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THE IMPACT OF INTERNSHIP ON ATTITUDES TO TEACHING PROFESSION

The main purpose of the research is to identify the influence of active internship on the attitude of future teachers towards teaching mathematics. The current study examines whether or not internship will change students perceptions regarding their enjoyment, motivation, values, self confidence towards mathematics and attitudes to teaching profession. 20 teacher candidates in their 4th academic year from Science Education Department , Suleyman Demirel University made up the research population. The pre-service teachers completed their two months of internship experience in 15 different public and private schools located in different cities of Kazakhstan. Such researchinstruments as Attitude Scale towards Teaching Profession and Attitude towards Mathematics Inventory were employed before and after internship ; and a specially designed survey used after internship served as a qualitative feedback of students' future plans to remain a teacher. The research hypothesis was confirmed : active internship does change the future math teachers' attitude to their profession .The results of this investigation can lead to the further improvements in educational curriculum, especially in planning and realization of pedagogical internship. According to the survey results, after practice, 61% of students plan to work in their specialty, and more than 60% of students plan to enter the magistracy to continue studying the profession of a mathematics teacher. Practical recommendations are given for improving practice in school.

Key words: pre-service teachers, internship, attitude change, attitude to teaching profession, attitude to mathematics.

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Педагогикалық практиканың болашақ мұғалімдердің өз ісіне деген көзқарасына әсері

Аталмыш жұмыстың басты мақсаты – педагогикалық практиканың болашақ математика мұғалімдерінің өз пәнін беруге деген қарым-қатынасына ықпалын анықтау. Математика пәніне және мұғалім мамандығына көзқарасынан көрініс табатын өз-өзіне сенімділік, жағымды эмоциялар, мотивация, құндылықтар секілді факторлар басты назарға алынады. Зерттеу тобын Қазақстанның әр қаласында орналасқан мемлекеттік және жеке меншік мектептерден тұратын 15 түрлі оқу орнында екі айлық педагогикалық практикадан өтуші Сулейман Демирел университеті, математика бөлімінің 4-курсында оқитын 20 студент құрап отыр. Мұғалім мамандығы мен математика пәніне деген көзқарасты саралау өлшемі секілді зерттеу құралдары педагогикалық практикаға дейін және кейін де қолданылды; ал арнайы жасалған сауалнама білім алушылардың болашақта мұғалім болып қалу-қалмау жоспарларының сапалы кері байланысы бола білді. Зерттеу болжамы дәлелденді деуге толық негіз бар: белсенді педагогикалық практика расымен болашақ математика пәні мұғалімдерінің өз ісіне көзқарасын өзгертеді. Бұл жүргізілген зерттеулердің нәтижесі келешекте оқу бағдарламасының, соның ішінде педагогикалық практиканың ұйымдастырылу және өткізілу сапасын жақсартуға негіз бола алады. Сауалнама нәтижесінде практикадан өткен соң студенттердің 61% мамандық бойынша жұмыс істейтіндіктерін, ал 60%-тан астамы

математика мұғалімі мамандығы бойынша оқуды магистратурада жалғастыруды жоспарлайтындықтарын айтты. Мектептегі практиканы жетілдіру бойынша ұсыныстар берілді.

Түйін сөздер: математика пәні мұғалімі, педагогикалық практика, педагогика ісіне деген көзқарас, математикаға көзқарас.

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Влияние педагогической практики на отношение будущих учителей к преподаванию

Основная цель данной работы – выявить влияние педагогической практики на отношение будущих учителей к преподаванию математики. Исследуются такие факторы как положительные эмоции, мотивация, ценности, уверенность в себе по отношению к математике и профессии учителя. Исследовательскую группу составили 20 студентов-математиков 4 курса из Университета Сулеймана Демиреля , проходящих двухмесячную педагогическую практику в 15 различных государственных и частных школах, расположенных в разных городах Казахстана. Такие инструменты исследования, как шкала отношения к профессии учителя и отношение к математике, использовались до и после педагогической практики; и специально разработанный опросник послужил качественным откликом на будущие планы студентов остаться преподавателем. Гипотеза исследования подтвердилась: активная практика меняет отношение будущих учителей математики к своей профессии. Результаты этого исследования могут привести к дальнейшему улучшению учебной программы, особенно в планировании и проведении педагогической практики. По результатам опроса, после практики 61% студентов планируют работать по специальности, а также более 60% студентов планируют поступать в магистратуру для продолжения обучения профессии учителя математики. Даны практические рекомендации для совершенствавния практики в школе.

Ключевые слова: учитель математики, педагогическая практика, отношение к педагогической профессии, отношение к математике.

Introduction

Internship plays a significant role in teacher training since pre-service teachers can develop and strengthen practical skills by experiencing working conditions of their future professional environment (Parveen,S., &Mirza,N., 2012 : 487-498). First of all, fresh candidates should obtain good cognitive skills by acquiring a positive attitude to their profession and ability to reflect on their professional performance. Then, they should develop affective skills by learning to form intimate relationships and build psychological and pedagogical contacts with their schoolchildren. Finally, putting theory into practice requires a range of teaching strategies which will help them to manage classroom easily and solve teaching problems well (Darling-Hammond, & Wise,A. ,1990). For this purpose, internship requires a careful design made by qualified trainers who are available and approachable and ready to consult novice teachers on any educational concern. S. Murzina (2016) highlights the significance of stimulation and increase of the prestige of internship for school teachers (for example, material incentives, advantages in certification, etc.) and strengthening the collaborative interaction of school teachers and university professors to improve the programs of pedagogical practice in Kazakhstan.

To what extent can positive or negative internship experience affect pre-service teachers' attitude to their future job? How important is the role of active internship in their decision to become a school teacher? Which aspects of internship are really meaningful for the interns? As literature review has given us little knowledge of the problem, we attempted to investigate this issue with the help of a math teacher candidates sample from Suleyman Demirel University, Kazakhstan.

Purpose of the Study

The purpose of the current research is to examine the impact of active internship on future math teachers' attitude to teaching profession. The leading question of the study is formulated as follows:"Does internship of future teachers change their attitudes to teaching mathematics ?". In order to answer the main research question, the following questions are developed as well:

1) Does internship change students' enjoyment towards mathematics?

2) Does internship change students' motivation towards mathematics?

3) Does internship change students' values towards mathematics?

4) Does internship change students' self-confidence towards mathematics?

5) Does internship change students' attitudes towards teaching profession?

The hypothesis of the research:

H: Active internship will change pre-service teachers' attitudes to math and teaching profession.

1.2. Significance of the Study

As far as this research is concerned, it focuses on the relationship between future teachers' attitude to teaching mathematics and their intention to become a teacher. So this study is significant for all people who choose teaching mathematics as their major. Moreover, this work provides certain factors of how and why people come to the decision to become a teacher. Furthermore, the paper explores personal values people should have in order to become a successful teacher. Thereby, the significance of the research is determined by evaluation of impact of the internship on the further changes or consolidation of choice of teaching profession. The results of the study contain recommendations which can be a valuable asset to the internship organization.

Literature Review

A) Attitude to teaching profession

The impact of attitude to profession should not be underestimated. The career we choose certainly shapes our life as it promotes our intellectual and emotional intelligence and is then reflected in the attitude to our profession. Psychologists believe that attitudes are significant determinants of our success in the profession. The recent research reveals "the most important difference between the teaching profession and many other professions: attitudes directly affect the teacher's success" (Eraslan, L., &Cakici ,D. ,2011: 427-438)

A large number of studies on professional attitudes of teacher candidates have been carried out since the late 1980s. The results of research by Akbulut and Karakus (2011) and Oruc (2011) revealed positive attitude demonstrated by pre-service teachers. Çapri and Çelikaleli (2008)and Kaya and Büyükkasap (2005) agreed that females have more positive attitude to teaching than males .But Capa and Cil (2000) demonstrated that gender does not influence the attitude much . Osunde and Izevbigie (2006) found out that instructors' personality and teaching methods may negatively affect the attitude to profession. Hosgorur and Dundar (2002) found the links between attitude and grades, when students' grades increase, the attitude improves. Özder et al. (2010) discovered that neither grades nor gender but pedagogical context in the curriculum plays a major role in attitude development. Austin-Martin (1979) stated that attitude of future teachers can be improved by internship.

Attitude to teaching mathematics

Attitude to mathematics is defined as "a general emotional disposition to the school subject of math". A positive attitude to mathematics is generally important because it is an important school outcome in and of itself and it is also related to achievement. Besides, a positive attitude towards mathematics may increase one's affect to choose mathematics lessons in high school and college and possibly one's affect to careers in mathematics or mathematics-related fields (Haladyna, Shaughnessy, & Shaughnessy, 1983: 19-29).

McLeod (1992) said that attitudes to math appear and develop by two ways. First one is a repeated feeling to math. For example, if a student has repeated bad experiences with some part of mathematics, the counteraction will usually lessen over time. It can be measured by a survey. The second is an already existing attitude to a new but related task. A student who has a negative attitude to trigonometry may attach the same attitude to related topics with trigonometry.

Rech, Hartzell, and Stephens (1993) investigated attitudes to mathematics of pre-service elementary teachers and discovered more negative attitudes toward mathematics than the general university population. Cornell (1999) found that half of the pre-service teachers of elementary school experienced an antipathy to mathematics. The results of the research made by Philippou and Christou (1998) demonstrated that 162 primary teachers in Greece had negative attitude to math; in nearly all cases, positive attitudes were interacted with success and negative attitudes with failure.

Some research works have looked at teacher training programs designed to improve attitudes to mathematics of pre-service elementary school teachers. In one of those studies, McGinnis, Kramer, and Watanabe (1998) collected data from 1995 to 1997, all participants completed a teacher preparation program of The Maryland Collaborative for Teacher Preparation (MCTP) for specialist mathematics and science elementary/middle level undergraduate teachers. The program's goal was to develop self-confident teachers who can teach mathematics and science. They found that the students' attitudes to mathematics and science improved with the help

of such programs. Philippou and Christou (1998) conducted a study in Greece that involved a teacher preparation program whose goal was to help pre-service primary teachers acquire mathematical concepts and teaching methods while improving their self-confidence in doing mathematics. Using a pre-test and post-test design, students were given instruments to measure their attitudes toward mathematics prior to beginning the program, after the first course, and after completing the entire program. They found significant differences in attitude at the conclusion of the program, indicating significantly more positive attitudes towards mathematics. In addition, the prospective teachers participated in 45-minute interviews where their own evaluations of their feelings prior to the program and of the effectiveness of the program relating to attitudes were given. Robert J.Quinn (1997) investigated the effects of an elementary mathematics methods course that stressed the use of manipulation, technology, and cooperative learning in the teaching of mathematics on the attitudes of pre-service teachers. He found that the pre-service elementary teachers' attitudes improved significantly after completing the methods course. In a similar study by Anderson and Piazza (1996), 48 pre-service elementary teachers, as part of their teacher preparation program, wrote an essay about their learning experience in the course, and common reflections were identified from the essays. Twenty-one of the students said that they felt less anxiety about learning/teaching mathematics as a result of the course. Ten of the students said that they felt a greater sense of confidence. Camacho, Socas, and Hernandez (1998) surveyed prospective secondary mathematics teachers in Spain about their beliefs and attitudes. They determined that only 50% of the pre-service teachers expressed enjoyment in doing mathematical work. The researchers felt that these results "put into doubt an ability to generate a positive attitude towards mathematics in the classroom".

Thus, the improvement of teachers' attitude to math depends on many conditions of a preparation program. However, proper installation of pedagogical work with future teachers ensures the success of attitudes to math and teaching profession.

B) Influence of internship on attitudes towards teaching profession

In fact, the internship is the place where the future teachers attain real-life experiences concerning the ins and outs of the daily school environment. It is the place where teacher candidates are able to merge what they have learned in their university coursework with actual teaching (Griffin, M. L., 2003: 207-220). In order to best facilitate this convergence of knowledge and formation of desire to be a teacher, the internship placement needs to be in a school environment that will provide varied experiences for, as well as work closely with, the pre-service teachers' university (Clarke, M., Lodge, A., &Shevlin, M., 2012: 141-153). This placement is crucial to the future teachers' growth as it provides a safe haven for them to learn, as well as practice, the necessary skills to be a teacher with the guidance and support of an experienced mentor teacher (Albina, G. 2012;Koc, E. M., 2011: 70-72).

During the internship experience, the future teacher should observe the experienced mentor teacher not only teaching, but handling the various situations that occur throughout the day (Hudson, P. &Skamp, K.,2002;Barab, S. A. & Hay, K. E., 2001). It is important that the pre-service teachers discuss both the teaching and situational aspects that have occurred during the day with their mentor teacher because this is where they are able to determine the importance of being a teacher by witnessing and discussing the blending of theory and practice (Collin, S., Karsenti, T., & Komis, V.,2013: 104-117) .

Thus, positive internship placements provide a variety of experiences for future teachers to encounter and upon which to reflect. The internship experience is the place where the pre-service teacher is able to incorporate practical academic pedagogical techniques into a "real world" educational setting under the guidance of an experienced mentor teacher. Because this experience is so integral to growing as a teacher, teacher candidates need a support system that includes the experienced mentor teacher and their supervisor from their teacher preparation program (Koc, E. M., 2011: 193-208).

To train teachers to teach in the context of globalization is the job of teacher education Programmes in Kazakhstan. Broader reforms in how teachers are trained should be certainly introduced to facilitate this transition (Anel Kulakhmetova, Colleen McLaughlin & Nazipa Ayubayeva , 2014).

Methods

The study was operated in 3 stages: pre-internship, internship and post-internship.

The purpose of pre-internship stage was to measure the participants' attitudes to math and teaching profession. The internship or experimental stage which lasted two months was supposed to influence pre-service teachers' decision to become a school teacher. They had to teach 16 lessons and help the supervisor in making different activities. The objectives of internship were the following:

– to put theoretical knowledge into practice by means of numerous and repeated experiences to gain practical skills for teaching;

– to try on a teacher's role: responsibilities in the classroom and methods of teaching;

– to see how teacher should manage and organize the classroom.

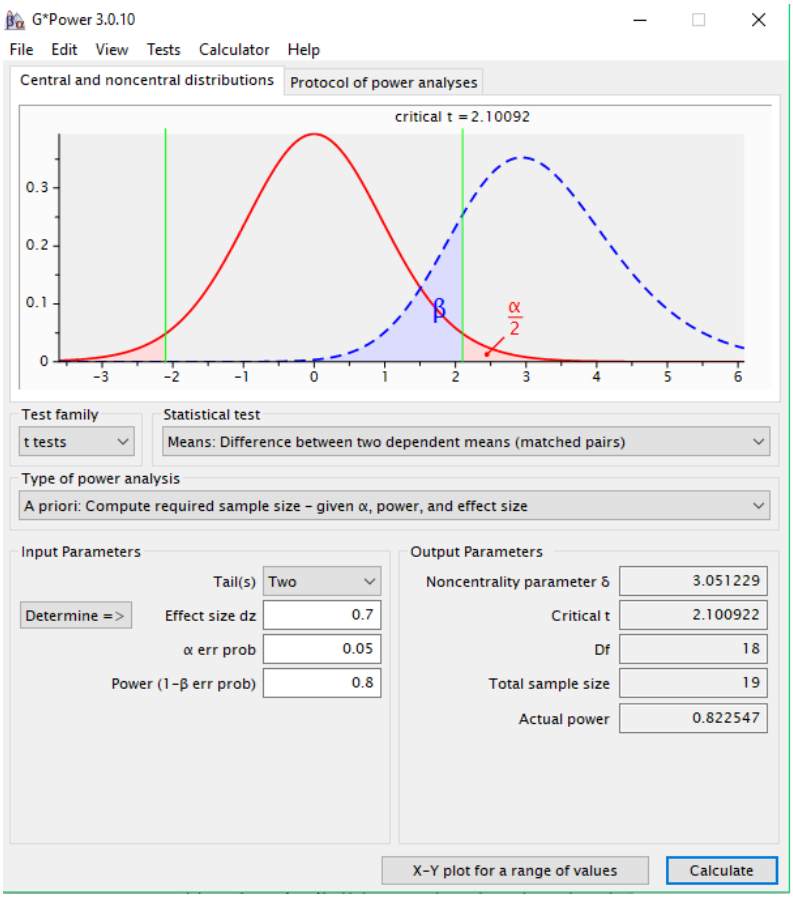
In the post-internship stage the participants' attitudes to math and teaching profession were measured again to identify the impact of active internship. In the end, the students took a survey where they reflected their impressions about the internship.

Research participants

The participants in this study were 20 teacher candidates in their 4th academic year studying math pedagogy at Educational Science Department, Humanities and Education Faculty, Suleyman Demirel University in the 2017-2018 academic years. Out of which 36.84% were males and 63.16% were females. Also 15 of them received State grants.

They studied Mathematics lessons (Algebra, Mathematical Logic, Differential Equations and Functional Analysis) more than pedagogical lessons. After second and third year of study, they passed passive internship. In their 4th year of study they enrolled in the active internship course and completed their two months experience in 15 different public schools located in different cities of Kazakhstan.

In order to get reliable results, we calculated the total sample size for t-test. To find a sample size we need to know alpha level, power level and the effect size. Power level is usually .80. In behavioral sciences we use an alpha level of 0.05. Effect size depends on the power level. So, G*Power is able to compute power analysis for many different hypothesis tests. The program found that 19 people are normal for a sample size.



Research instruments and data collection

Attitude Scale towards teaching profession

Objective: to identify future teachers' attitude towards teaching profession. Description of instrument: Attitude scale is a special type of questionnaire designed to produce scores indicating the intensity and direction (for or against) of a person's feelings about an object or event. The

attitude scale towards teaching profession has been constructed not only with the objective of finding the attitude of teachers towards teaching profession, but it is also hoped that the findings of this scale would enable the investigators to make suggestions towards improving the teachers' perception towards their profession. The scale consists of 22 items with ten positive and 12 negative items. Reliability of the scale (.69) was established using split half method. Content validity and criterion related validity was also established. Concurrent validity was found to be (.84). For scoring, the pattern suggested by Likert was followed. Norms and interpretation of the scale was also established. Moreover, relevant statements to measure the attitude towards teaching profession was formulated keeping in view certain category of topics as these were considered relevant to be included in the attitude scale.

They are as follows:

– Classroom teaching
– Financial aspects
– Social aspects
– Academic responsibility
– Personality of the teachers
– Value system of the teachers
– Professional growth

Procedure: Students were asked to indicate how far they agreed or disagreed with each statement on a 5-point Likert-type attitude scale composed of 22 items. This scale consists of 2 dimensions: Attitude towards personality and need of teacher and Attitude towards teaching profession. There are 6 items in "attitude towards personality and need of teacher" dimension, 8 items in "value" dimension" and 5 items in "attitude towards teaching profession" dimension. A high score on the scale would imply a favorable attitude. After internship statistical analyses were conducted in this study. This includes calculating mean, standard deviation, reliability, normal distribution and t-test.

Expectation: We expect high or moderate attitude of teacher candidates towards teaching profession because future teachers should accept teaching profession positively and unconditionally.

Attitude towards mathematics

Objective: to identify future teachers' attitude towards mathematics.

Description of the instrument: The inventory was developed by Tapia and Marsh II (2004). It consists of 40 statements on the five-point Likert scale format with strongly disagree to strongly agree. 40 items have four factors, namely enjoyment, general motivation, self-confidence and value in math.

Procedure: Statistical analyses include calculating mean, standard deviation, reliability, normal distribution and t-test.

Expectation: We expect moderate attitude of teacher candidates towards math.

Self-designed Survey

Objective: to analyze future teachers' reflections about the internship

Description of the instrument: Self-designed survey is designed to produce scores indicating the intensity and directions (for or against) of a person's feelings about an object or event. The survey was conducted for the purpose of analyzing their impressions and future plans to remain a teacher after passing internship. In the survey there are 19 questions, which include 14 multiple choice questions with given answers and 5 open-ended questions where students can express their opinion and respond to questions freely. The statements highlighted the following topics:

– satisfaction with education policy
– reasons to choose a teaching profession
– courses that influenced most their commitment to teaching during studying in SDU
– impact of passive internship
– impact of active internship
– importance of teaching
– future plans
– emotional experience
– further recommendations about education and internship
– final decision

Results and Findings

A) Pre-internship stage:

Research Question 1: What is overall teacher candidate's attitude towards their profession?

Research Tool: Attitude scale towards teaching profession.

Research Task 1: Measure teacher candidates' attitude towards teaching profession before internship.

According to the results in table1the pre-service teachers do not obtain favourable attitude to teaching profession, the majority (65%) obtain very low attitude, which we hope will improve after active internship.

Research Question 2: What is teacher candidates' attitude to math?

Research Tool: Attitude toward math inventory developed by Tapia and Marsh II (2004).

Research Task 2: Investigate attitude of teacher candidates towards math.

Table 1 – Overview of results of teacher candidates' attitude to teaching profession

Attitude strength	No. of teachers	Percentage	Interpretation
Very high attitude	0	0%	0% (favourable)
High attitude	0	0%	
Moderate attitude	4	20%	20% (Neutral)
Low attitude	3	15%	80% (unfavourable)
Very low attitude	13	65%	

Attitude towards Math Inventory measures four factors: enjoyment, general motivation, self-confidence and value in math. The results (Illustration 1) show that students have high value in math. Moreover, they find real enjoyment studying math, which will greatly contribute to teaching pupils. On the other hand, they have moderate motivation in math.

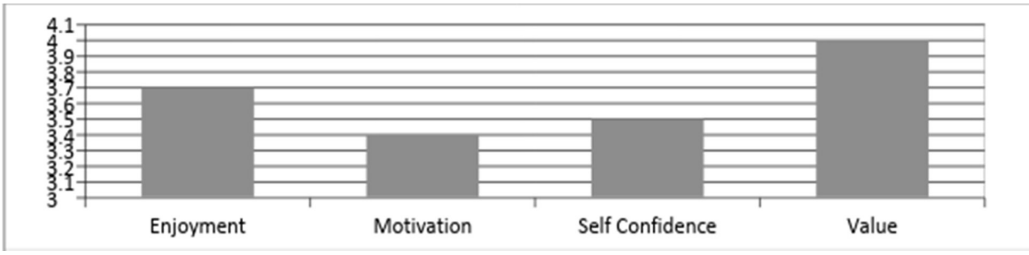


Illustration 1. Overview of results of teacher candidates' attitude to math

Conclusion

According to the data we gained in pre-internship stage we came to the following conclusions:

1. Most teacher candidates have very low attitude towards teaching profession.

2. Teacher candidates value math as a science more than a subject to teach at school.

3. Teacher candidates enjoy learning math, still do not feel positive about teaching math.

4. Interest and confidence in teaching math should be promoted in pre-service teachers to help them become professionals. Hopefully, active internship will change their attitude to their job for the better.

B) After-internship stage:

Research Question 3: Does internship change students' attitudes towards teaching profession?

Research Tool: Attitude scale towards teaching profession.

Research Task 3: Compare the results of teacher candidates' attitude towards teaching profession.

After internship statistical analyses were conducted by SPSS 21Version. This includes calculating mean, standard deviation, reliability, and t-test of before internship and after internship.

First, reliability of attitude to teaching profession was calculated.

Table 2 – Reliability of attitude to teaching profession

Reliability Statistics			
Before internship		After internship	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
,711	22	,652	22

An alpha of 0.8 or above is regarded as highly acceptable for homogeneity of items, while 0.5 is the limit of acceptability. Internal reliability was assessed with the help of Cronbach alpha technique. Before and after internship Cronbach's alpha results are higher than 0.5,which means it is acceptable for reliability.

Table 3 – Paired Samples Statistics of attitude to teaching profession

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	BEFORE	3,3523	20	,36360	,08130
	AFTER	3,6386	20	,39612	,08858

A paired-samples t-test was conducted to evaluate the impact of internship on pre-service math teachers' attitude to teaching profession. There was a statistically significant increase from Pre-internship (M = 3, 35, SD = 0, 36 in table 4) to After internship (M = 3, 63, SD = 0,39 in table 4) t (19) = 3,167, p <. 05 (two-tailed) in table 5, it means that there is significance. The mean increase was .286 with a 95% confidence interval ranging from -0.48 to -0.97.

Table 4 – Paired Samples T- Test of attitude to teaching profession

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 BEFORE - AFTER	-,28636	,40444	,09044	-,47565	-,09708	-3,167	19	,005

Although the results presented above tell us that the difference we obtained in the two sets of scores was unlikely to occur by chance, it does not tell us much about the magnitude of the intervention's effect. One way to do this is to calculate an effect size statistic. The procedure for calculating and interpreting eta squared (one of the most commonly used effect size statistics) is presented below.

Eta square d =t2t2+(N-1)
Eta square d=3.16723.1672+(20-1) =0.34

The guidelines (proposed by Cohen 1988, pp. 284–7) for interpreting this value are: .01=small effect, .06=moderate effect, .14=large effect. Given our eta squared value of .34 we can conclude that there was a large effect, with a substantial difference in the Internship attitudes scores obtained before and after the intervention.

Thus, Internship changed the most future teachers' attitude to teaching profession.

Research Question 4: Does internship change students' attitudes towards math?

Research Tool:Attitude towards math inventory developed by Tapia and Marsh II (2004).

Research Task 4: Compare result of attitude of teacher candidates towards math.

With the help of SPSS 21 we calculated mean, standard deviation, reliability, and t-test.

An alpha of 0.8 or above is regarded as highly acceptable for homogeneity of items, while 0.5 is the limit of acceptability. Internal reliability of enjoyment, motivation, self-confidence and value were assessed using the Cronbach alpha technique. A Cronbach Alpha test produced an alpha of .748, which is acceptable for attitude scale.

Table 5 – AfterReliability Statistics of Attitude to Math

Construct	Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
Enjoyment	,812	10	,894	10
Motivation	,730	3	,748	3
Self Confidence	,747	15	,814	15
Value	,884	10	,898	10

A paired-samples t-test (Table 6) was conducted to evaluate the impact of internship on pre-service math teachers' attitude to math. There was a statistically no significant difference in Enjoyment, Motivation and Self-confidence factors from Pre-internship to After-internship because p >. 05 (two-tailed). But there was a statistically significant increase in Value in math from Pre-internship (M = 4.03, SD = 0.65) to After-internship (M = 4.45, SD = 0.53), t (18) = 2.245, p <. 05(two-tailed). The mean increase in Value in math was 0.421 with a 95% confidence interval ranging from -0.82 to -0.27. The eta squared statistic (.22) indicated a large effect size. Overall teacher candidates have positive attitude to math. They understand the value of math in real life and plan to become math teachers. Moreover, they find real enjoyment studying math, which will greatly contribute to teaching students. We can say that internship does not affect their enjoyment, motivation and self-confidence in math; however, internship contributes to their value in math.

Table 6 – Paired Samples Test of Attitude to Math

		Paired Differences					t	df	Sig. (2-tailed)	Effect Size (t/root19)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
					Lower	Upper				
Pair1	AVGENJBEFORE - AVGENJAFTER	-,13684	,90812	,208	-,57454	,30086	-,657	18	,520	0,0234072
Pair2	AVGMOTBEFORE - AVGMOTAFTER	-,22807	1,2719	,291	-,84115	,38500	-,782	18	,445	0,0328219
Pair3	AVGSEL-FCONFBEFORE-AVGSEL-FCONFAFTER	-,23860	,65558	,150	-,55458	,07738	-1,586	18	,130	0,1226655
Pair4	AVGVALUEBEFORE - AVGVALUEAFTER	-,42105	,81757	,18756	-,81511	-,02700	-2,245	18	,038	0,2187286

4.3 Findings from Self-designed Survey
Research Instrument: Self designed Survey
Aim: to analyze future teachers' decision
Factor1. Influence on teaching profession

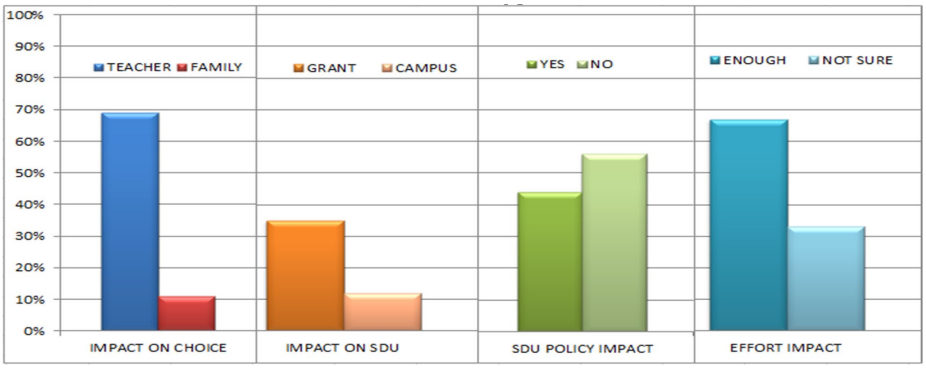


Illustration 2 – School and university influence on teaching profession

Discussion

As it is observed in illustrations 2 and 3 school teachers play a crucial role in our career choice, followed by a grant condition. Then the motive to become a teacher is enhanced by the social sciences and humanities courses such as psychology, self-knowledge, and pedagogy. Moreover, 55% teacher candidates claim that the university education policy is not appropriate to develop positive attitudes to teaching profession. In addition, more than half of teacher candidates believe that they have made the necessary effort to develop positive attitudes to teaching profession. Upbringing function is found very important by great majority of participants (80%), which demonstrates the presence of leadership motive in future teachers.

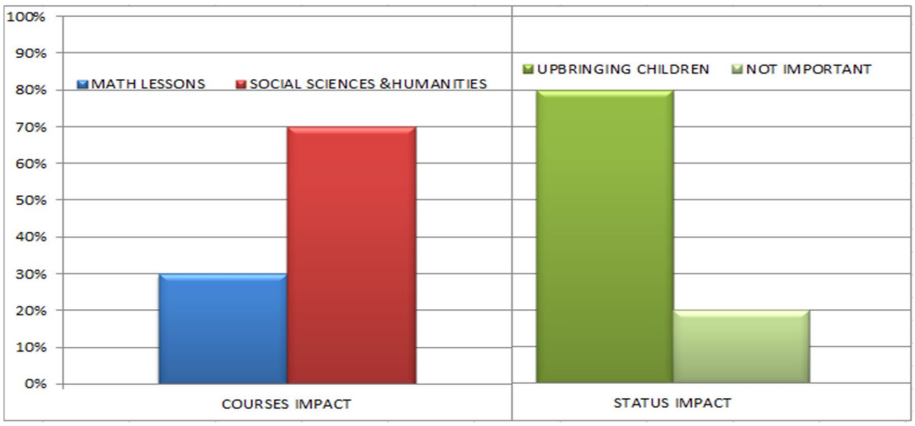


Illustration 3 – Courses and status influence on teaching profession

Factor 2. Future Plans

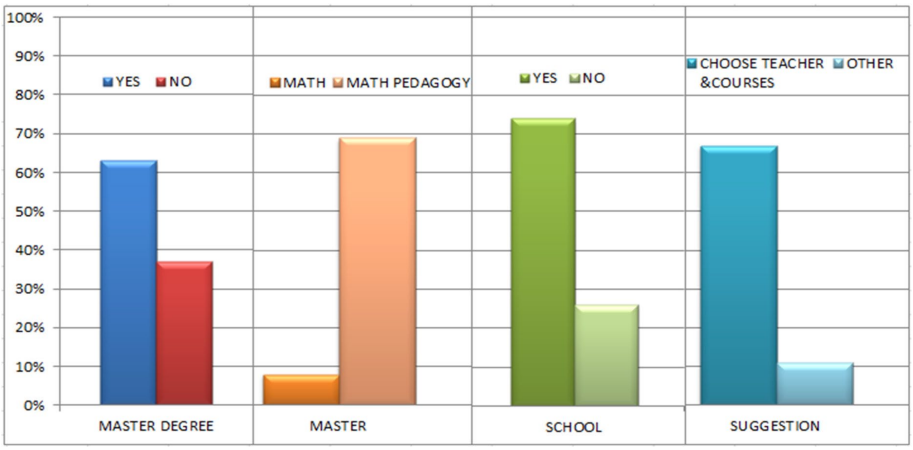


Illustration 4 – Future Plans findings

Discussion

More than 60% of graduates are planning to apply for master degree in math pedagogy, showing their commitment to their profession. Also they want to work at school to gain teaching experience before going to master degree.

Factor 3. Internship Experience

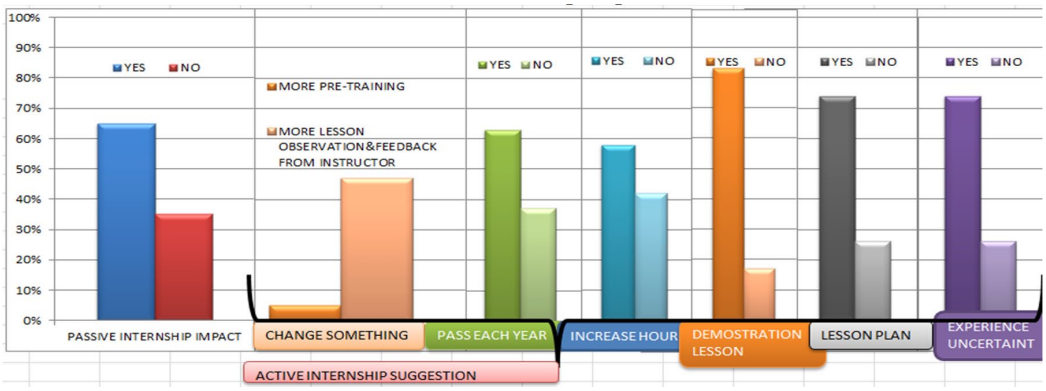


Illustration 5 – During internship reflections

Discussion

Pre-service teachers believe that passive internships have affected their attitude to teaching profession. Equally important fact, future teachers needed more lesson observation and feedback from the instructors. Similarly, 61% of future teachers believe that passing the internship each year could be very useful and productive for them. Also, an increase in internship load will be better for education program. More than half of teacher candidates experienced uncertainty with the structure of lesson and materials, which means that they needed more theoretical pre-training sessions. Teacher candidates have found teaching profession more interesting after internship. Teacher candidates have found teaching profession more interesting after internship. The overall teacher candidates have found teaching profession more interesting after internship. The overall satisfaction of 4th year internship was between 100-75%. After internship 61% of teacher candidates want to be teachers (Illustration 6).

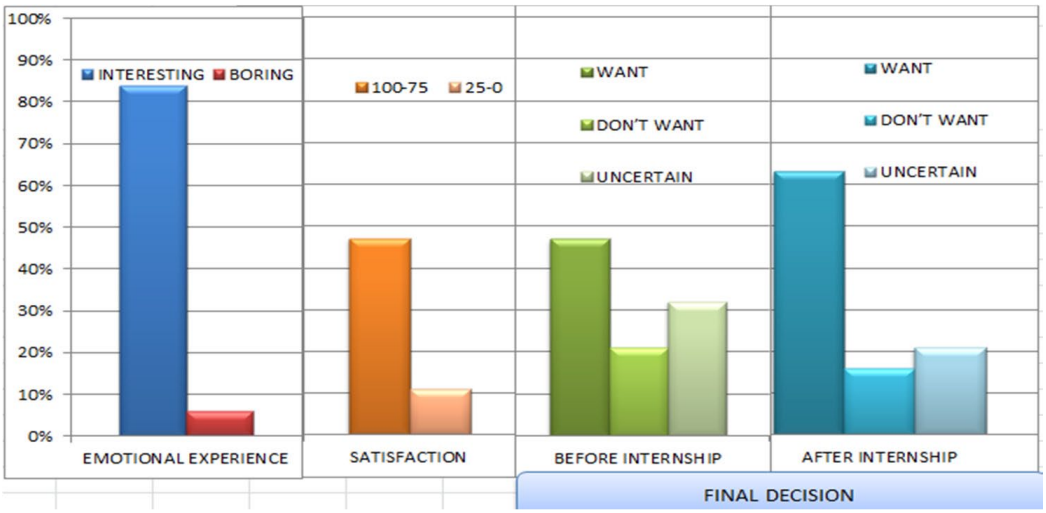


Illustration 6 – Post internship reflections

Conclusion

The hypothesis ‘Active internship will change pre-service teachers’ attitudes to math and teaching profession’ wasconfirmed.According to the data we gained in post-internship stage the following conclusions can be drawn:

Active internship changed the most future teachers’ attitude to teaching profession. 61% of teacher candidates want to be teachers.

Internship did not affect Enjoyment , Motivation and Self-confidence in math , yet it influenced Value in math.

More than 60% of graduates are going to work at school to gain more teaching experience and then apply for master degree in math pedagogy. Additionally, 65% of teacher candidates propose certain changes in education in order to choose teachers and courses.

61% of future teachers decided that passing internship each year was very useful and productive for them.

Teacher candidates have found teaching profession more interesting after internship.

Limitation of the study

Though the findings in this study support the belief that internship had the impact on attitude change towards teaching profession, there are some limitations to the research that should be noted. One of the limitations can be length of time given for internship. Internship formally covered two months at different institutions. The internship began with one month of observation and then another month of explicit instruction on the teaching process and 16 lessons of lesson-giving. It showed that teachers need longer time in order to implicate their knowledge and skills to fully understand their abilities.

Another limitation of the study is the fact that there was only one group of pre-service teachers. Due to constraints placed on this research study by the university in which the teachers were enrolled, there was no control group. Each of the twenty pre-service teachers received the same pre-experiment expectation survey, the same explicit instruction over the four-week period and the same post-experiment interview. The findings would be more significant if there had been different groups of participants from different universities.

Recommendations

There are several recommended improvements:

To add the course or seminars of contemporary teaching methods and techniques for the pre-service teachers’ internship;

To extend the length of explicit teaching time and thus provide additional instruction,supervision, and feedback in order to help the interns to gain more skills competence.

To provide scaffolding sessions for the supervisors, which would guide them to focus on the most recent area of teaching and allow more targeted and helpful feedback.

to revisit planning and its implementation by changing teacher training authorities’ attitude and specific attention to internship .

References

1 Albina, G. (2012). Which is better? Alternative or traditional. Educational Leadership, 69(8), 70-72. http://www.ascd.org/publications/educational-leadership/may12/vol69/num08/Which-Is-Better%C2%A2-Alternative-or-Traditional.aspx

2 Akbulut, Ö. E., & Karakus, F. (2011). The investigation of secondary school science and mathematics pre-service teachers’ attitudes towards teaching profession. Educational Research and Reviews, 6(6), 489. https://www.researchgate.net/publication/287232320_The_investigation_of_secondary_school_science_and_mathematics_pre-service_teachers’_attitudes_towards_teaching_profession

3 Anderson, D. S., & Piazza, J. A. (1996). Teaching and learning mathematics in constructivist preservice classrooms. Action in Teacher Education, 18(2), 51-62.

4 Austin-Martin, G. G. (1979). The Effects of Student Teaching and Pretesting on Student Teachers’ Attitudes. The Journal of Experimental Education, 48(1), 36-38.

5 Barab, S. A. & Hay, K. E. (2001). Doing science at the elbows of experts: issues related to the science apprenticeship camp. Journal of Research in Science Teaching, 38(1), 70-102. https://onlinelibrary.wiley.com/doi/abs/10.1002/1098-2736%28200101%2938%3A1%3C70%3A%3AAID-TEA5%3E3.0.CO%3B2-L

6 Capa, Y., & Cil, N. (2000). Teachers’ attitudes towards teaching profession an investigation of the different variables. Hacettepe University J. Educ, 18, 69-73.

7 Çapri, B., & Çelikaleli, Ö. (2008). Öğretmen adaylarının öğretmenliğe ilişkin tutum ve mesleki yeterlik inançlarının cinsiyet, program ve fakültelerine göre incelenmesi. İnönü Üniversitesi Eğitim Fakültesi Dergisi Cilt: 9 Sayı: 15 Bahar , 33–53 . http://dergipark.gov.tr/download/article-file/92333

8 Clarke, M., Lodge, A., & Shevlin, M. (2012). Evaluating initial teacher education programmes: Perspectives from the Republic of Ireland. Teaching and Teacher Education, 28, 141-153. http://eprints.teachingandlearning.ie/2003/1/Clarke%20et%20al%202012.pdf

9 Collin, S., Karsenti, T., & Komis, V. (2013). Reflective practice in initial teacher training: Critiques and perspectives. Reflective Practice: International Multidisciplinary Perspectives, 14(1), 104-117. http://www.karsenti.ca/archives/CollinKarsentiKomis2013.pdf

10 Camacho, M., Socas, M. M., & Hernandez, J. (1998). An analysis of future mathematics teachers' conceptions and attitudes towards mathematics. International Journal of Mathematics Education in Science and Technology, 29(3), 317-324. https://www.tandfonline.com/doi/abs/10.1080/0020739980290301

11 Cornell, C. (1999). I hate math! I couldn't learn it, and I can't teach it! Childhood education, 75(4), 225.

12 Darling-Hammond, L. & Gendler T., Wise, A. E. (1990). The teaching internship: Practical Preparation for a licensed profession. Santa Monica: RAND Publication. https://www.rand.org/pubs/reports/R3927.html

13 Eraslan, L.ve Çakıcı, D. (2011). Pedagojik formasy on program öğrencilerinin öğretmenlik mesleğine yönelik tutumları. Kastamonu Eğitim Dergisi, 19 (2), 427-438. http://www.kefdergi.com/pdf/19_2/19_2_6.pdf

14 Fatih Bektas & Ahmet Nalcaci (2012) ."The Relationship between Personal Values and Attitude towards Teaching Profession" - Educational Sciences: Theory & Practice, P. 1244-1248. https://files.eric.ed.gov/fulltext/EJ987843.pdf

15 Griffin, M. L. (2003). Using critical incidents to promote and assess reflective thinking in pre-service teachers. Reflective Practice: International and Multidisciplinary Perspectives,4(2), 207-220. https://www.tandfonline.com/doi/abs/10.1080/14623940308274

16 Haladyna, T., Shaughnessy, J., & Shaughnessy, J. M. (1983). A causal analysis of attitude toward mathematics. Journal for Research in Mathematics Education, 19-29. https://www.jstor.org/stable/748794?seq=1#page_scan_tab_contents

17 Hosgoru, K. O. & Dundar, H.(2002). Kirikkale University classroom teaching programme, Students" attitudes towards the teaching profession. Marmara University Faculty of Education. Science Journal, 8(16), 91-100.

18 Hudson, P. & Skamp, K. (2002). Mentoring preservice teachers of primary science. Southern Cross University. The Electronic Journal of Science Education, 7(1). http://wolfweb.unr.edu/homepage/crowther/ejse/hudson1.pdf.

19 Kaya, A., & Büyükkasap, E. (2005). Physics student teachers' profiles, attitudes and anxiety toward teaching profession: An Erzurum sample. Kastamonu Education Journal, 13(2), 367-380.

20 Koc, E. M. (2011). Development of mentor teacher role inventory. European Journal of Teacher Education, 34(2), 193-208. https://www.tandfonline.com/doi/abs/10.1080/02619768.2010.539199

21 Kulakhmetova, A., McLaughlin & Ayubayeva, N. (2014). Preparing Teachers: an international review of the evidence on initial teacher education. Research Project "Development of Strategic Directions for Education Reforms in Kazakhstan for 2015-2020". Nazarbayev University Graduate School of Education: Astana, 26.
https://gse.nu.edu.kz/wp-content/uploads/2018/06/Kulakhmetova-et-al.-Review_final_dec-29.pdf

22 McGinnis, Kramer, and Watanabe (1998). Charting the Attitude and Belief Journeys of Teacher Candidates in a Reform-Based Mathematics and Science Teacher Preparation Program. Paper presented at the Annual Meeting of the American Educational Research Association , San Diego, CA https://terpconnect.umd.edu/~toh/MCTP/Research/AERA98.html

23 McLeod, D. B. (1992). Research on affect in mathematics education: A reconceptualization. Handbook of research on mathematics teaching and learning, 575-596.

24 Murzina, S.A (2016). Aktualnye problemy i napravlenya razvitya pedagogicheskoy praktiki . Vestnik KazNPU , "Pedagogical Sciences" , № 1 (49) , 124-126 (in Russian) http://kaznpu.kz/docs/vestnik/seriya_ped_nauki/ped_nauki_1_2016.pdf

25 Oruc, N. (2011). The perception of teaching as a profession by Turkish Trainee Teachers: Attitudes towards being a teacher. International Journal of Humanities and Social Science, 1(4), 83-87. http://www.ijhssnet.com/journals/Vol._1_No._4;_April_2011/11.pdf

26 Osunde, A., & Izevbigie, T. (2006). An assessment of teachers' attitude towards teaching profession in Midwestern Nigeria . Education, 126(3).

27 Özder, H., Konedralı, G., & Zeki, C. P. (2010). Öğretmen adaylarının öğretmenlik mesleğine yönelik tutumlarının çeşitli değişkenler açısından incelenmesi. Kuram ve Uygulamada Egitim Yönetimi Dergisi, 16(2), 253-275.

28 Parveen, S., & Mirza, N. (2012). Internship program in education: effectiveness, problems and prospects. International Journal of Learning & Development, 2(1), 487-498. http://www.macrothink.org/journal/index.php/ijld/article/view/1471

29 Philippou, G. N., & Christou, C. (1998). The effects of a preparatory mathematics program in changing prospective teachers' attitudes towards mathematics. Educational studies in mathematics, 35(2), 189-206. https://link.springer.com/article/10.1023/A:1003030211453

30 Rech, J., Hartzell, J., & Stephens, L. (1993). Comparisons of mathematical competencies and attitudes of elementary education majors with established norms of a general college population. School Science and Mathematics, 93(3), 141-144.

31 Robert J. Quinn (1997) .Effects of Mathematics Methods Courses on the Mathematical Attitudes and Content Knowledge of Pre-service Teachers. The Journal of Educational Research ,Vol. 91, No. 2 Taylor & Francis, Ltd.https://www.jstor.org/stable/27542137

Литература

1 Albina, G. Which is better? Alternative or traditional // Educational Leadership. - 2012. - №69(8). – P. 70-72.

2 Akbulut, Ö. E., Karakus, F. The investigation of secondary school science and mathematics pre-service teachers' attitudes towards teaching profession //Educational Research and Reviews, 2011. - №6(6). – P. 489.

3 Anderson, D. S., Piazza, J. A. (). Teaching and learning mathematics in constructivist preservice classrooms // Action in Teacher Education. – 1996. - № 18(2). – P. 51-62.

4 Austin-Martin, G. G. (). The Effects of Student Teaching and Pretesting on Student Teachers' Attitudes // The Journal of Experimental Education, - 1979. - №48(1). – P. 36-38.

5 Barab, S. A., Hay, K. E. Doing science at the elbows of experts: issues related to the science apprenticeship camp // Journal of Research in Science Teaching, 2001. - №38(1). – P.70-102.

6 Capa, Y., Cil, N. Teachers' attitudes towards teaching profession an investigation of the different variables // Hacettepe University J. Educ, 2000. - №18. – P. 69-73.

7 Çapri, B., Çelikaleli, Ö. Öğretmen adaylarının öğretmenliğe ilişkin tutum ve mesleki yeterlik inançlarının cinsiyet, program ve fakültelerine göre incelenmesi. İnönü Üniversitesi Eğitim Fakültesi Dergisi Cilt: 9 Sayı: 15 Bahar. – 2008. – P. 33–53.

8 Clarke, M., Lodge, A., Shevlin, M. Evaluating initial teacher education programmes: Perspectives from the Republic of Ireland // Teaching and Teacher Education, 2012. - №28. – P. 141-153.

9 Collin, S., Karsenti, T., Komis, V. Reflective practice in initial teacher training: Critiques and perspectives // Reflective Practice: International Multidisciplinary Perspectives, 2013. - №14(1). – P. 104-117.

10 Camacho, M., Socas, M. M., Hernandez, J. An analysis of future mathematics teachers' conceptions and attitudes towards mathematics // International Journal of Mathematics Education in Science and Technology, 1998. - №29(3). – P.317-324.

11 Cornell, C. I hate math! I couldn't learn it, and I can't teach it! // Childhood education, 1999. - №75(4). – P. 225.

12 Darling-Hammond, L., Gendler T., Wise, A. E. The teaching internship: Practical Preparation for a licensed profession. - Santa Monica: RAND Publication, 1990.

13 Eraslan, L. ve Çakıcı, D. Pedagojik formasy on program öğrencilerinin öğretmenlik mesleğine yönelik tutumları. Kastamonu Eğitim Dergisi, 2011. - №19 (2). – P. 427-438.

14 Fatih Bektas, Ahmet Nalcaci. The Relationship between Personal Values and Attitude towards Teaching Profession // Educational Sciences: Theory & Practice, 2012. - P. 1244-1248.

15 Griffin, M. L. Using critical incidents to promote and assess reflective thinking in pre-service teachers // Reflective Practice: International and Multidisciplinary Perspectives, 2003. - № 4(2). – P. 207-220.

16 Haladyna, T., Shaughnessy, J., Shaughnessy, J. M. A causal analysis of attitude toward mathematics // Journal for Research in Mathematics Education, 1983. – P.19-29.

17 Hosgoru, K. O., Dundar, H. Kirikkale University classroom teaching programme, Students" attitudes towards the teaching profession. Marmara University, Faculty of Education. Science Journal. – 2002. - №8(16). – P. 91-100.

18 Hudson, P., Skamp, K. Mentoring preservice teachers of primary science. Southern Cross University // The Electronic Journal of Science Education, 2002. - № 7(1).

19 Kaya, A., & Büyükkasap, E. Physics student teachers' profiles, attitudes and anxiety toward teaching profession: An Erzurum sample // Kastamonu Education Journal, 2005. - №13(2). P. 367-380.

20 Koc, E. M. Development of mentor teacher role inventory // European Journal of Teacher Education, 2011. - №34(2). – P. 193-208.

21 Kulakhmetova, A., McLaughlin, Ayubayeva, N. Preparing Teachers: an international review of the evidence on initial teacher education. Research Project "Development of Strategic Directions for Education Reforms in Kazakhstan for 2015- 2020". – Astana: Nazarbayev University Graduate School of Education, 2014. – P.26.

22 McGinnis, Kramer, Watanabe. Charting the Attitude and Belief Journeys of Teacher Candidates in a Reform-Based Mathematics and Science Teacher Preparation Program. Paper presented at the Annual Meeting of the American Educational Research Association. - San Diego, CA, 1998.

23 McLeod, D. B. Research on affect in mathematics education: A reconceptualization. Handbook of research on mathematics teaching and learning, 1992. – P. 575-596.

24 Мурзина С.А. Актуальные проблемы и направления развития педагогической практики // Вестник КазНПУ им. Абая, серия «Педагогические науки». – 2016. - №1(49). - С.124-126.

25 Oruc, N. The perception of teaching as a profession by Turkish Trainee Teachers: Attitudes towards being a teacher // International Journal of Humanities and Social Science, - 2011. - №1(4). - P. 83-87.

26 Osunde, A., Izevbigie, T. An assessment of teachers' attitude towards teaching profession in Midwestern Nigeria // Education, 2006. - №126(3).

27 Özder, H., Konedralı, G., Zeki, C. P. Öğretmen adaylarının öğretmenlik mesleğine yönelik tutumlarının çeşitli değişkenler açısından incelenmesi // Kuram ve Uygulamada Egitim Yönetimi Dergisi, 2010. - №16(2). – P. 253-275.

28 Parveen, S., & Mirza, N. Internship program in education: effectiveness, problems and prospects // International Journal of Learning & Development, 2012. – №2(1). – P. 487-498.

29 Philippou, G. N., Christou, C. The effects of a preparatory mathematics program in changing prospective teachers' attitudes towards mathematics // Educational studies in mathematics, 1998. - №35(2). - №189-206.

30 Rech, J., Hartzell, J., Stephens, L. Comparisons of mathematical competencies and attitudes of elementary education majors with established norms of a general college population // School Science and Mathematics, 1993. - №93(3). – P. 141-144.

31 Robert J. Quinn. Effects of Mathematics Methods Courses on the Mathematical Attitudes and Content Knowledge of Preservice Teachers // The Journal of Educational Research , 1997. - Vol. 91. - No. 2