When Prospective Mathematics Teacher Students Face Inclusive Classes

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Abstract

Learning mathematics in inclusive classes has its own challenges. This is due to the heterogeneity of student characteristics in the class. Therefore, special knowledge is needed that prospective teacher students must have to deal with inclusion classes, so this research aims to analyze students' readiness to teach in inclusion classes. Qualitative descriptive research was used to describe the results of interviews regarding the readiness of 16 mathematics education students at one of the state Islamic universities in Indonesia. The results of the research show that students in semesters 5 and 7 have good understanding and show readiness to teach in inclusive classes, while students in semesters 1 and 3 also have good readiness to teach in inclusive classes, but they still need prior training in inclusive education courses before being placed in inclusion classes because understanding about children with special needs is still limited. This research has an impact on increasing the skills and empathy of prospective teachers, access and achievement of students with special needs, the quality and readiness of educational institutions, inclusive education policies, as well as public awareness of the importance of inclusion and social acceptance.

Keywords: Children with special needs, Mathematics, Inclusive Education

How to Cite: Muhammad, N.M., Jauhar, R., & Sumbaji, P. (2024). When Prospective Mathematics Teacher Students Face Inclusive Classes. *Pasundan Journal of Mathematics Education, 14*(1), 86-94. http://doi.org/ 10.23969/pjme.v14i1.11987

Education is one of the human rights that every human being has and needs to be able to compete in all aspects of life. There is no exception for those who have physical, social, emotional and intellectual disabilities, this is in accordance with the 1945 Constitution Article 31 paragraph (1), that everyone has the right to receive education regardless of whatever diversity exists within the individual. Murniarti & Anastasia (2016) explains that obtaining education is the right of all citizens, including children with special needs. But what has happened so far is that education for children with these disorders has been carried out separately from normal children. This kind of education has indirectly created a wall of exclusivity between normal children and children with special needs. As a result, their worlds seem separate and alien to each other.

Inclusive education, according to Divine (2013), is education where children with special needs learn together with normal children of the same age in a regular school environment. Children with special needs are those who have different characteristics from other children, especially in terms of mental, emotional or physical disabilities (Wiyani, 2014). Minister of National Education Regulation no. 70 of 2009, in article 1, explains inclusive education as a system where all students, including those with disabilities or potential intelligence and special talents, have the opportunity to learn together in the same educational environment as other students. In this way, children with special needs such as the blind,

deaf, slow learners, quadriplegic, hearing impaired, and children with learning difficulties also have the same opportunity to obtain an education.

Olivia (2017) states that teachers involved in inclusive education need to have knowledge about the characteristics of students with special needs, teaching strategies and assessment methods. Mansur (2019) explains several characteristics of students with special needs that teachers need to understand, including the type of special needs the students have, the severity of the special needs, and the students' ability to access the curriculum. Apart from that, teachers also need to develop learning strategies that are able to optimize interactions between teachers and students, students and students, teachers and students and strengthen the assessment process as a reflection activity (Yuwono & Utomo 2021).

According to Indana (2022) Apart from student characteristics, teachers also need to understand appropriate teaching strategies for students with special needs. Teachers need to develop adaptive learning strategies for individuals with special needs. Appropriate teaching strategies can help students with special needs to access the curriculum and obtain optimal learning outcomes. Apart from that, teachers also need to understand appropriate assessment methods for students with special needs.

Inclusive education has become the main focus in the world of education today. This concept represents a growing effort to integrate students with special needs into the regular classroom. Increased awareness of the importance of inclusion in education reflects a paradigm shift from exclusion towards greater inclusivity in society. As part of this development, mathematics education was also significantly involved.

In the context of prospective mathematics teachers, mathematics education students have a very important role in teaching in inclusive classes. They serve as a bridge between the mathematical theory they learn and the practical experiences they encounter in the classroom. However, teaching in inclusion classes often requires a different and challenging approach compared to regular classes. This is where the role of preparation for mathematics education students becomes very important. Research conducted by (Farman et al., 2023) shows that prospective mathematics teachers experience difficulties in identifying students' errors and sources of errors, as well as in explaining mathematical concepts or procedures. This shows that better preparation is needed to face the challenges of teaching in inclusive classes. Mastery of mathematical concepts by teachers and prospective mathematics teachers is very important in improving students' abilities. This is very important in inclusion classes, where students have diverse needs and require a more personalized approach (Haji & Yumiati, 2021) .

As a prospective teacher, teaching readiness is the main asset. According to Slameto (2013), readiness as a prospective teacher is the ability to provide the required response. Teaching readiness is the condition of an educator who can respond well to the teaching process, including mental, physical, social and emotional aspects. Sudjana (2014) also stated that a teacher needs to prepare teaching readiness through certain strategies. This involves the stages of lesson planning, use of tools or approaches in teaching, and mental preparation by understanding teaching principles. Good preparation is very necessary to get or obtain maximum results. Teaching preparation is demonstrated by the achievement of process quality indicators and teaching and learning outcomes in the classroom. All of these indicators describe all teacher actions in the teaching process, and all of them are determined by the teaching preparation made by the teacher (Larlen, 2013)

Haqqi et al. (2021) describes indicators of teaching readiness including the following aspects: 1) Material mastered, 2) General readiness, 3) Operational skills, and 4) Understanding of competence as a teacher. According to Bandura in (Maddox et al., 2000) , indicators of teaching readiness can be divided into three parts: 1. Attitude and emotional readiness, including enthusiasm, responsibility, flexibility,

comfort, and appreciation of the intrinsic value of the task. 2. Cognitive readiness, which involves critical thinking skills, awareness of strengths and weaknesses, and integration of concepts from various scientific disciplines. 3. Behavioral readiness, which includes the ability to collaborate with colleagues, manage time, and achieve goals. All of these aspects describe how prepared a prospective teacher is as an educator and teacher in a school environment.

Inclusive education is a challenge for teachers, especially for mathematics teachers, who must be able to teach students with different abilities and learning styles. The challenges faced in teaching in inclusive classes can vary. Students in inclusion classes may have varying levels of math ability, from very capable to those who need extra support. Additionally, diversity in support needs such as therapists, sign language interpreters, or technological devices. Mathematics education students need to have a deep understanding of the mathematics material itself. However, they must also be equipped with pedagogical skills that enable them to adapt their teaching approaches according to the diverse needs of inclusion classrooms.

In this context, analyzing the readiness of mathematics education students in facing the challenges of teaching in inclusive classes becomes a relevant and important research topic. This research can provide valuable insight into how prospective mathematics teachers can be more effective in supporting educational inclusivity and help mathematics education students to become more competent educators in increasingly diverse inclusive environments. For this reason, this research aims to analyze students' readiness to teach in inclusive classes.

METHODS

The research method used is a qualitative descriptive method. According to Sugiyono (2016) Qualitative research methods involve researchers as the main instrument used to study the natural conditions of the research object. Nazir (2014) explains that descriptive research aims to present systematic, factual and accurate descriptions of the status of human groups, objects, conditions, systems of thought or current events. According to Sukmadinata (2011), qualitative descriptive research is aimed at describing existing phenomena, both natural and created by humans, with a focus on characteristics, qualities and relationships between activities. The data collection techniques used in this method are interviews and observation. Sugiyono (2016) states that interviews are used to explore in-depth information from informants and identify relevant problems for research.

The population of this study is mathematics education students at UIN Sunan Kalijaga Yogyakarta with 16 students as samples in this study with details of 4 students in the first semester, 4 in the third semester, 4 in the fifth semester, and 4 in the 7th semester with students in the 1st and 2nd semester who have not yet received points. inclusive education courses so that it is hoped that they can get different answers from semester 5 and 7 students who have already received inclusive education courses. The data analysis technique used in this research is the data analysis technique according to Miles and Huberman (1992), this analysis technique has several stages, namely the data collection stage, data reduction, data presentation, and drawing conclusions or verification. The correctness of the data is maintained through triangulation, comparing results from different data sources, to ensure consistency and suitability of information from different participants.

RESULTS AND DISCUSSION

Researchers conducted interviews with 16 mathematics education students to analyze their readiness to face the challenges of teaching in inclusive classes. The results of interviews with 16 mathematics education students regarding their understanding of inclusive education are presented as follows.

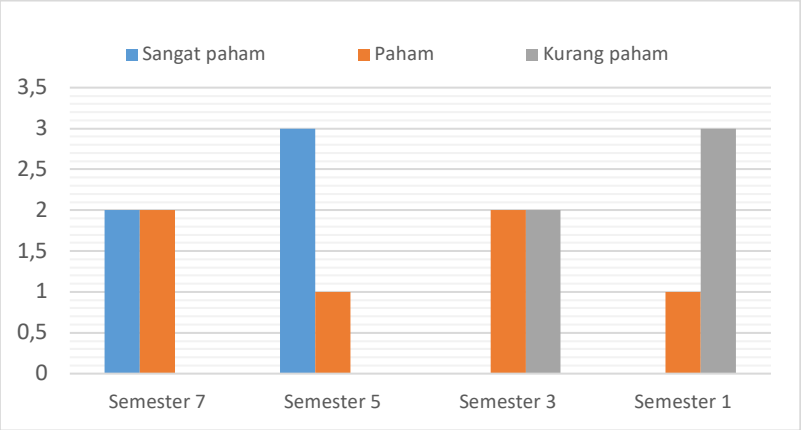

Figure 1. Level of understanding of inclusive education

Figure 1 shows that 5 out of a total of 16 students have a very strong understanding of inclusive education, this shows a deep and comprehensive level of understanding of this concept. A total of 6 students understood this concept well, showing solid understanding but still requiring some clarification. Meanwhile, 5 other students still had difficulty understanding the topic of inclusive education, indicating that additional efforts were needed to help them deepen their understanding of this concept. This shows that the majority of students have a good understanding of inclusive education, which is dominated by semester 7 and semester 5 students who have previously received inclusive education courses.

Based on the results of interviews regarding how mathematics learning for children with special needs is carried out with 16 students, all students emphasized taking a special approach for ABK in learning mathematics, some students suggested using teaching aids/tools according to the needs of students with special needs. According to several students, the strategies used for teaching ABK mathematics are openness in teaching, adapting teaching materials, individual approaches. This shows the need to modify mathematics teaching strategies for children with special needs so that they can be comfortable in class, as well as the existence of additional classes to help ABK in understand mathematics lessons.

And in the assessment process, according to all the students interviewed, there must be a difference between ABK and normal students, however, for some students, what must be differentiated are students who have a severe level, such as blind students, etc. Meanwhile, people with mild disabilities, such as the physically disabled, are still equated with ordinary students in the assessment process.

The readiness of the 16 students interviewed in teaching in inclusive classes is presented as follows.

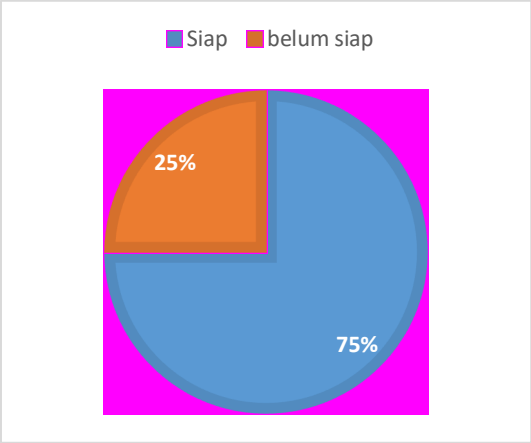

Figure 2. Level of teaching readiness

From Figure 2, it can be seen that 75% of students who feel ready to teach in inclusive classes, dominated by those in semesters 7 and 5, have taken inclusive education courses. This explains why the majority of them feel more prepared, because they have been exposed to material and direct experience related to concepts and practices in inclusive education.

On the other hand, 25% of students who do not feel ready to teach in inclusive classes, which are dominated by those in semesters 3 and 1, may experience limited understanding because they have not taken inclusive education courses. Thus, their understanding of the concept of inclusion is still limited, and it is important to emphasize relevant material and practical experience to prepare them for future inclusive teaching situations.

Students who have taken inclusive education courses have a deeper understanding of the concept of inclusive schools and the criteria for children with special needs in inclusive classes, such as how to properly handle children with special needs and manage inclusive classes that are friendly to children with special needs so that discrimination does not occur. classmate. This is because they went directly to one of the inclusive schools, both middle and high schools, to carry out observations on students with special needs. With this experience, they have sufficient knowledge and skills to handle children with special needs in inclusive schools if one day they are placed there.

On the other hand, students who have never taken inclusive education courses do not have a deep understanding of the concept of inclusive schools. They do not have direct experience in handling students with special needs in inclusive schools. Because of this, they may have difficulty adjusting to an inclusive school environment and understanding the needs of students with special needs there. According to previous research by Kurniadi and Sunaryo (2017), students in the PGSD study program do not have adequate preparation in providing educational services to children with special needs at the elementary school level. This is caused by a lack of provision for PGSD undergraduate students regarding teaching to students who have special needs. Firli et al. (2020) explained that there are still teachers who are still confused about handling children with special needs, especially when studying in class. Teachers have not been able to provide appropriate services, so they are still confused about giving directions that suit children's needs. Salamah (2015) also showed in his research that educators at Pojok Elementary School were not fully prepared to teach children with special needs. The teacher's readiness is compromised by a lack of knowledge and understanding of appropriate teaching strategies for children with special needs. This shows that inclusive education courses are important because they can provide provisions for students to be better prepared to teach students with special needs. Therefore, this

inclusive education course is very important for education students. By taking this course, they can gain a deeper understanding of the concept of inclusive schools.

In the context of learning mathematics for children with special needs, all students, both those who have not received courses and those who have received inclusive education courses, should emphasize the importance of not forcing students with special needs to understand the material being studied to the core like other normal students, but rather understand the basics. -the basic material alone is enough. This is in line with research by Stiawan (2019) , the material taught in inclusion classes, both for regular students and students with special needs, has similarities. The fundamental difference lies in the level of attention and motivation given by teachers to students with special needs, as well as material achievement targets which may be slightly different between regular students and students with special needs. For students who fall into the category of children with special needs, the learning approach focuses more on understanding basic concepts. Garnida (2015) concluded that mathematics learning for children with special needs must be adapted to the characteristics, needs and abilities of each individual, and prioritize understanding simple and functional concepts. This is because children with special needs have a different level of understanding from regular students, so teachers often need to treat children with special needs by re-explaining the material being explained (Prastiwi & Abduh, 2023) . Husniah & Azka (2022) explain a little repeating the previous material by providing a brief description of the previous material or asking several questions to help students remember the previous material, and providing an introduction to the new lesson by discussing the material to be studied with the environment or asking questions about concepts. what students already know to develop or get a new concept. All students also highlighted the importance of special approaches in teaching mathematics in inclusive classes, such as using visual aids or sign language according to the needs of students with special needs.

The curriculum design and mathematics teaching methods are prepared with the aim of being able to adapt to the diverse needs of students in inclusive classes, including those who have different levels of understanding. This is in accordance with Farisia's (2017) research, which explains that variation and expansion Curriculum is something that must be done in inclusive education, so that children with special needs will be able to experience meaningful learning, like other normal children. In the context of mathematics learning for children with special needs, modification of mathematics teaching strategies is needed to ensure that the approach supports and pays attention to the needs of all students, including those with special needs. Murniarti & Anastasia (2016) stated that the concept of inclusive education, one of which is that the education implementation system must be able to meet the needs of all students, including students with special needs. Implementation includes adjustments to the curriculum, assessment and graduation system. This strategy involves adjustments or modifications as well as providing facilities or accommodations for students with special needs. The aim is to optimize their potential in the learning process so that they can understand the subject matter comprehensively and effectively.

This approach encourages true inclusion where every individual in the class feels supported and valued for their unique understanding of mathematics. As well as the existence of additional classes outside of school hours which is an important aspect of the inclusive approach for children with special needs in learning mathematics. These additional classes are specifically designed to provide these students with the extra attention and assistance they need so they can strengthen their understanding of math concepts. A more personalized and in-depth approach can be provided according to individual needs, creating a more flexible space to expand their mathematical understanding.

The assessment process is also a crucial part of this inclusion approach. Differences in assessment for students with special needs are reflected in approaches tailored to their abilities and needs. Assessment looks not only at the end result, but also at the student's learning process, considering different ways of evaluating their understanding of mathematical material. Kadir (2015) explains that inclusive schools are designed according to regular school standards, but undergo adjustments to meet the needs of students with special needs. These adjustments include aspects of the curriculum, teaching methods, strategies, facilities and assessments. These differentiated assessments allow students with special needs to demonstrate their abilities in a way appropriate to their condition and potential, providing a more accurate picture of their progress in understanding the course material.

Students who have received inclusive education courses show good readiness to teach in inclusive classes. From the results of the interview, it appears that the student has a good understanding of inclusion programs, children with special needs, and mathematics learning for children with special needs. In addition, he also demonstrated readiness and commitment to teaching in inclusive classes, as well as ensuring that all students have fair access to quality mathematics education. During their studies, student teachers will be prepared to teach in inclusive schools through courses that focus on teaching children with diverse abilities. Courses such as "Teaching Children with Diverse Abilities" or special education have similar goals to inclusive education courses. In this process, students are expected to have the ability to recognize the characteristics of children with special needs and be able to analyze the challenges they face, using appropriate learning strategies (Wardhani, 2020) . Students who have not received inclusive education courses also show good readiness to teach in inclusive classes. Even though they have not received inclusive education courses, students have demonstrated a good understanding and strong commitment to creating an inclusive and supportive learning environment for all students.

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CONCLUSION

Inclusive education courses have an important role in preparing education students to teach in inclusive classes. Students who take this course have a deeper understanding of the concept of inclusive schools, criteria for children with special needs, appropriate treatment for them, and friendly inclusive classroom management. The importance of learning mathematics for students with special needs is in the spotlight, both for students who have taken inclusive education courses and those who have not. They emphasized that there is no need to force students with special needs to understand mathematics material to the core like normal students. However, basic understanding of the material is considered sufficient, and the importance of special approaches and modification of learning strategies according to student needs is emphasized.

Students who have taken inclusive education courses are better equipped to teach in inclusive classes. However, students who have not taken these courses also show good readiness in creating an inclusive learning environment, but they still need prior training in inclusive education courses because their understanding of children with special needs is still limited. Thus, inclusive education has a central role in preparing prospective teachers to be better prepared and competent in teaching students with special needs in inclusive schools.

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