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Predicting Academic Cheating Among the Fifth Grade Students: The Role of Self-Efficacy and Academic Self-Handicapping

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ABSTRACT

The main purpose of this study was to predict academic cheating, based on some personal factors (self-efficacy and self-handicapping strategies). 477 students from fifth grade were selected by random cluster sampling method. To measure the research variables, were used the three sub-scales of Patterns of Adaptive Learning Scale (Midgley et al, 1997). Data were analyzed using descriptive statistics, Pearson correlation, analysis of variance and multiple regression analysis by using software SPSS17. Findings showed that there is significant difference ($P < 0.01$) between the mean scores of male and female students in self-handicapping strategies and self-efficacy. While, between male and female students were not found significant differences in terms of cheating. Also, with the 2tailed test, at 99% confidence level ($P < 0.01$) was found a significant inverse relationship between academic self-efficacy score and cheating score ($r = -0.28$), also, was found a significant positive relationship between self-handicapping strategies scores and cheating score ($r = 0.29$). Finally, using multiple regression analysis revealed that between the two variables, the self-handicapping strategies were the best predictor of academic cheating. Findings and implications for use in educational environments have been discussed.

Keywords: Academic Self-efficacy, Self-handicapping Strategies, Cheating.

INTRODUCTION

Cheating is defined as "to use any means to achieve an unfair and unjust privileges that include: lying, concealing the truth, deceive, deceit and violation of trust" (Romney & Steinbart 2003). However, in test situations, the term means is a violation of rules. As Wilkinson (2009) has stated cheating means copying from other students during exams, one of the forms of misconduct that has become one of the biggest concerns of educational institutions. Previous research shows that academic cheating is a serious problem in all educational levels in the entire world (Mc Cabe, Terivino, & Butterfield, 2001).

Research in this area have shown that one-third of elementary students are engaged in cheating and the rate dramatically increases when they entry into the higher classes, and in high school reaches its peak (Cizek, 1999). Recently, a survey have been conducted on more than 3,000 fourth-to seventh-grade students revealed that more than one in five students admitted cheating on exams (Sing Tao, 2008, as cited by Nora and Zhang, 2010).

At the university level, between 67 to 86 percent of students, and men more than women, are involved in cheating, (De Lambert, Allen, and Taylor, 2003). Cizek (1999) in a review of research literature related to gender differences in cheating, has concluded that during the elementary grades, there is little evidence about gender differences in cheating. Other researchers (e.g. Murdock, Hale, & Weber, 2001; Anderman, Griesinger, & Westerfield, 1998; Anderman & Midgley, 2004) also have not found sex differences among secondary school students. However, research conducted on high school shows that more boys than girls are attempting to cheat (Cizek, 1999). This is an

issue that has also been approved by Anderman & Midgley (2004). In a longitudinal study they showed that the cheating rate increases at the end of eighth grade and ninth grade.

Cheating can be considered as one of the most important issues in schools, because it is a major obstacle to infer the competence of the students. For example, if a student is not eligible for academic courses may be passing the course by cheating and improper ways. Cizek (2003, p. 364) argues that if students attempt to cheating, scores showed no progress in their educational tasks and these scores, does not provide the accurate information (valid) about their knowledge and skills. However, identifying cheating, in particular, is important because shows the extent of this phenomenon and its growing status (McCabe et al, 2001). While most research related to the Cheating have been investigated its relationship with individual characteristics and motivational factors, some studies have examined situational factors related to Cheating. However, few of these studies have been based on theoretical concepts or educational theories (Murdock & Anderman, 2006).

Studies have shown that self-handicapping strategies related to academic cheating behaviors (eg, Anderman et al, 1998). Covington (1992) had played a major role in explaining the self-handicapping strategies. His theory about self-worth, states that students trying to maintain a positive image of themselves and avoid getting stupid label. One way that students can thereby avoid the label stupid, is use of the academic self-handicapping strategies. He defined self-handicapping as "make some real or perceived barriers to their performance". The student uses these strategies to bring an excuse for his future failures. One of the most common self-handicapping strategies is procrastination. Using this strategy, the student to postpone the homework for a non-legitimate reason, or spends all his time to vanity and does not devote enough time to study (Ibid, 1992). For example, students say if the study were not put to last minutes could earn good grades, such strategies are being used.

Another self-handicapping strategy is setting unattainable goals, until he fails in a difficult task, able to defend his own worth. The next strategy, refuse an assignment through trivialize it, in case of failure in those tasks to attribute the failure not to lack of ability, rather than reject the assignment. All these strategies can help students maintain their personal values. However, although these strategies are palliative, but eventually reduce student performance (Covington, 1992).

Anderman and Colleagues (1998) found that self-handicapping strategies, are positively associated with cheating. They stress that these debilitating strategies may encourage students to cheating and finally seem to deserve. Also, Midgley and colleagues (1997), in their study found that students who seeking to prove their competence through their involvement in handicapping strategies, may be consider cheating as an appropriate way to achieve this goal.

Perceived academic self-efficacy is another motivational variable that is expected to be associated with cheating. Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave. Such beliefs produce these diverse effects through four major processes. They include cognitive, motivational, affective and selection processes (Bandura, 1994). Accordingly, people with high efficiency sense, to ensure their capabilities, they consider difficult assignments as the challenges that must be dominated rather than as threats that need to be escaped from. (Ibid, 1994). Such an efficacious outlook fosters intrinsic interest and deep engrossment in activities. They set themselves challenging goals and maintain strong commitment to them. They heighten and sustain their efforts in the face of failure. They quickly recover their sense of efficacy after failures or setbacks. They attribute failure to insufficient effort or deficient knowledge and skills which are acquirable. They approach threatening situations with assurance that they can exercise control over them. Such an efficacious outlook produces personal accomplishments, reduces stress and lowers vulnerability to depression (Ibid, 1994).

In contrast, people who doubt their capabilities shy away from difficult tasks which they view as personal threats. They have low aspirations and weak commitment to the goals they choose to pursue. When faced with difficult tasks, they dwell on their personal deficiencies, on the obstacles they will encounter, and all kinds of adverse outcomes rather than concentrate on how to perform successfully. They slacken their efforts and give up quickly in the face of difficulties. They are slow to recover their sense of efficacy following failure or setbacks. Because they view insufficient performance as deficient aptitude it does not require much failure for them to lose faith in their capabilities. They fall easy victim to stress and depression (Ibid, 1994).

In several studies (eg, Bong, 2008; Marsden, Carroll, & Neill, 2005; Murdock et al, 2001) indicated that perceived academic self-efficacy has a negative relationship with cheating behaviors. According to Medley and colleagues (1997) Students who consider themselves underestimate, And have low levels of perceived self-efficacy, look for to prove their competence to others and may be susceptible to cheating in school and use of self-handicapping strategies.

In general, it is important to address the academic cheating behavior because based on research literature, people who have the academic cheating, in most cases, after graduation, bring such inappropriate behavior to their

working environment as well (Chapman, Davis, Toy & Wright, 2004). On the other hand, though, in many countries, factors related to academic fraud, had been considered by researchers, but in Iran, little research has been done in this area. So, further research will be requires to investigate factors related to cheating among students-especially in primary level.

Therefore, in this study, have been studied cheating behaviors of fifth grade students in association with some of the individual factors. The research hypotheses were:

- There is difference between male and female students in academic cheating.
- Self-handicapping strategies and self-efficacy have relationships with Cheating.
- These factors, predict cheating behaviors in fifth grade students.

METHODS AND MATERIALS

Statistical society of the research includes all students of primary-schools of Yazd in 2009-2010. For selecting the sample we used random cluster sampling method. Based on this method were selected 476 students (125 boys/ 352girls).

In this study was used Patterns of Adaptive Learning Scales (PALS) (Midgley et al, 1997). The questionnaire includes 26 scales and in this study were used three scales. The students were asked to respond on a Likert scale of 5 degrees of "completely false to completely true". According to Mdgey and colleagues (1997) PALS is appropriate at both elementary and secondary level and over the past decade has been used in several studies. Construct validity of this scale has been confirmed in several studies (eg, see Midgley and Urdan, 2001; Bong, 2008, Wolters, 2004). Also, the Cronbach's alpha reliability for the original form of the questionnaire is calculated by the authors (Midgley et al, 2000) on a sample of elementary school students. They have mentioned alpha coefficient of this questionnaire in the range of 0.7 to 0.9. Also, the reliability of this questionnaire was measured by the researchers of this article in a sample of elementary students in Yazd city. Cronbach's alpha coefficients for the subscales of the questionnaire were obtained in the range of 0.55 to 0.85.

In order to test research hypothesis, were used analysis of variance, correlation coefficients and multiple regression analysis. Multiple regression analyses were used to explain and predict criterion variable by the use of predictor variables. For assessing significance of regression model we used F test, and statistical T test was used to determine significance of Beta coefficients. Also used all of the statistical calculations were done by the use of SPSS statistical software version 17.

RESULTS AND DISCUSSION

The result of one-way analysis of variance showed that there is significant difference between boys and girls in academic self-efficacy ($P=0.001$ & $F=16.55$ (475 and 1), and self-handicapping strategies ($P=0.001$ and $F=16.33$ (475 and 1). Accordingly, the girls have a stronger sense of self-efficacy than boys. However, more boys than girls, to use the self-handicapping strategies. As shown in Table 1, mean score of boys in academic cheating is slightly higher than the girl's scores, but the difference between the scores of boys and girls, was not significant statistically.

To examine the relationship between variables, Pearson correlation coefficients were calculated. As shown in Table 2, with two tailed test at 99% confidence level ($P<0.01$) exists a significant inverse relationship($r= -0.28$) between academic self-efficacy score and Cheating score. Namely, the higher level of this variable, the cheating less occurs. Also, by two tail test at 99% confidence level ($P<0.01$), there is a significant direct relationship between scores of self-handicapping strategies and academic Cheating score. In other words, the higher the level of the, most cheating occurs.

Table 1. Comparison between boys and girls in cheating behavior

variable	Boys	Girls	F	df	P
Cheating					
Mean	4.85	4.74	0.236	(1 & 475)	0.627
SD	2.22	2.21			

Table 2. Correlation matrix of variables

Variables	Self-efficacy	Self-handicapping
Self-efficacy	1	
Self-handicapping	-0.29**	1
Cheating	-0.28**	0.29**

As tables 3 and 4 show, academic self-efficacy and academic self-handicapping strategies to be the predictors of academic cheating. The direction of beta coefficients indicates that academic self-efficacy is negative; thus, the variable has a negative role in explaining and predicting academic Cheating. On the other hand, the positive beta

coefficient of self-handicapping strategies indicates that this variable has positive role in predicting cheating among students.

Table 3. Results of multiple regression analysis to predict academic cheating

Model	Correlation coefficient	Coefficient of determination	F	Significant level
1	0.36	0.13	34.58	0.001

Table 4. Beta coefficients and t tests for predictor variables

Variables	Unstandard Coefficients		Standard coefficients	T	Significant level
	B	Standard error	Beta		
Constant	5.82	0.66		8.78	0.001
Self-efficacy	-0.13	0.026	-0.21	-4.78	0.001
Self-handicapping	0.11	0.021	0.23	5.15	0.001

The findings of this study show that gender has not an important role in cheating. The finding is repeated by other studies (such as Murdock et al, 2001; Anderman et al, 1998; Anderman & Midgley, 2004, and Cizek, 1999) which have shown there is no statistically significant difference between girls and boys in academic cheating.

Findings also revealed that academic cheating has significant negative relationships with self-efficacy and positive relationships with self-handicapping strategies. The findings of this study are clearly in line with recent research. For example, Nora and Zhang (2010) have shown that students with low self-efficacy compared to other students who have higher self-efficacy more likely to engage in cheating. These findings are repeated by other research (eg, Murdock et al, 2001; Finn & Frone, 2004). Efficacies beliefs determine how people feel, think, behave, and motivate about themselves. Such beliefs create these various effects through four main processes that include cognitive, motivational, emotional and selective processes (Bandura, 1994). Low self-efficacy represents a lack of belief in his ability to perform tasks correctly and optimal which is essential for high performance (Murdock, et al, 2001). So the cheating can be linked with low self-efficacy, because the student's doubt about his ability to create desired results, can lead to rely on the other strategies (for example, cheating) for success (Murdock et al, 2001). In other words, when students have high self-efficacy beliefs and expect to succeed at an academic task, cheating is probably neither a necessary nor useful strategy (Murdock & Anderman, 2006).

Another variable examined in this research, was self-handicapping strategies that based on the results of this study it was found that has a significant positive relationship with cheating. This result was repeated in some studies. For example, Roig and De Tommaso (1995) have been found that procrastination (one of self-handicapping strategies) had a positive relationship with cheating in tests and plagiarism in a sample of university students. Anderman et al (1998) also found this negative relationship between self-handicapping and cheating in a sample of secondary students. Self-handicapping strategies are used when students actively to set the conditions related to the academic success and failure, so that he/she can attribute failure to these conditions than the ability (Garcia & Pintrich, 1993). Self-handicapping strategies include behaviors such as ashamed others for failure or apologize for not having the proper performance (Urda, Midgley & Anderman, 1998). Can be said that self-handicapping and cheating, are strategies that students are used to be efficient from the perspective of others (Anderman et al, 1998).

Other item covered in this study was predicting academic cheating based on the research variables (self-efficacy and self-handicapping strategies). The findings suggest that both self-handicapping strategies and self-efficacy beliefs are predictors of academic cheating. Academic self-efficacy, negatively and self-handicapping strategies positively predict academic cheating. These results have replicated the findings of other studies about the predictive role of the variables in the academic cheating. Thus, self-handicapping strategies (For example, Roig & De Tommaso, 1995; Anderman et al, 1998), and low self-efficacy (for example, Finn & Fron) are predictors of academic cheating.

The findings of this study have clear implications for design effective learning environments. Students may react to some personal characteristics such as low self-efficacy, or self-handicapping with academic dishonesty behaviors such as cheating (Murdock & Anderman, 2006). Therefore, Teacher's task is to create a positive atmosphere in the classroom because the classroom environment played an important role in motivation, engagement, and academic achievement of students (Patrick, Kaplan, and Ryan, 2011). Also educators have the responsibility to employ strategies to increase self-efficacy, such as setting reasonable levels of acceptable performance and rewarding students at all achievement levels for hard work and learning (Finn & Frone, 2004). On the other hand, when students perceive that they are being evaluated on the basis of their ability relative to the ability of others, they may be more likely to use self-handicapping strategies than when they perceive they are being evaluated in terms of their effort, improvement, and mastery of the work (Midgley & Urda, 1995). So, as far as is relevant to the findings of this

research, academic cheating can be reduced through improved feelings of efficacy and reduced use of academic self-handicapping strategies.

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*Original Article*

The relationship between self-regulating strategies and academic performance of Hormozgan University undergraduate students

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ABSTRACT

The main purpose of this study has been investigated the relationship between Self – regulating strategies and academic performance of Hormozgan University undergraduate students. The total numbers of participants in this study were 420 students (247 female and 173 male) which selected by stratified random sampling method. Using the data was gathered through the Pintrich et al questionnaire along with the first semester average of 2010-2011. These data were analyzed by statistics methods such as multiple regression and multivariate variance. The results showed that there is a significant and positive relation between the cognitive, metacognitive, motivational and resource management strategies with academic performance. But only the resource management strategy has a positive and significant relationship with academic performance in multiple regression analysis. The results of this study also showed that there is a significant difference between male and female students in resource management.

Keywords: Self – regulating strategies, Academic performance

INTRODUCTION

Academic life is one of the most important dimensions of the people's life which has a significant effect on the other matters of life. In this regard, the subject of academic failure and the students' low level of academic activity in school and university is a basic problem of educational system in any country (Zahrakar, 2006).

The problems of educational systems, especially, higher education centers and universities about continual and effective teaching and learning are so important. The results of different researches show that many of learners in universities have not effective and continual learning, so, the academic failure and its resulted social-psychological problems are a threat for each society (Mayo, 1993). On the other hand, those who graduated with academic failure don't have the required scientific ability (Lazin, 1991).

Academic failure in university is a worrying matter (Mesri, 2008). And is one of the important problems in higher education centers, which not only can cause students have mentally problems, but also can cause them to be in the risk of inhibition of education, and it may be impossible for student to compensate it. And also it can make obstacles in desirable exploiting scientific principles for training human force and financial and human resource and can cause social unsatisfactory (Alikhani et al., 2005).

There are many factors that affect the academic performance. One of them is cognitive matters. Cognitive matters have a significant effect on human behavior, especially on the learning. Increasingly, this idea is reinforced by psychologists that learning is not a constant matter and however, the innate talent and intelligence are the determinants of quality and quantity of human learning, there are other factors that along these innate and non-acquirable prerequisites are effective and important in learning. One of the effective factors in learning is the self-regulated learning strategies (Jain & Dowson, 2009).

Self-regulation or self-regulated learning is an active or constructive process by which the learners form their learning aims and then they observe, control and evaluate their cognitive and motivational and behavioral processes according to pre-determined aims and resulted characteristics from learning environment (Pintrich, 2000 quoted by Schunk, 2005).

Many connoisseurs represent different kinds of self-regulation. In this research, Pintrich et al.'s model is used. In this model, self-regulation in learning is applied to using cognitive, ultra-cognitive and motivational strategies and resource management.

1. Cognitive strategy: this strategy is used for memorizing, remembering and understanding the subject. These strategies are used for both simple and complicated assignments (Pintrich, 1986).

2. Meta-cognitive strategy: meta-cognition point to thinking when we are doing an assignment. Ultra-cognition includes activities like controlling, planning, self-observing, aim selecting, inspecting and reviewing (Hong & Vanil, 2002 quoted by Mostafaei, 2008).

3. Motivational strategy: motivation is important in learning, and is a driving force that works beyond successful performance of three other strategies in self-regulated learning (Heo, 2000, quoted by Dasta, 2009).

4. Resource managing strategy: learners use this strategy for managing and controlling their environment. This strategy includes managing and controlling the time, effort, studying environment and getting help from teachers and coequals. These strategies help learners to be consistence with their environment and change it for meeting their aims and requirements.

In recent years, different research and studies present the role of self-regulated strategies in academic activity and advancement. Schunk and Zimmerman (1994, quoted by Wolters, 1998) report that it is more likely that self-regulated learners have more adapted cognition, stronger motivational consequences, and better academic activity than their unsuccessful classmates. Bidjerano & Dai (2007) found that one of the obvious and prominent anticipators of academic activity is learning strategies. Those who use these strategies in their learning, know that how each of the learning situations need these strategies. In Iran, researchers like Motavalli (1997), Salehi (1998), Avanesyan (1998), Bashavard (200), Salehi (2001), Hamidi (2001) and Shaqaqi (2003) have done researches about the effect of teaching cognitive and meta-cognitive strategies on improving learning (reading comprehension, mathematics, and second language), the results show that teaching these strategies is effective in learning (quoted by Ababaf, 2008).

Regarding the importance of studying the students' academic performance and its affecting factors, and also the available evidences about the decreased academic activity in recent years, this research attempts to study the relation between self-regulation strategies and academic performance among the students of university of Hormozgan. So, the basic aim of this research is studying the relationship between self-regulation strategies and academic performance.

MATERIAL AND METHODS

Research plan is correlation and the information is collected in a survey. Multiple regression analyses were used to explain and predict criterion variable by the use of predictor variables. For assessing significance of model in regression model we used F test, and statistical T test was used to determine significance of Beta coefficient. Statistical society of the research includes all the undergraduate students of the University of Hormozgan in 2010-2011. For selecting the sample we used stratified random sampling method. Based on this method 420, undergraduate students selected which 247 of them were female and 172 of them were male. The information gathering tool was Pintrich et al.'s self-regulation strategy questionnaire, which evaluates the motivational, meta-cognitive and cognitive strategies and resource management. The validity of questionnaire was measured using the ideas of assistant professor, consultant and the available scientific resources in an appropriate level and its reliability was calculated 0.85 by cronbach's alpha method. For data analyzing, the standard deviation and average indices were calculated in descriptive static section, and the Pearson interrelationship, multi-regression analyze and multi-variation variance analyze were used in deductive section.

RESULTS

Question 1: is there any relationship between the components of self-regulation strategies and academic performance among the studied students?

In order to answer this question, at first the standard deviation and average of research variables are shown in table 1, and then the interrelationship matrix of variables for the studied group is represented in table 2.

Table 1. Average and standard deviation of academic performance and self-regulation strategies

Gender	Number	Cognitive		Metacognitive		Motivation		Resource management		Academic performance	
		\bar{x}	S	\bar{x}	S	\bar{x}	S	\bar{x}	S	\bar{x}	S
Female	247	84.15	14.95	63.66	11.36	30.1	6.2	90.98	14.61	15.73	1.46
Male	173	84.38	14.90	61.86	11.07	30.45	6.15	87.59	14.23	15.14	1.78
Total	420	84.24	14.74	62.92	11.26	30.77	6.18	89.59	14.53	15.48	1.62

Table 2. Correlation of the components of self-regulation strategy and academic performance

Variables	Academic performance		
	R	Sig.	N
cognitive	0.18	0.000	420
Metacognitive	0.17	0.000	420
Motivation	0.17	0.000	420
Resource management	0.21	0.000	420

As it can be seen from table 2, there a positive and meaningful relationship between motivational, metacognitive and cognitive strategies and resource management with academic performance ($p < 0.01$).

Question 2: which of the components of self-regulation has a meaningful contribution in predicting the studied students' academic performance?

In order to answer this question, the multiple-regression is used and its results are shown in table 3.

Table 3. Multiple-regression of components of self-regulation on the academic performance

Variables	Academic performance					
	R	R ²	B	β	T	Sig.
Cognitive	0.24	0.058	0.008	0.08	1.11	0.26
Metacognitive			-0.001	-0.01	-0.13	0.9
Motivation			0.019	0.07	1.24	0.22
Resource management			0.016	0.15	2.3	0.02*

The results shown in table 3, indicate that 0.058 of academic performance variance is explained by the components of self-regulation strategy in the studied group. For determining that which of the components of self-regulation strategy has the most contribution in explaining the academic performance, the beta regression coefficient is used. By calculating beta coefficient it can be seen that it is only the resource management strategy that with 0.15 beta, positively, has a meaningful contribution in anticipating the academic performance in the studied group. The other strategies have not a meaningful contribution in predicting the academic performance.

Question 3: is there a meaningful difference between the components of the studied students' self-regulation strategy?

In order to answer this question the MANOVA (multi-variable variance analyze) test was used.

Table 4. Comparing resource management, motivational, ultra-cognitive and cognitive strategies regarding sexuality

	Factors	Sum of squares	Mean squares	F	Sig.	Partial Eta squared
Gender	Cognitive	5.19	5.19	0.24	0.88	0.000
	Metacognitive	329.14	329.14	2.61	0.11	0.006
	Motivation	30.23	30.23	0.79	0.27	0.002
	Resource management	1172.12	1172.12	5.61	0.018*	0.013

The results showed in table 4, indicate that the difference between girl and boy students in university of Hormozgan is just in the field of resource management strategy and it can be seen in table 1 that the average of girls is more than boys, in other words, the girl students use resource management strategy more than the boys ($p < 0.05$).

Discussion

Upon the findings, there is a positive and meaningful relationship between all of the components of self-regulation strategy and the students' academic performance, but the results of multiple-regression analyzing indicate that it was only the resource management strategy which had positive and meaningful contribution in predicting the academic performance in the studied group. Because of having meaningful relationship with academic performance, the findings of this research have conformity with the results of researches (Archer, 1998, Zimmerman, 1981, Pintrich

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& Kachiv, 2000, Bandura, 1994, Williams & Helman, 1996, quoted by Pintrich, 1999). But it has not any conformity with the results of other researches Zimmerman, MartinaZ & Ponz, 1988, Wolterz, 2004, Pintrich, 2004). It seems that the reasons of non-conformity about resource management strategies are conform to the results of researches done by (Zimmerman, MartinaZ & Ponz, 1988, Pintrich, 2004, Mostafae, 2008) Application of these strategies by students, make them be active in learning, observe their advancement and be better than the other in planning, learning organizing and evaluating their advancement. And also they can control their environment and receive help from the others in required time. They don't suppose getting help is an indication of being dependence to others, but suppose it as an opportunity for their advancement and successfulness. So, it is expected that the students who use these strategies, are successful in their education. And also, the results of the research about the difference of resource management strategy between girl and boy students are conforming to the results of researches done by Zimmerman, Martinaz & Ponz, 1990, Pajars et al., 2001, Pokay & Blomfield 1991, Zimmerman, 1996, Pajars, 2003, quoted by Ahangar, 2011).

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*Original Article***A study on strong and weak points of change process in domains of codification and design, dissemination and publication of qualitative-descriptive evaluation project in the province of Isfahan****Arezoo Ebrahimi Dinani *, Ahmad Reza Nasr and Mostafa Sharif Khalife Soltani**1. *Isfahan University, Isfahan, Iran*

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ABSTRACT

The aim of the present study is to examine advantageous points and Achilles heels of change process in the qualitative-descriptive evaluation project in the province of Isfahan. The change process was studied through five domains of codification and design, dissemination and publication, acceptance, administration and institutionalization which because of being widespread, the current study has just discussed about the domains of codification and design besides dissemination. The applied method, on the one hand, is descriptive-analytical and quantitative-qualitative, from the other. Regarding qualitative part the evaluation specialists carrying out the project were interviewed and quantitative information was collected from related teachers and principals. Since the people taking part in the study were so few, the method of head count was used. The number of the teachers was 44 and that of principals and experts was 8 and 10. The results of the study indicated that in the domain of codification and design pertaining to qualitative part, evaluative specialists emphasized the favorableness and acceptance of the objectives of the project, on the one hand, and its Achilles heels regarding the degree of administrators' participation in codification and design, on the other hand. In quantitative part, the average of attending to the codification and design of qualitative evaluation project has been 3.14 which is above the determined mean. Regarding the domains of dissemination and publication pertaining to qualitative part, the evaluative specialists stated so many cases regarding two general categories of informing and the type of project dissemination. In quantitative part, the mean score of the degree of attending to dissemination and publication in evaluation project was 2.94 which is below the determined average.

Key words: Change process, Codification and design, Descriptive evaluation, Dissemination, Strong point, Weak point

INTRODUCTION

One of the important elements of educational system is the change in the syllabus. In the same way, the investigation and evaluation of change process is also necessary in every change project in order to explore its specialties conformed to the objectives and identifying and clearing its probable ambiguities (Taslami, 1997). In order for the change to take place with confidence, sensitivity and expertise, besides achieving constant quality development to prevent defects and problems in administration and institutionalizing, it is vital to pay attention to its procedure (Carnal, 1997). Various researchers and theorists have defined similar elements of change process, although there are similar stages with different names, e.g. Rogers (1995) has called these five stages.

Guba and Clark (1991) render a framework (RDDA): Research, Development, Dissemination and Acceptance. Shoemaker and Rogers (1971) have identified three stages: Knowledge, persuasion, decision and confirmation.

Fullen (2007) has designed the three-stage model of beginning, administration and incorporation. Charles and Achilles (2004) have suggested a three-stage process including publication, demonstration and dissemination (Charles, 2005). House (1999) has proposed four stages for the change process: 1. Beginning change process, 2. Designing a new system, 3. Complementary programming including experimental tests, and 4. Completing the project and standardizing the change.

Yankelovich (2000) has supplied a model of change process levels for instructional and educational programs. Through investigating and studying various sources in change process, generally, and the change in the syllabus, specially, more researchers and experts would describe similar elements with different names.

In whole, this process can be outlined in three general stages under the title of beginning, use and evaluation. In the beginning stage the words codification, design, dissemination, publication and acceptance are employed. In the stage of using the administration it is the most essential concept and institutionalizing the changes is noticeable in the third stage (i.e. evaluation). Educational evaluation is among the elements of syllabus which have been changed in latest years.

Descriptive evaluation is the name of a pattern proposed against traditional patterns and under the effect of new educational views of the country to face system challenges. The present study would analyze the descriptive evaluation as a sample of a change project in the framework of the syllabus change process. Considering the change process in our country especially in terms of dissemination, institutionalization of innovations and changes, it has not been taken into consideration meticulously and scientifically. For instance, dissemination which is a part of change process is frequently assumed to have the same meaning as a simple informing, while it is more complex conceptually; to put it another way, informing is part of dissemination process. Therefore in education system, the innovations and changes are disseminated incompletely and even they do not reach to institutionalization at all. According to Schneider and Bryk, although tutors and researchers are studying on better methods of teaching in the field of education, a little information is at hand regarding the manner of these methods' application (cited from Frank & Etal, 2004). The importance and necessity of conducting the present research is the fact that the administration and institutionalization of the change process can be helped through investigating it in descriptive evaluation project to understand strong and weak points of this project for appropriate codifying, designing and disseminating. It would be worthwhile to mention again that the change process has been surveyed in five domains of codifying and design, dissemination, acceptance, administration and institutionalization which because of being so widespread, the current study has discussed about codification, design and dissemination; further, some explanation related to it are proposed.

Materials and Methods

It involves the decisions made in the procedure of composing and revising the program. The mentioned decisions relates to the program's objectives, educational material, educational practices and evaluation etc. (Mehr Mohammadi, 2002). The researchers of English teaching program exclusively emphasized the teacher's outstanding and basic role in the codification process as well as accompanying role in developing and changing the syllabus. Creating the sense of ownership in the teacher while codifying the syllabus, and strengthening it while administering cause the teacher to find him/her shared in a worthwhile common practice and consequently it leads to bear a feeling of responsibility and commitment in administering the change process (Nichelson, 2005). Harison and Stugel in their book named "primary schools management" suggest taking into account the following issues while codification:

- attending to the power of organizational structures which support codifiers and administrators
- attending to the degree of the teachers' understanding and comprehension
- the level and the degree of coordination with the school goals
- Considering the time at hand for practicing with the teachers, consultation, making familiar with school setting (Hirsch, 2006).

In the same way, Wejnert (2004) and Kesler (2000) in a study regarding two syllabus change projects put the emphasis on the importance of three critical factors in codification, explicitness in stating the objectives and participation level by the users and having coordination with organizational structures. Further, Hu (2002) and McKay (2003) pointed out the appropriate change culture at school and collecting the views of administrators while policy making concerning new syllabus. McBeatch (2000) in his review considers the distance and gap between codifiers and users of change and reform process as effective factors on the failure of change administration. Moreover, Stern and Keilsar (1977) indicated that the teachers having been taken part in the syllabus change process had more positive attitude toward practiced changes and reforms comparing to those not. Charles and Achilles (2004:12) study the cases which should be considered by codifiers and regulators of educational programs.

They propose that in order to create and improve educational changes, the educational codifiers and designers should increase their individual skills and function as follows:

- They should behave decisively, maintain their hope, belief and optimism,
- Be ready to take risk and accept their conclusions, create the capacity and ability of acceptance and coping with the conflicts in themselves, have self-consciousness, have the ability to tolerate the ambiguities and problems and be an active listener. They have put forward some pre-assumptions while codifying to use of the change of the experts:

1. It should not be assumed that the form that you intend to do to be the same as the manner of administration. Against what is believed one of the basic goals of change process is to administer and convert your imagination from what to be done to what will actually be done. Successful administration includes some changes, transformations and continuous development of primary attitude (Folen, 2007).

2. Assuming that the real (meaningful) innovation, needs administrators which practice out of personal goals. The real change includes a specific amount of ambiguity, imbalance and not recognizing the people through the change concepts. Therefore, to administer effectively, now, the process of clarification should become practical. However much time should not be taken to carry out all the stages, since, the issue of time shortage should be taken into account in any way (Louks & Hergert, 1985; Cohen, 1987).

3. Accepting the fact that disagreements are unavoidable; likewise, being the principle of successful change should be taken into consideration. The people have different perceptions and basic changes involve these disagreements. Success is significantly in the nature of change not in the material or the manner of design and administering its stages; the point should be attended to be the fact that the inappropriate administration is not the sign of unsuccessful change (Huberman & Mils, 1984).

4. Accepting the matter that the people need coercion in the change process, but it will be appropriate if they are given the opportunity to function in their position and have interactive communication with others and it is possible to make them aware of the methods. It should be accepted that the people behave differently toward the change and considering these facts is the health of the change process.

5. Accepting the fact that the appropriate change is carried out in a passage of time (it takes time). The change is a process which is developed while using, however this time, too, has specific boundaries. Insistence is the principal characteristic of the change success.

6. It should not be believed that being unsuccessful in administration or resisting against it is rejecting the definite values of change; because it is possible to be other reasons like the lack of sufficient facilities and sources or shortage of time while administration.

7. It should not be assumed that all or event most of the people and groups should change. Change complexity is similar to having a reform in a large social system. Our program puts to end when the steps are taken and the effective people are applied. We should not be discouraged by some differences, we must be encouraged via the practices having done rather than to be discouraged about what to be done (Louise and Miles, 1990).

8. It should not be assumed that just the definite and clear information is the requirement of completing the process; proper decisions is the result of composing valid information, political considerations, appropriate and on-time decisions and full understanding and dominance on the information regarding changing and composing process of the programs we have designed.

9. The change has a specific culture. The determined objectives by the designers should transfer the sense of change to the administrators. This knowledge (knowledge in change domain) is a combination of researches and experiences. Transferring the change objectives and the future perspectives of designers are among the causes of success in the change process (Louise & Miles, 1990; Sarason, 1971).

Dissemination and publication are used interchangeably. These concepts represent rendering the information pertaining to changes and innovations. Technically dissemination refers to natural rendering of information while publication involves the designed activities their aim is to present new information to the people for potential application. However these two words are used without considering their specific meaning to the extent that they can be seen as two words with the same meaning (Mehr Mohammadi, 2002). Specialists and experts, who attempt on studying the change process in educational and non-educational domains, in various fields emphasized the importance and the value of dissemination and publication process in creating a stable and continuous change; they give numerous definitions in this regard. Synonym words the experts provide include spreading, publication, dissemination, diffusion and propagation. Dissemination is a process through which an innovation is transferred and extended within the members of a social system via special channels by passing the time (Walker, 2003). It is a specific kind of communication. The researchers perceive that new ideas in terms of any change and innovation are reached from the source to the receiver through a hierarchy of stages; otherwise, it is not a simple two-stage communication, there are various active communicative channels in the process of dissemination. They understood

that mass media play an important role in creating knowledge about new ideas (Lionberger, 1999). Henry and Walker (2000) regarding time taking of dissemination say: The time needed for the process of dissemination is the reason of its complexity. The change is very much time consuming. From supplying to widespread acceptance of an innovation it requires a considerable time. As an instance, public schools of the United States after fifteen years accepted the idea of constructing a kindergarten between 1937-1940 (Ross, 1958) or it took five to six years until in 1960 new mathematics was accepted (Carles, 1965). One of the aims of dissemination in innovations and changes is to decrease this time, therefore there is a primary and complex relationship between increasing knowledge of the change and acceptance pace rate. When the level of knowledge is low, it is unlikely to accept the change and innovation by the individuals (p.78). Peter Senge et.al. In their book named "the dance of change" have replaced the word dissemination or publication with propagation. The ability of an organization to spread new activities and ideas depends on following items:

1. the capacity of the guidance
2. permeability of organizational boundaries
3. information background
4. learning culture

Disseminating and publicizing new projects, conceptually is more complex and extensive than the concept of simple informing. Actually, informing is a part of dissemination process. If in education system the innovations are offered solely through executive order or at its utmost level in the form of briefing course and sometimes on-the-job courses, in fact simple informing has been carried out and this form of dissemination is near to the concept of "installation". This pattern of dissemination is called "ordered innovative decision making" (Rogers & Shoemaker, 2000). In the above pattern decision is made regarding administering innovation in high levels of organizational hierarchy and administering the decision is put on the shoulder of other unit. Dissemination pattern in education system is not imposing, ordering and mechanical; otherwise, it should be in a humanistic manner; that is, it is founded on freedom and selection of addressee. In educational system the formal and informal compound pattern is offered to publicize and disseminate the innovations whereof informal pattern has priority over formal dissemination; namely, a proper thinking and cultural background should be provided for formal dissemination (McDonald, 1991). Regarding the importance of accessing to information in publication process of new plans, House (1980) perceived that: The teachers have a limited current network of communications at school and with their cooperators out of school. They receive informative texts and more attend institutions but they don't have personal and face to face communication, the communication which is vital for being made cognizant about new views in order to develop it.

So, it is attempted in the present study to answer the following questions:

1. What are the weak and strong points of the change process in stage of codifying and designing the descriptive evaluation from administering teachers' and principals' point of view?
2. What are the weak and strong points of the change process in stage of disseminating and publicizing the descriptive evaluation from administering teachers' and principals' point of view?

The present study is the type of applied descriptive-analytical, from the one hand, and a quantitative-qualitative (integrative) one, from the other hand.

The statistical population of the study has included two groups. The first group was ten evaluation specialists of the province administering descriptive evaluation project. The second group is all 44 primary school teachers and principals in Isfahan administering descriptive evaluation project. Because of narrow population, all of them were put under experiment. In other words, the population equals sample. At the time the current research was conducted, the descriptive evaluation project were experimentally administered, so a limited number of schools carrying out the project whereof all the teachers and principals have been employed as administrators. The most complete and appropriate kind of information will be at hand and there will be the most valid results if in a study there is the possibility to collect the information from all statistical population. In supporting the above issue Bhattacharyya and Johnson in their book named "statistical methods" state that for attending to every characteristic of the population taking polls or complete counting of all the members can provide all interested information (translated by Ebne Shahr Ashoob & Mikaieli, 2006).

In this research the interview and questionnaire were applied as the measuring instrument.

a) Interview: In order to deeply investigate the subject of the study the views of 10 rating specialists and administrators of the project in Isfahan were collected via a semi-structured interview; likewise the same procedure was applied on one of the major project designers in Tehran. To make the interview five open-ended questions were provided.

b) Questionnaire: Considering the fact that there is no standard questionnaire regarding the subject of the study, the researcher has used a researcher-made questionnaire. It includes 5 categories and 56 questions.

Hence in the present research the achieved information got from all the population, to analyze information, the descriptive method besides the items such as frequency, mean percentage, standard deviation as well as tables and graphs were provided and there is no need to apply inferential method. There needs to be stated that although the use of inferential tests is the sign of students' strength in the research, its power is in the matter that it has considered all statistical population; moreover, as it was mentioned before the answers collected from all the population are more accurate and give more valid results. To analyze the data the method of categorization was applied.

RESULTS

The present study has answered two questions regarding weak and strong points of descriptive project in domains of codification, design and also dissemination and publication. The results are given in three parts. In part (a) the results of the interview, in part (b) the results related to the questionnaire for every question and in part (c) the quantitative comparison of two is presented.

First research question:

What are the strong and weak points of the change process in the stage of codifying and designing the descriptive evaluation from the teachers' and principals' point of view?

a) The results of interview: In codifying and designing the descriptive evaluation, there were some items mentioned by interviewees which can be analyzed in two major constituents.

1. Cooperation and coordination between designers and administrators of the project: 3 of interviewees (two from the specialists of the province and one from the designers of descriptive project) stated the administration of the pre-experimental project as the most frequent way of communication between designers and administrators in the stage of codification and design. They report that this project was codified and designed without direct communication with main body (project administrators). The only item interred was the use of responsible specialist in the province of Shiraz and the specialist in Mashhad. Furthermore, 3 teachers in Tehran, too, took part directly in design sessions, but the major part of communication between designers and administrators was in the form of pre-experimental conduction. One of the interviewees who were among basic designers of descriptive projects tells: Descriptive evaluation was conducted not with the aim of generalization but with the aim of an indigenized version. Regarding production we will reach to this conclusion if there is a change in a part of educational system; reaching to this version is a requirement and it has two forms: 1) Decision makers themselves come to conclusion that a part of the program should be changed. 2) Through receiving feedback which they take from the main body (in the form of visits, criticisms, protests, written or unwritten). When the motivation for the change is made, they start administering the project. Descriptive evaluation project was conducted without direct communication with the administrators. Communication was in the form of receiving feedback from conducting a pre-experiment. After finishing the conduction of pre-experiment in 2003 the designers had conversation and deliberation with the administrators and were presently informed of the problems of administering the project. The received feedback from preliminary and pre-experimental administration was very profitable and led to major changes in the project. He assumes the main weakness of descriptive project in the stage of codification and design, the shortage of participation on the part of the administrators. In this regard, other interviewees (8 individuals) say that the raw plan was delivered to departments and organizations to be administered and the administrators didn't have any role in primary decision making. One of the interviewees states that even collecting their point of views while administering didn't help solving the problem and didn't have any change in its procedure as well. 2) The projects objectives: Contrary to negative remark regarding participation in codification and design, all interviewees believed that the objectives of the project have been stated clearly and explicitly and accepted too. The objectives of the project conform to the needs and wishes of the students. If there is any defect in the project, it refers to administrative problems not the project itself. Regarding coordinating the objectives with teaching methods and book contents there are some problems which should be solved (Table 1).

2. The degree of favorability of project objectives

b) Results of the questionnaire: The comparison between mean scores of the answers with awaited mean indicates that the degree of attending to codification and design in descriptive evaluation project was more than the average level (Table2).

The results of table 3 represent that "the favorability of the objectives within administrators (M=3.88)" and "the explicitness of the objectives from administrators' view (M=3.75)", in order, had the highest mean. "sharing the administrators in the stage of codification and design" (M=2.47) and "creating a clear and explicit picture of the project's future" (2.50), in order, had the lowest averages.

Second Research question

What are the weak and strong points of the change in the stage of dissemination and publication of descriptive evaluation from the teachers' and principals' point of view conducting the project?

a) Results of interview: In dissemination and publication two major categories are marked: 1. Informing, which is a part of dissemination process and 2. Dissemination which is a technical and complex affair.

1. Informing: In informing section of the project, most of the interviewees enjoyed a high satisfaction and consider the conducted affairs enough. One of the interviewees says: Regarding informing, the education system is updated and there is no problem. Making up briefing courses for the project administrators, societies and one-day seminars, coordinating sessions of towns and districts, putting up meetings in order to make familiar with basic text of the project and on-time informing of executive orders and instructions are among the cases carried out to informing. Two of the specialists have pointed out that since the project had proposal and experimental form, those ruling over did not much interested in opening the project to a large extent in the society and through media in beginning years, but informing gradually became widespread. Now in the province of Isfahan all the primary schools even those having not been the project administrators are aware of it. There are some articles in Roshd journals pertaining to descriptive projects. In Partov-e-Mehr periodical, too, two numbers are specified to giving some articles related to the above project. They state that the province of Isfahan has functioned really powerfully in this regard and even support other provinces. There are continuous communicative channels of teachers and managers with experts and specialist. One of the specialists besides expressing consent from informing and disseminating the project tells that: there is a steady communication between administrator teachers and even between administrator schools; determining visit programs from schools and deliberation, and the application of the experiences of teachers and principals administering the project was among efficient affairs which were accepted by the administrators with open arms. Whereas there are some strong points regarding informing the project in the province, to strengthen the informing the project some suggestions have been offered by the interviewees which are remarked here: Make more resources accessible, favorite informing among parents, empowering and making briefing courses, specifying conferences and lectures at different times of the year to make it pervasive and informing, putting up congresses and festivals with parents attendance and visiting teachers administering projects from the schools of other provinces.

2. Dissemination and publication: Regarding disseminating descriptive projects one of designers says: For the project is still in the stage of producing an indigenized version and not in generalizing it, not much have been done. The manner of successful dissemination and publication of innovations in the structure of education system is an important issue which must be solved, while it has been more or less neglected in our education system. Most of the innovations are imposed in the form of executive orders and mandatory on the structure of education system, so the degree of success in innovations was very low. Through delving on transformation procedure of education system the mentioned issue can clearly be noticed.

The traditional pattern is disseminating innovation in the form of innovation selection and choice, changing innovation to instruction and proposal, delivering and communicating the instructions and finally conduction by the administrators. Due to many reasons this pattern is not able to answer the changes and make transformations in education system. The pattern suggested by him to disseminate the descriptive project is the "the demand-based pattern". He has investigated the background factors of disseminating innovation through Rogers and Shoemaker's view. The above pattern includes following stages: manufacturing the innovation, reformation and homogenization, publication and informing, acceptance, study the school's appeal to support the schools requesting innovation administration and at last feedback and reform. (Table 4)

b) the results of questionnaire

The comparison of mean score of the answers with awaited mean indicates that the degree of attending to dissemination and publication in descriptive evaluation project has been less than that of average level. (table5)

The results of the table 6 indicate that "two-way active communication between cooperator teachers administering the project" (M=3.86) and "two-way active communication between administrator principals and teachers of the project" (M=3.79), in order, had the highest mean. "Coordination with mass media such as broadcasting organization for disseminating the project" (M=1.84) and "publication of newsletter represent program development procedure" (M=2.06), in order, had the lowest mean.

c) Comparing factors: in this part the comparison was made through descriptive tables between the means of basic research variables according to gender, educational level, and record of service. (table7)

According to the results of table 7 the mean score of female respondents' views regarding codification and design, dissemination and publication was more than that of male respondents.

According to the results of the table 8 the mean scores of sophomore respondents in terms of codification and design, dissemination and publication was more than that of those having bachelor degree.

According to the results of the table 9 the highest mean score of the respondents in terms of codification and design, dissemination and publication, relates to the respondents with record of service of between 21-25 years.

DISCUSSION

What represented in this part was based on given research questions and it has investigated both qualitative and quantitative results sequentially. The specialists' ideas regarding codification and design were analyzed in two major domains of: 1. cooperation and coordination between designers and administrators of the project and 2. The degree of favorability of the objectives of the project. The reviews represented that the type of cooperation between designers and administrators was without direct communication and in the mould of pre-experimental administration of the project and in the form of feedback. The administrators assume basic weakness of descriptive project at the stage of codification and design, the lack of administrators' participation. The objectives of the project were accepted by the administrators and there was a high consent of the degree of favorability, the clarity of the objectives and coordination with the students' wishes and needs. The quality improvement of teaching-learning process, increasing mental hygiene of education setting, providing appropriate background to omit the culture of twenty-oriented tendency, decreasing anxiety, attending to affective and behavioral settings, increasing interest in learning and doing homework and increasing interaction between school board and parents were among the factors proposed by administrators. Whereas the results of questionnaire pertained to teachers and principals and the results of interview pertained to evaluation specialists administering the project, there is coordination between the results of each instrument. Both groups had agreeable results regarding the objectives of the project and dissatisfaction toward cooperation and coordination between administrators and designers. In quantitative part, the comparison between mean score of the answers and awaited mean score indicate that the degree of attention to codification and design in evaluative descriptive project is above mean level. Although the average was above mean level and represents its strength, it should be taken into account that its major strength relates to the objectives of the project but the answer of questions related to the degree of participation of administrators in the project shows that the consent in this regard was low. Regarding demographic characteristics, the highest mean of this constituent according to gender was that of female administrators (3.16) and according to educational level, that of sophomores (3.21) and according to record of service is that of respondents with record of history of 21-25 years (3.35). The results gotten from the questionnaire and interview included the concern about the future of the project and not having clear and explicit information on the part of administrators. This cooperation and coordination between specialists' and administrators' (teacher and principal) of the project shows close cooperation and sociability among them which the researcher has observed in close communication with both groups. The results of the present study are in agreement with those which will be pointed out in later chapters. Mortezaie Nejad (2004) in a research with the title of "investigating the teachers' and parents' attitude toward using of descriptive evaluation in first and second grades of Tehran primary schools" regarding the objectives of descriptive evaluation project came to the conclusion that teachers and parents find the project effective regarding the quality improvement of teaching-learning, mental and psychological hygiene of the students and more interaction between the parents and the school board, and the favorability of the project has been proved by their views. AbooMohammadi and Khaneghani (2005) in their research named "investigation the views of teachers of primary schools regarding descriptive evaluation in the province of Yazd" have remarked its positive effects including anxiety decrease, learning output increase and the increase of qualitative level of learning. Mousavi's (2005) research its title was "taking polls from parents and trainers of evaluation project according of detailed objectives of project administration in educational year 2004-5 in education organization in Qom" indicate that teachers have positive view toward searching the objective of the project in aspects of learning improvement, improving mental hygiene of the students, the goal of the culture of being twenty-oriented and attending to the objectives of education. Regarding coordination and cooperation between teachers and designers, Nickelson (2005) concluded that the creation of the sense of ownership in the teacher while codifying the syllabus and developing the mentioned sense during administering the program causes the teacher feel shared in a valuable affair and leads to creating a sense of responsibility and commitment in conducting the change process. Harrison and Stivegel in their book, "management of primary schools" acknowledge that the degree of development and widening new projects in primary schools depends on codification and design in its beginning stage; besides, they pointed out to goals of the school. Vijnert (2004) explicitly points to stating the objectives and participation level by users during the time of design and codification. Charles and Achilles (2004) occupies with the study the cases in which codifiers of educational programs should take into account among them the degree of participation and cooperation with the administrators of the change in codifying the program can be pointed out. Considering the results of the current study and other cases mentioned above, in whole, it can be said that in codification and design stage, filling the gap between codifiers and

administrators through more participation and cooperation, clear and formal transferring the change objectives besides future perspective from designers is a point of importance.

Regarding the second category of the research, viz. dissemination and publication, the results of interview was studied in two general categories of informing and dissemination. Regarding informing there was a high consent. Making briefing courses for administrators of the project, one-day gathering and seminars, coordinating sessions of towns and districts, on-time informing of executive orders and instructions, continuous active and two-way communicative channels between administrators and specialists, publicizing pamphlets and internal journals and publicizing related articles to the project are among the cases stated by interviewees. In disseminating descriptive project the ideas are not suitable. Interviewees state that the dissemination of innovation in the body of our education system was traditional and are imposed through executive order and instructions. In a way that innovation is changed into instruction and proposal and then is delivered to administrators. Therefore this is not a correct method of answering to changes and making transformations in education system. In quantitative part the results show that the mean score of the degree of attention to dissemination and publication in descriptive evaluation project was 2.94 with standard deviation of 0.64. Comparing mean scores of the answers with the awaited mean indicate that the degree of attending to dissemination and publication in descriptive evaluation project was lower than the mean level. Considering demographic characteristics, the highest mean of this constituent according to gender was that of female administrators (2.99), according to educational level was those who were sophomore (3.02), and according to record of service was among those who had the record of service between 21-25 years (3.18), in the same way similar results from various studies have been received which have been pointed out to. Hasani (2006) in his research under the name of "a pattern to disseminate innovations in education system of Iran" gives a pattern for innovation dissemination through investigating the issue of social conformity of innovation which includes following stages: producing innovation, reforming and standardization publication and informing, acceptance, creating readiness and demand, studying the school requirement, supporting from demanding schools, feedback and reform. Hasani and Ahmadi (2007) searched about communicative channels for becoming aware of educational agents in primary courses of educational organization in Tehran, by cooperators, working meetings and sessions in educational courses, studying the books and pamphlets, studying articles and news in journals and TV and radio. According to given results in this study, a large number of teachers have a general knowledge of the existence of the descriptive project. In order to have more exact and deeper knowledge there needs to have a more extensive informing. In the same way, Nakayama (1998) mentions putting up related congresses, guidance books, brochures and using mass media to disseminate innovations. Dodgson and Bessant (1940) in their book named "policy making for effective dissemination" have stated a new approach that it is not as simple as movement from point A to B in an innovation. Innovation is not an immediate accident, it is time consuming phenomenon and its dissemination is a complex and technical process. Frank, Zhao and Borman (2004) in study with the name of "social invest and disseminating innovation in an organization: a case study of computer technology at school" have related the field of studying dissemination with the concept of social invest. This study attempts to recognize the characteristics of informal access to the skills and answering to social pressure. The results of the study proved that it is a longitudinal knowledge and has a network of importance. The results of the current study are in some cases similar to that stated in above researches. In this regard, it can be generally said that informing and dissemination are two distinct categories, in fact informing is a part of dissemination process. Although the issue of informing, in itself, worth considering, attending to disseminating innovation as a complex and technical process and the application of specialists and experts is important regarding change dissemination and innovation in education system structure which is neglected.

Considering all received results the following suggestions in two different questions of the research are given:

Codification and design: 1. Though the objectives of descriptive evaluation project are accepted by the administrators and favorability of the objectives had the highest mean, it is necessary to offer solutions in order to have more coordination between the elements of syllabus (namely, the book content and teaching methods) and the objectives of the project in order not to face any problem. 2. In the stage of codification and design of new programs there should be provided instruments and facilities appropriate for predicted results and goals. So, it is necessary to have continuous follow-up to make and increase the facilities and resources for the stability of the project on the part of those in charge.

Dissemination and publication: 1. to inform, scientific and specialist journals especially education journals should be applied. These journals because of their lower prices comparing to the book and easier distribution within teachers as well as their accessibility, provides background for fast interaction and informing. Moreover putting up deliberate meetings, congresses, festivals, conferences besides the application of mass media and cooperation with mass media should be taken into account for disseminating the project. 2. It is better for the people with high educational level, ability and oral aptitude and, the most important of all, those tending to have

innovation and popularity among teachers as an informal communicative channel to inform and inject knowledge and related information to the project at school. Its necessity is that the leaders of the thoughts can be found in education system to disseminate innovation via their assistance. It causes helping the people who were not satisfied in primary stages or those don't have motivation and inclination toward accepting innovation or those who are anxious and worried regarding its conclusion, to accompany with innovations and changes.

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An Investigation into the Effect of Cooperative Learning with Focus on Jigsaw Technique on the Academic achievement of 2nd-Grade Middle School Students

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Abstract

This study aims to investigate and compare the effect of cooperative learning with an emphasis on Jigsaw technique on the academic achievement of 2nd-grade middle school student in district 1 of Bandar Abbas city. It is considered a semi-experimental study and the method is pre-test post-test with a control group. The sampling is multi-stage and the sample size includes 153 students. The tool used in this study is Teacher's Academic achievement. It uses the statistical method of analysis of covariance (ANCOVA). The findings of the study indicate that a cooperative learning method that focuses on Jigsaw technique has significant effect on students' academic achievement.

Keywords: Jigsaw II, cooperative learning method, traditional method, academic achievement.

INTRODUCTION

The old longing of any society is the progress and elevation of its members and to have wise and intellectual students. It is obvious that any kind of progress in different areas such as culture, economy, society, politics and the like require having sensible, creative, and critical people who can make the right decisions and can have the right planning. This depends on the existence of active and dynamic systems of education. Thus, it could be said that any kind of progress is the result of a correct and efficient system of education. This indeed depends on a variety of different factors such as changing methods and methodologies in a way so that to benefit from modern and dynamic methods of the day (Yazdianpoor, 2009).

The reality is that traditional teaching methods, due to different reasons, are not able to respond to recent changes and are not in line with goal of teaching human resources that the modern society needs. Thus, it is important to replace them with modern and revolutionary methods (Khodadadnezhad, 2009). Talmud explicitly states that any person needs a learning partner in order to be able to learn. According to Quintilian, students would benefit most from teaching to one another (Johnson and Johnson, 1987).

Jigsaw is one of the techniques used in cooperative learning (CL) that has widely been used for years (Aronson et al., 1978 and 2002; Doymus, 2007; Hedeem, 2003; Holliday, 1995; Slavin, 1986; Stahl, 1994). According to Doymus et al. (2010), there are different versions of jigsaw technique available.

1. Jigsaw I (Aronson et al., 1978)
2. Jigsaw II (Slavin, 1986)
3. Jigsaw III (Stahl, 1994)
4. Jigsaw IV (Holliday, 1995)
5. Reverse Jigsaw (Hedeem, 2003)
6. Subject jigsaw (Doymus, 2007)

All jigsaw versions have been used in group-based learning in which students need to cooperate with their peers in order to achieve personal goals. Each student is like a piece of puzzle who needs to understand and learn the subject completely (Aronson, 2002). CL with a focus on Jigsaw is among new and important methods on which many studies have been conducted. Among such studies, one could mention the study by Behrangi and Aghayari (2004) in

Iran, Sahin (2010), Zacharias et al. (2010), Doymus (2007), Hanz and Berger (2007), Slis (2005), Ervin (2001), Perkinz and Saris (2001), Walker and Crogan (1998), Holliday (1995), Reuman and Mac Iver (1994), Lazarowitz et al. (1994), Lucker & Rosenfield & Sikes & Aronson (1977). All studies indicate that jigsaw technique will enhance academic achievement in students. The present research aims to study and investigate the effect of CL with a focus on Jigsaw technique on the academic achievement of the 2nd-grade middle school students in district 1 of Bandar Abbas City.

MATERIALS AND METHODS

This study is considered a semi-experimental one. It has an experimental group and a control group and uses pre-test post-test methodology with the control group.

The statistical population of this study includes all male and female students studying at the 2nd grade of middle schools located in district 1 of Bandar Abbas city in 2010-2011 academic years. There were 4126 students, 1961 girls and 2165 boys. In this study, two schools were randomly selected as samples among all schools in the statistical population and two 2nd-grade classes were selected in each school, one being the experimental group and one being the control group. The sample size included 153 students, 89 of which were girls and 64 were boys. This study applied the Jigsaw II technique on 76 students and the traditional method of instruction on 77 others.

RESULTS

The first hypothesis of the study is that Jigsaw technique has direct effect on academic achievement of students. The results obtained from this study indicate that after controlling the scores gained in the pre-test of academic achievement, the main effect was statistically significant ($F_{1,150} = 12.11$, $P < 0.05$). This demonstrates that CL with an emphasis on Jigsaw II has significantly increased the scores gained by the experimental group as compared with the control group. Detailed results are presented in Table 1:

Table 1: Results of analysis of covariance between groups with regard to scores of academic achievement in the control and experimental groups of the whole sample

Source of variance	SS	df	MS	F	P
Equation's constant	683.53	1	683.53	89.08	0.001
Pre-test	607.92	1	607.92	79.23	0.001
Methodology	92.97	1	92.97	12.11	0.001
Error	1150.90	150	7.67		
Sum	43968.56	153			

The second hypothesis of the project says that there is difference between traditional instruction method and Jigsaw II technique with regard to academic achievement in female students. The results obtained from this study indicate that after controlling the scores gained in the pre-test of academic achievement, the main effect was statistically significant ($F_{1,86} = 8.61$, $P < 0.05$). This demonstrates that CL method with an emphasis on jigsaw II has significantly increased the academic achievement scores gained by the experimental group as compared with the control group. Detailed results are presented in Table 2:

Table 2. Results of analysis of covariance between groups with regard to scores of academic achievement in the control and experimental groups of female students

Source of variance	SS	df	MS	F	P
Equation's constant	606.30	1	606.30	89.71	0.001
Pre-test	13.12	1	13.12	6.94	0.001
Methodology	58.21	1	58.21	8.61	0.001
Error	581.21	86	6.75		0.004
Sum	28.06	89			

The third hypotheses of this study states that there is difference between traditional instruction method and Jigsaw II technique, with regard to academic achievement in male students. The results obtained from this study indicate that after controlling the scores gained in the pre-test of academic achievement, the main effect was statistically significant ($F_{1,61} = 5.59$, $P < 0.05$). This demonstrates that CL method with an emphasis on jigsaw II has significantly increased the academic achievement scores gained by the experimental group as compared with the control group. Detailed results are presented in Table 3:

Table 3. Results of analysis of covariance between groups with regard to scores of academic achievement in the control and experimental groups of male students

Source of variance	SS	df	MS	F	P
Equation's constant	220.57	1	220.57	33.13	0.001
Pre-test	492.34	1	492.34	73.96	0.001
Methodology	37.87	1	37.87	5.69	0.001
Error	406.02	61	6.65		
Sum	15307.50	64			

Discussion and Conclusion

After administration of the Jigsaw II technique, a significant difference was observed between the mean scores of academic achievement in the pre-test and post-test for the experimental group and the control group. Since the mean scores of the pre-test was almost the same for the experimental group and the control group, and there was no significant difference between the mean scores, it could be concluded that Jigsaw II has been effective on the academic achievement of the students. This is indeed consistent with the studies conducted by Behrangi and Aghayari (2004), Sahin (2010), Zacharias et al. (2010), Doymus (2007), Hanz and Berger (2007), Slish (2005), Harman (2002), Perkinz and Saris (2001), Walker and Crogan (1998), Holliday (1995), Reuman and Mac Iver (1994), Lazarowitz et al. (1994), Aronson et al. (1978), and Lucker & Rosenfield & Sikes & Aronson (1977). Therefore, it could be said that the result obtained in this study with regard to the effect of the proposed teaching method on the academic achievement of students has been confirmed by different other studies. The reason behind consistency of the results could be attributed to the fact that the proposed teaching method was properly and accurately implemented. Based on the findings of this study, schools could use CL method with an emphasis on Jigsaw II technique in order to enhance students' academic achievement.

Based on the results gained in this study and their consistency with other studies conducted previously, the adoption of jigsaw technique in classroom should be emphasized or probably should become a necessity for other subjects. The main issue is the quality of implementing this method. In other words, it could be said that inaccurate or missing implementation of this method could lead to negative effects (cited in Jamri, 2011). Based on the researcher's observation of classroom lessons, students in the study group showed more attempts and care. On the other hand, most students in the study group expressed their satisfaction of the method and recommended it to be used in all classes as well.

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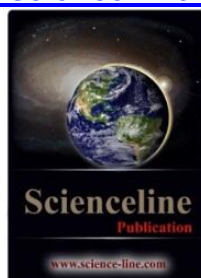
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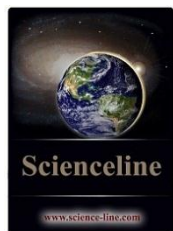
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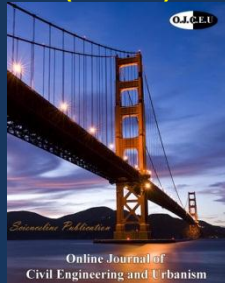
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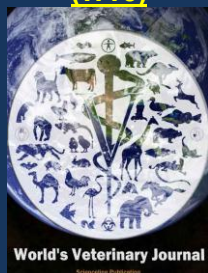
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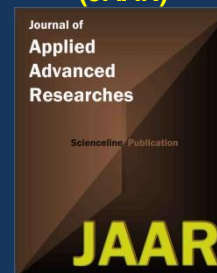
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