Developing The Perspective of Preservice Mathematics Teachers Through Early Field Experience

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Abstract: Field experience is done to provide an opportunity to preservice teachers to develop pedagogic, professional competencies, personality, and social holistically through classroom learning and interactions outside the classroom. The purpose of this study is to describe what preservice teachers observe and what their perspective process they get during an early field experience. The subjects were sixteen preservice mathematics teachers who do field experience in separate schools and data collected by questionnaire, reflection and interview. Questionnaire data analyze with quantitative method using dependent t-test to compare their perspective before and after early field experience. Data from reflection and interview analyze with descriptive qualitative method. The results that there is difference of perspective before and after field experience. Through observation and learning class and school environment makes perspective preservice teachers' growth in their readiness be a teacher, design curriculum, teaching strategies, self-confidence.

Keywords: Curriculum design, Teaching strategies.

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Introduction

The formation process in student grows according to the input given to them. To produce capable students in accordance with the expected skills or outputs, it is necessary to provide adequate learning during their education. During lectures, mathematics education students have been given theoretical knowledge, but it is not enough just only theory, it is necessary to give them meaningful experience learning for themselves to prepare to become professional teachers. This is a challenge in preparing teachers, how to prepare prospective teachers by linking educational theories and teaching practice (Eutsler, L, 2019). So practical learning is needed by participate a field experience program so that students teachers can learn from the school environment (Heafner et al., 2014). Field experience is provided to bridge the theory-practice gap by transforming professional knowledge into instructional practice. Conversely, for field experience to be effective, prospective teacher must also start with in-depth professional knowledge (Kulgemeyer, C, 2020).

The results of Nelson's research (2019) found that there is a positive impact of field experience for prospective teachers on their beliefs and intentions because of seeing technology that usually used by professional teachers with a meaningful learning approach. A student needs to be equipped practically to equip them with various skills as designed in the curriculum. In addition, their growth also needs to be evaluated for progress, not to compare with other students but to compare before and after getting lectures or programs that have been given. The goal of any field experience program undertaken is to prepare qualified future teachers (Anderson, J. 2022). Students, education staff, curriculum, learning facilities and educational environment are some of aspect that affect the educational process (Syofyan, 2022)

Seeing the importance of field learning experiences for prospective teacher, it is necessary to hold a field experience program that provides opportunities for prospective teachers to learn from the school environment. However, Turmuzi's (2021) findings that prospective mathematics teacher at Faculty Teachers College Mataram University feel that they are not ready to do Field Experience Program (FE) at school because many of them do not master with teaching materials. They also do not understand the learning strategies that are in accordance with the teaching materials. They tend to implement new learning strategies based on their understanding and do not pay attention to the student's situation. Moreover, Schiucheeti (2019) findings that although students' teachers self-efficacy levels vary each semester, statistically there is increasing in self-efficacy levels when compared with before participating in field experiences. Despite the increase in student self-efficacy, students teachers stated that they still need field experience programs.

By seeing the importance of students learning practically and their readiness to become a teachers, the field experience program at Faculty Teachers Collage - Pelita Harapan University was carried out two times to equip prospective mathematics teacher to develop their teaching skills and prepare them to become professional teachers. First, prospective teacher are given learning opportunities through participatory and collaborative observation with mentor teachers. Students teacher are expected to observe the entire process of preparation, learning and assessment holistically where they are guided by mentor teachers at school. In the series of observations, students teachers must also discuss the results of their observations with the mentor teacher. The number of teachers observed by students must be more than one teacher, so it is possible that prospective teacher students can learn more from teachers mentor and the school environment. Mentor teachers assist prospective teacher students in understanding a series of learning plans designed according to the learning context at school, assist students in understanding work ethic and school expectations, giving feedback from teacher students performance with orally and writing.

Not only mentor teachers, the Principal also plays a role in shaping the professionalism of student teacher because be a intercedes communication between the school and the Faculty, ensuring that organizational arrangements and other things that need to be available properly, so that students teacher have access to the school's online platform, access to teaching materials, and other access in school activities, ensure that the mentor teacher knows and performs well his duties and roles. Before student teachers start their experience in school, student teachers also briefed on all procedures in implementing Field Experiences and explaining what

must they will done and prepared during Field Experiences. Students teacher are given a handbook to assist them in carrying out all the tasks given. Students teacher not only supervised by mentors and principals, but also guided by Lecturer as a supervisors who will monitor the implementation of field experience programs and contribute to the development of students teacher by helping them appreciate the relationship between theory and practice, work with them collaboratively, to form, to direct, to challenge and to encourage them to develop their teaching competencies, build relationships with student teacher in order to create effective communication, provide support by providing fair, honest, and specific oral and/or written feedback that can assist students teachers in developing their observation skills carried out online, provide assessments based on student teacher observation experiences through e-portfolios.

During the field experience program, students teacher learn from the school environment, whether from students, teachers, principals or others in the school environment. Students teachers observe all school activities that help in preparing themselves to become a professional teachers. In addition, students teachers also reflect on all their experiences by assessing themselves, strengths and weaknesses and actions that will be taken in the future, willingness to learn, clear focus taken for the next step to become a professional teacher. Through self-reflection, students are expected to experience growth from their field experiences (Mohebi, L. 2022; Abdel-Basset et al., 2018). Not only reflection, students teacher also get feedback from teacher mentors about their skills, ability to collaborate, initiative, confidence, polite appearance, and confidence. This feedback expected students teachers also focus on aspects that they need to be developed and maintained in the process of preparing themselves to become professional future teachers (Gibson and Musti-Rao, 2016; Gürkan, 2018).

After doing field experience at school, students teachers are expected to gain experience as their provision before being entrusted to be teachers and how students construct a perspective as a prospective teacher and how that view is constructed. Perspective is the process in which individuals are aware when making decisions and how to respond to accepted stimuli or as a point of view on how to see observed phenomena (Aw, 2011; Martono 2010; Sihite, MR, & Rangkuti, LA, 2023; Wardhana, WB, Suryaningrum, CW, & Romdhani, RW, 2022). The purpose of this study is to describe what experiences students gained during early Field Experience Program and how their perspectives developed after finishing early Field Experience.

Method

The research method used using quantitative methods by looking at the development of students' teachers perspectives before and after Field Experience Program (Ramdhan, M, 2021). Data was collected from sixteen mathematics education students who attended the Field Experience program at the school. Data on student's teachers perspectives were collected through questionnaires, reflections and closed interviews. Meanwhile, the data from reflections and interviews were analyzed descriptively. After the questionnaire data was collected, the data was processed using a non-parametric test using the Wilcoxon test using the help of SPSS to see the difference of students' perspectives before and after Field Experience Program (Unaradjan, DD, 2019).

Results and Discussion

Data from students' teachers perspectives before and after participating in the field experience program were compared and analyzed with the help of SPSS. Here is the data from SPSS processing:

Test Statistics[a]

	After_Field_Experience - Before_Field_Experince
Z	-3.191[b]
Asymp. Sig. (2-tailed)	.001

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

From the research data, it was obtained that the average perspective of students teachers before early Field Experience program was 29.91, but after participating in the program, the experience increased to 33.06. This shows that students' perspectives develop after taking Field Experience program. By looking at the results of statistical tests, it was found that there was a significant difference between the perspective of students teachers before and after early Field Experience Program was conducted. It can be seen that the sig value of 0.001 < 0.05 means that there is a significant change in their perspective before and after Field Experience Program. This shows that early Field Experience Program has a significant impact in shaping their professionalism. Here is the development of student perspectives from each aspect:

A. Readiness to Become a Teacher

Data on student readiness to become teachers before and after early Field Experience Program can be illustrated in the following bar chart:

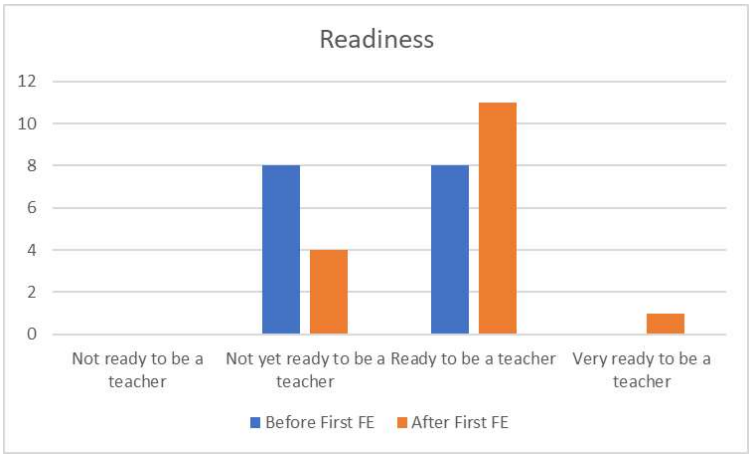

Figure 1. Graph Readiness to Become a Teacher

Before early Field Experience Program, there were 8 students who were not ready to become teachers and 8 students were ready to become teachers. However, after early Field Experience Program saw an increase to 11 people ready to become professional mathematics teachers and 1 student felt very ready to become a teacher.

Before early Field Experience Program, students teachers still had doubts about their ability to master mathematics content, learning methods, class mastery, self-mastery, were not able to direct students correctly, still needed to have a better personality, responsibility, discipline. However, after early Field Experience Program students teachers learn a lot to prepare communication skills and how to manage classes by well, learn to place themselves as a guide so that they can guide students to grow to know themselves, more able to control their emotions so they can handle the classroom learning process, need to prepare material and methods to delivery the content. Studentsteachers are increasingly confident and prepared to become professional teachers who can be role models, good guides and guides for their students.

B. Ability to Design Curriculum

The following data describes on students' ability to design learning before and after early Field Experience Program:

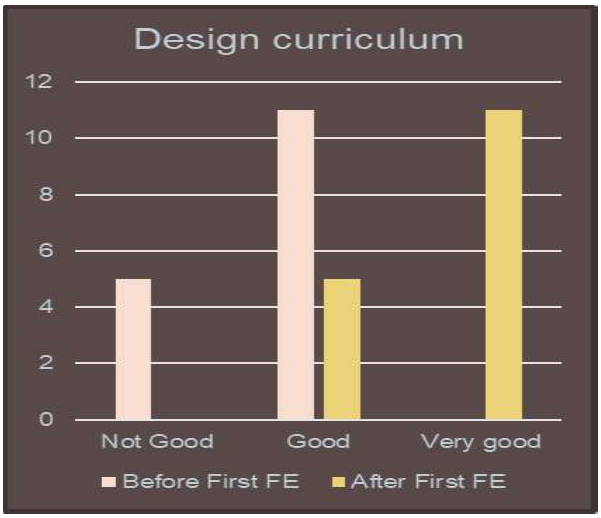

Figure 2. Graph Ability to Design Curriculum

From the results of the questionnaire, 12 students teacher considered the ability to design learning or curriculum design in a good category, while 5 students teachers were not good. However, after the early Field Experience Program there were 5 students teacher who thought that their ability to design learning or curriculum was very good, while 11 other students teacher were in a good category.

Before early Field Experience Program students teachers were able to compose material and learn mathematics quite well but were not proficient/trained. Students have also studied it theoretically in other curriculum and pedagogy courses, but students still need to learn direct observation of good curriculum or learning design.

There are students teacher who feel that their ability to design lessons is not good because when presenting in previous class, students teacher have not been able to master the methods and ways of teaching properly. Some of them still do not understand very well how to compile a curriculum that is more interesting and useful for students. However, after early Field Experience Program, students teacher increasingly understand that they need to have good relationships with students, understand class characteristics, class situations and conditions and get to know each student's personality so that they can get to know students' methods, strategies and learning styles so that they can be attractive to students. Students teachers need to design learning with a lifelong understanding that is useful in learning and understand the important essence associated with contextual issues, make teaching preparations including mastering teaching materials very well. Besides that, there needs to be a willingness and effort to adapt, change, and try various ways to make the class even better. In addition, students are committed to be more enthusiastic about learning because it is very useful and will become their provision later. This is in line with the results of Akvovo's research (2020) that students teacher learn to absorb culture during early Field Experience Program to facilitate their learning.

C. Teaching Strategy

The ability of students to design teaching strategies before and after conducting early Field Experience Program is illustrated in the following bar chart:

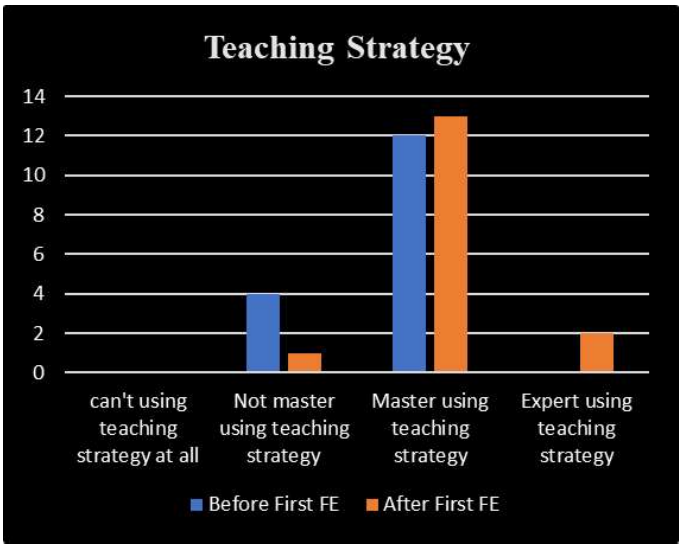

Figure 3. Graph Teaching Strategy

From the results of the questionnaire, before early Field Experience Program as many as 12 students teacher had the ability to master good mathematics teaching methods and strategies, while 4 students teacher had not mastered. After the early Field Experience Program there were 13 students teachers who had the ability to master mathematics learning methods/strategies well, 2 students teacher were very good at it and there was one student who still did not have the ability to master mathematics learning methods or strategies by well.

Before early Field Experience Program there were student teacher who thought that they had mastered teaching strategies well because they had learned from previous experiences in learning mathematics, even though it needed to be improved further, some students teacher found it difficult to apply and had not been able to teach well because they lacked mastery of the material and needed teaching observation. Students teacher often meet student who do not really like math. As a result they are not very active, quiet, maybe even noisy in learning. After early Field Experience Program, students teacher think that they can learn how teachers must be able to design and master the strategic methods that will be used for teaching so that learning is conveyed in a clear and structured manner and facilitates each of the unique characteristics of student learning. Students teacher learn a lot, through strategies that make students understand, how to make students want to be open to teachers about their difficulties, their opinions so that learning is interesting and runs interactively, not monotonously. Students teacher need to master math content well, so they can divide topics and develop learning plans and time allocations properly.

D. Self Confidence

The developing of students teacher self-confidence before and after participating in early Field Experience Program is illustrated in the following diagram:

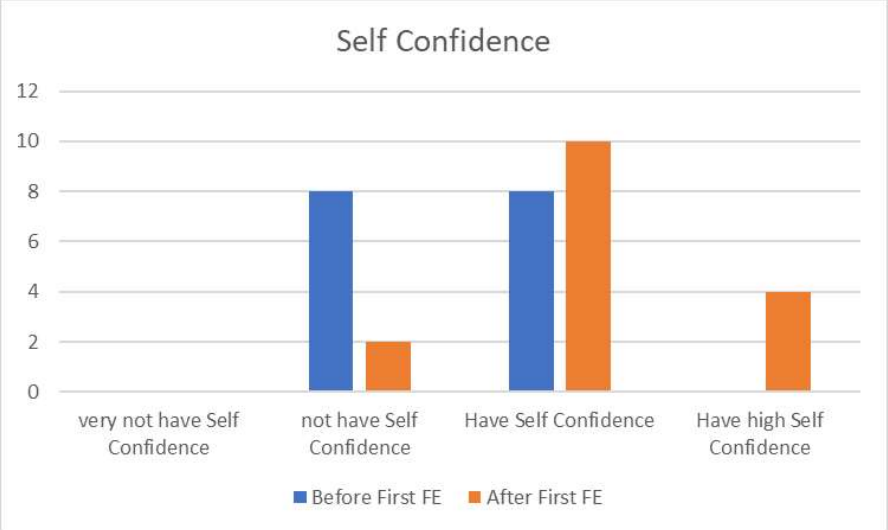

Figure 4. Graph Self Confidence

The results of the quistionare show that 8 students teacher were not confident before early Field Experience Program, 8 students teacher were already confident to become teachers. However, after the early Field Experience Program there were 2 students teacher who were not confident, 10 students teacher became confident and 4 students teacher were very confident.

Before early Field Experience Program students teacher lacked confidence because their math skills were still weak and their teaching skills weren't good enough, they weren't able to solve questions correctly, they didn't have good communication skills, when in front of the class because it allowed them to meet students with abilities mathematics smarter than them so that there is a feeling of fear of being judged if they make a mistake, some of students teacher feel comfortable when teaching others. However, after early Field Experience Program students teacher are confident in teaching, their speaking skills increase, student teacher perceive that the reality they encounter is not as bad as what they previously thought. Students teacher feel that they need to continue studying because they still have time to learn and improving their skill. Students teacher realize that self-confidence is very important for a teacher. Students teacher already have an overview of the school and the classroom learning process. The good experience of students teacher make them grow in self-confidence because they are able to relate to students and they are very pleasant.

Through the early Field Experience Program, students teacher grow and are equipped to become professional teachers (Shelton, R. (2020); Hamilton, E.R. 2019; Zeichner et al. 2015). This is in line with the results of Azwar's research (2019) which found that field experience programs make prospective teachers more confident in their teaching. The results of Sumartini's research (2020) show that prospective mathematics teachers have confidence in mastering mathematical knowledge, but feel less confident that they are able to convey mathematics material to students. This lack of confidence takes a toll on them pedagogical abilities.

Students teacher learn a lot from their experience program. Students' perspectives get better after finishing the early field experience program. Students' teacher perspectives are formed from their experience learning directly in the field how to become professional teachers. This perspective is formed when interacting with students, teachers, principals. This process shapes their readiness to become teachers (Ping, C, 2018). After directly interacting with students, students teacher feel more prepared to become a professional teachers because of their experience while at school. After participating in a series of lessons and learning from mentor teachers who guide them, students teacher feel more capable to designing lessons and more mastering learning strategies. In addition, early field experience has an impact to make better students teacher self-confidence. Students teacher feel more familiar with the school environment and more confident to become a teacher.

Conclusion

The early Field Experience Program has had a significant impact on changing perspectives for the better for students teacher. The perspective of students teacher changed after completing early Field Experience Program. Students teachers feel more ready to become professional teachers, the ability to design learning, teaching strategies and also their confidence is getting better after completing the field experience program. Students teachers who take part in the field experience feel the emergence of new skills, including experience, self-reflection habits, skills and knowledge for job interviews, and comfort with the observation process, better understanding the school context (Bartolome, S.J. (2017; Koubek, E. 2021).

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