Peers’ perceived support, student engagement in academic activities and life satisfaction: A structural equations modeling approach

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Abstract
This study investigates the relationships among peers’ perceived support, life satisfaction, and student engagement in academic activities. Three hundred and fifteen Iranian students (172 boys and 143 girls) who were studying in one suburb of Tehran participated in this study. All participants were asked to complete Peers’ Perceived Support scale (PPSS), Student Engagement in Academic Activities scale (SEAAS), and Brief Multidimensional Students Life Satisfaction Scale (BMSLSS). Structural equation modeling was used to analyse the data. According to the results, there are significant positive correlations between components of peers’ perceived support, student engagement in academic activities, and life satisfaction in pairs. In two examined models, the direct and indirect effects of peers’ perceived support on student engagement in academic activities and life satisfaction were significantly positive. In addition, life satisfaction and student engagement in academic activities had a mediating role and bi-directional effect in the surveyed models. In sum, the results of this research endorse not only the importance of peers’ perceived support in enhancing student engagement in academic activities but also the role of life satisfaction and student engagement in academic activities.
academic activities and life satisfaction but also the cross-effect of student engagement in academic activities and life satisfaction variables on each other.

**Keywords**
life satisfaction, peer support, structural equation modeling, students engagement

According to self-determination theory, people interacting with the environment seek to achieve their basic needs including competence, autonomy, and relatedness (Deci & Ryan, 2000). When basic needs are satisfied and social environments provide opportunities for competence, autonomy, and positive interpersonal relationships, it may lead to increased life satisfaction (Diseth, Danielsen, & Samdal, 2012), and engagement in academic activities (Skinner & Belmont, 1993). Currently, the expansion of information and communication technology (ICT) has led to substantial changes in people's interactions and family structure; thus, parents spend most of their time outside of the home. Consequently, peers have the potential to play an important role in improving psychological well-being and engagement in academic activities of adolescents. Fuligni (1997) believes that peers can help to create proper interaction, and instrumental and social protection in issues such as supporting each other to do homework and exhorting friendship between each other at school. Also, peers can have a prominent role in mental health and engagement in academic activities. For instance, adolescents' level of social support is related to their engagement in academic activities, because appropriate social support increases their image of competencies and abilities, and their engagement in academic activities (Connell & Wellborn, 1991; Skinner, Wellborn, & Connell, 1990). Furthermore, low levels of perceived social support by adolescents are related to disengagement in academic activities. Keresztes, Pilo, Pluhar, and Page (2008) believed that high levels of involvement in peer-based activities during adolescence affect adolescents' behaviors and psychological well-being. Therefore, peer groups are important and valuable in increasing and improving students' life and their engagement in academic activities.

**Student engagement in academic activities**

Student engagement in academic activities is an important cognitive-motivational variable that has occupied several scholars during recent decades. Shernoff and Schmidt (2008) define student engagement as learners' synchronic perception of concentration, interests, and satisfaction while involving and interacting with an activity. Atweh, Bland, Carrington, and Cavanagh (2008) believed that the perception of engagement in academic activities, from a critical and progressive viewpoint, is relevant to questions about achieving the goal of schooling and types of tasks that students are expected to be engaged in. Christenson et al. (2008) considered engagement in academic activities as a valuable activity that not only
focuses on behavioral and academic skills, but also on psychological and social aspects of education for students. In most previous studies, the structure of engagement in academic activities consists of behavioral, academic, psychological and cognitive components, suggesting that student engagement in academic activities is multidimensional. The cognitive dimension of student engagement refers to the level of investment in learning that focuses on incorporating thoughtfulness and enthusiasm to understand complex ideas and dominate difficult skills (Fredricks, Blumenfeld, & Paris, 2004). The behavioral dimension of student engagement refers to the emotional relationships and dependency between a student and school (Jimerson, Campos, & Greif, 2003). Finally, the academic dimension of student engagement refers to the amount of time a students dedicates to academic activities, the credits acquired by students, and the completion of homework (Furlong & Christenson, 2008).

The results of the empirical research about engagement in academic activities show that students’ engagement is not only positively related to their academic achievement but also has a significant relationship with their life satisfaction level (Lewis, Huebner, Malone, & Valois, 2011; Willms, 2003), although the review of related literature shows various results. For example, Lewis et al. (2011) presented a model of bi-directional relationships between global life satisfaction and student engagement variables. Likewise, the studies finding of Frisch et al. (2005) and Gilman and Huebner (2006) have demonstrated that high life satisfaction increases the school engagement among college students.

Life satisfaction has been defined as a personal cognitive evaluation of one’s life quality or specific aspects of life such as family, friends, and society (Pavot, Diener, Colvin, & Sandvik, 1991). Life satisfaction is an important factor in mental and psychological well-being because this variable is related to personal jubilation and has positive social, psychological, behavioral, and personal outcomes (Gilman & Huebner, 2003). Indicators relevant to life satisfaction generally focus on perceived quality of life (Suldo, Riley, & Shaffer, 2006) and are considered a valuable structure because of increased emphasis on well-being among many researchers (Diener, 2000). Despite the important position of life satisfaction, past studies (Seligson, Huebner, & Valois, 2003; Verkuyten and Thijs (2002) have stated that there is little information available about the quality of life satisfaction in children and youth.

**Purpose of current study**

Vygotsky (1978) believed that people’s interactions in the social context have an important role in growth, producing knowledge, and learning. Moreover, according to Nakamura and Csikszentmihalyi (2002), people’s psychological status is affected by their engagement in activities, and their success in solving challenging problems may improve their psychological well-being. The challenging tasks, however, should not be too difficult and should be designed in a way that makes them interesting and satisfying to the student. Therefore, students’ high engagement in academic
activities, if satisfying and interesting, may help to improve their life satisfaction. On the other hand, current theoretical and empirical studies show that being friends with optimistic people increases the level of engagement in academic activities (Berndt, 1999; Chen, 2005; Malecki & Demaray, 2003; Simons-Morton & Chen 2009; Wentzel, 1998) and life satisfaction (Diener & Diener, 2009; Helsen, Vollebergh, & Meeus, 2000; Kef & Dekovic, 2004; Keresztes et al., 2008; Meeus, 1994; Rigby, 2000; Shahyad, Besharat, Asadi, Alipour, & Miri, 2011). Additionally, student engagement in academic activities and life satisfaction in adolescents have a bi-directional relationship with each other (Huebner, Antaramian, Hills, Lewis, & Saha, 2011; Lewis et al., 2011; Shochet, Dadds, Ham, & Montague, 2006; Willms, 2003), and few studies have examined these relationships in cause–effect models.

Considering the cultural and social context of peers’ perceived support, student engagement in academic activities, and life satisfaction variables is important, because how and what students think can be influenced by culture and the social contexts in which they are living (Samaras & Gismondi, 1998). Park and Huebner (2005) and Suh, Diener, Oishi, and Triandis (1998) suggested that most studies about life satisfaction and interpersonal variables have been conducted in Western cultures. These studies have shown that Western countries (e.g. North American countries, Western European countries) have individualistic cultures in which adolescents pay more attention to personal feelings, thoughts, and internal attributes than in Asian countries which tend to have collectivistic cultures where adolescents place less emphasis on the self. Therefore, when the findings of these studies are generalized to children and youth from other cultures they can be ambiguous and difficult to interpret. Iranian culture, like many other Eastern cultures, is traditionally collectivist (Nikogoftar, 2015). In such a context, students tend to work collaboratively and learn from each other, and schools encourage this process. More recently, individualism is increasing in Iranian society and families are encouraging children to act in a way that provides for their individual future interests.

Given these considerations, this study aimed to demonstrate the relationships between peers’ perceived support, life satisfaction, and student engagement in academic activities among the Iranian students. Accordingly, the present research tries to test two questions:

1. Does student engagement in academic activities play a mediating role between peers’ perceived support and life satisfaction?
2. Does life satisfaction play a mediating role between peers’ perceived support and student engagement in academic activities?

Methodology

Participants and procedure

After eliminating cases with incomplete and missing data, the research sample consisted of 315 students (143 girls or 45.4% of the sample, and 172 boys or
54.6% of the sample) from the 11th grade of high school in one suburb of Tehran, Iran, through cluster random sampling from ten schools. The participants’ age ranged from 14 to 17 ($M = 15.08$, $SD = 1.02$). The students’ economic status was classified as poor (45.20%), moderate (44.90%), and good (9.90%). Research data were collected in cooperation with the manager, deputies, and teachers, and by the researcher attending the class. The researcher delivered necessary information about completing the scales and ensured respondents that the answers would be kept confidential. It took about 30 minutes for the respondents to complete the scales.

Measures

The eight-item Peers’ Perceived Support Scale (PPSS, Khaleghinezhad, & Amraei, 2013) was used in this study to measure Peers’ Perceived Support. The Iranian PPSS consists of two subscales of perceived support: emotional support (five items; e.g. ‘if I do a suitable activity in my school, my friends encourage me’) and cognitive support (three items; e.g. ‘I discuss with my friends the university major that I am going to study in future’). Responses were scored using a four-point scale (ranging from 1 = strongly disagree to 4 = strongly disagree). High scores on this scale indicate high perceived support. The overall test–retest reliability of this scale for total scale has been shown to be 0.84, and for subscales of emotional support and cognitive support was 0.71 and 0.81, respectively (Khaleghinezhad & Amraei, 2013). In the present study, the reliability of the scale was studied by internal consistency (using ronbach’s coefficient alpha) and the validity was examined through confirmatory factor analysis (CFA). Cronbach’s alpha coefficient for the total scale was 0.76, and for the emotional and cognitive subscales was 0.75 and 0.59, respectively. The indices of CFA for the total scale ($\chi^2/df = 2.35$, RMSEA = 0.06, GFI = 0.97, AGFI = 0.93, CFI = 0.97), and two subscales of emotional support ($\chi^2/df = 1.26$, RMSEA = 0.00, GFI = 0.99, AGFI = 0.98, CFI = 1), and cognitive support ($\chi^2/df = 0.00$, RMSEA = 0.00, GFI = 1, AGFI = 1, CFI = 1) revealed that the models sufficiently fit the data.

The level of student engagement in academic activities was measured using the Iranian Student Engagement in Academic Activities Scale (SEAAS, Hakimzadeh, Besharat, & Khaleghinezahd., 2013). The scale consists of 24 statements and four subscales of cognitive engagement (six items; e.g. ‘I ask questions to ensure understanding issues’), psychological engagement (six items; e.g. ‘School and classroom are fun for me’), academic engagement (six items; e.g. ‘I make a good effort to succeed in the class’), and behavioral engagement (six items; e.g. ‘I always follow school regulations’). Responses were scored by a four-point scale (ranging from 1 = strongly disagree to 4 = strongly disagree). Hakimzadeh et al. (2012) reported a good internal consistency with Cronbach’s alpha coefficient 0.85 for the scale and internal consistency ranged from 0.61 to 0.73 for the subscales of student engagement in academic activities scale. Meanwhile, good test–retest reliability after a
two-week period was also reported with correlation coefficients ranging from 0.71 to 0.78 for the subscales and 0.75 for student engagement in academic activities scale. In this study, the validity of the instrument was analysed by CFA. The goodness-of-fit indices obtained from CFA for total scales \((\chi^2/df = 1.77, \text{RMSEA} = 0.04, \text{GFI} = 0.90, \text{AGFI} = 0.87, \text{CFI} = 0.95)\) and four subscales of cognitive engagement \((\chi^2/df = 1.66, \text{RMSEA} = 0.04, \text{GFI} = 0.98, \text{AGFI} = 0.96, \text{CFI} = 0.99)\), psychological engagement \((\chi^2/df = 1.92, \text{RMSEA} = 0.05, \text{GFI} = 0.98, \text{AGFI} = 0.96, \text{CFI} = 0.98)\), scientific engagement \((\chi^2/df = 2.80, \text{RMSEA} = 0.07, \text{GFI} = 0.98, \text{AGFI} = 0.94, \text{CFI} = 0.97)\), and behavioral engagement \((\chi^2/df = 0.94, \text{RMSEA} = 0.00, \text{GFI} = 0.99, \text{AGFI} = 0.98, \text{CFI} = 1)\) show that the models sufficiently fit the data.

The Brief Multi-dimensional Students Life Satisfaction Scale (BMSLSS, Seligson et al., 2003) was used to measure the level of students’ life satisfaction. This scale includes five items, each dedicated to one of the five life satisfaction scales including family, school, friends, self, and environment. Items are rated on a four-point scale, in which the maximum and minimum score were respectively 20 and 5; the sum score of scales shows the overall level of life satisfaction. Likewise, given the previous literature (Seligson et al. 2003; Siyez & Kaya, 2007; Tian, Zhang, & Huebner, 2014) it is possible to report each item of the BMSLSS individually. Seligson et al. (2003) have demonstrated that this scale includes properties of psychometrics needed to measure level of satisfaction in adolescents. In the present study, the reliability coefficient using Cronbach’s alpha coefficient for this scale was 0.67. Also, results of confirmatory factor analysis showed that the model significantly fit the data \((\chi^2/df = 0.98, \text{RMSEA} = 0.00, \text{GFI} = 1, \text{AGFI} = 0.98, \text{CFI} = 1)\).

**Statistical analysis**

Data were analysed using LISREL 8.72 and SPSS 16. Data analysis was executed in two steps. Firstly, descriptive statistics and zero-order correlations of all variables were investigated. Secondly, research conceptual models were studied through structural equation models and maximum likelihood estimation. To investigate the characteristics of participants, mean descriptive statistics, standard deviations, skewness, kurtosis, and zero-order correlations between variables were evaluated.

**Results**

As presented in Table 1, mean and standard deviation of scores show appropriate distribution, and results of skewness and kurtosis statistics show normal distribution of research variables. Also, according to the results presented in Table 1, all of the correlation coefficients among the manifest indicator variables are statistically significant at the \(p < 0.01\) level.
Based on the hypothesized conceptual models, two structural equation models consisting of three latent variables (peers’ perceived support, engagement in academic activities, life satisfaction) and 11 observed variables were examined. To estimate the goodness of fit of the models, five indices of ratio of chi-square to degree of freedom ($\chi^2$/df), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Goodness of Fit Indices (GFI), and Non-Normed Fit Index (NNFI) were used. The review of related literature for structural equation modeling suggests that the ratio of $\chi^2$/df < 3, RMSEA < 0.08 (Kline, 1998) and fit indices of NNFI, CFI and GFI approximately equal to 0.95 (Hu & Bentler, 1999) providing acceptable fit indices of structural equation modeling.

The first model. The first model examines the mediating role of student engagement in academic activities between peers’ perceived support and life satisfaction illustrated in Figure 1. All path coefficients between latent variables were significant at 0.05. The overall fit of the final model was good ($\chi^2$/df = 2.83, RMSEA = 0.08,

Table 1. Descriptive statistics and Pearson correlation among variables.

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<td>0.96</td>
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Note: CS = Cognitive support; ESU = Emotional support; CE = Cognitive engagement; PE = Psychological engagement; AE = Academic engagement; BE = Behavioral engagement; ES = Environment satisfaction; FS = Family Satisfaction; SS = School satisfaction; PS = Peers satisfaction; SS = Self-satisfaction; General life satisfaction = GLS; M = Mean; SD = Standard Deviation; SK = Skewness; KU = Kurtosis; *Significant at the $p < 0.01$ level.
NNFI = 0.93, CFI = 0.95, GFI = 0.94) and all factor loadings were significant (p < 0.05), suggesting that all latent constructs were well represented by the observed indicators. In addition, peers’ perceived support had a positive and significant direct effect on life satisfaction (β = 0.30, t = 2.69, p = 0.11) and student engagement in academic activities (β = 0.64, t = 6.33, p = 0.10). Additionally, the direct effect of engagement in academic activities on life satisfaction (β = 0.43, t = 3.24, p = 0.13) was positive and significant. Two variables of peers’ perceived support and learning explained 26% of life satisfaction variance (R² = 0.26) and peers’ perceived support determined 27% of student engagement in academic activities variance (R² = 0.27). This finding means that student engagement in academic activities has an intermediary role between peers’ perceived support and life satisfaction.

The second model. In the second model the intermediary role of life satisfaction between peers’ perceived support and student engagement in academic activities was analysed (see Figure 2). Result showed that a test of the structural model led to good fit indices and the hypothesized model fits the data well (χ²/df = 2.83, RMSEA = 0.08, NNFI = 0.93, CFI = 0.95, GFI = 0.94). All factor loadings were significant (p < 0.05) indicating that peers’ perceived support, life satisfaction, and student engagement in academic activities were well represented by the observed indicators. Also, the results indicated that peers’ perceived support had a significant direct path to student engagement in academic activities (β = 0.42, t = 3.94, p = 0.11) as well as an indirect path through life satisfaction (β = 0.58, t = 4.85, p = 0.12). In addition, life satisfaction had a direct significant path to student engagement in academic activities (β = 0.38, t = 3.15, p = 0.12). Finally, 51% of

![Figure 1. Standardized coefficients for the first model. *Significant at the p < 0.05 level.](image-url)
the variance in student engagement in academic activities was explained by two variables of peers’ perceived support and life satisfaction. Also, peers’ perceived support determined 34% of the variance in life satisfaction.

**Discussion**

The purpose of this research was to evaluate two models through which peers’ perceived support may directly or indirectly affect life satisfaction by engagement in academic activities and vice versa. In the first model, the mediating role of engagement in academic activities in the relationship between peers’ perceived support and life satisfaction was examined. Acquired fit indices from this model demonstrated that the observed data are related to and confirm the conceptual fit model. This means that peers’ perceived support both directly and indirectly affects life satisfaction through the mediating variable of engagement in academic activities. This finding supports self-determination theory, emphasizing that satisfying basic needs leads to appropriate consequences such as motivation, academic participation, and improving personal attitude toward living in different areas. The cognitive-social theory of Vygotsky (1978) emphasizes the point that learning and creating knowledge is the result of interpersonal interactions and social context plays an important and undeniable role in knowledge transfer and personal growth improvement.

In the current study, peers’ emotional support – which is based on encouragement, motivation, guidance, and cognitive support in discussion and interactions among peers – has a direct effect on engagement in academic activities. This confirms previous findings (Berndt, 1999; Connell & Wellborn, 1991; Chen, 2005;
Malecki & Demaray, 2003; Simon-Merton & Chen, 2009; Wentzle, 1998) that emphasize the close relationship between peers’ perceived support and engagement in academic activities. Regarding these findings, it may be noted that if adolescents receive more emotional and cognitive peer support, they may improve their cognitive participation and their attitude about academic activities; feel more interest in school; and place more value, importance and interest on academic tasks. This support may also play a role in motivating students. Moreover, peer social networks can improve students’ social skills and promote their interest in participating in school and class activities.

The findings of this research illustrate the effect of peers’ perceived support on students’ life satisfaction. Therefore, it may be argued that when students are able to interact appropriately with their peers, it leads them to have a better judgment about people and themselves and have a better attitude toward their life. These findings are consistent with results of previous research (Diener & Diener, 2009; Helsen et al., 2000; Kef & Dekovic, 2004; Keresztes et al., 2008; Kong, Zhao, & You, 2012; Meeus, 1994; Rigby, 2000; Shahyad et al., 2011) emphasizing contextual factors as a strategic resource to improve and create a positive attitude toward life.

The first structural equation model analysis showed the indirect effect of engagement in academic activities on students’ life satisfaction. Therefore, students’ engagement in academic activities, their interest in school, importance and value of academic tasks, and their interest and participation in academic activities play an effective role in students’ positive life satisfaction. This finding supports Csikszentmihalyi’s flow theory (1990) emphasizing that success in activities is related to improvement of one’s psychological status, and is also consistent with other previous findings (Huebner et al., 2011; Lewis et al., 2011; Rigby, 2000; Shocet et al., 2006).

In addition to the above-mentioned findings, the results of testing the second structural equation model suggest that life satisfaction variable plays a mediating role between peers’ perceived support and student engagement in academic activities. Therefore, improving students’ level of life satisfaction affects student engagement in academic activities, and students with high levels of life satisfaction in various dimensions (environment, family, school, peers, self) will be more involved in their academic activities. This is very important because student engagement changes from moment to moment (Bakker, Vergel, & Kuntze, 2015). In sum, this result is somewhat consistent with former findings (Frisch et al., 2005; Gilman & Huebner, 2006; Lewis et al., 2011) that emphasize the effect of life satisfaction on increasing student engagement in academic activities.

**Implications**

The present study presents evidence about the important and effective role of peers in students’ learning and life satisfaction, and the bi-directional relationship
between life satisfaction and student engagement in academic activities. On this basis, it is suggested that administrators, consultants, and school psychologists develop interventions based on the three needs of relationship, interdependency, and competency, in order to promote interaction among students and satisfy their needs in school. Moreover, based on the fact that students spend substantial time with their peers in school, it seems an appropriate strategy to manage this time in school to devote a place for scientific discussions and collaboration among students. In the present research, the direct effect of engagement in academic activities on life satisfaction is emphasized. Therefore, regarding the importance of engagement in academic activities, it is suggested that factors leading to increases in students’ engagement in academic activities should be identified and factors leading to decreases in engagement in academic activities should be removed from the academic environment structure. Additionally, regarding the fact that students’ success with challenging tasks may lead to increased self-confidence and ultimately life satisfaction, providing challenging tasks appropriate to students’ age, creativity, talent, and academic level may be helpful to achieve this goal.

Limitations and suggestions for future research

The data collection and analytical methods used in this study are not without limitations. For example, longitudinal data are essential for drawing conclusions about changes occurring within the individual. Furthermore, the current data are observational rather than experimental and cannot identify causal conclusions (Salthouse, 2011). Regarding the limitations in analytical methods, the authors believe that although the relationship with peers is an important contextual factor that was studied, dealing with other contextual factors such as teachers, parents, neighbors, and school staff may provide a more comprehensive understanding of the relationships between the mentioned variables. Additionally, students’ level of engagement in academic activities was studied from the students’ viewpoint. Thus, it may be helpful to study the engagement in academic activities from teachers’ viewpoint in a more comprehensive analysis. A final limitation of the study was the low reliability of Students Life Satisfaction Scale. However, according to Gliner and Morgan (2000), the range of acceptable alpha levels in literature is from $0.60 < \alpha < 0.90$.

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