

# Analysis on the Relationship between the Attitude of Teacher Candidates towards Teaching Profession and the Perception of ICT Self-Efficacy

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**Abstract**—The purpose of this study is to analyze the relationship between the attitude of teacher candidates towards teaching as profession and the perception of self-efficacy on information technologies. The study was designed with casual comparative research. The sample was selected by using appropriate sampling of non-random sampling method. 280 teacher candidates who study at Firat University Faculty of Education in their final year participated in this study. Data was collected in the second half of 2014 - 2015 academic year through Information Technology Self-Efficacy Scale and Teacher Attitudes Scale. According to the findings obtained in the study of teachers' attitudes towards the teaching profession and information technology seems to be at high level. In the study the attitudes of female teacher candidates' attitudes towards the teaching profession was statistically significantly higher than male teacher candidates. Male teacher candidates' information technology self-efficacy perceptions were statistically higher than female teacher candidates' perceptions. Candidates' attitudes towards teaching profession stating that they came willingly to the department are statistically higher than the candidates stating that they studied unwillingly at that department. But it was found that the students who come willingly to their department have no statistical meaningful difference on information technology self-efficacy perceptions. Teacher candidates' attitudes towards the teaching profession and information technologies differ from each other according to the department they study. Teachers' attitudes towards teaching profession can be seen through the candidate's level of information technology self-efficacy perception.

**Index Terms**—teaching profession, ICT self-efficacy, teacher candidates

## I. INTRODUCTION

The education system consists of three main elements that are associated with each other. These elements are students, teachers and curriculum. The quality of the education system depends on the harmony among these elements [1]. The teacher is the most important factor who ensures the compliance that will shape education system in education system [2]. Therefore, the quality of

education depends on the teacher's qualifications [3], [4]. In order to be a qualified teacher, pedagogical knowledge and attitudes towards the profession are important [1]. Pre-service subject matter and pedagogical knowledge are given to teachers at faculties of education. However, being a teacher requires attitudes and habits as well as this knowledge and skills [5]. Attitude can be defined as an indicator of a person's feelings towards a particular issue with understanding and motivating and as a feature to show a positive or negative behavior [6], so attitude gives direction to behavior. Especially developing for a professional attitude is the most important determinant of an individual's success in the profession [7]. Therefore having the knowledge and skills related to the area of a qualified teacher is not enough, the attitudes towards the teaching profession must be positive, too [3]. Attitudes towards the profession of teachers plays a major role in improving the quality of education to be able to successfully fulfill the teaching profession [8], [1], [4], [9]. [10]. emphasized that the attitude towards the students and school work influence teacher candidates in a large extent to learn and to have the personality Therefore, teachers' having positive attitudes towards the teaching profession is important in training of qualified teachers in the future.

Teachers' developing positive attitudes towards the teaching profession depends on many variables. One of these variables is rapid changes and transformations in technology efficacy which provide the technology integration in teacher training [11]. Because the rapid developments in information technology in recent years has made it necessary to support the learning and teaching process in educational technology environment and to start learning environments by integrating information technology [12]-[14]. However, it is observed that the teachers have various deficiencies in the use of new technology [15]. In this context, it seems that the integration of information technology in education qualification is important in teacher training. In order to be effective in the use of information technology, individuals who will use these technologies should feel adequate and safe [13]. To ensure that the self-efficacy of teachers in the use of information technology should be

at a high level. Because, it can be said that the self-efficacy has an important role in the motivation and concern [16].

Self-efficacy is shown as one of the important variables to identify the affective dimension of learning in recent years [17]. The concept of self-efficacy is a concept which was put forward by one of the pioneers of the social learning theory, Bandura [18]. According to self-efficacy is an individual belief or perception to perform a job and to be successful [19]. [20] defines self-efficacy as “*individual's ability to perform a job, personal judgment on the ability to achieve*”. [21] defines self-efficacy as individual's self-perception, belief and judiciary to cope with different situations, the ability to accomplish a certain activity. In other words, self-efficacy is more than simply reflecting the actual level of proficiency in performing a task; it reflects the individual's judgment about their competence [18]. Self-efficacy has several effects on the cognitive, motivational and selection process [22]. Self-efficacy explains the perception of how people feel, how you think, how motivated they are and how they behave themselves [23]. Self-efficacy shows individuals' setting a goal for themselves, how much they effort to achieve these objectives and how long they can last for the challenges they face to achieve their goals [24]. People who have high Self-efficacy approach to the difficult task with a high degree of confidence and endeavor overcome instead of running away from them. The people with low self-efficacy perception have low motivation and take less responsibility for selecting the purpose they should deal with [22]. Positive attitudes towards skills related to the task positively affect their self-efficacy [25]. Therefore, self-efficacy related to information technology is a primary issue that should be addressed for successful integration to the technology.

Today, the integration of technology in education is an important issue. Policies and projects should be developed to ensure this integration. In this context, Fatih Project is carried out by the Ministry of Education in Turkey with slogan of "Technology Improvement Movement to Increase Opportunities in Education". Nearly 620,000 laptops, LCD panel, interactive whiteboards and internet infrastructure are provided for the classrooms. Ultimate goal is to provide permanent learning by appealing to more senses in the learning and teaching environment [26]. Teachers are the most important factors in the success of this project. Teachers are expected to have high level of self-efficacy to ensure the integration of technology in the education. Because, self-efficacy related to information technology in education is fundamental in order to perform successful technology integration. The self-efficacy of teachers about the information technology and setting attitudes towards teaching as a profession is important.

## II. AIM

The aim of this study is to examine the teacher candidates' self-efficacy perception towards the teaching profession and their attitudes and information

technologies. So that, an answer to the following research questions is sought:

- Is there a difference between genders on teacher candidates' attitudes towards teaching profession and self-efficacy perceptions on information technology?
- Is there a difference among teacher candidates' attitudes towards teaching profession and ICT depending on the willingness to study at this department?
- Does the teachers' attitudes towards teaching profession and information technology self-efficacy perception of the change depending on the department where they are studying?
- Do Information technology self-efficacy perceptions of teacher candidates predict the attitude towards the teaching profession?

## III. METHOD

The study was designed with casual comparison research. The sample was selected by using non-random sampling method. 280 teacher candidates participated this study who studied at Firat University Faculty of Education last year. 172 of the candidates (61%) were female and 108 (39%) were male; 225 (80%) willing to department, 55 (20%) enrolled unintentionally; 31 (11%) religious culture and ethics students, and 32 (11%) science department students, 30 (11%) primary school mathematics, 32 (11%), computer and instructional technology training and 31 (11%) image-work, 31 (11%) Turkish and 31 (11%) form master, 33 (12%) pre-school and 29 (10%) social studies department students.

Data was collected during the second half of 2014-2015 academic year through Information Technology Self-Efficacy Scale (ICT) [12] and Teacher Attitudes Scale (TAS) [27]. Cronbach's alpha coefficient scale consists of 27 items about ICT self-efficacy is originally calculated as 0.97 but it was calculated as 0.94 in this study. 34 items about scale reliability coefficient on the teaching profession is calculated as 0.93. In this study it was calculated as 0.93.

With collected data, Attitude of the teachers towards teaching profession and the information technology mean total scores was calculated. The relationship among candidate teachers' attitudes towards teaching profession, information technologies and coming to the department willingly, gender and self efficacy was tried to be determined by t-test. The relationship between Teacher candidates' attitudes towards teaching profession and information technology depending on self efficacy was tested variance analysis (ANOVA). Whether the self-efficacy perceptions for Information technology can predict the candidates' attitudes towards the teaching profession was tested with simple linear regression analysis.

## IV. FINDINGS

In this section, teachers' teaching attitudes, self-efficacy on ICT, gender, whether they come willingly

come to the department or not are compared separately. In addition, whether self-efficacy perception of information technology has an effect on attitudes towards the teaching profession or not, in other words, whether the self efficacy on ICT impact on teachers 'attitudes towards teaching profession has been tested.

Mean and standard deviation related to self efficacy on information technology and teachers' attitudes towards teaching profession are given in Table I.

TABLE I. TEACHER CANDIDATES' ATTITUDES TOWARDS TEACHING PROFESSION AND INFORMATION TECHNOLOGY SELF EFFICACY SCORES

| Dimension | N   | X    | SS   |
|-----------|-----|------|------|
| TAS       | 280 | 3,92 | ,761 |
| ICT       | 280 | 3,49 | ,772 |

As it can be seen in Table I, mean based on the teachers' attitude towards the teaching profession 3.92; mean based on the information technology self efficacy was calculated as the 3.49. When the five-Point Likert-type rating is taken into account, it can be seen that teacher candidates' attitudes towards information technology and teaching profession are at high level.

Teacher candidates' attitudes towards teaching profession and self efficacy on information technology have been identified by t-test in meaningful ways according to the gender, the test results are given in Table II.

TABLE II. COMPARISON THE ATTITUDES AND SELF-EFFICACY PERCEPTION OF INFORMATION TECHNOLOGY OF TEACHERS BASED ON GENDER

| Dimension | Gender | N   | X    | SS   | t     | p    |
|-----------|--------|-----|------|------|-------|------|
| TAS       | female | 172 | 4,06 | ,738 | 4,196 | ,000 |
|           | male   | 108 | 3,68 | ,742 |       |      |
| ICT       | female | 172 | 3,42 | ,785 | 2,079 | ,038 |
|           | male   | 108 | 3,61 | ,739 |       |      |

On Table II, difference between teacher candidates' attitudes towards the teaching profession and information technology depending on the sex can be observed in

TABLE IV. COMPARISON BASED ON DEPARTMENT OF THE PARTICIPANTS

|                 | TAS                                  |               |         | ICT            |               |         |
|-----------------|--------------------------------------|---------------|---------|----------------|---------------|---------|
|                 | Between groups                       | Within groups | Total   | Between groups | Within groups | Total   |
| Sum of square   | 28,355                               | 133,365       | 161,720 | 20,292         | 146,176       | 166,468 |
| df              | 8                                    | 271           | 279     | 8              | 271           | 279     |
| Mean square     | 3,544                                | ,492          |         | 2,536          | ,539          |         |
| F               | 7,202                                |               |         | 4,702          |               |         |
| p               | ,000                                 |               |         | ,000           |               |         |
| Mean difference | 1- 3, 1-9, 2-3, 2- 9, 5-3, 5- 9, 7-3 |               |         | 5-3, 5- 7, 5-8 |               |         |

On Table IV candidate teachers' attitudes towards the teaching profession significantly differs according to the department (F= 7,202; p=, 000). According to result of Scheffe test, it can be seen that Religious and ethics teachers was higher (X = 4.16) than elementary science teachers (X = 4.28) and picture-art of teachers (X = 4.26). Attitudes of towards the teaching profession, mathematics department teachers was higher (X = 3.34)

terms of statistics. Female teachers' Attitudes towards the teaching profession (X = 4.06) statistically was higher than the attitudes of male teachers (X = 3.68). Self-efficacy perception of male teachers on Information technology (X = 3.61) was statistically higher than the perception of female teachers (X = 3.42).

TABLE III. COMPARISON OF SELF EFFICACY ON INFORMATION TECHNOLOGY AND TEACHERS' ATTITUDES TOWARDS TEACHING PROFESSION BASED ON THEY COME TO THE DEPARTMENT WILLINGLY

| Dimension | willingness | N   | X    | SS   | t     | p    |
|-----------|-------------|-----|------|------|-------|------|
| TAS       | yes         | 225 | 4,05 | ,696 | 6,349 | ,000 |
|           | no          | 55  | 3,37 | ,780 |       |      |
| ICT       | yes         | 225 | 3,53 | ,775 | 1,688 | ,093 |
|           | no          | 55  | 3,34 | ,746 |       |      |

It is tried to find out by t-test whether there is a significant difference between they come willingly to the department and attitudes to information technology. (Table III).

On Table III', it can be seen that teachers study at any department willingly and their attitudes towards the teaching profession vary significantly (t = 6.349; p = .000). However it was found out that there is no effect of willingness in studying at the department on perception of self-efficacy on information technology (t= 1,688; p= ,093). As it can be seen on Table III, the attitudes of teacher candidates who expressed willingness to studying at their department is significantly higher( X = 4,05) than the candidates who expressed their unwillingness about studying at the department( X = 3,37). On the other hand, the self efficacy of teacher candidates who expressed willingness to come to the department is close to the candidate who expressed their unwillingness about studying at the department (X = 3,53 ve X = 3,34)

Differences between Teachers' attitudes towards teaching profession candidates and self efficacy on information technology were compared with one-way analysis of variance (ANOVA) and the results and comparison are given in Table IV.

than primary school teachers and social science (X = 3.42). It can be seen that candidate form masters' attitudes towards the profession is higher (X = 4.07) than teachers of mathematics department (X = 3.34)

According to same table, perception of self-efficacy on information technology of candidate teachers changes according to the departments at which they study (F= 4, 702; p=, 000). According to result of Scheffe test, it can

be seen that the perception of self-efficacy on information technology of picture-art teachers is higher ( $X=4,01$ ) than primary math department ( $X=3,15$ ), form master department ( $X=3,26$ ) and pre-school department students ( $X=3,24$ ).

Whether self-efficacy perceptions of teacher candidates on Information technology affects their attitudes towards the teaching profession has been tried to be estimated by regression analysis and analysis results are given in Table V.

TABLE V. AFFECTING SELF EFFICACY ON INFORMATION TECHNOLOGY AND ATTITUDES TOWARDS TEACHING PROFESSION

|  | B     | Standard Error | $\beta$ | t      | p    | Double r | Partly r |
|--|-------|----------------|---------|--------|------|----------|----------|
| fixed  | 3,392 | ,209           |         | 16,226 | ,000 | -        | -        |
| ICT  | ,150  | ,058           | ,152    | 2,568  | ,011 | ,152     | ,152     |
| $R = ,152$ $R^2 = ,023$<br>$F(1,278) = 6,593$ $p = ,011$ |       |                |         |        |      |          |          |

According to regression analysis on Table V, it can be observed that ICT influences candidates teachers' attitudes towards the teaching profession at statistically significant level. ( $F(1,278) = 6,593$ ;  $p = ,011$ ). However, the variance in self-efficacy on information technology can be explained only 2% of the attitudes towards teaching profession. On the other hand, correlation between scores of attitude towards the teaching profession candidates and ICT is still statistically significant ( $\beta = 152$ ,  $t = 2.568$ ,  $p = ,011$ ), but the level is low ( $r = ,15$ ). According to these results, for estimation teachers' attitudes towards the teaching profession and information technology can be written as follows:

$$\text{Attitude towards the teaching profession} = 2,568 + 150 \times \text{perception of self-efficacy on information technology}$$

### V. RESULTS AND DISCUSSION

According to the findings obtained in this study shows that teachers' attitudes towards the teaching profession is at high level. These results support the results of research which were carried out by [3], [4], [28] on positive attitude towards the teaching profession. It can be seen that student teachers' self-efficacy on ICT is at high level. According to [25] teachers' self-efficacy perception about computer based training is positive however according to [13], their research results are different in that teachers' self-efficacy perception is at medium-level.

In the study, the attitudes of female teachers' attitudes towards the teaching profession was statistically significantly higher than male teachers. This finding of the research is similar with the research results of [8], [1], [29], [3], [30], [4], [31]. However according to the research results of [9], attitude towards the teaching profession for both male and female candidates are similar. In fact, this finding is not surprising. When we think about working and living conditions, the teaching profession is more suitable for women.

Male teachers' self-efficacy perceptions of information technology are statistically higher than perceptions of female participants. This result is similar with the research results of [32], [17] on male teachers' self-efficacy perception. However according to the research results of [25] female teachers' self-efficacy perception is higher than male ones. [14], [33] could not find any difference between genders. Higher results of male

candidate teachers can be related to the interest of male teachers to the information technology.

The attitudes of teacher candidates who expressed willingness to study at that department is significantly higher than the candidates who expressed their unwillingness about coming to the department. This result of the research is similar with the research results of [1], [30], [33], [31] doing people's profession is main case from the beginning in their success.

It was found out that there is no effect of willingness in studying at that department on perception of self-efficacy on information technology. The self efficacy of teacher candidates who expressed willingness to come to the department is close to the candidate who expressed their unwillingness about coming to the department. This result is similar to the finding of [17].

It can be seen that Religious and ethics teachers' attitude towards the teaching profession is higher than elementary science teachers and picture-art of teachers. Mathematics department teachers were higher than primary school teachers and social science and it can be seen that candidate form masters' attitudes towards the profession are higher than teachers of mathematics department.

Mean is higher at science, art and form masters department but this mean is low at social science and mathematics. On the other hand according to [8, 4] attitudes towards the profession are higher at social science department students.

Teacher candidates' attitudes towards the teaching profession significantly differ according to the department at which they study. Picture-art of teachers' Attitudes of towards the teaching profession is higher than mathematics department teachers

There are no similar results in literature including art candidate teachers. However according to [32], perception of self-efficacy on information technology is higher among computer teachers than form masters and science. Similarly, [13] have found out that perception of self-efficacy on information technology is higher among computer teachers than mathematics and science teachers. However these changes can be explained by the opportunities of the different departments to different students.

Teachers' attitudes towards teaching profession can be predicted through the candidates' self-efficacy perception on information technology. On the other hand, there is a

statistically significant relationship between the attitude scores of the candidates for the teaching profession and ICT perception, but it is at low levels. [11] have found that as candidate teachers beliefs on technology usage in education increase, their attitude towards teaching profession increases, too.

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