

# A study on the relationship between Tabriz high school teachers' sense of efficacy and their educational quality

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## Abstract

For many years, one of the main aims of pedagogy is the promotion of educational quality. Any impressive achievement in educational quality and pedagogy needs to be active participation and support by teachers. Considering the important role of the teacher in promotion of educational quality, this study was to investigate the relationship between Tabriz high school teachers' senses of efficacy and their educational quality to shed some lights on the blurred issues in this regard. To this end 60 high school teachers (30 psychology teachers and 30 physics teachers) were selected from the population of study. For assessing educational quality, Flanders Interaction Analysis Category, and for evaluating teachers' sense of efficacy, Ohio Teacher Sense of Efficacy Scale was used. The results of Canonical correlation indicated teacher's sense of efficacy is significantly related to the indirect to direct teaching method and teacher- student reactions.

**Keywords:** teacher's sense of efficacy, educational quality, Flanders Interaction Analysis Category.

## Introduction

Nowadays, the effectiveness of the education process is a subject matter that has attracted the attention of all experts and theorists of education. In the process of education, teachers, students and Curriculum are three important factors. The quali-

ty of education is a multidimensional issue in which many factors are involved. These factors can be psychological and emotional atmosphere of the classroom, teacher's attitudes, teaching methods, quality of communication and other factors that may affect in the classroom (Mashburn *et al.*, 2008).

Educational quality refers to the teachers responding to the needs of students, rate of teachers strive to create and develop students' logical thinking, level of students involvements in the educational process and active teaching methods (Mashburn *et al.*, 2008; Pianta, Paro, & Hamre, 2008). Such educational features are associated with positive outcomes for students cited in several studies (Nichd, 2002, and Pianta *et al.*, 2002).

According to Bandura (1997) self-efficacy is one of the powerful source of motivation and one of the learning factors affecting the process of learners learning and includes beliefs that people have in association with , task difficulty, and the consequences of assignments. Bandura (1997) defined self-efficacy as an individual's judgment of his ability to perform a particular behavior. Thus, people with high self-efficacy in performing challenging tasks are showing a lot of effort. While those who have poor efficiency in dealing with difficult assignments will be less likely to try and took the hand of their efforts.

Justice *et al.* (2008) concluded that one of the major and effective variables in educational quality of class is the teacher's efficacy. They also found out that there is a high correlation between the teachers'

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efficiency and educational quality. They arrived at this conclusion that, teachers who had a high sense of efficacy were using more effective teaching methods in the classroom. Ying *et al.* (2010) found that teachers' self-efficacy has profound effects, on academic achievement, critical thinking, social skills and other positive outcomes of students and the high efficacy of teachers improves teaching quality in the classroom.

Research conducted over the past 30 years showed that high sense of efficacy in teaching are related to educational outcomes and positive learning of students. Similarly, teachers' sense of efficacy is relevant to students' high achievement (Ashton, & Webb, 1986; Muijs, & Reynolds, 2001 and Ross, 1998), students' motivation (Midgley, Feldlaufer, & Eccles, 1989) and students' feelings of self-efficacy (Ross, Hogaboan-Gray, & Hannay, 2001).

## Research question

Which of the predictor variables (individual characteristics and self-efficacy) is able to use Flander's method indicators to predict?

## Methodology

### Sample size and sampling method

The sample of present study consisted of 60 teachers in junior high schools in Tabriz. These psychology and physics teachers were selected randomly from five regions of Tabriz. Data collection using the decoding system of Flander's transcendent factors needed teaching process and class observation, therefore, each class required at least 30 minutes to be decoded.

### Tools

1-Classification of Flander's interaction analysis: Due to the wide variety of tools, including academic achievement, surveys, assessments by director or co-workers, teacher training guides to measure teachers' performance is out there, but considering the nature of research and researchers interests to measure directly the academic performance of teachers, observation method and Flander's interaction analysis are used. This study shows how the decoding was done. We registered one of the occurred numbers in the last three seconds, and we set empirically the distance between three seconds. By counting the numbers 1001, 1002, 1003,

nearly three seconds are set (Fathi, 2003). Reliability of Flander's interaction analysis was calculated by using Cohen Kappa Coefficient of agreement between decoders.

All the decoders were invited to gather in the class and started decoding. After data collection, the decoders' agreement in decoding process was calculated through the following formula (1):

$$R = \frac{(K)M}{n + n} \times 100 \quad (1)$$

k=Number of decoding;

m= Number of subscribers in decoding;

n1+n2= numbers of digits decoded by decoders.

Mahmoudi (2003, as cited in Keramati and Shahrara, 2004) estimated coefficient of reliability by using Cohen's Kappa Coefficient of agreement. Reliability coefficient obtained in this study for the six decoders was .93.

2-Ohio teachers' sense of efficacy scale (OT-SES): This scale is made up of 24 statements by Tschannen-Moran-Hoy (2001). Tschannen-Moran - and Anita Volfluk Hoy's questionnaire reliability calculated by Cronbach's alpha was .95 which is satisfied enough to go on.

To determine the reliability of the questionnaire, a pilot study was run over fifty teachers. Scale Reliability in this questionnaire was .91. After full implementation of the questionnaire and data collection, questionnaire reliability through Cronbach's alpha was .89 that is high enough to go on.

## Results and Discussion

As shown in Table 1, there is a direct relationship between self-efficacy and rate of indirect teaching on direct and the interaction between teachers and students is positive and significant. Therefore, teachers who feel more efficient in the class had used more indirect methods of teaching and his students had more interaction. But there was not a significant relationship between teachers' efficacy and teachers' reactions to students and student response.

To know whether one of the predictor variables (individual characteristics and self-efficacy) is able to predict the use of Flanderz method indicators (indirect on direct, the interaction between teachers and students, the rate of teachers interaction, pupil interaction), the canonical correlation (fundamen-

tal) was used. Wilks' Lambda statistical method out of four statistical methods (Pillai's Trace, Wilks'

Lambda, Hotelling's Trace, Roy's Largest Root) was chosen by the present researchers to calculate F.

**Table 1. The correlation matrix between the predictor variables and the criterion of research.**

		1	2	3	4	5	6	7	8
1	efficacy	1							
2	age	-0.11	1						
3	education	0.01	**0.36	1					
4	experience	-0.10	**0.92	**0.46	1				
5	TRR <sup>1</sup>	0.04	0.17	0.10	0.17	1			
6	PI <sup>2</sup>	0.15	0.04	0.13	0.05	0.02	1		
7	ID <sup>3</sup>	**0.42	0.15	-0.16	0.11	-0.01	0.09	1	
8	TSR <sup>4</sup>	*0.25	-0.10	-0.05	-0.08	-0.05	-0.08	0.06	1

P < 0/01\*\*; P < 0/05\*

**Table 2. Multivariate analysis on study variables.**

	Value	F	Hypothesis df	Error df	Sig.
Wilks' Lambda statistic	0.60	1.77	16	156.50	0.03

According to Table 2, it can be said that the Wilks' Lambda statistic (P < 0.05, F = 1.77) shows that there is a relationship between predictive variables and the

criterion in the community.

However a comprehensive study to examine the relationship between the focal dimensions is addressed.

**Table 3. Summary table of canonical correlation dimensions.**

Dimension	Correlation	Variances	Wilks' Lambda	F	Df1	Df2	sig
1	0.56	0.32	0.60	1.77	16	159.50	0.03
2	0.25	0.06	0.89	0.65	9	129.14	0.70
3	0.19	0.03	0.95	0.56	4	108.00	0.69
4	0.03	0.00	0.99	0.08	1	55.00	0.77

Results of canonical correlation analysis to subjects in Table 3 show that apart from the first focal point, statistically no other canonical roots in the 0/05 were significant.

Results of canonical correlation analysis are presented in Table 4. Components load more than 0/30 to identify relationships between variables were examined.

Table (4) shows standardized canonical coefficients (semi partial regression coefficients) and the structure correlation (factor loads) for two dimensions of both sets of variables. For the prior variable the first canonical dimension strongly influenced the efficacy (0.84). For the criterion variables the first dimension included ID (0.96) and TSR (0.36).

<sup>1</sup>-teacher reaction rate

<sup>2</sup>-pupil interaction

<sup>3</sup>-indirect/direct teaching

<sup>4</sup>-teacher-student reaction

**Table 4. The results of the canonical correlation between all predictor variables and the studied criterion variables.**

Dimension	Variables	Standardized Coefficient	Structure Coefficient
Predictive	efficacy	0.91	0.84
	age	0.37	0.21
	education	-0.48	-0.25
	experience	-0.14	0.16
Criterion	TRR	0.03	0.01
	TSR	0.31	0.36
	PI	0.11	0.17
	ID	0.91	0.96

Table (4) also shows that the analysis of canonical correlation for the first root Wilks' Lambda at 0/05 was significant, and indicates that the first canonical root for the changes was determined by the structural positive coefficients, efficacy (% 70 variance) and also for criterion changes documented by ID (% 92 variance) and TSR (% 12 variance) positive coefficients. All in all, according to the results of present study, teachers with high self-efficacy use more indirect teaching methods in classes, and students have more interaction with them.

## Conclusions

According to Bandura's theory, self-efficacy feeling practically is effective, and it has been confirmed by many studies (Schultz and Schultz, 2002; Abdullahi Adli Ansar, 2003; Hoffman and Spataru, 2007; Jakubowski and Dembo, 2004).

Teachers' efficacy is one of the variables that many studies have gone over (Topkaya, 2010; Teo, 2009; Betort, 2009; Naumann, 2008; Bembenutty, 2006; Dennis, 2007). Teachers with low self-efficacy have negative consequences such as spending less time on the subject (Harlan and Holroyd, 1997), lack of selection of appropriate instructional strategies in the classroom (Appleton and Kindt, 1999), and lack of sense of responsibility towards students' achievement (Ashton, 1984).

The findings of this study indicate that there is a significant and positive relationship among the teachers' sense of efficacy, indirect teaching methods and the interaction between teachers and students. Educational theory suggests that teacher is one of the most important determinants of classroom educational quality and characteristics of

teachers can have a significant impact on the quality of classroom teaching and teachers who have a high sense of efficacy are using more indirect methods of teaching (Chacon, 2002; Ashton, & Webb, 1986; Ying *et al.*, 2010; Justice *et al.*, 2008). In contrast, teachers who have a low sense of efficacy used more transitional methods than research methods (Mulholland, & Wallace, 2001).

The result of the canonical correlation also implies that only one root of the model is significant. This means that teachers who have more sense of efficacy have high ID and TSR. This claim is in line with the findings of Moghimi Pham (2000), Sharafi (1999), Kuzinz and Walker (2000), Ashton and Webb (1986), Chacon (2002), Myjs and Reynolds (2002), Brophy and Good (1986), and Berman *et al.* (1977). The results also show that there is not a significant relationship among individual characteristics such as age, education, and background. This finding also supports the findings of Maalmir (2002), Haatami (2002), LoCasale *et al.* (2007), Justice *et al.* (2008), Ying and colleagues (2009) and Luisa (2008).

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