

The Role of Invitational Education and Intelligence Beliefs in Academic Performance



Citation

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Abstract

The purpose of the present study is to examine the role of Invitational Education and intelligence beliefs in the academic performance of high school students. The research population comprised all male and female students studying at high schools in the academic year of 2009-2010 in Kashmar, a city in Iran. Selected through multi-stage random sampling The research sample included 540 students (270 females and 270 males). The research instruments were the Invitational Teaching Survey (Amos, Purkey, & Tobias, 1984), and Intelligence Beliefs Questionnaire (Zabihi, 2005). Students' grade point average was used as an indicator of academic performance during high school. Data were analyzed using path analysis of direct and indirect effects of Invitational Education on intelligence beliefs and performance of high school. The results showed that of the sub-components of Invitational Education, as described in the Invitational Teaching Survey (Amos, Purkey & Tobias, 1984), consideration has positive and significant effect on incremental intelligence and performance. Coordination has positive and significant effect on inherent intelligence beliefs. Skill has positive and significant effect on incremental intelligence and performance. Incremental intelligence beliefs have positive and significant effect on performance. Consideration has negative and significant effect on inherent intelligence beliefs. Coordination has negative and significant effect on inherent intelligence beliefs. Inherent intelligence beliefs have negative and significant effect on performance. Skill has negative and significant effect on inherent intelligence beliefs. Consideration, coordination and skill components of Invitational Education have indirect and significant effect on performance through inherent and incremental intelligence beliefs. These findings show that it is necessary to take the role of Invitational Education and intelligence beliefs into account when studying academic performance.

Invitational Theory and Practice

Invitational Theory and Practice (ITP) is a collection of suppositions, beliefs, attitudes, and behaviors that seek to explain the relationship between communication and self-concept ITP describes a means of intentionality summoning people to realize their potentials in areas of worthwhile human endeavor. Its purpose is to address the global nature of human existence and opportunity, and to make life a more exciting, satisfying and an enriching experience. In education, how teachers can encourage or discourage students to learn is among the main issues in ITP (Purkey, Schmidt, & Novak, 2010).

The basic assumptions of Invitational Education are as follows:

1. *Respect*: Human beings are able, valuable, and are to be treated accordingly. Believing this will lead teachers to have a more humanistic and ethical approach to education, and will summon learners to have a more profound learning.

2. *Trust*: Living at truly adequate, fully functioning life is a cooperative, collaborative activity where process is as important as product.
3. *Optimism*: People possess relatively untapped potential in all areas of worthwhile human endeavor. (Product is the outcome of process. What process a student goes through and how a student goes through the process affect the product and the learning outcome).

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4. *Care* * (see editor's note): To demonstrate concern by sharing warmth, empathy, positive regard, and interest in others, specifically with the intention to help them reach their potential.
5. *Intentionality*: Human potential is best realized by creating and maintaining welcoming place, policies, programs, and by people who are intentionally inviting with themselves and others, personally and professionally (People have a profound and massive capacity to learn knowledge and skills (Purkey, Schmidt & Novak, 2010).

Invitational Teaching Survey (ITS)

The 43 ITS items fall into two dimensions, personal and professional teacher practices. The personal dimensions measure the teacher's ability to encourage students to feel good about themselves and their ability in general. The professional dimension measures the teacher's ability to encourage students to learn and appreciate course content. Within those two dimensions there are five subscales. The subscale on the personal dimension includes consideration and commitment. Commitment contains the items that indicate the teachers resolve to promote students social and emotional health. Consideration contains items that measure the teacher's ability to communicate caring for the students as a unique individual.

The three subscales on the professional dimension include coordination, proficiency and expectation. Coordination measures a preparation planning through combination of instructional strategies that create and maintain a superior academic climate. Proficiency items measure the ability to demonstrate competency in specialty area and exhibit efficient management. Expectation is a single subscale item that measures the ability to project high expectation for student's academic success (Amose, Smith & Purkey, 2004).

Numerous studies have shown the effect of Invitational Education on academic performance and achievement. Gresham (2007) shows that Invitational Education decreases students' anxiety in mathematics and as a result increases their performance on this course. Kitchens and Wenta (2007) concluded that teaching mathematical concepts involves much more than a cognitive focus on understanding the mathematics and presenting it to a class. Equally important are a focus on the personal growth of students and a focus on the personal and professional development of teachers. "If I know and feel that I am accepted I can relax and improve in my efforts to grow as a student or teacher." Hunter and Smith (2007) concluded that applying the principles of ITP in art class not only actualizes students' potentials, but also paves the way for a positive and elevated atmosphere for all students and teachers. In theoretical models of motivational

achievement, personal beliefs are seen as the main determiners of achievement. In fact, the assumption underlying all these theories is that people's expecting success and their perception of their abilities in doing various tasks plays an important role in motivation and behavior (Dweck & Leggett, 1988).

Dweck (1999) says that our beliefs shape our surroundings, make our experiences meaningful, and in general forms people's meaning and behavior systems. One set of the beliefs is intelligence beliefs. According to Dweck (1975) intelligence beliefs include inherent intelligence beliefs and increase intelligence beliefs. People with inherent intelligence beliefs believe that their traits are constant and can be measured. In contrast, people with increased intelligence beliefs believe that intelligence is not constant and changeable, and it can be increased through experience and effort. According to Dweck and Leggett (1988) intelligence beliefs have an effect on the way people interpret their successes and failures and also on institutionalizing progress aims.

The invitational messages students send themselves and others not only provide a lens through which students perceive efficacy-building information but also bear direct influence on students' academic efficiency beliefs. The invitations central to all students' learning are not only self-generated but are, in large, part the product of teaching that invites students to learn. Teachers who purposefully create situations that invite students to see themselves as able, valuable, and responsible boost academic confidence and well-being (Usher & Pajares, 2006a).

Usher and Pajares (2006b) reported that social persuasions were predictive of the academic and self-regulatory efficacy beliefs of middle school girls, but not of boys, for whom vicarious experience was predictive, suggesting that girls may be more attentive to what others tell them when forming beliefs about their capabilities. Usher and Pajares (2006a) come to the conclusion that self-efficacy beliefs have direct and positive relationship with inviting oneself and others.

Pajares (1994) made connections between invitational theory and Bandura's (1986) social-cognitive theory. He concluded that inviting messages help create and strengthen self-efficacy beliefs whereas disinviting messages weaken self-efficacy.

* Editor's Note: *To update this current work and for purposes of theoretical consistency, the editor has included the element and definition of "Care" in the author's list. At the time of the original work, ITP had not yet introduced this fifth element.*

Good and Brophy's (2003) research reveals that success expectations affected the outcomes of instructional events, but the linkage was tenuous and certainly not likely to be causal. What they found was a medial variable: expended effort. They hypothesized that when teachers or students felt that they would be successful, they were more likely to expand the effort necessary to realize success in the selected endeavor. The success is not based on "beliefs" but based on the "action" that resulted from the belief. Good and Brophy (2003) refer to this recognition as effort-outcome covariance. In effect, the harder you try the more likely you are to succeed. The more you believe you will succeed; the harder you will try. Invitational Education employs this effort-outcome linkage that is mediated not simply by outcomes, but by the perceptions of the likelihood of various outcomes based on very personal assumptions about how the world operates. Living and learning success is nurtured and supported by assisting the learner in understanding these perceptions and accepting invitations and opportunities to develop his or her abilities

Therefore, the messages teachers, parents, and others send to children become the messages students carry with them throughout their lives. In addition to fostering students' competence, teachers must also nurture students' confidence and carefully consider the impact of the message they send, for these messages might well turn into the very messages students send themselves (Usher & Pajares, 2006a).

Based on what has been presented the present study aimed at studying the indirect and significant effect of Invitational Education on performance through inherent and incremental intelligence beliefs. To predict any possible relationship among the variables and academic performance, based on existing literature, a model was selected. Having evaluated the relationship among variables in the model, confirmatory factor analysis (CFA), fitness of model was carried out.

The original model is given in Figure 1

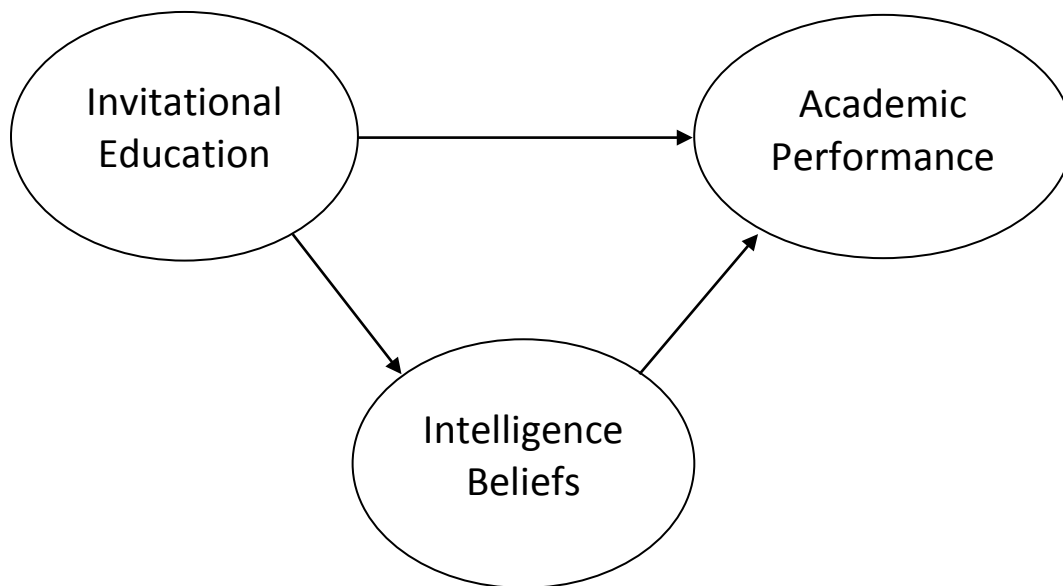


Figure 1. Original Model

Method

The present research is a correlational study using causal modeling. Considering the limitation of correlation and regression analysis in determining the causal paths among variables (Bandura, 1986), social-cognitive theorists emphasize the use of causal methods such path analysis and structural modeling analysis. The statistical population of the study included all high school students (majoring in humanities, experimental sciences, mathematics and physics) studying in the academic year of 2009-2010 in Kashmar. The research sample included 540 students (270 females, 270 males), selected through multi-stage random sampling: the city was divided into three regions (north, center and south), and then four schools in each region and three classes in each school were randomly selected.

To measure inviting teacher behavior, the Invitational Teaching Survey (Amos, Purkey, & Tobias, 1984) was used. Preliminary work to construct the questionnaire dates back to Purkey, Amos, and Tobias, 1984. The questionnaire uses the Likert-scale ranging from “very seldom or never” to “very often or always.” It has two dimensions and five sub-scales. Its dimensions include personal and professional invitation. Its sub-scales are: consideration, commitment, coordination, skill and expectation

Cronbach’s alpha coefficient was reported to be .95 by Amos (1985) and .94 by Smith (1987). According to Amos (1985) and Smith (1987), criterion validity was used to determine its validity. They showed there was a positive correlation between invitational teaching survey and Student Attitudinal Outcome Measures (SAOM) (Amose, Smith, & Purkey, 2004). The results all show the high reliability and validity of the measure. Therefore, it seems that the questionnaire can be a valid measure. To investigate the reliability, Cronbach’s alpha was employed (see Table 1).

To measure students’ intelligence beliefs, Zabihi Intelligence Beliefs Questionnaire (2005) was used. It has four factors (Inherent, Increase, Educable and Contextual) and has 19 questions altogether, based on Likert-scale ranging from “I strongly disagree” to “I totally agree.” To determine the validity of the questionnaire, CFA methods were employed. Zabihi calculated the internal consistency of sub-tests to determine the reliability of the measure using Cronbach’s alpha coefficient. Before the final administration of the questionnaire, a pilot administration was carried out among 30 pre-university students. The resulting Cronbach alpha was calculated to be approximately .76. The final administration, with a sample of 400, gave an index of .61. In this study for investigate the reliability of the instrument the Cronbach’s alpha was employed (see Table 1).

Table 1. Cronbach’s alpha for invitational teaching survey and intelligence beliefs questionnaire. Students’ grade point average (GPA) in the first semester of 2009 was used as an indication of their academic performance.

Instrument							
ITS	Scales	Consideration	Commitment	Coordination	Skill	Expectation	Total
		.75	.68	.66	.7790
IBQ	Scales	Inherent	Increase	Educable	Contextual		Total
		.8	.79	.82	.76		.85

Results

Descriptive statistics indices (mean, standard deviation, minimum, maximum) have been shown in table 2. Mean and standard deviation show that there is a good distribution in scores.

Table 3 shows the correlation coefficients among the variables. The correlation matrix shows that there is a significant relationship between consideration, coordination, skill, and expectation (some components of invitational

teaching, exogenous variable) and inherent and incremental intelligence (two components of intelligence beliefs, endogenous variable). There is a significant relationship between consideration and inherent and incremental intelligence; commitment and incremental: educability and contextual; coordination with educability and contextual; expectation and incremental.

Based on correlations, of the variables of Invitational Education, consideration, coordination, and skill and of the variables of intelligence beliefs, incremental and inherent were chosen for path analysis. The effect of independent exogenous and endogenous variables on academic

performance showed that the model predicts .37 of the academic performance variance. Exogenous variables of consideration, coordination, and skill had significant effect on academic performance with regression coefficients of .16, -.07, and .08, respectively.

Table 2. Descriptive statistics for Invitational Education, intelligence beliefs and academic performance measures.

Measures	M	SD	Min	Max
Consideration	6.31	39.83	12.27	50.45
Commitment	7.16	51.28	10.09	62.45
Coordination	6.15	37.82	9.10	46
Skill	6.04	36.53	9.10	49
Expectation	1.17	1.36	1	5
Inherent	15.79	2.03	9	21
Increase	11.24	2.43	3.75	16.25
Educable	9.61	1.45	3	11.67
Contextual	17	4.45	6.14	30.71
Average	15.19	2.65	9.75	20

Table 3. Correlations between Invitational Education, intelligence beliefs and academic performance measures

Measures	1	2	3	4	5	6	7	8	9	10
1. Consideration	-									
2. Commitment	.39**	-								
3. Coordination	.43**	.61**	-							
4. Skill	.47**	.56**	.54**	-						
5. Expectation	.30**	.45**	.55**	.38**	-					
6. Inherent	-.11*	.005	.05	-.08	-.009	-				
7. Increase	.16**	.09*	.05	.22**	.09*	-.13**	-			
8. Educable	.04	.09*	.09*	.002	.04	.16**	.11**	-		
9. Contextual	.07	.09*	.09*	.10*	.001	-.02	.12**	.18**	-	
10. Average	.45**	.08	.10*	.36**	.11	-.27**	.38**	-.08	.01	-

Note. * $p < .05$ ** $p < .01$

Exogenous variables of consideration, coordination, and skill had significant effect on endogenous variables of intelligence beliefs with regression coefficients of -.12, .14, -.09 respectively. Exogenous variables of consideration, coordination, and skill had significant effect on incremental intelligence belief with regression coefficients of .05, -.05, and .09 respectively. The effect of independent endogenous

variables of the study (incremental and inherent intelligence) on dependent endogenous variable (academic performance) was estimated to be .03 and .06.

Predicted variances of independent endogenous variables (inherent and incremental intelligence) .03 and .06 respectively. Furthermore, Figure 2 shows the path analysis of variables.

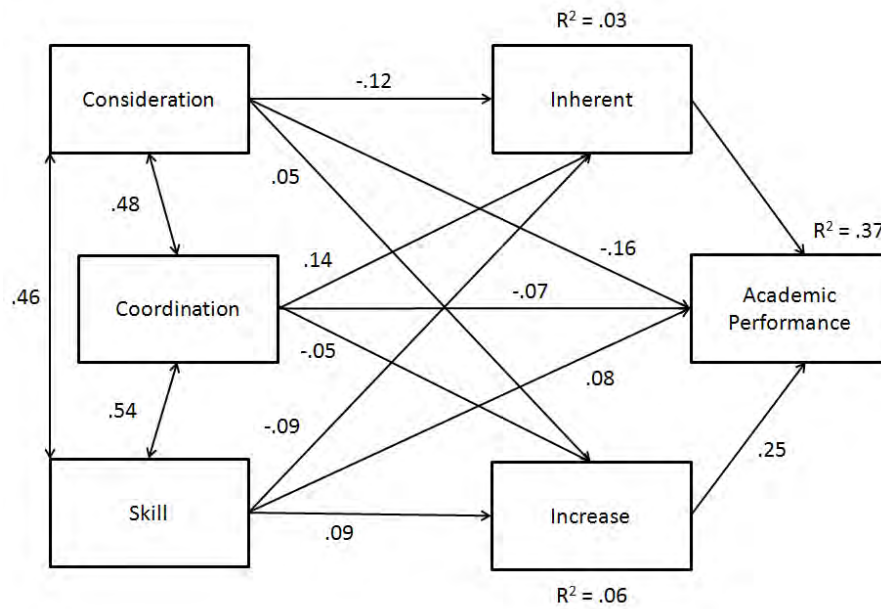


Figure 2. Path analysis model for Invitational Education, intelligence belief and academic performance. Not all effects are significant at .05.

Since the aim of the study has been to investigate the predictive role of Invitational Education and intelligence beliefs and determine the degree of the direct and indirect effect of these variables on academic performance, path analysis has been employed. After calculating the parameters, fitness of the model was measured (see Table 4). Of all statistics fitness of four indices was more important: GFI, AGFI, RMSEA, and chi-square. The most important statistic is chi-square. This statistic measures the difference between observed and measures matrix. The insignificance of this statistic shows the fitness of the model. Chi-Square is 4.89 with $df=1$, which is significant at $p=.02$. However, since the size of the sample is big, the significance cannot be used to reject the null hypothesis and be generalized to the

population. To decrease its dependency on sample size, we discuss other indices and their interpretation. AGFI=.95 and GFI=.90, with values close to 1, show the fitness of the model. Considering the residues and errors, the low value of RMSEA=.08 show the fitness of the model. One of the results of path analysis is the measurement of indirect and the whole effect of variables on each other.

The results show that of the exogenous variables the indirect effect of consideration, coordination, and skill through inherent and incremental intelligence was significant, .02, -.02, and .03, respectively. Comparing direct and indirect effect, it can be seen that indirect effects are of lower values than direct values; however, they are significant.

Table 4. Fitting indexes of model

Index	GFI	AGFI	RMSEA	Chi-Square	df	P
Estimate	.90	.95	.08	4.89	1	.02

It means that consideration, coordination, and skill can predict academic performance of students better than the time in which inherent and increase mediate this relation.

Discussion

The present study aimed at investigating the role of invitational education and intelligence beliefs on academic performance was significant and the effect of independent exogenous and endogenous variables on academic performance showed that the model predicts .37 of the

academic performance variance. The results showed that exogenous variables of consideration, coordination, and skill had significant indirect effect on academic performance through inherent and incremental intelligence. Comparing direct and indirect effect, it can be seen that indirect effects of consideration, coordination and skill are of lower values than direct values; however, they are significant. It can be interpreted that, in addition to intelligence beliefs, there are other powerful intervening variables.

The results of this current study are in concert with those of Good and Brophy (2003) and Pajares(1994). Pajares (1994) believes that positive invitations students send themselves and other students creates and fosters self-efficacy beliefs. These beliefs help to maintain efforts to compensate for low academic performance. According to him, social-cognitive theory and invitational approach provide some guidelines that increase students' self-confidence and merits. The results indicate that invitational approach leads students to have positive beliefs about their abilities, which increase their efforts and perseverance. However, it should be noticed that the indirect effect is low but is significant.

The results showed that exogenous variables of consideration, coordination, and skill had significant effect on dependent endogenous variable of incremental intelligence belief. Coordination was the only one with negative effect. The results are in concert with those of Usher and Pajares (2006b). They reported that social persuasions were predictive of the academic and self-regulatory efficacy beliefs of girls, but not of boys. They believe that when girls are forming their beliefs, they give more attention to others' beliefs. Zeeman (2006) says that counselors or therapists trained in and applying reality therapy or invitational counseling will usually see positive results and improvement in the quality world, thoughts, actions and lives of their clients. Usher and Pajares(2006a)concluded that there is a relationship between self-efficacy beliefs and inviting oneself and others.

The result also confirms Pajares (1994). He concluded that there is connection between invitational theory and Bandura's (1986) social cognitive theory. He concluded that inviting messages help create and strengthen self-efficacy beliefs whereas disinviting messages weaken self-efficacy. According to the researcher's knowledge, nearly there is no research indicating the lack of relationship between invitation and beliefs on the basis of results, one of the influential sources of self-efficacy is inviting messages sent by others. Since people are influenced by our opinions, we should try to positively affect their potentials by our messages. Coordination had negative effect on incremental intelligence belief but positive effect on inherent intelligence belief can be interpreted by arguing coordination is seen as hard disciplines imposed by teachers.

The results showed that the exogenous variables of, consideration, coordination, and skill, has significant effect on academic performance with coordination having negative effect. Again interpreting coordination as hard discipline can be the reason for the negative effect. The results are in concert with those of Gresham (2007), Kitchens and Wenta (2007), Hunter and Smith(2007), Usher and Pajares (2006b),

Purkey and Aspy (2003). In addition, little no research indicating the lack of relationship between Invitational Education and academic performance was found. Research found in this field showed a relationship between them. The results indicate that invitation plays an important role in improving academic performance, and is a variable that should be given special attention. Perhaps it is because human beings want their abilities and gifts to be respected, and positive human relationships greatly influences in realizing their gifts.

The effect of independent exogenous variables (inherent and incremental intelligence beliefs) on dependent endogenous variable was significant. The results indicating the relationship between inherent and academic performance are not in agreement with those of Dupeyrat and Marine (2005). They found the relationship to be $-.14$, which is not significant. The results indicating the relationship between increase and academic performance are not in agreement with those of Dupeyrat and Marine (2005). They found the relationship insignificant. Dupeyrat and Marine (2005) found similar results about educable component; both found no significant relationship between educable and academic achievement. Mahdian (2007) concluded that there was a relationship between increase, inherent, and contextual components and academic achievement. However, in the present study, the relationship between inherent components was found to be positive.

Based on the results, the more we believe that as intelligence increases, the more we will try. In other words, believing in controllability will lead to better results and vice versa. According to Weiner's attribution theory, whether we believe intelligence can be measured or not, affects our subsequent behavior (Weiner, 2005).

Based on the findings of the present study and the effect that invitational education and intelligence beliefs have on academic performance, it is necessary to provide the optimal conditions for the improvement of the variables. This calls for the teaching of strategies to and increasing awareness in teachers, parents, and all involved in educational system. Introducing a relevant course in teacher training programs and in-service teaching to promote teachers' knowledge on the variables studies seems to be appropriate. It also seems necessary to change the intelligence beliefs and to establish positive and effective attributions among students.

There are a number of limitations in the present study. The educational system authorities did not cooperate fully with the researchers. Lack of direct access to girl schools made us ask school counselors to administer the questionnaire. The inherent problems in questionnaires such self-report, and bias is another group of limiting factors. The interpretation

of the results should be in the light of these limitations. Diversity of using instrument in this field leads the results of many studies to be different. Consequently, more studies with different instrument are suggested. In addition, it would

be more productive if some other effective variables, which can mediate between Invitational Education and academic performance, would be employed in future studies.

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