The effect of pedagogical formation courses upon the professional self-efficacy perception of pre-service teachers

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Abstract

The purpose of this study was to determine the effect of pedagogical formation courses upon the professional self-efficacy perception of pre-service teachers. The study was carried out through the participation of 29 pre-service teachers having pedagogical formation training in Adıyaman University Educational Faculty in 2013-2014 academic year. This study was carried out in single-group pre-test and post-test model as one of the pre-experimental designs. In the study, profession of teaching professional self-efficacy scale was used as the pre-test. Cronbach Alpha Reliability Coefficient calculated for overall scale was found as .92. The scale included totally 27 items including the sub-dimensions of instructional design, teaching enhancement, teaching evaluation and professional development. At the end of six-week pedagogical formation training, the same measurement instrument was performed to the pre-service teachers as the post-test. In analysis of the data, arithmetic average and dependent-groups t-test were performed. As result of the research, it was determined that pedagogical formation courses had a significant effect upon developing the professional self-efficacy perception of pre-service teachers.

Introduction

Through the emergence and development of education as a science, professional teaching knowledge started to...
gain importance; and the necessity for the individuals to have special knowledge and skills for teaching appeared (Erden, 1998). When teaching process is considered, the responsibility is mostly taken over by the teachers. The reason for this is the necessity of reflecting new educational applications under changing conditions and the strong effect created by teachers upon shaping the learning process of their students through the academic activities they carry out (Wang & Walberg, 1994). For that reason, pre-service teachers and teachers that will raise next generation should be educated in a qualified way and they should be guided well in accordance with specific purposes during their education. In order to actualize this, professional development of teachers is needed in subjects such as instructional planning, practice, and evaluation through planned studies. Pedagogical formation courses are provided in order to have these features. In order to be a successful teacher, pedagogic formation, self-confidence, and adequate knowledge related to how teaching will be created are necessary (Lin & Tsai, 2000).

It has been mentioned that the teachers responsible for teaching are required to have some competences upon fulfilling their responsibilities (Gordon, 2010). The leading of these is self-efficacy. When the conditions of teaching profession are considered, the teachers should struggle with different conditions and cope with different problems. The belief of professional self-efficacy is essential upon coping with these situations (Bandura, 1997).

Self-efficacy is one of the fundamental concepts revealed by Bandura (1997) as the social learning theoretician and suggested to be efficient upon behavior. According to Bandura, the belief of self-efficacy is the belief of an individual towards practicing the capacity into a given behavior or behaviors (Bandura, 1997; Zimmerman, 1995). Self-efficacy is a product, a result of individuals’ judgments related to what they can do using their own skills, a perception of their own self related to their capacity and ability of achieving a specific activity, and their own belief, judgment (Senemoğlu, 2013). This judgment creates a great effect upon teacher’s intra-class behaviors, instructional planning, practicing, evaluation, and motivation (Adu & Olantundun, 2007; Akiri & Ugborugbo, 2009; Allinder, 1995; Hoy & Spero, 2005; Woolfolk, Rosoff & Hoy, 1990). Because self-efficacy perception of teachers proves their own capacity or the ability of actualizing their own courses successfully (Ashton, 1984).

Council of Higher Education (YÖK) restructured Educational Faculties in 1998 in order to provide teachers to reveal their own capacities and actualize their courses successfully. As result of this restructuring, total credit of professional teaching knowledge courses was increased up to 36, and total course hours were increased up to 48. Through this regulation, it was aimed to develop more professional practicum of pre-service teachers. In this perception, it was also proposed for the ones that have been graduated from arts and science faculty but assigned as teachers after having pedagogical formation training to obtain 36-credit professional teaching knowledge courses. Pedagogical Formation refers the curriculum including courses related to teaching profession provided within the framework of Ministry, and cooperation of Ministry and Council of Higher Education. Within the framework of this curriculum, pre-service teachers are trained with the courses of introduction to teaching profession, development psychology, teaching-learning theories and approaches, assessment and evaluation, program development and teaching, classroom management in the first term, and with instructional technologies and material design, special teaching methods, guidance and counselling and teaching practice in the second term (YÖK, 1998).

When the literature was analysed, there have been several studies related to self-efficacy beliefs (Gömölekiz & Serhatlıoğlu, 2013; Taşkin & Hacıımeroğlu, 2010; Demirtaş, Cömert & Özer, 2011) and perceptions of teachers (Kurt & Ekici, 2013; Coşkun, Özer & Tiryaki, 2010; Ülper & Bağcı, 2012). However, there has been no study revealing the effect of pedagogical formation courses upon the pre-service teachers’ perception of professional self-efficacy. For that reason, this experimental study that was carried out upon pre-service teachers trained with pedagogical formation has been considered to provide contribution for the literature.

1. The purpose of the study
The purpose of the study was to analyze the effect of pedagogical formation courses upon pre-service teachers’ perception of professional self-efficacy. In accordance with this purpose, answers to the questions below were sought:

1. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers?
2. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers related to the instructional design sub-dimension of pedagogical formation courses?
3. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers related to the teaching enhancement sub-dimension of pedagogical formation courses?

4. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers related to the teaching evaluation sub-dimension of pedagogical formation courses?

5. Is there a significant difference between pre-test and post-test total scores and professional self-efficacy perceptions of pre-service teachers related to the professional development sub-dimension of pedagogical formation courses?

2. Methodology

In this research, single-group pre-test post-test design as one of the semi-experimental designs was used. In single group, pre-test post-test design, the independent variable is performed to a randomly selected group. Both pre-test and post-test measurements were performed. The symbolic appearance of the model was as below:

G1 is O1.1 X O1.2.

G1: Research group, O1.1: First measurement (pre-test), X: independent variable (educational activity), O1.2: second measurement (post-test)

If O1.2 > O1.1 in the model, this is accepted as to be arisen from the implementation of X, and the evaluation is administered considering this (Karasar, 2005). In order to analyze the change in self-efficacy perceptions of the pre-service teachers, “Profession of Teaching Professional Self-Efficacy Scale” (PTPSES) was performed as pre-test to 29 students at the beginning of the term. Totally 144-hour pedagogical formation courses including 24 hours per week were provided to pre-service teachers for six weeks. The content of these courses were determined in accordance with the curriculum specified by YÖK for Educational Faculties. “Profession of Teaching professional self-efficacy scale” was performed as pre-test at the beginning of the term and as the post-test at the end of the term to the pre-service teachers. After this measurement, it was searched whether the courses pre-service teachers received created a change upon their perception level of self-efficacy.

2.1. Participants

The study group of the research included 29 (16 females, 13 males) pre-service teachers graduated from arts and science faculty history department having pedagogical formation training at Adıyaman University Educational Faculty in 2013-2014 academic year. Purposive sampling method was used for selecting the study group. In such kind of sampling, the researcher uses his/her own judgment about who will be selected, and the ones deemed as appropriate by the researcher are included into sampling (Balcı, 2004). For that purpose, the appropriateness of study group is decided considering their absenteeism and their carrying on teaching profession or not.

2.2. Instruments

The research data were obtained through “Profession of Teaching Professional Self-Efficacy Scale” (PTPSES) developed by Kontaş & Demir (2014). The scale included 27 items and four sub-dimensions on five-point likert type. The first sub-dimension was “instructional design” (13 items), the second sub-dimension was “teaching enhancement” (6 items), the third sub-dimension was “teaching evaluation” (4 items), and the first sub-dimension was determined as “professional development” (4 items). The highest score that could be obtained from the scale was 135, and the lowest was 27. Whereas Cronbach Alpha Reliability Coefficient calculated for the whole scale was found as .92, it was .90 for instructional design dimension, .83 for teaching enhancement dimension, .70 for teaching evaluation dimension and .73 for professional development dimension.

2.3. Data Analysis

For this study, arithmetic mean was used for the analysis of data; dependent group t-test, Cronbach Alpha reliability, and eta-squared effect size were used for testing the significance of difference between the averages.
2.4. Experimental Process

The research was carried out in a six-week (each week 24 hours) time period. After the pre-test implementation, the pre-service teachers in the study group were trained with the courses of introduction to teach, development psychology, teaching-learning theories and approaches, assessment and evaluation, program development and teaching, classroom management, instructional technologies and material design, special teaching methods, guidance and counselling and teaching practice courses within the scope of pedagogical formation. At the end of this instructional process, the same measurement scale was performed to pre-service teachers as post-test.

3. Results

In this section, the findings obtained in accordance with the purposes of the research were included. T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale were presented in Table 1.

Table 1. T-test results of pre-service teachers’ professional self-efficacy pre-test and post-test average scores

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>X</th>
<th>S</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>29</td>
<td>102.52</td>
<td>9.34</td>
<td>28</td>
<td>3.63</td>
<td>.001</td>
<td>.19</td>
</tr>
<tr>
<td>Post-test</td>
<td>29</td>
<td>113.17</td>
<td>10.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When Table 1 was analyzed, pre-test score averages of pre-service teachers related to their professional self-efficacy perceptions were calculated as X=102.52, and post-test score averages were calculated as X=113.17. In post-test, total score averaged were noticed to be increased. It was found according to the t-test result that the difference between score averages was significantly higher in favor of post-test (t=-3.63, p<.05).

Effect size (η²) was analyzed in order to determine to what extent pedagogical formation courses affected the self-efficacy perception of the pre-service teachers. The effect size value related to the pedagogical formation courses was determined to be .19 in overall scale. According to the criteria specified by Karasar (2005), this value was interpreted as a broad effect size. It was understood that 19% of the positive change in professional self-efficacy perception levels of pre-service teachers was arisen from the pedagogical formation courses.

T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale instructional design sub-dimension were presented in Table 2.

Table 2. T-test results of instructional design sub-dimension pre-test and post-test average scores

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>X</th>
<th>S</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>29</td>
<td>51.55</td>
<td>5.07</td>
<td>28</td>
<td>2.16</td>
<td>.039</td>
</tr>
<tr>
<td>Post-test</td>
<td>29</td>
<td>54.76</td>
<td>5.75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When Table 2 was analyzed, whereas pre-test score averages of pre-service teachers related to the “instructional design” sub-dimension was X=51.55, post-test score averages were found as X=54.76; and score averages were noticed to be increased in post-test. It was found according to the t-test result that the difference between score averages was significantly higher in favor of post-test (t=2.16, p<.05). It could be mentioned related to instructional design sub-dimension that pedagogical formation courses received by the pre-service teachers caused this difference. This finding proved that pedagogical formation courses had a significant effect upon increasing the instructional design perceptions of pre-service teachers. In other words, pedagogical formation courses can be mentioned to provide contribution upon development of pre-service teachers in instructional design dimension.

T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale teaching enhancement sub-dimension were presented in Table 3.
Table 3. T-test results of teaching enhancement sub-dimension pre-test and post-test average scores

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>X</th>
<th>S</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>29</td>
<td>23.28</td>
<td>3.25</td>
<td>28</td>
<td>1.82</td>
<td>.080</td>
</tr>
<tr>
<td>Post-test</td>
<td>29</td>
<td>24.86</td>
<td>2.80</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When Table 3 was analyzed, whereas pre-test score averages of pre-service teachers related to the “instructional design” sub-dimension was $\bar{X}=23.28$, post-test score averages were found as $\bar{X}=24.86$; and score averages were noticed to be increased in post-test. It was found according to the t-test result performed whether the difference was significant or not that the difference was not significant ($t=1.82$, $p>.05$). Teaching enhancement is closely related with the process of gaining professional experience. Among the pedagogical formation courses, instructional technologies and material design, special teaching methods and teaching practice courses were determined to have a significant affect upon pre-service teachers’ gaining professional experience. The aforementioned courses were provided in the second-term after the post-test implementation.

T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale professional development sub-dimension were presented in Table 4.

Table 4. T-test results of professional development sub-dimension pre-test and post-test average scores

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>X</th>
<th>S</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>29</td>
<td>14.69</td>
<td>1.02</td>
<td>28</td>
<td>7.17</td>
<td>.000</td>
</tr>
<tr>
<td>Post-test</td>
<td>29</td>
<td>17.83</td>
<td>2.02</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When Table 4 was analyzed, whereas pre-test score averages of pre-service teachers related to the “instructional design” sub-dimension was $\bar{X}=14.69$, post-test score averages were found as $\bar{X}=17.83$; and score averages were noticed to be increased in post-test. It was found according to the t-test result performed to determine whether the difference was significant or not that the difference between score averages were significantly higher in favor of post-test ($t=7.17$, $p<.05$). It could be mentioned related to teaching evaluation sub-dimension that pedagogical formation courses received by the pre-service teachers caused this difference. This finding proved that pedagogical formation courses had a significant effect upon increasing the teaching evaluation perceptions of pre-service teachers. In other words, pedagogical formation courses can be mentioned to provide contribution upon development of pre-service teachers in teaching evaluation dimension.

T-test results performed for the significance of the difference between pre-test and post-test total score averages of professional self-efficacy scale teaching evaluation sub-dimension were presented in Table 5.

Table 5. T-test scores of teaching evaluation sub-dimension pre-test and post-test scores

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>X</th>
<th>S</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>29</td>
<td>11.00</td>
<td>1.81</td>
<td>28</td>
<td>3.07</td>
<td>.005</td>
</tr>
<tr>
<td>Post-test</td>
<td>29</td>
<td>12.14</td>
<td>1.55</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When Table 5 was analyzed, whereas pre-test score averages of pre-service teachers related to the “professional development” sub-dimension was $\bar{X}=11.00$, post-test score averages were found as $\bar{X}=12.14$; and score averages were noticed to be increased in post-test. It was found according to the t-test result performed to determine whether the difference was significant or not that the difference between score averages were significantly higher in favor of post-test ($t=3.07$, $p<.05$). It could be mentioned related to professional development sub-dimension that pedagogical
formation courses received by the pre-service teachers caused this difference. This finding proved that pedagogical formation courses had a significant effect upon increasing the instructional design perceptions of pre-service teachers. In other words, pedagogical formation courses can be mentioned to provide contribution upon development of pre-service teachers in teaching evaluation dimension.

4. Conclusion and Discussion

Important results were concluded at the end of this study. It was concluded that there was significant difference between pre-test and post-test total score averages in all scale with which self-efficacy perceptions of pre-service teachers were determined. This obtained result has a quality supporting the results of some research results. In this perception, Kurt & Ekici (2013) mentioned that there was a statistically significant difference between the pre-test and post-test scores of the overall scale in which instructional process self-efficacy perception levels of the pre-service teachers were determined. It could be noticed in this research that teaching profession courses had a significant effect upon the professional development of teachers. Because it was concluded that the difference between pre-test and post-test average scores of professional self-efficacy scale professional development sub-dimension was significant. Kutluca, Birgin & Çathoğlu (2007) concluded in their study that the course of planning and evaluation in teaching as one of the pedagogical formation courses provided contribution upon individual, professional and social development of pre-service teachers, and helped their learning; moreover, this finding proved the finding in our study.

It was also concluded that there was a significant difference between the pre-test and post-test average scores of teaching profession, professional self-efficacy scale instructional design and teaching evaluation sub-dimensions. It was noticed that there was no significant difference between the pre-test and post-test score averages in profession of teaching professional self-efficacy scale teaching enhancement sub-dimension.

When the results obtained from the study were analyzed, it was understood that pedagogical formations courses were efficient upon increasing the professional self-efficacy perceptions of the pre-service teachers. Furthermore, effect size (η²) was analyzed in order to determine to what extent pedagogical formation courses had effect upon the professional self-efficacy perception of the pre-service teachers. The effect size value related to pedagogical formation results was determined to be .19. It was understood that 19% of the positive change in professional self-efficacy perception levels of pre-service teachers was arisen from the pedagogical formation courses. When the literature was reviewed, the study carried out by Wagler (2007) supported this finding. Wagler mentioned that teaching competence belief of pre-service teachers had significant difference between pre-test and post-test at the end of the practical pedagogical formation courses and their self-efficacy levels developed positively. In this perception, when the effect of pedagogical formation courses upon the self-efficacy perception levels of pre-service teachers was analyzed, the effect size values related to the practiced pedagogical formation courses were determined to be (η²=.172) in overall scale. These values expressed a high effect. Because the effect size of 0.01 was defined as small, 0.06 as medium, and 0.14 as large.

Consequently, pedagogical formation courses created a positive effect upon raising pre-service teachers and developing their professional self-efficacy perceptions. In this perception, the effect created by the pedagogical formation courses should be analyzed separately for developing the self-efficacy perceptions of teachers. The experimental studies that will be carried out in that perception should be supported through qualitative studies.

References


Gömleksiz, M. N., & Serhatlioğlu, B. (2013). Okul öncesi öğretmenlerinin öz-yeterlik inançlarına ilişkin görüşleri. *International Periodical For The Languages, Literature and History of Turkish or Turkic, 8*(7), 201-221