

Article

The Impact of In-Service Teacher Education Program on Competency Improvement Among Islamic Religious Education Teachers Using Self-Assessment

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Abstract: Participation in PPG Daljab is essential for improving the performance of Islamic Religious Education (PAI) teachers and promoting internal quality assurance within teacher training institutes (LPTKs). However, how can we effectively assess participation, particularly for individual teachers? This quantitative study investigates the impact of in-service teacher education programs on PAI teachers' competencies using individual self-assessment. This study involved 255 PAI teachers from three LPTKs under the Ministry of Religious Affairs: UIN Sunan Gunung Djati Bandung, UIN Sunan Kalijaga Yogyakarta, and UIN Syarif Hidayatullah Jakarta. Teachers' competencies were measured across four dimensions: pedagogical, personality, social, and professional competence. The findings indicate that the PPG program effectively supported the self-development of PAI teachers who have obtained professional certification. The PPG program enhanced teachers' competencies across all dimensions, with the most significant improvement in personality competence. However, in the professional dimension, areas such as learning evaluation and the use of technology and digital learning require further strengthening post-PPG program. This article provides recommendations for stakeholders to develop continuing professional education programs following the PPG program, taking into consideration PAI teachers' lack of competence.

Keywords: competence; PPG; in-service teacher education program; self-assessment



Citation: Zaqiah, Q.Y.; Hasanah, A.; Heryati, Y.; Rohmatulloh, R. The Impact of In-Service Teacher Education Program on Competency Improvement Among Islamic Religious Education Teachers Using Self-Assessment. *Educ. Sci.* **2024**, *14*, 1257. <https://doi.org/10.3390/educsci14111257>

Academic Editors: Nadeem Memon and Mohamad Abdalla

Received: 24 August 2024

Revised: 12 November 2024

Accepted: 14 November 2024

Published: 17 November 2024



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1. Introduction

Qualified and professional teachers are essential for an educational institution to achieve excellence [1,2]. Thus, enhancing teachers' quality is both critical and urgent in the educational sector [3]. Professional teachers are those who not only have the ability to deliver learning materials but also have a strong desire to learn, skills in various fields, broad insights, skills in using technology, the ability to creatively design teaching methods, and leadership qualities [4,5]. Such educators are pivotal in preparing generations capable of facing global challenges. Teachers must continuously develop these various abilities to contribute to Indonesia's vision for its golden era in 2045 [6,7].

In this context, the fundamental duty and functions of teachers are to obtain sufficient knowledge to formulate learning objectives and experience to achieve the objectives through learning activities in the classroom and school environment. As Lauermaun [8] stated, a teacher's primary professional responsibilities include managing learning processes; demonstrating good organizational skills, perseverance, time management, and adherence to regulations and ethical standards; and promoting unity and integrity. In

addition, professional teachers are also expected to engage in collaborative tasks and active learning, maintain a focus on content [9], and possess professional expertise and knowledge [10]. In Islamic Religious Education (*Pendidikan Agama Islam*/PAI), teachers are expected not only to uphold their professional responsibilities but also serve as exemplars of faith and religious commitment [11]. Additionally, the Islamic education concept views and respects teachers as custodians of extensive knowledge, whereas secular education views teachers as knowledgeable guides and learning partners [12].

The mastery of competencies such as discipline and professionalism is crucial for supporting the work of professional PAI teachers. These competencies develop systematically rather than appearing suddenly. Therefore, providing teachers with high-quality education and ongoing support is essential. In response, the government is enhancing teacher professionalism through an in-service teacher education program [13] for Islamic school (*madrassah*) and PAI teachers. This mandatory program, implemented in 48 teacher training institutes (*Lembaga Pendidikan Tenaga Kependidikan*/LPTK) under the Ministry of Religious Affairs since 2024, has enrolled 13,409 teachers from various education levels [14].

In the Indonesian context, numerous studies have analyzed the benefits of the in-service teacher education program (*Program Pendidikan Profesi Guru Dalam Jabatan*/PPG Daljab or PPG program) in enhancing teacher competence and quality. For instance, research has revealed that the PPG program effectively improves teacher quality [15]. In addition, Putri and Fatimah [16] found that self-assessment enhances teacher pedagogical competence. Thus, the PPG program aligns with the government's plan to improve teacher qualities. However, this research emphasizes four key indicators for a successful program: teacher readiness, teacher support, excellent time allocation, and government policy. The findings also highlight the significant impact of teacher relationships on the program's success.

But unfortunately, the implementation of the program faces several challenges. A study by Syafitri et al. [17] revealed several obstacles that prevent PPG students from fully obtaining the benefits of the program, including time limitations, understanding the learning material, the environment, and technical issues. Previous research also identified another challenge during the PPG program assessment, noting that social skills, one of the four indicators created by the teacher and lecturers, influence the achievement of the expected competencies [18].

Researchers from different countries have employed various methods. For instance, research by João et al. [19] utilizing an educational design research approach explored the design and assessment of the PPG program, aiming to enhance teachers' ability to operationalize science teaching. Research on the impact of in-service education and training for foreign language teachers found that it effectively influenced teachers' subject knowledge, general knowledge, and pedagogical content knowledge related to competency-based language teaching [20], preparing lessons and materials, using technology in teaching, and providing timely feedback to students [21]. Further, a systematic review evaluating professional programs using the classroom assessment system approach revealed positive results in improving the quality of teacher–student interaction and pedagogical quality [22].

Research on the impact of PPG programs on improving teachers' competence and self-development post-PPG is limited, particularly regarding reflective self-assessments by teachers themselves. These self-assessments encourage critical reflection by prompting teachers to explore personal experiences through probing questions, thereby enhancing the understanding of each teaching event [23]. This is crucial for assessing the continuous and sustainable quality improvement in PAI teachers in schools. In this research, teacher competence is evaluated based on the indicators outlined in Indonesian teacher regulations: pedagogical, personal, social, and professional competencies [24–27].

Based on this background, this research aims to describe the effect of the in-service teacher education program on the competence of PAI teachers using the individual self-assessment method. Teacher competence is measured across four dimensions: pedagogical, personal, social, and professional. Spiritual and leadership competencies were not in-

cluded in this research work. This research aims to contribute to the science of continuing professional training programs for teachers. Additionally, it offers practical benefits to education stakeholders by enabling data-based decision-making in the design of more effective policies, curriculum development, and sustainable teacher professional development training materials.

2. Literature Review

2.1. In-Service Teacher Education Program (PPG Daljab) in Indonesia

Programs, as the driving force of the modern society, have been widely applied in various fields, including education [28]. The PPG program aims to enhance teachers' competence, professionalism, and prosperity. It fosters teachers as independent learners, innovative agents of change, and leaders in professional education at the national and international levels [29]. Improving teachers' professional competence aligns with the competency needs of the 21st century, which include two dimensions: information and communication (effective communication ethics and social impact) [30].

The in-service PPG program equips teachers with the four competencies stated in the Teacher and Lecture Law [24] and the Regulation of The Standards of Academic Qualifications and Teacher Competencies [27]. In addition, the Regulation of Professional Teacher Education Programs addresses pedagogical competencies for teachers in the PPG program [26]. These teacher competencies include pedagogical, personal, social, and professional competencies. According to the Decree of Guidelines for the Development of National Standards for Islamic Religious Education in Schools, PAI teachers should incorporate two new competencies: spirituality and leadership [25].

Research on the competencies of primary school teachers in Indonesia highlights several key areas. Pedagogical competence equips teachers to effectively and efficiently conduct teaching and learning activities based on educational standards. Professional competence ensures that teachers act responsibly and effectively, adhering to performance standards. Personal competence is reflected in attitudes and behaviors that align with ethical standards in the classroom and school environment. Social competence relates to the ability to interact effectively with others [31]. Professional teachers also engage in collaborative tasks, actively learn, focus on content [9], and possess professional expertise and knowledge [10,32]. The attitude and behavior of open-mindedness and readiness to change are important aspects of becoming a professional teacher [33].

In Indonesia, the PPG program for PAI teachers in schools and Islamic schools (madrasahs) is delivered online, ensuring broad and equitable access, even in remote areas [34]. Teachers who meet the requirements, regardless of their location, have equal opportunities to participate in the PPG program. Upon graduation, teachers are expected to continuously enhance their competence and perform self-development. Improving teacher competency is essential for creating effective learning at all educational levels.

To enhance the professionalism of teachers within the Ministry of Religious Affairs, including PAI teachers, the government launched a PPG program. PAI teachers are education professionals who impart Islamic religious knowledge to students and the community. The madrasah curriculum includes PAI subjects such as Qur'an and Hadith, Faith, and Character (*Aqidah Akhlak*); Islamic Law (Fiqh), History of Islamic Culture; and Arabic. PAI teachers can also lead local religious content learning programs, such as *Qiro'ah* of the Qur'an; *Tahfidz* of the Qur'an; Science of *Tajwid*, *Imla*; Science of *Faraidl*, *Nahwu*, *Shorof*, *Balaghah*, *Qira'atul Kutub*, *Khat*; and reading and writing of the Qur'an literacy [35]. This aligns with the PAI curriculum in Muslim-majority countries worldwide, designed for students who identify as Muslims [36]. In Indonesia, religion teachers, both civil and non-civil servants, work in education units organized by local governments, other ministries, and community organizations [37].

As of 24 August 2022, the Ministry of Religious Affairs reported 223,209 PAI teachers in Indonesia with undergraduate qualifications [38]. Given this number, it is challenging for LPTKs within the Ministry to organize undergraduate or professional education programs

for teachers. Currently, there are 48 LPTK state Islamic higher education institutions spread across all provinces in Indonesia mandated to conduct ongoing training programs for PAI teachers.

2.2. Teacher Self-Assessment

In this study, self-improvement dimensions were measured through individual self-assessments conducted by teachers, offering an overview of their competency progress towards becoming professional PAI teachers. Self-assessment allows teachers to evaluate and reflect on their own work or learning to determine whether their achievements align with required standards. Self-assessment is widely used in the field of education to assess learners' academic performance by reflecting on their achievements in developing professional knowledge [39].

According to teacher change theory, self-assessment is a technique for improving teachers' professional performance or achievement. It helps define excellence, improve teaching practice based on experience, facilitate communication with peers, and increase the influence of external change agents on teacher practice [40]. For instance, research by Zhang et al. [41] developed a self-assessment model based on professional competency standards for teachers. Teacher self-assessment, as an internal quality management mechanism in quality management, positively influences teachers' professional performance [42]. It enables teachers to self-reflect, identify strengths, and recognize weaknesses, thereby improving their achievement of professional competencies.

Teachers can use self-assessment results to identify their development needs based on the challenges or requirements they have identified. This result will certainly be effective when teachers conduct an honest and open assessment of their performance, including strengths, and identify areas that need improvement [43]. Furthermore, this study outlines several strategies for teacher self-assessment, including individual, feedback, and interactive assessment. It employed an individual assessment checklist to help teachers evaluate their various responsibilities as educators. By asking probing questions about each teaching event, individual assessment also serves as a form of critical reflection [23].

3. Materials and Methods

This study employed a quantitative approach [44,45] to examine the impact of the PPG program on the pedagogical, personal, social, and professional competence of participating PAI teachers. The following sections discuss the respondents, as well as data collection and analysis procedures.

3.1. Respondents

The study population included teachers participating in the in-service teacher education program in Java, selected through purposive sampling based on their participation in the PPG program. This population consisted of a total of 255 teachers from three LPTKs with the highest PPG enrollment: UIN Sunan Gunung Djati Bandung, UIN Sunan Kalijaga Yogyakarta, and UIN Syarif Hidayatullah Jakarta (LPTKs UIN Sunan Gunung Djati Bandung (<https://ppg.uinsgd.ac.id/>, accessed on 13 November 2024), UIN Sunan Kalijaga Yogyakarta (<https://ppg.uin-suka.ac.id/>, accessed on 13 November 2024), and UIN Syarif Hidayatullah Jakarta (<https://fitk.uinjkt.ac.id/id/pendidikan-profesi-guru>) accessed on 15 August 2024) were sampled. Table 1 presents the distribution of the respondents.

The gender distribution of the respondents was nearly balanced, with 50.2% female teachers and 49.8% male teachers. This balance suggests that both genders similarly perceive the impact of the PPG program on their pedagogical and professional development. Respondents' age ranged from 26 to over 50 years, with the largest group (61.6%) aged between 36 and 50 years old. This distribution suggests that mid-career teachers are the most represented, likely due to the critical nature of professional development. The majority of respondents (57.3%) have 11–20 years of teaching experience, indicating that

experienced teachers are actively participating in the PPG program to further enhance their competencies.

Table 1. Demographic information of respondents.

| LPTK | Gender | | Age (Years) | | | Length of Employment (Years) | | | | |
|---------------------------------|--------|--------|-------------|-------|-------|------------------------------|------|-------|-------|------|
| | Male | Female | <26 | 26–35 | 36–50 | >50 | <5 | 5–10 | 11–20 | >20 |
| UIN Sunan Gunung Djati Bandung | 77 | 78 | 5 | 14 | 94 | 42 | 5 | 34 | 95 | 21 |
| UIN Sunan Kalijaga Yogyakarta | 33 | 29 | - | 18 | 42 | 2 | 5 | 20 | 36 | 1 |
| UIN Syarif Hidayatullah Jakarta | 17 | 21 | - | 13 | 21 | 4 | 4 | 17 | 15 | 2 |
| Frequency | 127 | 128 | 5 | 45 | 157 | 48 | 14 | 71 | 146 | 24 |
| Relative frequency (%) | 49.8% | 50.2% | 2.0% | 17.6% | 61.6% | 18.8% | 5.5% | 27.8% | 57.3% | 9.4% |

3.2. Data Collection and Analysis Procedure

The questionnaire used in this study was carefully designed by the first and second authors, experts in the in-service PPG program, to gather relevant information and align it with the research objectives. Validity and reliability tests were conducted to ensure that the instruments used had good internal consistency [45]. Developed in Bahasa Indonesia, the questionnaire was based on the indicators of pedagogical competence outlined in the Regulation of the Minister of National Education Number 16 of 2007 concerning The Standards of Academic Qualifications and Teacher Competencies [27]. In addition, the Regulation of The Minister of Education and Culture Number 87 of 2013 Concerning Professional Teacher Education Programs discuss pedagogical competencies for teachers in the PPG program [26], along with the Decree of the Minister of Religious Affairs of the Republic of Indonesia Number 211 of 2011 Concerning Guidelines for the Development of National Standards for Islamic Religious Education in Schools [25]. The questionnaire consisted of closed-ended questions, with a five-point Likert scale [46], ranging from “never” to “always”. It was distributed to 255 PPG teachers via Google Forms [47]. Google Forms is an online survey platform offering free tools for survey creation, response collection, and data analysis services. Online surveys enable researchers to collect data from different parts of the world [48], which, in this study, include respondents from different provinces: Bandung, West Java; Yogyakarta, Special Region of Yogyakarta; and Jakarta, Special Capital Region of Jakarta. The questionnaire used in this study is available at the following link <https://tinyurl.com/4wc65s7y> (from 6 September 2023 to 10 October 2023, respondents accessed this questionnaire).

Respondents completed the questionnaire independently, providing self-assessments of their pedagogical, personal, social, and professional competences. Each dimension was measured using several relevant indicators. Quantitative data from the questionnaires were analyzed using Excel Spreadsheet software. Descriptive analysis was conducted to describe the distribution of the respondents and calculate the mean scores for each indicator. The results of the descriptive analysis are presented in tables and narratives.

4. Results

The results of the individual self-assessment on pedagogical, personal, and social competency dimensions are presented in Table 2.

The pedagogical competence dimension was measured using seven indicators: mastery of students’ characteristics (C1), theories and principles of learning (C2), curriculum (C3), understanding educational learning activities (C4), development of students’ potential (C5), effective communications with students (C6), and evaluation (C7). These dimensions were developed into 41 indicators. Among these, over half of the PAI teachers who participated in PPG (52.58%) consistently applied their pedagogical competence. This

suggests that teachers who participate in PPG have good knowledge and awareness of pedagogical principles.

Table 2. Pedagogical, personality, and social competency dimensions.

| Dimension | Sub-Dimension | Frequency | | | | | Relative Frequency (%) | | | | |
|------------------------|---------------|-----------|-------|-----------|--------|-------|------------------------|-------|-----------|--------|-------|
| | | Always | Often | Sometimes | Seldom | Never | Always | Often | Sometimes | Seldom | Never |
| Pedagogical competence | C1 | 836 | 584 | 98 | 5 | 7 | 54.64 | 38.17 | 6.41 | 0.33 | 0.46 |
| | C2 | 781 | 634 | 109 | 5 | 1 | 51.05 | 41.44 | 7.12 | 0.33 | 0.07 |
| | C3 | 413 | 282 | 61 | 7 | 2 | 53.99 | 36.86 | 7.97 | 0.92 | 0.26 |
| | C4 | 1218 | 922 | 140 | 7 | 8 | 53.07 | 40.17 | 6.10 | 0.31 | 0.35 |
| | C5 | 877 | 748 | 154 | 4 | 2 | 49.13 | 41.90 | 8.63 | 0.22 | 0.11 |
| | C6 | 862 | 601 | 62 | 3 | 2 | 56.34 | 39.28 | 4.05 | 0.20 | 0.13 |
| | C7 | 510 | 424 | 80 | 5 | 1 | 50.00 | 41.57 | 7.84 | 0.49 | 0.10 |
| Personality competence | Mean | | | | | | 52.58 | 40.12 | 6.73 | 0.34 | 0.22 |
| | C8 | 931 | 309 | 30 | 2 | 3 | 73.02 | 24.24 | 2.35 | 0.16 | 0.24 |
| | C9 | 852 | 351 | 62 | 6 | 4 | 66.82 | 27.53 | 4.86 | 0.47 | 0.31 |
| | C10 | 1168 | 531 | 78 | 3 | 5 | 65.43 | 29.75 | 4.37 | 0.17 | 0.28 |
| | Mean | | | | | | 68.07 | 27.47 | 3.92 | 0.25 | 0.28 |
| Social competence | C11 | 590 | 165 | 6 | 1 | 3 | 77.12 | 21.57 | 0.78 | 0.13 | 0.39 |
| | C12 | 432 | 288 | 44 | 1 | 0 | 56.47 | 37.65 | 5.75 | 0.13 | 0.00 |
| | Mean | | | | | | 66.80 | 29.61 | 3.27 | 0.13 | 0.20 |

Personal competence represents a personal skill that reflects a steady, stable, mature, wise, authoritative, and noble character. This competence encompasses three sub-dimensions: adhering to norms (C8), demonstrating maturity (C9), and maintaining a high work ethic (C10). These sub-competencies were developed into seventeen (17) indicators. Based on the questionnaire responses, personal competence scored a high index of 68.07%. This indicates that PAI teachers who graduated from PPG have a very high self-perception, consistently applying their personal competence.

Social competence reflects educators’ ability to communicate and interact effectively with students, colleagues, teaching staff, parents, and the broader community. Teachers, as social beings, engage daily in social interactions at school and within the community. Therefore, they must possess adequate social skills. Social competence includes two sub-competencies, inclusivity and effective communication, developed into six indicators. In this study, PAI teachers have a perception index of approximately 66.80%, indicating that PPG graduates consistently exhibit strong social competence.

The data presented highlight teachers’ self-perceptions regarding professional competencies, including sub-dimensions and measured indicators: learning planning (I-14), implementation (I-17), evaluation (I-42), and the use of ICT media for learning (I-27). Professional competence includes the mastery of material, structure, concepts, scientific reasoning, and reflective activities. Teachers are responsible for developing materials, planning and implementing learning, conducting evaluations and assessments, and utilizing information technology in education. Table 3 provides an overview of the self-assessment findings on professional competence.

Table 3. Professional competence dimension.

| Indicator | Frequency | | | | | Relative Frequency (%) | | | | |
|-----------|-----------|-------|-----------|--------|-------|------------------------|-------|-----------|--------|-------|
| | Always | Often | Sometimes | Seldom | Never | Always | Often | Sometimes | Seldom | Never |
| I-14 | 158 | 85 | 11 | 1 | 0 | 61.96 | 33.33 | 4.31 | 0.39 | 0 |
| I-17 | 142 | 99 | 14 | 0 | 0 | 55.69 | 38.82 | 5.49 | 0 | 0 |
| I-42 | 127 | 103 | 25 | 0 | 0 | 49.80 | 40.39 | 9.80 | 0 | 0 |
| I-27 | 113 | 107 | 34 | 1 | 0 | 44.31 | 41.96 | 13.33 | 0.39 | 0 |

The data indicate that professional competence remains below optimal levels. While more than half of the respondents frequently implement professional practices, consistency is lacking. Specifically, 41.96% of teachers often use ICT-based learning media, while 13.33% sometimes use it. Similarly, evaluation competence is underutilized, with only 40.39% frequently conducting evaluations. Despite these gaps, many teachers consistently apply planning and implementation strategies to facilitate learning. These data suggest

that teachers recognize the need for further improvement in evaluation and the use of technology in learning after graduating from the PPG program.

5. Discussion

The pedagogical competence dimension is crucial for teachers as it encompasses understanding and guiding students' learning processes. Pedagogical competence is a distinctive competence that distinguishes teachers from other professions and determines the success of the process and outcomes of students' learning. Understanding and directing students' pedagogical and dialogical learning are a part of pedagogical competence. They include the abilities to understand students, plan and implement learning, assess learning outcomes, and develop students' various potentials [49]. Teachers' competencies can be measured effectively through self-assessment, which, as noted by Hašková et al. [42], Iwanicki and Mceachern [43], and Ross and Bruce [40], encourages reflective practice and self-monitoring, promotes academic integrity, develops self-directed learning, increases student motivation, and helps students develop a range of personal transferrable skills. Through self-assessment, PAI teachers in the PPG program can identify their strengths and weaknesses, enhancing their self-awareness to reflect on their teaching method, classroom management, and student engagement. This process involves determining and applying assessment criteria or indicators for each competency, combined with self-reflection and the calibration of self-assessment.

This study found that PAI teachers participating in the PPG program have a moderate perception of their pedagogical competence, with an average of always applying these skills competencies at around 52.58%. This aligns with previous research by Putri and Fatimah [16], which demonstrated an improvement in teachers' pedagogical skills post-PPG program. However, opportunity for growth remains, particularly in the areas of student engagement and adopting innovative teaching strategies.

The role of teachers in today's learning environment extends beyond merely employing traditional methods. Instead, teachers must be able to create smart teaching as an essential skill to create an active learning environment in their classroom. To be able to realize smart teaching, they must have special abilities to implement approaches that integrate pedagogy, technology, and classroom management [50]. In relation to technology, research indicates that a significant number of teachers still utilize Information and communication technology (ICT) for learning frequently (41.96%), while the rest only occasionally use it (13.33%). ICT has become increasingly important both in everyday life and in the education system. ICT has an increasingly important role in education, whether in the classroom, administration, online learning, or other activities [51]. However, in practice, many teachers still have problems with technological and digital literacy in education [52]. In this scientific era and with technological development, teachers face such challenges of guiding students who are generally literate in digital technology. This problem also becomes the focus of Islamic education, especially in PAI subjects, aimed to equip teachers with abilities to use digital technology [53].

As explained by Kiryakova and Kozhuharova [47], education systems must reflect and adapt to the new digital reality to effectively engage and prepare students for the future, and teachers must have digital competencies in order to support their teaching practices using digital tools and technologies. As the research findings demonstrated, teachers argued the importance of specific digital competencies. However, the findings indicated that the teachers have been actively using digital technology in their daily teaching activities (84.8%) to create and provide learning content; encourage learners' active participation; evaluate students' knowledge and skills; and deliver effective feedback.

In addition, Orakova et al. [54] explained that the use of technology in education and the integration of digital literacy and technological skills with pedagogy are some of the important competencies that teachers should possess. The research results align with this study, indicating a moderate level of digital literacy and technology proficiency. Teachers' digital literacy reflects their pedagogical and technological competencies.

In several examples of PAI learning in Indonesia, technology and digitally literate teachers developed their learning materials that align with the characteristics of students of the post-millennial Generation Z. For instance, the thematic learning of the digital Qur'an can improve students' religious dimension [55]. However, research also revealed that the use of ICT in PAI learning remained restricted to internet-sourced information materials and presentation media [56].

Personality competence, reflecting a teacher's maturity, stability, wisdom, and role model characteristics, received a high self-perception index of 68.07%. This indicates that PAI teachers perceive themselves to be capable of embodying the ethical and moral standards expected in their profession. The results support the claim by Andina [57] that communities view PAI teachers as role models who uphold high ethical standards. This view aligns with Grande et al. [58], who claim that teachers have an ethical obligation to serve as role models for their students, as explored in studies on the ethical theories of virtue, care, freedom, and exemplary ethics.

Since the characteristics of Islamic education differ from those of Western education, which often emphasizes materialistic and market-driven perspectives, PAI teachers must embrace ethics as a crucial pillar. Islamic education emphasizes spiritual, moral, and holistic orientations [12]. Therefore, the teacher's role extends beyond merely teaching material and methods. It involves fostering moral interaction with students by imparting sound ethical principles [59].

Social competence involves effective communication and interaction within the school environment and community. This study indicates that PAI teachers have a high perception of their social competence, with a mean score of approximately 66.80%. This suggests that PPG participants are proficient in maintaining positive relationships with students, parents, and colleagues. This finding contrasts with previous research that highlighted social issues among teachers during the PPG program [18] but aligns with studies showing that teachers supported each other, thereby enhancing their social skills [60].

The individual self-assessment results offer stakeholders a clear understanding of the competence gap among PAI teachers who participated in the PPG program. Consequently, this self-assessment serves as a tool for evaluating needs and developing ongoing professional education for madrasah teachers that aligns with Indonesia's demands [37]. Designing professional development programs tailored to teachers' specific requirements can enhance their ability to deliver excellent instruction and improve students' achievement [61].

This study's limitations lie in focusing solely on measuring the impact after implementing the PPG program. The results do not provide a comprehensive picture due to teachers' pre-existing positive perceptions of the competencies acquired. In the context of the 21st century and the Fourth Industrial Revolution, there is governmental concern about the impact of educational research, particularly the PPG program, on teachers' abilities and professionalism in Indonesia [13]. Therefore, to assess changes in PAI teachers' competencies, future researchers should measure perceptions both before and after the program.

In addition to the individual assessments used in this study, self-assessment strategies can also be employed. Future research can incorporate feedback and interactive assessment strategies, involving input from various parties, such as students, peers, educational staff, principals, and school supervisors [43]. Furthermore, integrating video recording for teacher self-assessment could be advantageous, as demonstrated by studies where teachers aim to showcase their performance [62].

6. Conclusions

In general, the self-assessment technique serves as an effective tool for teachers to reflect on their strengths and weaknesses, thereby supporting their professional tasks. The graduate teachers in the PPG program exhibited a wide range of self-perceptions, ranging from the lowest on the use of digital technology-based learning media to the highest on

the personal competence dimension. Professional competence is the focal point of the moderate perception index, while the four pedagogical competencies tend to score lower. Notably, the professional competence index stands apart from weaker indicators, albeit remaining at a moderately low level. Teachers acknowledge that their abilities in planning and utilizing learning technology have not significantly improved since graduating from the PPG program. PAI teachers continue to perceive limited progress in learning evaluation, the integration of technology, and digital learning tools.

While the PPG program has positively influenced teachers' perceptions of their competencies, continuous support and targeted interventions are necessary to address the areas of professional competence and career planning. Educational stakeholders should focus on enhancing technology integration skills in learning and providing clear career development pathways to maximize the program's benefits. The PPG program has effectively accelerated the self-growth of certified teachers, highlighting the need for stakeholders to prioritize the career path and status of PAI teachers in schools. Our research's limitations prevent us from measuring the spiritual and leadership competencies required of a PAI teacher in Indonesia. These limitations suggest that further research is needed to measure the competencies of PAI teachers, including six dimensions: pedagogical, personality, social, professional, spiritual, and leadership.

Author Contributions: Conceptualization, Q.Y.Z. and A.H.; methodology, Q.Y.Z. and A.H.; software, R.R.; validation, Q.Y.Z., A.H. and Y.H.; formal analysis, Q.Y.Z. and A.H.; investigation, Q.Y.Z. and A.H.; writing—original draft preparation, Q.Y.Z., A.H., Y.H. and R.R.; writing—review and editing, Q.Y.Z., A.H. and R.R.; supervision, Q.Y.Z. and A.H.; project administration, Y.H.; funding acquisition, Q.Y.Z. All authors have read and agreed to the published version of the manuscript.

Funding: This research was supported by the Program of Research and Community Service (Litapdimas), Institute for Research and Community Service (LP2M), UIN Sunan Gunung Djati Bandung.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the *Lembaga Penelitian dan Pengabdian Masyarakat* [Institution for Research and Community Outreach] of UIN Sunan Gunung Djati Bandung (protocol code 461/Un.05/V.2/PP.06/03/2023, date of approval 27 March 2023).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgments: We would like to thank the PPG Study Program of UIN Syarif Hidayatullah Jakarta, the PPG Study Program of UIN Sunan Kalijaga Yogyakarta, and the PPG Study Program of UIN Sunan Gunung Djati Bandung for their support in this research.

Conflicts of Interest: The authors declare no conflicts of interest.

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