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The Effect of Pedagogical Competence and Professional Competence of Students After Teaching Assistance on Interest in Becoming ICT Teachers and Teaching Readiness of Informatics Engineering Education Students, Universitas Negeri Malang

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Abstrak

Survey findings indicate that some Informatics Engineering Education students show low interest in pursuing a teaching career, leading to reduced motivation, enthusiasm, and teaching readiness. This lack of interest negatively affects their pedagogical and professional competence. The Teaching Assistance Program was created for educational students to hone their teaching skills and develop their capabilities through curriculum development and implementation. This study aims to:(1) reveal the effect of pedagogical competence on interest in becoming an ICT teacher and teaching readiness; (2) reveal the effect of professional competence on interest in becoming an ICT teacher and teaching readiness; (3) reveal the effect of interest in becoming an ICT teacher on teaching readiness; (4) reveal the effect of pedagogic competence and professional competence on teaching readiness through the intervening variable interest in becoming a teacher. The study found that professional competence significantly influences students' interest in becoming ICT teachers, while pedagogical competence significantly affects teaching readiness. Interest in becoming an ICT teacher also has a strong positive effect on teaching readiness. Additionally, professional competence indirectly enhances teaching readiness through increased career interest, whereas pedagogical competence shows no significant indirect effect through interest.

Kata Kunci

Pedagogical competence, professional competence, teaching assistance, interest in becoming an ICT teacher, teaching readiness

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1. Introduction

One of the problems with the education system in Indonesia is the low quality of education. In 2018, the Programme for International Student Assessment (PISA) ranked Indonesia 71st out of 78 countries. Meanwhile, of the 78 countries included in the 2021 World Population Review global education assessment, Indonesia is ranked 54th. The role of the educator is an important component of educational success. Educators are professionals who are responsible for planning and implementing teaching and learning activities, assessing the impact of learning, researching and serving the community, especially educators in tertiary institutions (Fatoni, 2020). Currently, the competence of teachers in Indonesia is still relatively low. Based on the average score of the 2021 Teacher Competency Test, teachers in Indonesia still have an average score of less than 60 (Dudung, 2018). A teacher is declared to have passed if the score is more than 75 out of 100. According to data analysis, teacher performance in Indonesia is still in the poor category, with a score below 80.00; the performance of Indonesian teachers only reached 76.43, and that of SMK teachers reached 77.12 (Kintamani, 2016).

Teaching assistance is a type of cooperative education effort carried out by students in a formal education environment under the direction of instructors in a school (Sobri et al., 2021). Students will teach at school in front of students. All their teaching skills are like those of a professional teacher in general. To have professional competence as an educator, one must have sufficient expertise in the subject to be taught, as well as the ability to effectively guide students to meet the competency outlined in the National Education Standards. The acquisition of these skills forms the basis for educators to carry out their responsibilities in a professional manner, thus ensuring students can obtain the best possible educational outcomes (Sanjaya, 2015).

The survey findings reveal that some students in Informatics Engineering Education show a reduced inclination to pursue a career in teaching, while others still have an interest in becoming ICT teachers. Lack of student motivation in pursuing a teaching career results in a lack of student attention to the teaching profession. This results in a lack of enthusiasm, encouragement, and efforts to increase interest in the teaching profession. An interest in becoming an ICT teacher makes students more prepared for teaching. Conversely, the lack of student interest in the teaching profession will also make students less ready to teach in front of students. This is a problem for all parties involved in education, especially the Informatics Engineering Education study program at Universitas Negeri Malang (UM). There are still students who do not understand pedagogic lessons as basic educational subjects. They still cannot make a learning implementation plan correctly and do not understand the Independent Curriculum.

Several studies have been conducted to see how high pedagogic competence and professional competence are possessed by students during and after carrying out teaching assistance activities (Hardianti and Listiadi, 2021; Santika et al., 2017). Other researchers have also examined the relationship between interest in becoming a teacher and readiness to become a teacher at school (Haqqi et al., 2021; Yulianto and Khafid, 2016). However, no one has

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examined the relationship between pedagogic competence, professional competence, interest in becoming a teacher, with readiness to become a teacher.

Based on the description of the problem above, this study aims to measure the effect of pedagogic competence and professional competence of teachers on students who have taken the teaching assistance program on interest in becoming ICT teachers and teaching readiness of Informatics Engineering Education students at UM. This study contributes to the field of ICT teacher education by analysing how students' pedagogical competence and professional competence influence their interest in becoming ICT teachers and their teaching readiness. The research offers empirical evidence on the direct and indirect effects of these internal factors, highlighting the pivotal role of career interest as a mediator. The findings can inform the design of teaching practicum programs and interventions aimed at improving the interest in becoming ICT and teaching readiness of Informatics Engineering Education students

2. Method

This study uses a descriptive correlational method with a quantitative approach. The quantitative method is a research approach that provides numbers and numerical data to examine certain populations and samples, to measure relationships between variables and to test predetermined hypotheses (Sugiyono, 2017). This is quantitative correlational ex-post facto research because the data are collected from events that have already occurred. Researchers can only uncover relationships between variables through analysis of data that is already available and cannot influence these events.

The population in this study were all Informatics Engineering Education students who had attended the teaching assistance program. The sample of this study is the Informatics Engineering Education Class of 2019 who have finished the teaching assistant program.

The independent variables used are the teacher's pedagogical competence (PE) and professional competence (PR). The dependent variable used is teaching readiness (KM). The intervening variable in this study is interest in becoming an ICT Teacher (M).

In this study, primary data were obtained through questionnaires given to the respondents. Meanwhile, secondary data were obtained by direct observation or documents.

3. Results and Discussions

1) Results

Convergent validity is one aspect of validity that measures the extent to which several indicators that are supposed to measure the same construct are interrelated. A loading factor value above 0.7 is considered strong, while a value below 0.3 is considered weak. However, values between 0.4 and 0.7 are acceptable depending on the research context and sample size. From the results of this analysis, it can be observed that all indicators have a loading factor value above 0.4, which will not be eliminated in this research model.

Checking discriminant validity involves assessing the cross-loading value of indicators in

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confirmatory factor analysis to ensure that indicators that measure different constructs have a lower correlation with each other than the correlation between indicators that should measure the same construct. From the cross-loading values contained in the appendix, it can be concluded that the discriminant validity of the research data is good.

Composite reliability is a metric used to measure the internal reliability of a construct. Composite reliability values range between 0 and 1, where the higher the value, the better the reliability. If the construct's composite reliability value exceeds 0.7, it indicates that the construct has a good level of reliability. The results of the composite reliability test and Cronbach's alpha are in Table 1. Table 1 shows that all variables have composite values and Cronbach's alpha above 0.7, which means they are reliable.

Table 1. Results of the composite reliability test and Cronbach's alpha

Variable	Cronbach's Alpha	rho_A	Composite Reliability
KM	0.928	0.929	0939
M	0.950	0.952	0.956
PE	0941	0.946	0.949
PR	0941	0.944	0.950

Testing on the structural model (inner model) to find out whether the hypothesis can be accepted or rejected. Based on the statistical results obtained from the PLS 3.0 analysis, the results of the estimated value and probability (p-value) can be seen in Figure 1.

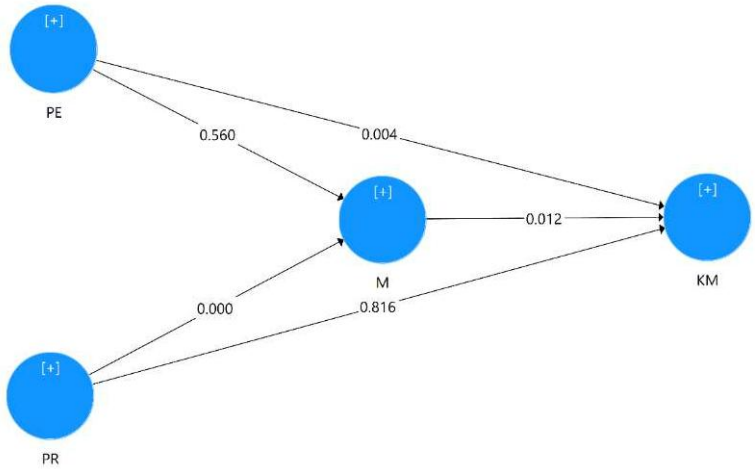

Figure 1. Results of the estimated value and probability (p-value)

Tables 2 and 3 show the correlation results between variables. The first hypothesis tests whether pedagogic competency (PE) has a significant effect on the interest in being a teacher (M). Based on the results, it was shown that the beta coefficient was 0.045 and the T-statistic value of PE to M was 0.583. From the results of this analysis, it is stated that the p-value is not significant because the resulting value is 0.560 with a p-value <0.05, so the hypothesis is

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rejected. This shows that pedagogic competence has no significant effect on interest in becoming an ICT teacher.

The second hypothesis tests whether professional competence (PR) has a significant effect on the interest in becoming an ICT teacher (M). Based on the results, it was shown that the beta coefficient was 0.871 and the statistics PR against M was 12.715. From the results of this analysis, it was stated that the p-value was significant because the resulting value was 0.000 with a p-value <0.05, so that the hypothesis was accepted. This result proves that professional competence has a positive effect on interest in becoming an ICT teacher.

The third hypothesis tests whether pedagogic competency (PE) has a significant effect on readiness to teach (KM). The results show that the beta coefficient was 0.509 and the statistical PE to KM was 2.900. From the results of this analysis, it was stated that the p-value was significant because the resulting value was 0.004 with a p-value <0.05, so that the hypothesis was accepted. This shows that the pedagogic competency has a positive effect on the teaching readiness.

The fourth hypothesis tests whether professional competency (PR) has a significant effect on the readiness to teach (KM). Based on the results, the beta coefficient was -0.056, and the statistics PR value for KM was 0.233. From the results of this analysis, it was stated that the p-value was not significant because the resulting value was 0.816 with a p-value <0.05, so the hypothesis was rejected. This shows that professional competence has no significant effect on readiness to teach.

The fifth hypothesis tests whether the interest in becoming an ICT teacher (M) has a significant effect on the readiness to teach (KM). Based on the results of the analysis explained that the beta coefficient was 0.428 and the statistics M to KM was 2.525. From the results of this analysis, it was stated that the p-value was significant because the resulting value was 0.012 with a p-value <0.05, so that the hypothesis was accepted. This shows that interest in becoming an ICT teacher has a positive effect on the readiness to teach.

The sixth hypothesis tests whether pedagogic competency (PE) influences readiness (KM) to teach through the mediation of the variable interest in becoming an ICT teacher (M), with a statistics value of 0.500 and a p-value of 0.617. Thus, the indirect effect of the pedagogic competence on teaching readiness is not accepted, or the hypothesis is rejected.

Table 2. Results of the correlation between variables

	Beta Coefficient	Sample Means (M)	Standard Deviation (STDEV)	t-Statistics (|O/STDEV|)	P Values
PE -> M	0.045	0.055	0.077	0.583	0.560
PR -> M	0.871	0.865	0.069	12,715	**0.000**
PE -> KM	0.509	0.481	0.175	2,900	**0.004**
PR -> KM	-0.056	-0.034	0.240	0.233	0.816
M -> KM	0.428	0.436	0.169	2,525	**0.012**

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The seventh hypothesis tests whether professional competence (PR) influences teaching readiness (KM) through the mediation of the variable interest in becoming an ICT teacher (M), with a statistics value of 2.370 and a p-value of 0.018. The p-value, which is less than the critical value <0.05, proves that the interest in becoming a teacher can have an indirect effect on the professional competence and readiness to teach. Thus, the seventh hypothesis is accepted.

Table 3. Results of the correlation between two variables

	Original Sample (O)	Sample Means (M)	Standard Deviation (STDEV)	t-Statistics (|O/STDEV|)	P Values
PE -> M -> KM	0.019	0.021	0.038	0.500	0.617
PR -> M -> KM	0.373	0.379	0.157	2,370	**0.018**

2) Discussion

Interestingly, the study found that pedagogical competence did not have a significant effect on students' interest in becoming ICT teachers. This result suggests that although students may possess adequate understanding of pedagogical concepts, such competence alone does not necessarily inspire them to pursue a teaching career. One possible explanation is that pedagogical skills are perceived more as academic requirements rather than motivational drivers. Students might be more influenced by external factors such as job prospects, personal aspirations, or the perceived prestige of the teaching profession. This finding highlights the need for teacher education programs to not only develop competencies but also to foster positive attitudes and motivation toward teaching careers through career counselling, role modelling, and exposure to real-world teaching experiences. This result contradicts the results of other studies, which show that there is a positive and significant influence of pedagogical competence on interest in becoming a teacher (Adyatama, 2019).

The study revealed that professional competence significantly influences students' interest in becoming ICT teachers. This finding indicates that students who feel confident in their mastery of subject matter and professional skills are more likely to consider teaching as a viable and attractive career path. In the context of ICT education, where rapid technological advancement demands strong technical capabilities, students with high professional competence may feel more prepared and empowered to transfer their knowledge to others. This sense of expertise can foster a stronger identity as future educators. Furthermore, it suggests that reinforcing students' confidence in their ICT knowledge and instructional skills can be an effective strategy to enhance their motivation to pursue teaching careers in the field.

The findings also demonstrate that pedagogical competence has a significant positive effect on students' teaching readiness. This suggests that students who have a better understanding of teaching methods, learning theories, lesson planning, classroom management, and assessment strategies feel more confident and prepared to teach. Pedagogical competence equips pre-service teachers with the foundational skills necessary to organise and deliver effective instruction, thereby enhancing their overall readiness to face real classroom situations.

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This result supports the idea that strengthening pedagogical training in teacher education programs plays a crucial role in improving the teaching capabilities of future ICT educators. This result is in line with the results of other studies, which show that there is a positive effect of pedagogical competence on readiness to become a teacher (Iskardar et al., 2020; Nurliana et al., 2025).

Surprisingly, the study found that professional competence does not have a significant effect on students' readiness to teach. Although students may have strong technical or subject-matter knowledge, this alone may not translate into confidence or preparedness to manage real classroom environments. This result indicates that mastery of content without the ability to deliver it effectively may not be sufficient for developing teaching readiness. It also suggests that other factors—such as pedagogical skills, teaching experience, or motivation—may play a more critical role in shaping a student's readiness to teach. This finding underscores the importance of integrating professional competence with pedagogical and practical teaching experiences to ensure comprehensive teacher preparation. This result contradicts the results of other studies, which show that students' professional competence has a significant relationship with readiness to become a vocational teacher (Iskardar et al., 2020).

The study further reveals that interest in becoming an ICT teacher has a significant positive effect on students' readiness to teach. This indicates that students who are genuinely motivated to pursue a teaching career are more likely to actively engage in the learning process, internalize teaching-related competencies, and prepare themselves both mentally and technically for real teaching responsibilities. High career interest can enhance self-efficacy, encourage proactive learning, and increase commitment to the teaching profession. This aligns with previous research showing that intrinsic motivation and career orientation are key drivers of teaching effectiveness and readiness. Therefore, cultivating student interest in teaching ICT is essential not only for addressing teacher shortages but also for ensuring that future educators enter the profession with confidence and commitment. This result is in line with the results of other studies, which show that interest in becoming a teacher has a significant effect on readiness to become a teacher (Alifah and Hastuti, 2023; Maipita and Mutiara, 2018).

The study examined the indirect effect of pedagogic competence on teaching readiness through the mediating variable of interest in becoming an ICT teacher. The results show that this indirect effect is not statistically significant. This suggests that while pedagogic competence positively influences teaching readiness directly, it does not significantly increase students' interest in pursuing an ICT teaching career. Consequently, the motivational pathway (via interest) does not appear to be a strong channel through which pedagogical skills improve readiness. One possible explanation is that pedagogical competence is perceived as a functional requirement for teaching, rather than a motivational factor that drives career interest. This implies that the development of pedagogic skills may enhance readiness through cognitive and practical preparedness, but not necessarily by boosting teaching aspirations. Therefore, efforts to improve teaching readiness should not rely solely on pedagogical training but also

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include strategies that foster career interest and intrinsic motivation.

The study found that professional competence significantly influences teaching readiness through the mediating variable of interest in becoming an ICT teacher. This result highlights the important role of career motivation in linking technical mastery to teaching preparedness. In other words, students who perceive themselves as professionally competent in ICT are more likely to develop an interest in teaching, which in turn enhances their overall readiness to take on the role of an educator. This mediating effect implies that professional confidence alone is not enough—it becomes more impactful when it translates into a genuine desire to pursue a teaching career. The finding emphasises the importance of fostering both competence and motivation in pre-service teacher training, particularly in fields like informatics, where alternative career paths may be more financially or professionally attractive. Encouraging students to see teaching as a meaningful and rewarding career can amplify the effect of their technical capabilities on their readiness to teach.

4. Conclusion

Based on the results and the discussion described in the previous chapter, it can be concluded that: (1) Pedagogic Competence in Teaching Assistance Students in Informatics Engineering Education 2019 has an insignificant effect on Interest in Becoming an ICT Teacher; (2) Teacher Professional Competence in Teaching Assistance Students in Informatics Engineering Education 2019 has a positive and significant effect on Interests to Become an ICT Teacher; (3) Pedagogic Competence in Teaching Assistance Students in Informatics Engineering Education 2019 has a positive and significant effect on Teaching Readiness; (4) Teacher Professional Competence in Teaching Assistance Students in Informatics Engineering Education 2019 has an insignificant effect on Teaching Readiness; (5) Interest in Becoming an ICT Teacher for Teaching Assistance Students in Informatics Engineering Education 2019 has a positive and significant effect on Teaching Readiness; (6) Pedagogic Competence in Teaching Assistance Students in Informatics Engineering Education 2019 has an insignificant effect on Readiness to Teach through Interest in Becoming an ICT Teacher as an intervening variable; and (7) Teacher Professional Competence in Teaching Assistance Students in Informatics Engineering Education 2019 has a positive and significant effect on Readiness to Teach through Interest in Becoming an ICT Teacher as an intervening variable.

This result highlights the complex interplay between pedagogical competence, professional competence, career interest, and teaching readiness among informatics engineering education students. While pedagogical competence was found to significantly enhance students' readiness to teach, it did not significantly influence their interest in becoming ICT teachers, suggesting that pedagogical skills alone do not serve as a motivational driver for pursuing a teaching career. In contrast, professional competence had a strong positive effect on students' career interest but did not directly impact teaching readiness—indicating that content mastery must be complemented with pedagogical and motivational development to be effective. Importantly, interest in becoming

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an ICT teacher emerged as a key mediator: it significantly enhanced students' readiness to teach and mediated the effect of professional competence on teaching preparedness. These findings underscore the need for teacher education programs to not only build pedagogical and professional skills but also cultivate intrinsic motivation and positive career orientation, especially in highly technical fields such as ICT education.

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