



SELF-EFFICACY IN TEACHING SCIENCE AND THE LEVEL OF TEACHING METHODS AND TECHNIQUES OF PRE-SERVICE ELEMENTARY TEACHERS

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INTRODUCTION

Purpose of the Study

The purpose of this study is to examine the level of pre-service elementary teachers' self-efficacy beliefs in science teaching and determining their level of teaching methods and techniques.

METHODOLOGY

Participants

Total of 32 pre-service elementary teachers participated in this study.

METHODOLOGY

Data Collection Instruments

➤ Science Teaching Efficacy Belief Instrument (STEBI-B)

- ❖ It was developed by Riggs and Enochs (1990), **adapted to** Turkish by Hazır-Bikmaz (2004).
- ❖ It has 20 items, 5 point- likert type
- ❖ It has **two subscales:**
 - *Efficacy beliefs (n= 13) ($\alpha = .71$)
 - *Outcome expectancies (n=7) ($\alpha = .69$)

METHODOLOGY

Data Collection Instruments

- **Form of Determining the Level of Preference of Teaching Methods and Techniques**
- ❖ It was prepared by the researchers to assess pre-service elementary teachers' level of the determination of **appropriate teaching method and techniques according to the objectives.**

METHODOLOGY

Data Collection Instruments

- ❖ To do this, teacher candidates were asked to select three objectives and determine the appropriate strategies and techniques to teach these objectives. Additionally, they are asked to explain **why they choose that objective, strategy and technique.**

METHODOLOGY

Data Collection Instruments

❖ To assess this form;

- If the objectives, strategies and techniques are **appropriate**, teacher candidates get **2 points**,
- If they are **relatively appropriate**, they get **1 point**.
- If they are **not appropriate** they get **0 point**.

RESULTS

Descriptive Statistics

Scale	Min	Max	Mean	Std. Deviation
Efficacy beliefs	2.77	4.31	3.48	.38
Outcome expectancies	2.43	5.0	3.50	.56
Preference of teaching methods and techniques	0	18	10.77	5.50

- ✓ Teacher candidates appear to **be self-efficacious** in **science teaching** in terms of efficacy beliefs and outcome expectancies
- ✓ Their level of determining appropriate teaching methods and techniques is **relatively high**.

RESULTS

Inferential Statistics

- ✓ The relationship between efficacy beliefs and the level of the determining of appropriate teaching method and techniques was investigated using Pearson correlation coefficient. There was **a medium positive correlation** between two variables ($r = .40, p < .05$).
- ✓ That is, the teacher candidates with higher level of efficacy beliefs also get **higher scores** from the form of determining the level of preference of teaching methods and techniques.

RESULTS

Inferential Statistics

- When the relationship between outcome expectancies and the level of the determining of appropriate teaching method and techniques was investigated, it was seen that there was **a small correlation between two variables**, $r = .12$, $p > .05$, **but it was not significant.**

Correlations	Pearson Correlation	Sig. (2-tailed)
Efficacy beliefs * Preference of teaching methods and techniques	.40	.027
Outcome expectancies * Preference of teaching methods and techniques	.12	.53

RESULTS

➤ Answers for the question of “Why did you choose that objectives?”

Category	Code	Number of Teacher Candidates
Process of teaching	Instruction is easy	23
	Growing the conscious individual	5
	Objectives and material relation	4
	Relationship with everyday life	3
	Actuality	1
Content knowledge	Sufficient content knowledge	17
	To have sufficient content knowledge	4
Process of learning	Active learning	5
	Students' interest	5
	Easily learning	4

RESULTS

➤ Answers for the question of “Why did you choose that strategies and techniques?”

Category	Code	Number of Teacher Candidates
Student Relativity	Active learning	12
	Student-centered teaching	8
	Permanent learning	8
	Growing the conscious individual	2
Teacher Relativity	Teacher' sufficiency	2
	Teacher' self-confidence	1
Teaching Process	Objective is teaching appropriate	19
	Effective teaching	8

DISCUSSION

- ❑ This study showed that there is **a relationship between** *efficacy beliefs and the level of determining the appropriate strategy and technique*. Therefore, teacher candidates' self efficacy levels should be enhanced through the activities.

DISCUSSION

- ❑ It is also shown that teacher candidates mostly prefer the objectives which are at the **level of information**. Therefore, it can be concluded that they do not know how they can teach more complex objectives such as analysis, synthesis, evaluation.
- ❑ Moreover, teacher candidates consider the appropriateness of the objectives for students, teachers, and teaching process. **This finding is favourable for educators.**

Thank You For Listening

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