr>
<tr>
<td>Cognitive academic engagement</td>
<td>40.14</td>
<td>5.81</td>
<td>-0.261</td>
<td>0.026</td>
</tr>
<tr>
<td>Meta-cognitive academic engagement</td>
<td>29.4</td>
<td>3.94</td>
<td>0.005</td>
<td>-0.128</td>
</tr>
</tbody>
</table>

With regard to the above table, distribution of all studying variables tends to normal distribution (skewness and kurtosis are in the range of -1 and +1). In order to predict dimensions of academic engagement based on characteristics of personality and the classroom climate was used five multiple regression.

**Table 2.** Regression of academic engagement dimensions based on personality characteristics and PSCC.

<table>
<thead>
<tr>
<th>Predicted variables</th>
<th>Affective dimension</th>
<th>Behavioral dimension</th>
<th>Cognitive dimension</th>
<th>Meta-cognitive dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>β</td>
<td>T</td>
<td>sig</td>
<td>B</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>0.071</td>
<td>-0.96</td>
<td>2.17</td>
<td>0.030</td>
</tr>
<tr>
<td>Extraversion</td>
<td>0.092</td>
<td>0.109</td>
<td>2.32</td>
<td>0.021</td>
</tr>
<tr>
<td>Openness</td>
<td>0.087</td>
<td>0.089</td>
<td>2.10</td>
<td>0.036</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>0.04</td>
<td>0.045</td>
<td>0.96</td>
<td>0.337</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>0.112</td>
<td>0.157</td>
<td>3.39</td>
<td>0.001</td>
</tr>
<tr>
<td>PSCC</td>
<td>0.305</td>
<td>0.162</td>
<td>3.83</td>
<td>0.000</td>
</tr>
</tbody>
</table>
B: slope of the line of nonstandard regression. $\beta$: slope of the line of standard regression, Sig: Significant level

In the above table personality characteristics and PSCC served as predictor variables and 4 components of academic engagement (affective, behavioral, cognitive and meta-cognitive) served as criterion or predicted variables in 5 regression analysis. According to above table neuroticism could significantly predict meta-cognitive dimension, but this variable couldn’t predict behavioral and affective engagement significantly. Also, extroversion and openness only could positively predict affective engagement. Agreeableness does not appear to predict components of academic engagement. Conscientiousness could predict all component of academic engagement. And finally PSCC was a significant predictor and can predict affective, behavioral, cognitive and meta-cognitive engagement. Generally personality characteristics could have explained 12.8% ($F=12.349$, Sig=0.0001), 18% ($F=18.51$, Sig=0.0001), 13.5% ($F=13.121$, Sig=0.0001) and 11.2% ($F=11.24$, Sig=0.0001) of variance affective, behavioral, cognitive and meta-cognitive engagement, respectively.

**DISCUSSION AND CONCLUSION**

In this research some of personality characteristics (openness to experience, conscientiousness, neuroticism, and extroversion) could predict academic engagement, but agreeableness does not appear to predict this variable. Consistent with these findings, Schweinle et al (2009) found that personality and a sense of self influence students’ levels of engagement.

Conscientiousness, in this research could predict all components of academic engagement. Also, O'Connor and Paunoren (2007) found that in particular, conscientiousness was a most strongly associated with academic access. Really, it seems that conscientiousness has a significant role in predict academic engagement that lead to more activity and positive interaction in classroom and academic access. In addition to, conscientiousness individuals are self-regulated and have high responsibility, they act to commitment and duties and involve in academic activity. In addition, according to results, in this research, extroversion and openness to experience, could positively predict affective engagement. Komarraju and Karau (2005), as well as, showed that engagement was explained by openness to experience and extraversion. As well as Openness and extroversion form in interaction with environment, and Schweinle et al (2009) stated that personal interactions with schools, and learning opportunities outside classes have positive correlation with academic achievement. Interaction with classroom and school can apply to improving academic motivation or affective engagement. According, another finding of this study, neuroticism could negatively predict meta-cognitive dimension, but this variable couldn’t predict behavioral and affective engagement significantly. In attention to neurotic people have high anxiety and impulsive performance, therefore they don’t able to interpret and monitor cognitive processes.

In this study, PSCC could predict academic engagement. This result consonant with findings of Daniel and Shumow (2003) findings, Connell and Wellborn (1991), Curby et al (2009), Marks (2000), Skinner and Belmont (1993) and Woolley et al (2009). Positive psycho-social climate of classroom (PSCC) represents a supportive, enjoyable and challenging environment and student’s autonomy that can encourage students for participating in activity classroom, so as students involve and interact in academic tasks. Based on the findings of this study, it is recommended that, teachers for increasing students’ engagement emphasize on improving of positive relationships with them, create a positive climate in classroom and reinforce friendship, mutual respect, obeying the rules, cooperation and
agreeableness in classroom. Also, in attention to the positive role of openness and extroversion in explaining of academic engagement, it is suggested that, the academic psychologists and consolers emphasize on improving students' openness to experience, group activities and cooperative learning, and enriching the learning environment. In attention to positive contribution of conscientiousness in predicting of academic engagement, it is recommended that teachers emphasize on improving self-regulation, high responsibility, and students' involving in academic activities.

REFERENCES


Garroosi-Farshi M, 1999. Standardization of a new test and analysis features and factor structure of the NEO personality among university students in Iran. PhD Thesis, Department of Psychology and Educational Sciences, Faculty of Humanities, Tarbiat Modarres University, Tehran, Iran.


Rastgar A, 2007. The relationship between intellectual beliefs and academic achievement: The role of mediator of achievement goals and academic engagement. MA. thesis, Faculty of psychology and education sciences, Tehran university, Iran.


