

The perceived self-efficacy of classroom teachers and preschool teachers for teaching with tablets

Mustafa Bektas^{1a}

¹Sakarya University, Faculty of Education, Elementary Education Department, Hendek/Sakarya 54300, Turkey

Abstract. The purpose of this study was to identify the perceived self-efficacy of classroom teachers and preschool teachers for teaching with tablets. The data were collected using the Perceived Self-Efficacy for Teaching with Tablets Scale, which was developed by the researcher. The study used convenience sampling, a type of purposive sampling. The sample was comprised of 171 teachers. In addition to developing the scale, the researcher attempted to reveal whether branch and gender led to a significant difference in perceived self-efficacy for teaching with tablets. Male teachers had higher perceived self-efficacy for teaching with tablets. However, branch was not a statistically significant factor.

Keywords: classroom teachers; preschool teachers; teaching with tablets; self-efficacy

1 Introduction

Thanks to advances in information technologies, modern societies are characterized by rapid information growth. This, in turn, influences human beings and organizations.

In addition to many learning and teaching methods and techniques, today's teachers use a number of teaching technologies, developed by educational sciences, in learning environments. One of the most commonly used technologies is tablet computers. Research has stressed that the use of tablets can significantly increase the effectiveness of learning and teaching activities.

A tablet is not only a laptop computer that allows users to use a stylus pen to directly access the screen, it also has mouse and keyboard inputs. Thus, tablets can provide an effective platform for drawing and writing activities and can also be used for lecturing [8].

Tablets are becoming more and more common in Turkey, and it is likely that many Turkish students, teachers and parents will soon become familiar with them thanks to the

^a Corresponding author: mbektas@sakarya.edu.tr

Movement to Increase Opportunities and Technology (the FATIH Project), which is still ongoing. The project aims to equip all classrooms for students in fifth grade or higher across the nation with interactive boards and to provide them with tablets [5].

Tablets are practical learning and teaching tools since they are easy to carry and can host many applications. Research suggests that most Turkish teachers are already using them to access e-school applications and e-books. Still, they are not used commonly as an effective learning and teaching tool. Similarly, students use them mostly for recreational purposes [10].

As primary practitioners, teachers are ultimately responsible for the implementation of the FATIH project, and they play a pivotal role in the process [3]. Several studies have been carried out to measure the perceived self-efficacy of students for tablets [9]. The positive effects of tablets on the learning and teaching process can be increased when teachers have higher perceived self-efficacy for using them to teach.

Bandura [2] describes self-efficacy as people's assessment of their ability to organize and execute procedures for a planned action. Perceived self-efficacy concerns competence and ability, or in simpler terms, the statement "I can do it." Teachers need to have high perceived self-efficacy for teaching with tablets so that they can effectively use them for educational purposes. Thus, a scale needs to be developed to measure their perceived self-efficacy and to reveal the relevant variables.

The purpose of this study was to identify the perceived self-efficacy of classroom teachers and preschool teachers for teaching with tablets. Accordingly, it posed the following questions:

1. Is there a difference between classroom teachers' and preschool teachers' perceived self-efficacy for teaching with tablets?
2. Does teachers' perceived self-efficacy for teaching with tablets vary by gender?

2 Method

2.1 Research model

Cross-sectional survey is a research model in which variables are measured once to determine whether they differ depending on other variables [7]. Since it was compatible with the purpose, a cross-sectional model was used in this study.

2.2 Sample

The study used convenience sampling, a type of purposive sampling. The sample was comprised of 171 (86 females and 85 males) classroom teachers and preschool teachers in National Education Directorate schools in Sakarya, Turkey during the 2014-2015 academic year.

2.3 Data collection instrument

The data were collected using the Perceived Self-Efficacy for Teaching with Tablets Scale, which was developed by the researcher. Before the scale was developed, the researcher reviewed the relevant research and scales in the literature [1, 4 and 11]. Then, an item pool was created. The content validity and face validity of the item pool, which contained 30 items, were tested by two specialists. Half of the items were excluded, and 15 remained. Two forms were prepared for the scale, one for specialists and the other for teachers. The former was submitted to 3 faculty members from the department of elementary education

and 3 faculty members from the department of computer education and instructional technologies teaching. The latter form was submitted to 18 classroom teachers and 5 preschool teachers. The scale was revised in accordance with their recommendations, and its final version had 8 items. It is a five-point scale, using the ratings: “Strongly agree (5 points)”, “Agree (4 points)”, “Neutral (3 points)”, “Disagree (2 points)” and “Strongly Disagree (1 point).” The maximum and minimum possible scores are 40 and 8, respectively.

An exploratory factor analysis was carried out to test the construct validity of the scale. Great care was taken to ensure that the eigenvalues of the items would be 1, that the load values of the items would be at least 0.30, that the items would be grouped under a single factor, and that items to be grouped under two factors would have a difference of at least 0.10. First, the Kaiser-Meyer-Olkin (KMO) test was performed to assess the sufficiency of the sample. The KMO value was 0.934, which indicated that a factor analysis could be conducted on the data since the value was higher than 0.80 [6]. Then, Bartlett’s test of sphericity was performed. Since the data were significantly different ($\chi^2=1534.055$, $p=0.000$), they were appropriate for factor analysis [6]. The subsequent validity analyses showed that the scale had a single-factor structure.

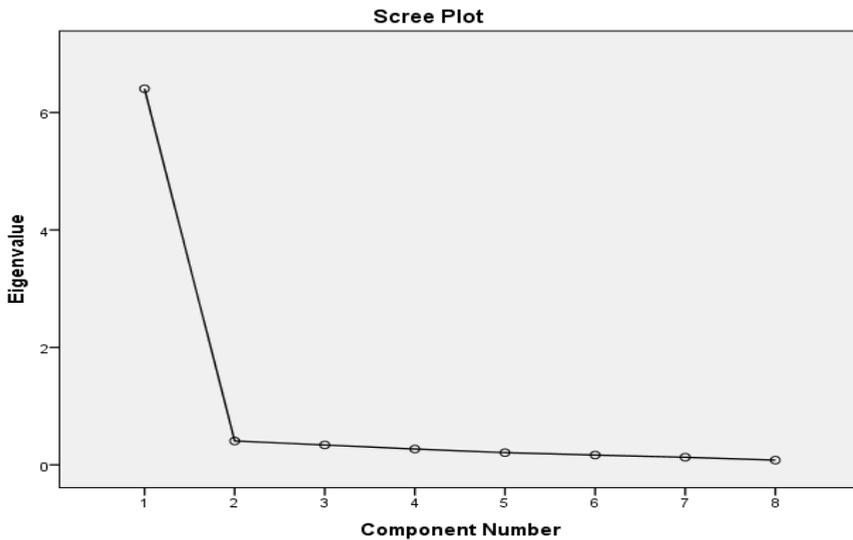


Fig. 1. The scree-plot

As can be concluded from the scree plot, the factor analysis showed that the scale had a single-factor structure when the eigenvalue was 1.

Table 1. The results of the factor analysis for the Perceived Self-Efficacy for Teaching with Tablets Scale

Item	Common Factor Variance	Factor Load Values
i1	0.743	0.862
i2	0.804	0.897
i3	0.825	0.908
i4	0.812	0.901
i5	0.833	0.913
i6	0.833	0.912
i7	0.851	0.922
i8	0.703	0.839
Eigenvalue (Total=6.40)		
Variance Accounted for %= 80.05		

The Perceived Self-Efficacy for Teaching with Tablets Scale had an eight-item and single-factor structure (Table 1). The total eigenvalue of the scale was 6.40, and the total variance accounted for was 80.5%. The factor load values of the items varied from 0.83 to 0.92. As for reliability, its Cronbach’s alpha coefficient was 0.96.

2.4 Data Analysis

An independent samples t-test was performed to determine whether branch and gender led to difference in perceived self-efficacy for teaching with tablets.

3 Findings

Table 2 presents the results of the t-test on the perceived self-efficacy of classroom teachers and preschool teachers for teaching with tablets.

Table 2. The results of the t-test on the difference between the classroom teachers and preschool teachers in their perceived self- efficacy for teaching with tablets

Branch	N	\bar{x}	ss	Sd	t	P
Classroom Teaching	150	29.75	6.328	170	0.781	0.436
Preschool Teaching	22	28.64	5.491			

There was no statistically significant difference between the classroom teachers’ and preschool teachers’ perceived self-efficacy for teaching with tablets ($t=0.781$, $p>0.05$) (Table 2). Therefore, branch was ignored when the participants were compared by gender. Table 3 presents the gender-based results of the t-test on perceived self-efficacy of the participants for teaching with tablets.

Table 3. The gender-based results of the t-test on self-efficacy of the participants for teaching with tablets

Gender	N	\bar{x}	ss	Sd	t	P
Female	86	28.63	6.237	169	-2.061	0.041*
Male	85	30.58	6.126			

There was a statistically significant difference between female and male teachers' perceived self-efficacy for teaching with tablets ($t=-2.061$, $p<0.05$) (Table 3). Male teachers ($\bar{x}=30.58$) had significantly higher perceived self-efficacy for teaching with tablets than female teachers ($\bar{x}=28.63$).

4 Discussion

First, a valid and reliable scale was developed, namely the Perceived Self-Efficacy for Teaching with Tablets Scale. The findings are discussed below with recommendations.

There is no statistically significant difference between the classroom teachers' and preschool teachers' perceived self-efficacy for teaching with tablets. This finding suggests that perceived self-efficacy for teaching with tablets does not vary by branch.

Male teachers have higher perceived self-efficacy for teaching with tablets. Similarly, Berkant [4] found that male teacher candidates have significantly higher perceived self-efficacy for using computers. Lack of experience in using computers causes users to have lower perceived self-efficacy for computers [1]. This finding is supported in the literature.

The Perceived Self-Efficacy for Teaching with Tablets Scale could be used in research on a variety of branches and with larger samples. Female teachers should be encouraged to participate in in-service training sessions and workshops to improve their perceived self-efficacy for teaching with tablets.

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