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Parameters Affecting the Educational Achievement of Vocational and Technical Schools' Students

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This research aimed to study the effects of academic engagement, quality of education, and peer-assisted learning on academic motivation as an influential variable in the academic achievement of vocational, and technical schools' students. Data were analyzed using descriptive statistics, a correlation matrix, confirmatory factor analysis, and structural equation modeling. As a result of the structural equation model, academic engagement (T=4.49), peer-assisted learning (T=2.38), and quality of education (T=3.04) have a greater direct influence on motivation than academic achievement (T=1.96). The only indirect effect on the quality of education (T=2.01) is significant, thus mediating the role of academic motivation in the academic achievement confirmed the effectiveness of quality of education. The findings and outcomes of this study are useful for teachers, principals, and policymakers in the field of education to improve the quality of teaching, and learning.

Keywords: academic motivation, academic achievement, academic engagement, quality of education, peer-assisted learning.

Progress in education and learning is the result of different factors. One of the most important is motivation (Koutsoulies and Cambell, 2001). An important segment of motivation is

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educational motivation. Educational motivation means desires, needs, and factors that entice the presence of an individual in an academic environment, resulting in the acquisition of an academic degree (Clark and Sherout, 2010).

Some researchers think that learning and motivation are so intertwined that it is impossible to understand learning without understanding motivation. Therefore, separating them from each other is neither logical nor possible. The proof for this connection is strong positive correlation between motivation, and academic achievement. Students who are highly motivated compared to those who are not motivated enough will learn more and advance more (McDermott, Mordell, Stoltzfus, 2001; Wang in Moreno, 2010). There is a positive correlation between motivation, and academic engagement (Appleton, Christenson, and Reschly, 2006; Woolley and Jarvis 2007). There is a positive correlation between motivation, and quality of education (Lee, 2010). Between motivation and peer-assisted learning exits a positive correlation too (Xiao and Hayes, 2008). All of these have an effect on academic achievement. It is obvious that these factors are not only separated from each other but are combined. When there is motivation, the learner gains knowledge. In many instances, learning happens with the help of others, and it is dependent on others.

Motivation was studied based on self-determination theory by Deci and Ryan (1985). It is a motivational theory that systematically explains and clarifies individual's dynamic motivational, emotional, and physical needs in terms of the effect from society (Chen and Young, 2010). In self-determination, it is assumed that human beings, have natural desires for learning and behaviors that are either supported by the environment or weakened because of being ignored (Deci and Ryan 2001). One

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of the essential principles of this theory is that motivation considers a person as a consolidated structure. It claims that a complete analysis of the motivation process should have three important structures: internal motivation, external motivation, and the one to the point of no motivation at all (Vallerand, 2010). Clarification of all types of motivations based on this theory is important. Based on this fact, the more the students' self-determination, the harder they work and make progress.

One of the concepts related to motivation and affected by it is the concept of "academic engagement". In recent years, the concept of academic engagement was discussed by different researchers. This concept refers to the quality of efforts that students make for target academic activities to directly achieve desired results (Richardson, Long, and Woodley, 2003). Arjomandi, Seufert, O'Brien, Anwar (2018), emphasize the complexity and multifaceted nature of student engagement.

Skinner and Pitzer (2012) insist that students' engagement in school experiences is important for their progress. A student's success in the educational process requires their engagement, which influences their behavior, cognition, and emotions (Fredricks, Blumenfeld, & Paris, 2004; Reschly & Christenson, 2012; Putwain et al. 2017). Moreover, student engagement is the key in reaching sustainable learning outcomes. Engagement is defined as a state of heightened attention and involvement in which participation is reflected (Mihai, Albert, Mihai, Dumitras 2022).

One effective factor in the learning process is the students' cooperation with one another in this matter (Santrock, 2008). Peer learning has long been shown to facilitate student engagement and improved learning outcomes (Dawson et al., 2014 In Larkin, H. & Hitch, D. 2019). Larkin, H. & Hitch, D. (2019) detailed PAL

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as “peers are people from similar social groups who learn from and teach each other, and active assistance (Topping and Ehly, 2001). Peers in a classroom are at the same level; they have been in the same social group and help themselves in learning (Lee, 2010). According to social constructivism theory, this is a major concept. A theory in which individuals play an active role in building knowledge and understanding is referred to as this theory. Those who are actively involved in this process learn more effectively. Among the outcomes of this theory, social constructivism affirms the role of society's fabric on learning (Bearison & Dorval, 2002 in Santrock, 2008).

Peer-assisted learning was considered the students' growth in learning and capabilities via mutual relations of peers and interaction among them, attachment to peers, belongingness to their peer’s education (student-to-student private teaching) and asking for help from one another. In some research, the results indicated that positive belongingness to peers at school (Kuperminc, Darnell, Alvarez and Runions, 2011) and interpersonal relations with teachers and peers (Waters, Cross and Runions, 2009; Wilkinson-Lee, Zhang, Nano, and Wilhelm, 2011) are some of the components of peer-assisted learning related to academic achievement. In addition, it enhances children’s socioemotional skills, including the ability to reflect before acting, empathy, problem-solving, cooperation with peers, and interaction with teachers (Khalil, Aljanazrah, Hamed, Murtagh 2022).

Academic improvement means the ability to produce outcomes with quality, knowledge, skills, and goals. Therefore, paying attention to the quality of education is one of the fundamental principles of education. A systematic approach is

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one of the most comprehensive methods for analyzing this variable. A systematic approach is appropriate for understanding and describing phenomena in natural and social sciences. Today, attempts at describing, explaining, and predicting organizational behavior are generally related to systems theories. Using the systems theory stops us from considering phenomena as unique factors.

Essentially, school is a system consisting of related structures and tasks that consider the dynamic interaction between each substandard. In this approach, the emphasis is on entering and exiting the process because entering the implementation process of analyzing the quality without paying enough attention to using a suitable framework and trend can, at least, with the same degree as not using it, have a negative impact. All details related to the learning environment affect student performance. Teaching technical items such as assessment methods, course organization, and curriculum structure, as well as physical specifications of the classroom, such as its size and layout also influence the student learning process and outcomes (Entwistle, 2018).

Academic quality is a level that is acceptable and expected by the public. Academic quality specifically includes policies, rules, government, regime, academic goals, academic content, academic process, and its results. For a comprehensive, systematic, fair, and tangible judgment about the quality of academic conditions in Iran, using evaluation tools based on a systematic approach can be the most appropriate choice. Using the findings of this approach, we can comprehensively identify the current conditions and offer strategies for moving towards a desirable one.

Moreover, this research is an attempt to offer a model based on constructivism. Additionally, it uses social constructivism,

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self-determination theory, and systematic quality evaluation methods. The variables of academic engagement, academic quality, and peer-assisted learning in connection with motivation and academic achievement of vocational students (Figure 1) are analyzed. The direct and indirect relations between mentioned factors with motivation and academic achievement are covered.

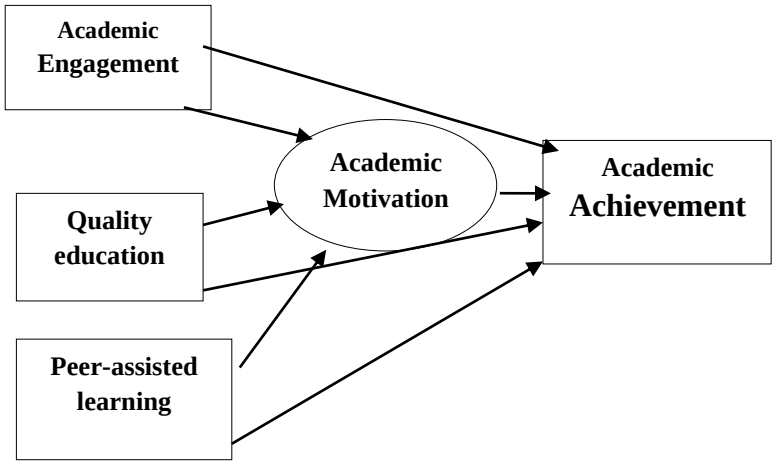

Figure 1. Conceptual model of the mediating role of academic motivation on learning variables

Method

The subjects of this research include all students at a vocational school in Tehran. The subjects of this research were males and females selected from a public vocational school. The reason for this selection is the ever-growing expansion of this academic system in recent years. Technical and vocational training compared to public education is very expensive (Tsang, 1997, Khaledi, 2008). It is obvious that this system, neither in Iran nor

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in other countries has desirably been able to materialize the top objectives for which its foundation had been established (Lynch, 2000; Ghost, 2002; Billett, 2004). The multistage cluster sampling approach was used to choose the statistical pool for this study. First, based on the district divisions of the board of education, Tehran was split into 5 geographical regions: north, south, center, west, and east. Then, out of the nineteen districts in the city of Tehran, two academic institutions were randomly selected from each district. Two public vocational schools (a male and a female one) were randomly selected. Finally, 2 classes were randomly selected from among the third-level students and a total number of 979 (519 girls and 460 boys) from 19 public vocational schools (10 females and 9 males) and a total of 39 classes answered the questionnaires. At the time of tabulating the data, the defective questionnaires were set aside and ultimately 906 students (447 girls and 459 boys) were left in the pool.

To collect the data, questionnaires, observations, and present documents in the public vocational school were utilized. The validity of the questionnaires was assessed using content validity and construct validity (analysis of exploratory factors). For the calculation of consistency, the Cronbach's alpha method was used.

A- "Academic Motivational Scale" "AMS" by Vallerand et al. (2013): This scale evaluates the reasons for the students' continuing education. It includes three dimensions: "internal motivation", "external motivation" and "no motivation". In Likert Scale, a self-reported tool having 7 levels (1=not at all to 7-totally) with 28 questions. Vallerand et al., have reported the Cronbach's alpha coefficient to be between .83 and .87. In this research, Cronbach's alpha for the mentioned sub-scales are .90, .92, and .79.

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B- Students' academic achievement was attained with a mean of three grades.

a: the total point average of the students from the previous year, b: The students' grade point average in 3 main technical courses, and c: The grade point average of students in the practicum related to the same courses. The reason for using three groups of classes was to get the effect of all grades on academic achievement. The meanings of the main courses and the practical ones which are more important in technical and vocational schools compared to the theoretical ones were considered because more time is allocated to them.

C- We used the "MSLQ" questionnaire by Pintrich and DeGroot (1994) to measure three dimensions of academic engagement - emotional, cognitive, and behavioral. The questions of these three sub-scales were graded based on Likert's 7-degree spectrum. Pintrich and DeGroot (1994) evaluated the internal similarity of this questionnaire using Cronbach's alpha coefficient and they were .90, .72, and .69 for the academic engagement sub-scales.

Cronbach's alpha for the mentioned subscales was .87, .74, and .77.

D- Academic Quality Questionnaire: It includes questions that analyze components of academic quality. The present documents at technical and vocational schools were observed. This questionnaire, considering the method of responding was divided into three sections, which are scored based on a liker scale of 5 degrees. In this questionnaire, the input and output indicators for quality teaching that the students could answer were measured. Cronbach's alpha for the subscales of the features of the professional behavior of teachers, facilities, and educational programs and general aptitude was .89, .56, and .75, respectively.

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E- Peer-assisted Questionnaire: A 25-item questionnaire developed by the researcher to measure peer-assisted learning was used. Attachment to peers, a sense of belongingness, relationship with peers, and face-to-face discussion between friends were measured. In this 5-point Likert scale questionnaire, all three dimensions of cognitive, emotional, and behavioral disorders were noted. Cronbach's alpha Subscales in peer-assisted learning, peer communication, and sense of peer belongingness were assessed at .87, .78, and .67, respectively.

The methods used in this research were descriptive and inferential statistics. Descriptive statistics were used to analyze the findings by using tables and graphs, central tendency indicators, and dispersion of the variables. Then, the data were analyzed in the inferential section. After providing correlations, matrix analysis, confirmatory factor analysis, and structural equations were used. To do so, SPSS and LISREL softwares were used to analyze the data and out of necessity, different fitting methods were used.

Results

To analyze the normality of variables distribution test was used. Then, the structural equations' coefficients, the goodness of fit statistics, and the fit model group were presented. The results of testing research's hypotheses using the Spearman Correlational coefficient, and structural equations (LISREL) were presented in the section related to testing the hypotheses.

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Table 1
Indicators of Descriptive Variables

	Mean	S. D.	Min.	Max.	Skewness	Kurtosis
Cognitive engagement	57.60	9.05	15.00	75.00	.63-	1.52
Motivational engagement	34.92	6.25	9.00	45.00	.77-	1.16
Behavioral engagement	22.22	4.23	6.00	30.00	.45-	.44
Professional behavior	47.60	12.37	16.00	80.00	.09	.31-
Educational facilities	45.45	12.24	16.00	80.00	.27	.24-
Talent and interest	5.25	1.06	.00	7.00	1.46	2.48
Output indicators	24.74	4.39	7.00	35.00	.22-	.44
Peer Education	34.55	8.37	10.00	50.00	.46-	.27
Relationships with peers	35.36	7.62	10.00	50.00	.37-	.31-
Belonging to a peer group	12.18	2.32	3.00	15.00	.95-	.83
Intrinsic motivation	52.62	16.24	12.00	84.00	.18	.56-
Extrinsic motivation	61.32	17.25	12.00	84.00	.66-	.33
Amotivation	11.84	6.64	4.00	28.00	.61-	.46
GPA of the previous year	15.62	2.05	2.00	20.00	.04	.16
Technical score	15.76	2.64	2.00	20.00	.50	.16
Practical score	15.01	3.54	.00	20.00	1.07-	.16

As you can see in Table 1, the distribution of variables is not normal. Therefore, Spearman's ranking correlation coefficient was used. In the section related to the model's test, the maximum assessment method of robust maximum likelihood (RML) was used which is suitable for abnormal distributions. Furthermore, chi-square 2 in this research is Satora and Bentler which is suitable for abnormal distributions (Satora and Bentler 1994; Bentler, 1995; Joreskog and Sorbom, 1996 in Brown, 2015).

As shown in Table 2, most of the correlation coefficients among the variables of research are significant. The maximum correlation coefficient observed between cognitive engagement, and behavioral engagement was r=.816 and the minimum correlation coefficient observed between the score, and cognitive engagement was r=-.045.

To analyze the model's fitting, academic involvement, quality teaching, and peer-assisted learning were considered as extrinsic variables, and academic motivation and academic achievement were considered as intrinsic variables. Then, the model's fitting was assessed using L I S R E L model.

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Table 2

Spearman Correlation Matrix Between Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Cognitive engagement	1															
Motivational engagement	*65.	1														
Behavioral engagement	*816	*59.	1													
Professional behavior	*272	**32.	**25.	1												
Educational facilities	*23	*21.	**220	**55.	1											
Talent and interest	*12	*19.	**11.	64.	61.	1										
Output indicators	*32.	*42.	**22	**35.	**5.	**20.	1									
Peer Education	*31	*33.	**29.	**25.	**16.	57.	**26.	1								
Relationships with peers	054.	0.64.	041.	**13.	*083.	10.	44.	03.	1							
Belonging to a peer group	*81	**12.	**06.	**13.	**10.	**08.	**18.	**24.	**38.	1						
Intrinsic motivation	**284	**38.	**27.	**24.	**170.	**15.	**31.	**30.	**1.	**9.	1					
Extrinsic motivation	**205	**31.	**16.	**16.	**09.	**18.	**24.	**24.	**10.	**12	**79.	1				
Amotivation	**17.-	**26.-	**14.-	**15.-	**10.-	**12.-	**12.-	*06.-	25.-	*07.	**11.-	**27.-	1			
GPA of the previous year	**19.	**26.	**13.	**14.	**11.	**16.	**34.	**11.	22.	**10.	**18.	**21.	**21.-	1		
Technical score	*04.-	*07.	35.	*07.-	**11.-	28.	03.	*06.	50.-	56.-	**09.	**21.	*07.-	**46.	1	
Practical score	**17	**17.	*07.	**15.	44.	**14.	**24.	*06.	40.	11.	**11.	**18.	**17.-	**61.	**4.	1

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Table 3

Parameters Measured Pattern Research Variables in the Confirmatory Factor Analysis

Variables	Indicators	Estimate Parameter	Parameter Standardized	Standard error of Estimate	t
Academic Motivation	Intrinsic motivation	1.00	1.08	-	-
	Extrinsic motivation	.72	.73	.05	13.23
	Amotivation	.00	.01	.01	.30
Academic Achievement	Practical score	1.00	.55	-	-
	Technical score	.60	.44	.05	13.11
	GPA of the previous year	1.07	1.01	.10	10.43
Quality Education	Professional behavior	1.00	.73	-	-
	Educational facilities	.91	.67	.07	13.90
	Talent and interest	.07	.22	.04	1.92
	output indicators	.28	.59	.02	11.31
Academic Engagement	Cognitive engagement	1.00	.95	-	-
	Motivational Engagement	.53	.73	.02	25.78
	Behavioral Engagement	.43	.87	.01	30.86
Peer-assisted learning	Belonging to a peer group	1.00	.47	-	-
	Relationships with peers	3.74	.63	1.04	3.60
	Peer Education	4.60	.68	1.31	3.52

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In table 3, the standard parameters for each factor indicate their factor loading on the related hidden variable, which is t>1.96. They are also indicated as significant for measuring the hidden variable. Therefore, based on the attained t for each indicator, other than amotivation indicators of (t=0.30), and aptitude and interest of (t=1.92), the rest of the indicators play a significant role to measure the related factor. Indicators of Fitting Model of Structural Equations of intervening with Academic Motivation on Academic Achievement when Significant.

Table 4
Indicators of the Reformed Fit Model

Fitting indexes	RFI	CFI	GFI	NNFI	NFI	$df/^2\chi$	RMSEA
Cut off point	9.0<	9.0<	9.0<	9.0<	9.0<	3≥	08.0>
Observed value	96.0	99.0	90.0	96.0	98.0	45.8	032.0

Table 4 shows the model fit indicators. As you can see, the fit indicators of NFI, NNFI, GFI, RFI, CFI, and RMSEA are at the optimal range that shows the proper fitting of model with the data.

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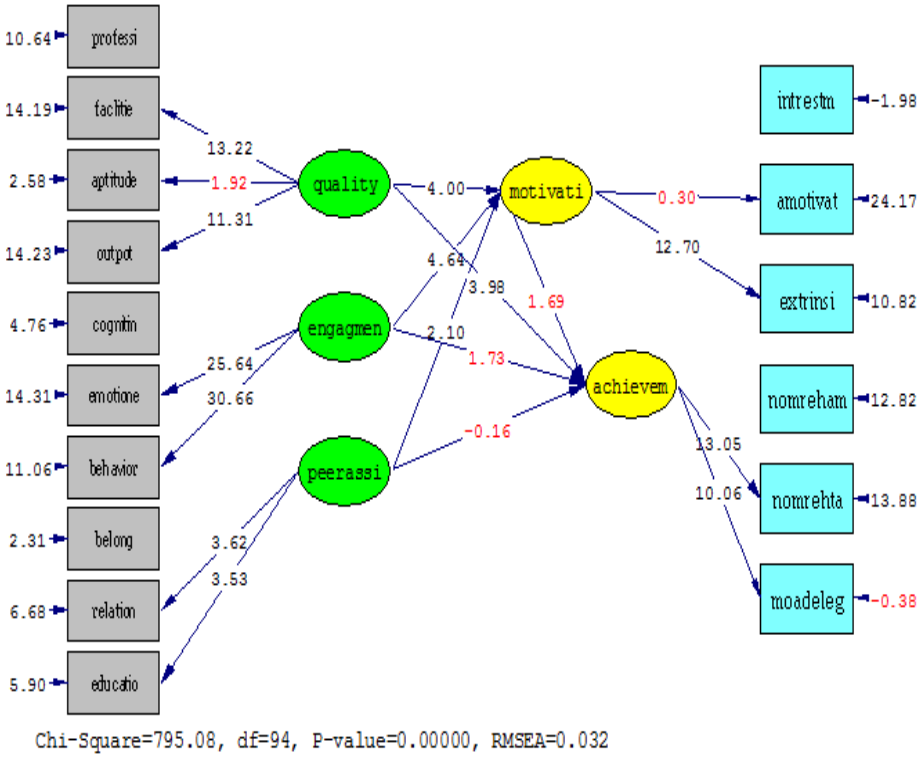

Figure 2. Structural equation modeling academic motivation mediating role in significant t.

As shown in Figure 2 the observed T value for the effect of talent on quality teaching, the coefficients of the effect of academic or educational motivation on academic achievement, academic engagement on academic achievement, and the coefficients of the impact of motivation on academic amotivation are smaller than 1.96. Therefore, the coefficients are not significant. Considering insignificant coefficients in the model for having access to a certain model considering the T value, the insignificant coefficients were one by one, eliminated so that, ultimately, all the remaining coefficients in the reformed model are significant. The reformed model is shown in Figure 3.

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Table 5
Indicators of the Reformed Fit Model

Fitting indexes	RFI	CFI	GFI	NNFI	NFI	df/$^2\chi$	RMSEA
Cut off point	9.0<	9.0<	9.0<	9.0<	9.0<	3≥	08.0>
observed value	95.0	97.0	92.0	96.0	96.0	32.8	050.0

Table 5 shows the indicators of reformed fit model. As you can see the fitting indicators of NFI, NNFI, GFI, RFI, CFI, and RESEA are in the desirable range and only the 2/df indicator, is not in the desirable range. However, because chi-square 2 is sensitive to the volume of the sample, the amount for large samples is proper, and other indicators and standard coefficients of this model are at an appropriate and significant condition, indications are that the model's fitting is consistent with data.

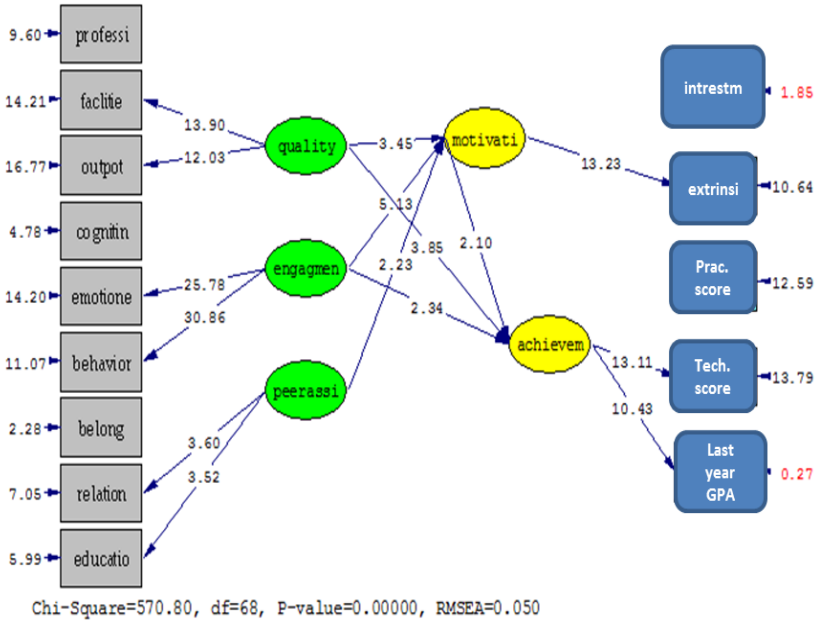

Figure 3. Structural equation modeling academic motivation mediating role in significant t

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In Figure 3, we compare two models, one modified and one not modified. In the first step, the direct effect of peer-assisted learning on academic achievement was removed from the reformed model. The observed t in this effect in the model that was not reformed/modified was (t=.16). By eliminating this impact from the model and running it again, it was observed that all obtained. t values for all present variables in the modified model were larger than 1.96. Therefore, these coefficients are significant, and no other modification was done to the model.

Table 6

Estimated Coefficients of the Direct, Indirect, Aand Total Modified Model on Each Other

Parameter	Direct effect	Indirect effect	Total effect	Total effect t
Effect of academic Motivation on				
Academic Achievement	.01	-	.01	2.10
Effect of quality education on				
Academic Motivation	.34	-	.34	3.45
Academic Achievement	.04	.00	.04	4.08
Effect of Academic Engagement on				
Academic Motivation	.40	-	.40	5.13
Academic Achievement	.02	.02	.02	2.69
Effect of Peer-assisted learning on				
Academic Motivation	2.00	-	2.00	2.23
Academic Achievement	-	.01	.02	1.59

Based on the data in Table 6, the direct impact of academic modification on academic achievement (.07) is significant at .01 level. The direct impact of quality teaching on academic motivation is (.17), and on academic achievement (.20) it was significant at .01 level. At a level of .01, the direct academic involvement on academic motivation (.20) is considerable. This

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variable has a significant direct effect on academic achievement (.09) at the .01 level. Additionally, peer-assisted learning had a considerable (0.15) direct effect on academic motivation. However, the indirect effect of academic engagement on academic achievement (.02) and the indirect effect of peer-assisted learning on academic achievement (.01) at .01 level are not significant. Moreover, the total impact of academic motivation on the variable of academic achievement (.07) at .01 level is significant. Moreover, the total effect of academic impact on the variable of academic motivation (.17) and on academic achievement (.21) at .01 level is significant. The total impact of Peer-assisted learning on the variables of academic motivation (.15) at .01 level is significant. However, its total impact on academic achievement (.01) at .01 level is not significant.

Based on the findings of this research, the following conceptual model (Figure 4) was attained. A direct impact of extrinsic variables on indirect variables was confirmed in this model. Only the direct impact of an extrinsic variable of quality teaching on the intrinsic variable of academic achievement is significant. Also, the direct impact of the indirect variable on the intrinsic variable was confirmed too. In the analysis of indirect impacts, only the effect of quality teaching on academic achievement through academic motivation was significant.

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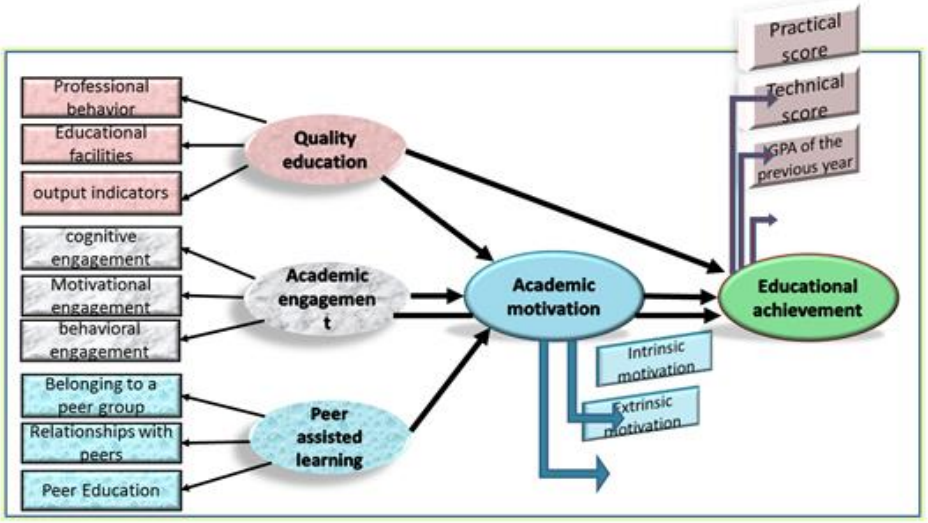

Figure 4. Conceptual model of the mediating role of academic motivation comes from the results

Discussion

Based on the findings of this research, the direct effect of academic motivation on academic achievement (t=2.10) was positive and significant. This finding means that student's academic achievement is affected by their intrinsic, and extrinsic motivations. The existence of a correlation between academic motivation, and academic achievement was consistent with the research conducted by (McDermott, Mordell, Stoltzfus, 2001, Moreno, 2010); Lee, 2010; Ginsburg, et al., 2012; Wormington, Henderlong and Anderson 2011; Areepattamannil, 2011; Paghandeh, 2012; Yousefi et al., 2009. Among the symptoms of amotivation in academic performance include confusion, lack of participation in activities, peevishness, laziness, bungling, and a lack of desire to do homework. Less motivated students, compared to those who are motivated, do not count on themselves and do not trust their abilities at school, and in other academic environments (McInnerney, 2005).

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Academic engagement had a positive and significant impact on academic achievement (t=2.34). The relation between academic engagement and academic achievement is consistent with research conducted by Lee (2010); Areepattamannil (2011); Skinner and Pitzer (2012); Rastgar et al. (2009), and Hejazi and Abedini (2009). However, the indirect impact of academic engagement on academic achievement because of academic motivation (t=1.92) was positive and insignificant. This result is not consistent with the results of the research mentioned before. The effectiveness of academic engagement on academic achievement was less than (t=1.96) which was not significant. Although at the level of one-sided statistics (t=1.65) this relation will become positive and significant, the theoretical principles also indicate a correlation between academic engagement, and academic achievement. Meanwhile, the overall impact of academic engagement on academic achievement (t=2.69) is also positive and significant. McInnerney (2005) points out that students who are not interested in a specific academic activity, do not value it and, therefore, do not do the homework either. The purposes of these students are small, and they do not make any effort to elevate their academic performance. The reason for the student's lack of engagement is the absence of motivation that is manifested in their academic performance.

Thus, the direct impact of the students' academic engagement on their academic motivation (t=5.13) is positive and significant which is consistent with research conducted by Appleton et al. (2006); Davoodi (2014) Vazheei et al. (2011). Many consider engagement as part of motivation and in other views, engagement and motivation are two different but related components (Applenton et al, 2006). When students have strong motivation, they will engage in cognitive activities challenging them in the

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classroom and pursue mastery and dominance in learning assignments. They are encouraged to get help for doing assignments that they cannot do by themselves. When their academic motivation is high, to overcome learning problems, they will use skills, such as asking their teachers and classmates questions and they will ask for more explanations for their problems by getting clues and so forth. These students will become very engaged in-class activities and their academic problems will reduce (Karabenick, 2003), and the students' enthusiasm for class activities and participation increases. They will consider the class atmosphere as a safe one for learning and they will perceive teachers and peers not as obstacles to their success, but as part of the solutions for their failures.

Peers are one of the components of the school's entity. The effect of having contact with peers to create contact with the school is so much that some of the researchers have considered understanding students' support of their peers, having affection for their peers, participation with classmates and having friends at school as some of the components for measuring the students' ties with school (Thompson et al., 2006; Dickson et al., 2007).

The students who participate in this type of learning actively learn how to spend their time with others and enjoy learning and get more involved in learning. Capstick and Fleming (2002) indicate that this method reduces the waste of time, increases the students' grades and academic performance, and provides more opportunities for getting feedback. In other words, it will increase comprehension and makes assessment easier to do. Theoretical hypotheses indicate that social interaction with the same age group helps to learn. In this area, peers can play an important role by scaffolding (Falchikov, 2001) and learning will be most effective when the dialogue with peers occurs in a social environment (Smith, May, Burke, 2007). Many research works

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including the ones conducted by Broadbent and Poon (2015), Lee (2010), Ginsburg-Black, Rohrbeck and Fantuzzo (2012), Capstick and Fleming (2002), Henning, Weidner, and Marty (2008) support the effectiveness of Peer-assisted learning on academic achievement. However, the relationship between Peer-assisted learning, and academic achievement and the analysis of direct, indirect, and contact generally was not significant. The student's view of their beliefs, their thinking about peer-assisted learning and the application of this academic technique in the framework of a classroom and school were questioned. The findings showed that this technique is not utilized in technical schools and is not very well known as an educational aid to students. These findings are not consistent with the theoretical principles and the sub-research related to this topic. It is perhaps possible to trace today's cultural, individual, and social factors in society by finding the cause in this section of the research's findings. It is about the kind of common academic culture in these schools where the focus is on grades and competition to the point that it is going from plurality towards individualism and as a result, students and teachers do not welcome teamwork as much as they should.

Moreover, in today's educational system, group work and participation are not very common in learning and no plan is in sight for using them. Because of competitive entrance exams, the spirit of cooperation will not grow among the students. The main spirit of competitiveness is still present in the educational environment, whether directly or indirectly. In a school, where there is complete cooperation among classmates, practical behavioral, verbal, and intellectual exchanges will increase among the students. There will be more emphasis on academic engagement and encouragement for peer-assisted learning,

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involving students in the learning process and the development of peer-assisted learning. Unfortunately, the current educational system is designed such that instead of academic engagement, obedience, and submission instead of cooperation, the spirit of competition is promoted. Therefore, the educational, and technical training systems because of their participatory nature need deep and broad reforms in this area of their programs and teaching goals. Students' enthusiasm in completing their assignments and embracing creative ideas will increase if instructors and schools provide a secure and supportive atmosphere where they may collaborate with one another in a variety of academic contexts. The direct effect of academic quality on academic achievement (t=3.85) was positive and significant. Moreover, the indirect effect of academic quality on academic achievement because of academic motivation (t=2.01) was positive and significant. Meanwhile, the total effect of academic quality on academic achievement (t=4.08) was also positive and significant. The presence of a relationship between academic quality and academic achievement is consistent with research works conducted by Lee (2010), Lee (2010); Gottfredson et al. (2005); Waters et al. (2009); Liljeberg et al. (2010); Khaledi (2008); Safavi et al. (2011). Also, the direct effect of academic quality on academic motivation (t=3.45) was positive and significant. Academic quality was the only variable in this research where the indirect impact was significant.

Based on the findings of this research, the students' opinions about the teachers' professional behavior, academic facilities, talent and interest, and output indicators at the vocational school were evaluated. Based on the analysis of confirmatory factor and the role of all the indicators of academic quality except talent and interest for measuring academic quality was confirmed (Table 3). Talent and interest mean that students have the necessary

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capabilities and skills and enough desire and enthusiasm to study at a vocational school. The results showed that this indicator is weak. Inputs are the most important effective components for quality performance, and they are considered the criteria in every educational system. Students, teachers, an educational atmosphere, facilities, and educational equipment, as well as a desirable curriculum, all contribute to an appropriate outcome. Students are the most important inputs in an academic system.

The use of systematic approaches in evaluating quality education can help identify current comprehensive and precise circumstances regarding one-dimensional elements of the organization. It provides an accurate program with a comprehensive look at all the elements of organization and presenting cohesive strategies for the improvement of quality-focused on the target group. In fact, this study describes the current situation of the research variables in vocational schools. This research may be able to give information to the authorities of the vocational and technical training system for the purpose of decision making in using strategies for the elevation of the current situation.

Despite having restrictions about sampling, and using research tools, such as a questionnaire which limits the generalization of the results to other periods and other branches, based on the findings, the authorities of the board of education recommended having workshops and on-the-job training, using experienced instructors. It familiarizes teachers with the importance, necessity, and the method of using academic engagement and peer-assisted learning to use academic strategies based on variables in learning. They can, intermittently, remind their teachers during on-the-job training classes or by providing them with educational CDs for the purpose of retraining them in their

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professional roles. For example, identifying individual differences in the scope of the students' academic motivation and teaching methods can have an effect on their academic motivation. Furthermore, the method of conducting research in this field should be taught to them. Because of the effect of academic quality in all dimensions of inputs, there should be more attention paid to the processes and outputs. The substructure of academic quality should be paid attention to because increasing the number of these centers without training qualified staff will have inevitable damage to the educational system in the long run.

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