

Effectiveness of Pygmalion Effect-based Education of Teachers on the Students' Self-efficacy and Academic Engagement

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Abstract

The current study was conducted to determine the effectiveness of Pygmalion effect-based education of teachers on the students' self-efficacy and academic engagement. The study is quasi-experimental (pretest-posttest with control group). The statistical population of this study includes all students of first and second grades of high schools in Semnan in 2018-2019. Thirty students were selected through multi-level cluster sampling method and after filling the written consent out, they answered General Sherer Self-efficacy questionnaire as well as Academic Engagement Questionnaire of Schaufeli et al. The experimental intervention (education based on Pygmalion effect) was only implemented for the teachers of the experimental group during 10 sessions of 60 minutes. After finishing the educational program, both groups took posttest. The obtained results of data analysis, using covariance analysis, showed that education based on Pygmalion effect for teachers affect students' self-efficacy as well as their academic engagement. It can be concluded that teaching Pygmalion effect-based to teachers training session could lead to more self-efficient and academically engaged generation.

Keywords: academic engagement, Pygmalion effect, self-efficiency, student

Introduction

In the recent years, in the positive-oriented psychology, the concept of academic engagement has been recently interested by educators. The structure of academic engagement in school refers to the behaviors related to the academic learning and progress (Pintrich, 2003). It argues the quality of an effort that students put for their educational purposeful activities in order to have a direct role in achieving the desired results (Rambaran, 2017). Academically engaged students are more concentrated on target of learning subjects, more committed to the regulations of school, avoid incompatible and undesired behaviors and have better performance in the tests (Vanarka & Rohel, 2008). Academic engagement has three aspects of engaging in education, being eager and dedicated to education. Additionally, academic engagement is followed by important subjects such as academic, occupational and social success (Bouchi, Shelburg, Judy & Akles,

2010). The national studies of academic engagement in the students of Australia and South Africa and other countries have mentioned it as the index of academic quality (Kuh, 2003, 2005; Kuh, Krus, Shop, Kinzi & Ganieh, 2008). Students' engagement in school, generally and homework, particularly is the important educational goal. Moreover, engagement is the prominent predictor of students' academic achievement in short-term and long-term (Gaskin, Hergez & Gubak, 2012).

The studies indicate that two groups of variables affect academic engagement, including personal resources and social resources (Baker & Demorti, 2008; Ganzepola, 2007; Habfal, 2002) such as the variables of students' classmates (Griman et al, 2018), structural behaviors and teacher s' supports (Gest & Rodgin, 2011), parents' supports and personality background (Griman et al, 2017), social support (Godar & Rodrigues, 2013; Rantez & Scalo, 1997) and self-esteem (Blonini et al, 1996).

The other effective variable on learning and academic achievement is self-efficacy. The manner of

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each person's action in a particular situation depends on contradiction between the behavioral, environmental and especially cognitive conditions. The last one is related to the beliefs, showing people if they can do behaviors, leading to the desired consequences in particular situation. Bandura (1997) named these expectations as self-efficacy. Person's beliefs about personal efficacy affect the practice, effort, the duration of insistence on effort for coping with barriers and failure experiences and flexibility in retreating (Fist, 2006). Shank (1996) stated that the students achieve their educational efficacy through real performance, substitution or observational experiences, physical reactions and the forms of persuasion. Students' effort for increasing self-efficacy is followed by many benefits for educational system because high self-efficient people tend to focus on their own profits for analyzing and solving their problems (Karamajou Nadler, 2013); moreover, external attribution is less in them and they try more. As people think about the probable results of their performance, they also think about their beliefs for what they can do as well (Li & Johnson, 2016).

Given the importance of academic engagement and self-efficacy role in learning and academic achievement, educational system is always trying to improve such variables. One of the new theories in the field of educational and institutional psychology is Pygmalion, which is one of the important ones in the field of teacher's perceptions and expectations in the academic and mental processes of students. Robert Morton started the idea in 1984 and Rosenthal and Jacobson included it in psychology in 1968. This theory explains the manner of overt transfer of a person's mental expectations about dealing with others so that they act according to his expectations. The foundation of Pygmalion theory is that the beliefs and expectations determine person's performance, which are the products of others' behavior with us. To state this theory, if high expectations of a person lead to his performance improvement, Pygmalion effect or self-fulfilling prophecy occurs. Increase or moderation of negative expectations and replacing them with positive and high level ones improve the performance of students and sometimes subordinates in managerial area (Fredrick et al, 2015; Obioro, Timosi, Oko, Andy et al, 2011). In case of the effects of expectations between students and physical education teachers, it has been shown that students, who are highly expected by related teachers, had better performance than those, who were less expected. The positive effects of this method have been confirmed based on the research results of Davis (2003), Brich and Led (2003); Inburger and Zimbardo (2006), Stober and

Stober (2009), Demant and Vanhot (2012). Numerous findings indicate the effectiveness of such method especially on management field. Yet, a few studies have been conducted in Iran, directly stating the effectiveness of such method on the students' educational and psychological problems though they spend more than a half of their useful life in school and are directly or indirectly judged, evaluated and even educated according to teacher's attitude. Therefore, the investigation and revision of classroom managerial styles, behavioral and communicational styles of teacher and even their attitudinal methods seem necessary. Given that, we sought to evaluate the effect of education based on Pygmalion effect for teachers on students' self-efficacy and academic engagement in this study.

Method

This study was quasi-experimental with pretest-posttest design and control group.

Participants

The statistical population of study includes all male students of first and second grades of first high school in Semnan, who had been studying in 2017-2018 academic year. Multi-level clustering sampling method was used to select the research sample and sample size was 30, randomly divided into experimental and control groups (15 students in experimental group, the teachers of whom had received education based on Pygmalion effect, and 15 students in control group, the teachers of whom had not received education based on Pygmalion effect).

Instruments

Sherer Genera Self-Efficacy Scale (SGSES): to measure the rate of self-efficacy, SGSES (1982) was used which included 17 statements. The mean and standard deviation of this test are respectively 57.99 and 12.08. Sherer and Madox believed that the scale measures three aspects of behaviors, including masochism, tendency for developing the effort to complete different method and task and coping with barriers. The total Cronbach's alpha coefficient of this scale is 0.83 and the factor coefficient of first to third are respectively 0.76, 0.68 and 0.56. The internal consistency of this scale with Rotter (1966) control source scale has been calculated to confirm the criterion validity. The partial correlation between SGSES and Rotter Internal Locus of Control $r=0.33$ and Pearson correlation between them has been obtained in the study of Sherer et al (1982) as -0.28.

Academic engagement questionnaire: to measure academic engagement, Academic Engagement Questionnaire of Schaufeli et al (2001) has been used, including 17 statements. The items of this questionnaire is ranged from never (1) to always (5). Schaufeli et al (2001) obtained the reliability of this scale as 0.73. Piryaei and Noami (2012) also reported the reliability of this scale as 0.89 and through confirmatory factor analysis, they obtained the comparative fit index (CFI) and root mean square error approximate (RMSEA) respectively as 0.99 and 0.06 which are acceptable. The reliability of current study was calculated using Cronbach's alpha coefficient as 0.81.

Procedure

The statistical population of study includes all male students of first and second grades of first high school in Semnan, who had been studying in 2017-2018 academic year. Multi-level clustering sampling method was used to select the research sample and sample size was 30, randomly divided into experimental and control groups (15 students in the experimental group, the teachers of whom had received education based on Pygmalion effect, and 15 students in control group, whose teacher had not received education based on Pygmalion effect). Training curriculum was developed based on studies by Jacobson and Rosental (1986) and educational psychology of Seif (2011) and implemented in 10 sessions of one hour (Table 1).

Table 1.

Procedure of the Study - Content of Training Session

Session 1- Introducing the method, implementing pretest by coworker, explanation about the role of teacher in students' learning
Session 2-3- Stating the effective factors on academic growth, dependent variables and publishing training pamphlet
Session 4-5-6- Explaining Pygmalion effect, proposing the conducted studies in this field and giving feedback to the teacher s
Session 7- Explaining the principles of strengthening, punishing, the effect of written feedback, strengthening with any amount of academic achievement and supporting students to find the response and propose the supplementary references
Session 8- Permitting the experiences as they are without judging them, meditation
Session 9- Explaining the main principles of communication, correct methods of encountering students, stating the realistic expectation in class and proposing the supplementary references
Session 10- Explaining the measures, which they have to take during the training course and implementation, question and answer

Findings

The design of this study was quasi-experimental. Dividing the applicants into control and experimental groups, the researchers implemented the pretest; afterwards, the experimental group received the treatment for Pygmalion Effect-based in 10 sessions

whereas the control group received no treatment. Then two groups were provided with a posttest. The data, finally, were analyzed through descriptive statistics methods (such as mean and standard deviation) and inferential statistics methods (such as MANOVA). Furthermore, the Statistical Package for Social Science (SPSS) was used to perform statistical procedures.

Table 2.

The Descriptive Statistics of Research Variables in Pretest and Posttest for the Experimental and Control Groups

Variable	Index	Experimental		Control	
		Mean	Standard deviation	Mean	Standard deviation
Self-efficacy	Pretest	21.53	1.64	22.26	2.15
	Posttest	24.06	1.43	22.07	2.08
academic engagement	Pretest	54.11	4.53	55.41	4.45
	Posttest	60.79	6.41	54.72	4.03

Table 2 shows the mean and standard deviation of self-efficacy and educational engagement scores, separated by groups and phases. Since a lower score in engagement and self-efficacy represents a problem, it is seen that the mean of experimental group in posttest in academic engagement and self-efficacy has increased more significantly than control group. Moreover, after two months from training course, academic engagement and self-efficacy have been significantly continued by the members of experimental group.

To determine the significance of the difference between the aforementioned variables, covariance analysis was used and to investigate the observed differences in academic engagement and self-efficacy, the required assumptions for covariance analysis were

first investigated. The convergence investigation of variances shows that the significance of Leven test in academic engagement and self-efficacy in both times of measurement (pretest and posttest) is more than 0.05 so the variances are convergent. Regression convergence investigation also supports non-significance of conditions and pretest. Normal distribution of samples was also tested by Kolmogorov-Smirnov test before covariance. Therefore, covariance analysis used for statistical analysis.

Table 3 shows that significance levels of all tests using MANOVA test that there is a significant difference between the participants of experimental and control groups.

Table 3.

Results of MANOVA on the Academic Engagement and Self-Efficacy in the Experimental and Control Groups

Source	Test	Value	F	Df of hypothesis	Df of error	Significance
Group	Pillai's trace	0.378	13.674	2	15	0.001
	Wilks Lambda	0.622	13.674	2	15	0.001
	Hotelling effect	0.608	13.674	2	15	0.001
	The highest root of error	0.608	13.674	2	15	0.001

Table 4 indicates the related results to covariance analysis of research finding. As it can be seen in the table, there is a significant difference between the participants of the experimental and control groups in dependent variables so that education based on Pygmalion effect has been able to be significantly

effective in the increase of academic engagement ($P < 0.001$) and self-efficacy ($P < 0.001$) in the experimental group rather than control one in posttest. This course has been effective in posttest as 42% on academic engagement and 31.9% on self-efficacy.

Table 4.

Results of Covariance Analysis for Testing the Effect of Teaching Pygmalion Effect Academic Engagement and Self-Efficacy

Dependent variable	Phases	The source of changes	Sum of squares	Degree of freedom	The mean of squares	F	Significance	Squares	Statistical power
Academic engagement	Posttest	Pretest	386.77	1	386.77	1.658	0.001	0.289	0.988
		Group membership	567.04	1	567.04	2.357	0.001	0.425	0.999
self-efficacy	Posttest	Pretest	276.68	1	276.68	2.212	0.001	0.365	0.996
		Group membership	149.82	1	149.68	1.772	0.001	0.319	0.989

Discussion and Conclusion

The current study was conducted aiming to determine the effectiveness of education based on Pygmalion effect for teachers on the students' self-efficacy and

academic engagement. The results of covariance analysis showed that the intervention based on Pygmalion effect has a positive and significant effect on self-efficacy and educational engagement. This finding is consistent with that of Davis (2003), Brich and Led (2003), Iniburger and Zimbelans (2006),

Stober and Stober (2009) and Demant and Vanhot (2012).

To explain the current research finding, it should be said that the mere role of talent in academic achievement has been doubted in recent years. Most studies have proved that family or student cannot be merely considered responsible for academic failures but school and unconformity of curricula with students' previous needs, interests and experiences may be effective factors on academic lag. The role of teacher and their predetermined expectations as Pygmalion effect are of the other effective factors on students' academic performance. A huge part of students' self-efficacy in the field of education depends on the gradual feedback of teacher (Fredrich et al, 2015; Obioro, Timousi, Oko, Andy et al, 2011). In fact, the main mechanism of teaching Pygmalion skill is based on smoothing and changing the pre-attitudes of teachers about students' abilities and skills before observing the real academic performance of students or dominating their learning problems. Teacher's prediction of student's performance gradually affects student's belief and ability and finally become realized. Therefore, with adjustment of correct educational relations between student and teacher according to Brich Veld (2003) showed that the student-teacher relations are widely effective on students' motivations and can be the main factor in reducing the negative factors of students' bad academic performance. Improvement of teacher's negative attitudes towards students' unknown disabilities and even abilities, according to the research finding of Demant and Vanhot (2012), reduces Galatea effect or negative attitude of students towards themselves.

Educational strategies in this program is along with mutual relationship between teacher and student; that is to say, students consider their teacher as a behavioral and moral model and are affected by their ideas as important people of life. Therefore, with moderation and improvement of teachers, student's negative attitude towards himself based on "I can't because I am disable" decreases. In fact, positive communicational cycle between parties' perceptions is a major factor in improvement of learners' performance. Improving students' negative perceptions through closing defected communicational channel and creating positive communicational cycle has been an effective predictor for students' academic achievement and it increases the level of students' satisfaction with school.

Improving students' psychological needs is another strengthening factor for the effectiveness of Pygmalion educational method so that Scott, Shanen and Carolin

(2004) showed that students with more academic engagement do their homework better and attribute their performance on homework more to their personal abilities than chance and external factor. In fact, learning problems lead to frequent experiences of failure in educational field that with dissatisfaction, it can label such people negatively as dumb, stupid and lazy. Ultimately, students become embarrassed so that when they do not score well, they feel unworthy. Teacher's expectation from student and as the result, the negative feedbacks which student give to his teacher by his educational performance cause golem effect (Eden, 1992). Golem effect refers to the effect of student's low expectations from himself and the emergence of weak performance as the result of this inefficient attitude. That is to say, after receiving negative feedback from student, the teachers change their belief from weakness to inability through reducing the activity and interference of student in classroom activity (Eden, 1992).

Lack of clear expectation, appropriate with kids' disorders, leads to lagging behind and finally believing in disability. This finding explained that the students who are not educationally efficient and their expectations from themselves is also low are more satisfied than those who are better students but underestimate themselves. Generally, there is a relationship between the type of student's goal and formation of his self-concept. The students, considering themselves unsuccessful and disable educationally, act identically with this attitude of teacher through not studying; vice versa, the students with good imagination of themselves, feel able and certain so try to adapt their behaviors with high-level criteria of teacher. Considering that and the findings of the study, it is concluded that teaching Pygmalion effect to the teachers can be a big step towards nurturing hardworking students and grow the self-concept of students at the beginning of education due to personal ability. This effect will be followed by higher academic engagement and self-efficacy.

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