



> Vol. 04, 2 (2026), 199 - 212

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To cite this article:

Astutik, A. P., Nordin, N., & Meilinda, I. (2026). Improving Shadow Teachers' Competence through the REACH Website in an Inclusive Curriculum Based on Religiosity and Self-Awareness. *ISTIFHAM: Journal Of Islamic Studies*, 4(2), 199-212. <https://doi.org/10.71039/istifham.v4i2.190>

Available at: <https://jurnal.seutiahukamaa.org/index.php/istifham/article/view/190>

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First Publication Right :

© ISTIFHAM: Journal of Islamic Studies

Published online: July 16, 2026.

Published by:

Seutia Hukamaa Cendekia

Journal Homepage:

<https://jurnal.seutiahukamaa.org/index.php/istifham>



Improving Shadow Teachers' Competence through the REACH Website in an Inclusive Curriculum Based on Religiosity and Self-Awareness

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Received: May 08, 2026.

Accepted: July 10, 2026.

Published: July 16, 2026.

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Keywords:

*Shadow Teacher;
 Children with Special Needs;
 REACH Website;
 Inclusive Curriculum.*

Abstract

This study aims to develop the REACH website "Religious Empowerment and Competent Assistance" in improving the competence of shadow teachers in implementing the inclusive curriculum at Muhammadiyah 2 Elementary School, Tulangan. The research method used is Research and Development (R&D) with the ADDIE model which includes: analysis, design, development, implementation, and evaluation, with 27 shadow teachers as research subjects. The results of the study are shown in the Paired Samples Test table, where a significance value (Sig. 2-tailed) of < 0.001 was obtained, which is smaller than the significance level of 0.05. This indicates that there is a significant difference between the pretest and posttest scores. With these significant improvement results, it can be said that the REACH website is effective in improving religious competence and self-awareness in the inclusive curriculum at Muhammadiyah 2 Elementary School Tulangan.

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Introduction

The transformation of national education within the framework of the vision "Together with Indonesia Advancing Towards Golden Indonesia 2045" places the empowerment of people with disabilities as part of the strategy of the eight points of Asta Cita Indonesia. (Andriyan et al., 2023) (Fajri & Jauhari, 2024). This further strengthens the importance of the need for inclusive education as a form of guaranteeing equal access, participation, and equality in learning for all students, including children with special needs (Syarif & Arismunandar, 2024; Hidayati & Aisha, 2022). This concept of inclusive education emphasizes respect for student diversity, which can accommodate the needs and abilities of each student (Ariani, 2022). Inclusive education is not only implemented by transferring children with special needs to regular schools, but requires adjustments to the formal education system to be able to accommodate all the needs of students with special needs according to their development (Nadhiroh & Ahmadi, 2024; Widiastuti et al., 2023). Thus, the education system must be able to systematically adapt to the curriculum, learning strategies, school culture, as well as educators and education personnel (Astutik et al., 2022; Yamin & Astutik, 2023).

In the context of the curriculum itself, inclusive education basically still refers to the applicable national curriculum (Astutik & Khoirinindyah, 2024). However, in its implementation,

modifications and differentiation need to be made according to the needs of children with special needs (Fajri & Jauhari, 2024). This means that in the learning process, teachers no longer use a uniform approach to manage the class, but must be able to provide a variety of methods, media, and learning projects (Astutik et al., 2025). In addition, in developing an inclusive curriculum, empathy-based educational content is also needed, especially in strengthening religiosity and self-awareness (Astutik, Nordin, et al., 2024). Consequently, the successful implementation of an inclusive curriculum depends not only on curriculum adaptation but also on the competence of educators who directly accompany children with special needs.

This certainly requires shadow teachers as educators who accompany the development of children with special needs in taking on a crucial role through guidance that is not only academic but also emotional and spiritual (Aristya & Rini, 2024). The successful implementation of an inclusive curriculum largely depends on the competence of shadow teachers, who play a strategic role in accompanying children with special needs during the learning process. Beyond providing academic assistance, shadow teachers are also expected to support students' emotional, social, and spiritual development. However, the facts on the ground show that there are still many shadow teachers who experience limited competence in integrating differentiated curriculum with religious values and self-awareness in children with special needs (Nisa et al., 2024). They face various challenges in the learning process, such as difficulties in compiling a curriculum with differentiation, obstacles in social interaction, understanding the subject matter, and also in managing emotions, which are still unstable. (Sismawijaya & Astutik, 2024). This happens because shadow teachers are required to provide emotional support that helps children with special needs feel more confident and actively involved in every class activity, in line with their respective learning styles (Ariani, 2022). These findings indicate that strengthening shadow teachers' competence is an urgent prerequisite for improving the quality of inclusive curriculum implementation.

Beyond pedagogical competence, shadow teachers also require strong religiosity and self-awareness to provide holistic support for children with special needs. Religiosity serves as an ethical and spiritual foundation that encourages compassion, patience, empathy, and responsibility when assisting children with special needs, whereas self-awareness enables shadow teachers to regulate emotions, reflect on their professional practices, and build positive relationships with students. (Annisa et al., 2024; Pebiani et al., 2024; Insani et al., 2021). Religious values need to be applied to children with special needs as the main provision that they can use in community life. (Liswandari & Astutik, 2021; Isnaeni & Nashori, 2022) Meanwhile, developing self-awareness plays an important role in helping children with special needs manage emotions, improve social skills, and build motivation in the learning process (Astutik, Fitroh, et al., 2024; Tarwiyyah, 2022). Considering the challenges faced by shadow teachers in assisting children with special needs, it is important to improve their competence in various aspects, especially in terms of developing religiosity and self-awareness (Neff & Faso, 2015). To address this competency gap, it is necessary to develop a more comprehensive training model for shadow teachers through Quranic verses and Islamic stories to increase religiosity and self-awareness in children with special needs (Sahnan, 2025; Jannah et al., 2025; Lismayanti et al., 2021; Wahid & Nashori, 2021).

Muhammadiyah 2 Tulangan Creative School, Sidoarjo, is a pilot elementary school for inclusive education in Sidoarjo Regency. The school enrolls 37 students with disabilities, assisted by 27 shadow teachers. These findings indicate that existing professional development programs have not adequately equipped shadow teachers with competencies related to religiosity and self-awareness within inclusive education (Aiyuda et al., 2025; Aristya & Rini, 2024). Observations

continue to reveal that shadow teachers lack competence and expertise in their fields and are only provided with basic training to prepare them for assisting children with special needs, without adequately addressing the development of religiosity and self-awareness. This demonstrates a significant gap between the expectations of shadow teachers' roles and their actual capabilities (Hanur et al., 2025; Nasir et al., 2018).

Although previous studies have examined shadow teachers' competencies, inclusive education, and religious values in educational settings, most studies have focused separately on pedagogical competence, learning strategies, or emotional support for children with special needs. Only a limited number of studies have integrated religiosity and self-awareness into structured competency development for shadow teachers. Furthermore, previous interventions have generally relied on face-to-face training, while the development of website-based digital training models remains underexplored. Consequently, there is still limited empirical evidence regarding digital platforms that simultaneously strengthen pedagogical competence, religiosity, and self-awareness within the implementation of an inclusive curriculum. This gap indicates the need for an innovative digital learning model specifically designed for shadow teachers.

To address these limitations, this study develops the REACH (Religious Empowerment and Competent Help) website as a digital training platform specifically designed for shadow teachers. Unlike previous studies, the REACH website integrates Qur'anic verses, Islamic inspirational stories, pedagogical guidance, psychological approaches, assistance strategies, and interactive e-modules within a single learning platform. This integration enables shadow teachers to strengthen pedagogical, emotional, and spiritual competencies simultaneously while implementing the inclusive curriculum. Therefore, this study aims to: (1) develop the REACH website as a digital training platform for shadow teachers; (2) evaluate the feasibility of the REACH website through expert validation; (3) analyze the contribution of the REACH website to improving shadow teachers' competencies in implementing an inclusive curriculum based on religiosity and self-awareness.

Method

This study employed a Research and Development (R&D) approach using the ADDIE model, which consists of five sequential phases: Analysis, Design, Development, Implementation, and Evaluation. The ADDIE model was selected because it provides a systematic framework for developing, validating, implementing, and evaluating educational products (Rindrayani et al., 2025), (Sugiyono, 2022). The product developed in this study was the REACH (Religious Empowerment and Competent Help) website, designed as a digital training platform to improve shadow teachers' competencies in implementing an inclusive curriculum based on religiosity and self-awareness. (Sukamdinata, 2020).

During the analysis phase, a needs assessment was conducted to identify competency gaps among shadow teachers in assisting children with special needs at Muhammadiyah 2 Tulangan Creative Elementary School, Sidoarjo. Data were collected through classroom observations, interviews with school administrators and shadow teachers, documentation studies, and questionnaires. The analysis focused on identifying competencies related to inclusive curriculum implementation, understanding the characteristics of children with special needs, integrating religiosity into mentoring activities, and strengthening self-awareness. The findings from this phase served as the foundation for determining the learning objectives, website content, and competency indicators.

The design phase involved preparing the conceptual framework and prototype of the REACH website. The website structure, navigation system, interface, learning flow, and instructional content were systematically designed based on the needs analysis. The learning materials were organized into several features, including Qur'anic Verses, Islamic Inspirational Stories, Characteristics of Children with Special Needs, Assistance Strategies, and Interactive E-Modules. Furthermore, research instruments, including expert validation sheets, pretest–posttest instruments, and user response questionnaires, were developed during this phase.

The development phase focused on producing the REACH website prototype and conducting expert validation. The website was evaluated by media experts and material experts using a five-point Likert scale to assess content quality, instructional design, visual appearance, functionality, usability, and accessibility. Suggestions provided by the experts were used to revise and improve the website until it met the predetermined feasibility criteria.

The implementation phase was conducted after the REACH website had been declared feasible by the experts. The website was implemented with 27 shadow teachers at Muhammadiyah 2 Tulangan Creative Elementary School, Sidoarjo. To evaluate the contribution of the REACH website to improving shadow teachers' competencies, this study employed a one-group pretest–posttest design, in which participants completed a competency test before (pretest) and after (posttest) using the REACH website. The research design can be illustrated as $O_1 - X - O_2$, where O_1 represents the pretest, X denotes the implementation of the REACH website as the intervention, and O_2 represents the posttest. This design was used to measure changes in shadow teachers' competencies after participating in the digital training program. The competency assessment covered five indicators: understanding the characteristics of children with special needs, implementing the inclusive curriculum, integrating religiosity into mentoring practices, developing self-awareness, and applying appropriate assistance strategies.

Finally, the evaluation phase aimed to determine the feasibility and effectiveness of the REACH website. Evaluation was conducted by analyzing the results of expert validation, user responses, and competency improvement based on the comparison between pretest and posttest scores. Descriptive statistical analysis was used to determine the feasibility level of the website, while inferential statistical analysis using a paired-samples t-test was performed to examine whether there was a statistically significant improvement in shadow teachers' competencies after using the REACH website. The evaluation findings also served as the basis for identifying the strengths, limitations, and recommendations for further development of the REACH website.

The research instruments consisted of classroom observation sheets, semi-structured interview guidelines, documentation, expert validation sheets, pretest–posttest tests, and user response questionnaires. The expert validation instruments included separate assessment sheets for media experts and material experts. Media experts evaluated the interface design, navigation, functionality, accessibility, visual appearance, and usability of the website, while material experts assessed the relevance, accuracy, completeness, clarity, presentation, and suitability of the learning content. Each validation instrument consisted of six indicators measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The validation scores were converted into percentages and interpreted using predetermined feasibility categories. The competency test consisted of 20 multiple-choice questions developed based on the competency indicators of shadow teachers. In addition, classroom observations, interviews, and documentation were employed to support the quantitative findings through data triangulation.

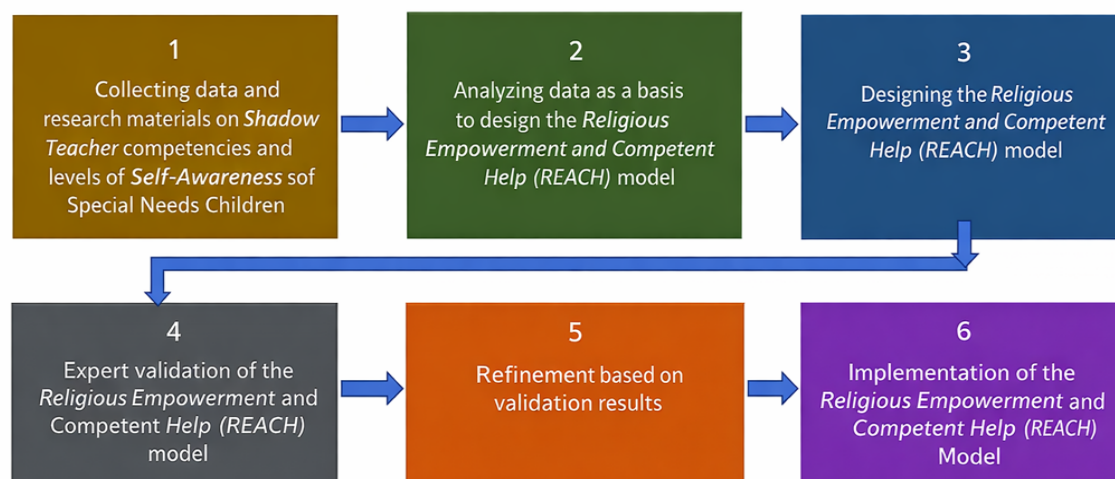


Figure 1. ADDIE Research Stages

Findings

This study was conducted at Muhammadiyah 2 Tulangan Creative Elementary School, Sidoarjo, to develop the REACH (Religious Empowerment and Competent Help) website as a digital training platform for improving shadow teachers' competencies in implementing an inclusive curriculum based on religiosity and self-awareness. (Faz & Hafid, 2023), (Taufiq & Harsiwi, 2024), (Julianti et al., 2023). The product development followed the ADDIE model, consisting of five sequential phases: Analysis, Design, Development, Implementation, and Evaluation

The analysis phase revealed several competency gaps among shadow teachers that became the basis for developing the REACH website. Based on classroom observations, interviews, and documentation, the school had 37 children with special needs assisted by 27 shadow teachers, of whom only six had an educational background in psychology. Most shadow teachers reported difficulties in understanding the characteristics of children with special needs, implementing differentiated learning strategies, integrating religiosity into mentoring activities, and strengthening students' self-awareness. Furthermore, the professional development provided by the school was limited to basic mentoring training and did not specifically address the integration of pedagogical competence, religiosity, and psychological approaches. These findings indicated the need for an accessible digital learning platform capable of supporting the professional development of shadow teachers comprehensively.

Based on the needs analysis, the design phase produced the conceptual framework and prototype of the REACH website. The website was designed to integrate pedagogical, psychological, and religious dimensions into a single digital learning platform. The learning content was systematically organized into competency-based modules, including strengthening religiosity, developing self-awareness, understanding the characteristics and types of children with special needs, mentoring strategies, and reflective learning practices. The website structure, navigation system, user interface, coding architecture, and domain configuration were designed to ensure ease of access and independent learning for shadow teachers.

During the development phase, the REACH website was successfully developed into a functional digital training platform containing six main features: Qur'anic Verses, Inspirational Stories, Characteristics of Children with Special Needs, Types of Children with Special Needs, Assistance Strategies for Children with Special Needs, and Interactive E-Modules. Each feature

was developed based on the competency needs identified during the analysis phase. The integration of Islamic values with inclusive education materials was intended to strengthen not only pedagogical competence but also the emotional and spiritual competencies required by shadow teachers in assisting children with special needs. In addition, the website was designed to provide flexible access, allowing users to study independently anytime and anywhere through the REACH website.

Following the completion of the prototype, the website underwent expert validation to evaluate its feasibility before implementation. Validation was conducted by media experts and material experts who assessed the quality of the website in terms of instructional content, interface design, usability, functionality, accessibility, and relevance to the objectives of inclusive education. The suggestions provided by the validators were used to revise and improve the website prior to field implementation. The feasibility results demonstrated that the REACH website met the criteria for use as a digital training medium for shadow teachers and was therefore suitable for implementation in the subsequent stage. The REACH website can be easily accessed through the following link: <https://s.id/ReachWebsite>

The REACH (Religious Empowerment and Competent Help) website was developed as an integrated digital learning platform to support the professional development of mentor teachers in implementing an inclusive curriculum based on religiosity and self-awareness. To facilitate independent learning, the website comprises six integrated features designed to enhance the competencies of shadow teachers in supporting children with special needs. 1) The Quranic Verses feature provides selected Qur'anic passages related to compassion, patience, responsibility, gratitude, empathy, and educational values, accompanied by explanations of their relevance to mentoring children with special needs. 2) The Inspirational Islamic Stories feature presents narratives of Prophets, companions, and exemplary Muslim figures whose lives demonstrate perseverance, empathy, sincerity, and resilience, serving as both a source of spiritual enrichment and a reflective resource for educational practice.

Furthermore, 3) the Characteristics of Children with Special Needs feature offers insights into developmental characteristics, learning styles, behavioral patterns, communication needs, and emotional profiles to support differentiated instruction in inclusive settings. 4) The Types of Children with Special Needs feature provides comprehensive information on various disability categories, including Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), intellectual disabilities, hearing impairments, visual impairments, physical disabilities, and specific learning difficulties, along with their educational implications and support strategies. 5) The Support Strategies for Children with Special Needs feature contains practical guidance on classroom support, communication techniques, behavior management, emotional regulation, collaboration with teachers and parents, and approaches to fostering students' religiosity and self-awareness. Finally, 6) the Interactive E-Module feature offers competency-based self-learning materials enriched with illustrations, case studies, reflective activities, self-assessment exercises, and formative evaluations, enabling shadow teachers to independently monitor their learning progress and continuously develop their professional competencies regardless of time and location constraints.

The integration of these six features distinguishes the REACH website from conventional digital learning platforms because it combines pedagogical knowledge, psychological approaches, and Islamic spiritual values in a single learning environment. As a result, the REACH website serves not only as an online training medium but also as a comprehensive professional development

platform that supports the continuous improvement of shadow teachers' competencies in inclusive education.

After the website was designed, a validity test was conducted to determine its suitability. The validity test was conducted in two stages: a validation test with material experts and a validation test with media experts.

Table 1. Assessment Scoring Guidelines

Eligibility	Percentage
Very Eligible	81% - 100%
Eligible	61% - 80%
Fairly Eligible	41% - 60%
Not Eligible	21% - 40%
Very Not Eligible	≤ 20%

Table 2. Media Expert Validation

Validator	Assessment Indicators	Score
Visual Design	Layout of media elements according to the material	4
	Game design, color selection, and text	4
Interactivity	Clarity of the REACH website usage guidelines	5
	The ability of media to foster user interactivity	4
Website Concept	Suitability of website structure to training objectives	4
	Ability to present the integration of religiosity and self-awareness	5
Average		26

The table above shows three assessment indicators with six assessment questions. The average media validation score is 26, which can be calculated as a percentage as follows:

$$\frac{26}{30} \times 100\% = 86,7\%$$

So, from the score above, it can be stated that the learning media based on media expert validation is categorized as very suitable with a score of 86.6%.

Table 3. Subject Matter Expert Validation

Validator	Assesment Indicators	Score
Accuracy of Material Presentation	Accuracy of presentation of the concept of religiosity in assisting children with special needs	4
	The accuracy of presenting the concept of self-awareness in children with special needs	4
	Make it easier for shadow teachers to understand the material via the REACH website	5

Ease of Understanding the Material	Clarity of presentation of material based on verses of the Qur'an and Islamic stories	3
Suitability to Learning Needs	Suitability of material with shadow teacher competency needs	4
	Suitability of materials to the context of inclusive education	4
Average		24

The table above shows three assessment indicators with six assessment questions. The average validation score for the material is 24, which can be calculated as a percentage as follows:

$$\frac{24}{30} \times 100\% = 80\%$$

Thus, the scores above indicate that the learning media, based on validation by material experts, is categorized as highly appropriate, with a score of 80%.

Discussion

The high feasibility scores obtained from both the media expert (86.6%) and the material expert (80.0%) indicate that the REACH website meets the quality standards required for implementation as a digital learning medium for shadow teachers. These findings are consistent with the instructional design principles of the ADDIE model, which emphasize that educational products should undergo systematic expert validation to ensure that the content, media design, usability, and instructional objectives are aligned before being implemented in the learning process. The high media validation score demonstrates that the REACH website provides an interactive interface, clear navigation, and accessible features that facilitate independent learning. Meanwhile, the material validation confirms that the learning content is relevant to the competency needs of shadow teachers in implementing an inclusive curriculum, although several revisions were made based on the validators' recommendations to improve the presentation of Qur'anic verses and Islamic inspirational stories so that the material could be understood more comprehensively.

The implementation results further demonstrate that the REACH website contributed to improving shadow teachers' competencies after participating in the digital training program. The increase in competency scores between the pretest and posttest indicates that the integration of pedagogical content, religiosity, and self-awareness within a single digital platform provides a more comprehensive learning experience than conventional training. This finding supports the view that digital learning environments enable teachers to access learning materials flexibly, repeat the learning process according to individual needs, and continuously develop their professional competencies. Such flexibility is particularly important for shadow teachers who require ongoing professional development while simultaneously carrying out mentoring responsibilities for children with special needs.

From the perspective of inclusive education, the improvement in shadow teachers' competencies can be explained by the integration of religious values and self-awareness into the training materials provided through the REACH website. Religiosity serves as an ethical and spiritual foundation that encourages empathy, patience, compassion, and responsibility when accompanying children with special needs, while self-awareness enables teachers to recognize and regulate their emotions, reflect on their instructional practices, and establish positive relationships with students. These findings support previous studies indicating that the integration of religiosity

and self-awareness contributes to improving teachers' professional competence, emotional resilience, and the quality of assistance provided to children with special needs

Furthermore, the findings of this study extend previous research by demonstrating that the REACH website not only functions as a digital learning medium but also integrates pedagogical guidance, psychological approaches, Qur'anic values, and Islamic inspirational stories into a unified learning platform. Unlike previous studies that primarily emphasized pedagogical competence or face-to-face training, the REACH website provides a flexible, accessible, and sustainable digital training model that supports the holistic development of shadow teachers' competencies. Therefore, the REACH website has the potential to become an innovative learning medium for strengthening the implementation of inclusive curricula, particularly in educational institutions that require continuous professional development for shadow teachers.

Data analysis was conducted using a paired sample t-test with SPSS to determine differences in the competency of the mentor teachers before and after using the REACH website. The results are as follows:

Table 4. Paired Samples Statistic

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	60,7407	27	5,63364	1,08419
	Posttest	87,7037	27	4,82633	,92883

Based on the Paired Samples Statistics output, the average pretest score was 60.74 with a standard deviation of 5.63, while the average posttest score was 87.70 with a standard deviation of 4.83, among 27 respondents. These data indicate a significant increase in the average score after using the REACH website, with a difference of 26.96 points. In addition, the decrease in the standard deviation value from the pretest to the posttest indicates that learning outcomes after the treatment became more homogeneous, meaning that the understanding of shadow teachers tends to be more evenly distributed.

Table 5. Paired Samples Correlation

	N	Correlation	Sig.
Pair 1 Pretest & Posttest	27	,365	,061

In the Paired Samples Correlations section, a correlation value of 0.365 with a significance level of 0.061 was obtained, indicating that the relationship between pretest and posttest scores was in the low to moderate category and not statistically significant. However, this correlation analysis was not the primary focus of the study, as the primary objective was to examine differences before and after treatment.

Table 6. Paired Samples Test

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Pretest - Posttest	-26.96296	5.93219	1.14165	-29.30966	-24.61627	-23.618	26	.000

Based on the test results in the Paired Samples Test table, the significance value (Sig. 2-tailed) was obtained at 0.001, which is smaller than the significance level of 0.05. This indicates that there

is a significant difference between the pretest and posttest scores. The calculated *t* value of -23.618 with a degree of freedom (*df*) of 26 further strengthens that the difference is highly statistically significant. In addition, the 95% confidence interval value is in the range of -29.30 to -24.61, all of which are below zero, thus indicating that the increase that occurs is consistent and does not occur by chance. Thus, it can be concluded that the use of the REACH website has a significant influence on improving the competence of shadow teachers.

The final stage of the ADDIE model was the evaluation phase, which aimed to determine the effectiveness of the REACH website in improving the competencies of shadow teachers. The evaluation was conducted by comparing the results of the pretest and posttest administered during the implementation phase. The findings showed a positive improvement in shadow teachers' competencies, as indicated by an average increase of 17.4 points between the pretest and posttest scores. This improvement demonstrates that the REACH website contributed to strengthening participants' competencies in implementing an inclusive curriculum based on religiosity and self-awareness. In addition, continuous evaluation was carried out through periodic monitoring of website utilization, user feedback, and refinement of website features to ensure that the platform remained relevant to the evolving competency needs of shadow teachers.

The findings of this study are consistent with previous research emphasizing that the competence of educators is one of the primary determinants of successful inclusive education. competence with religiosity and self-awareness within a website-based digital learning platform. (Astutik, 2025), (Astutik et al., 2025), (Azmiyah & Astutik, 2021) reported that improving teachers' pedagogical competence enables educators to provide more appropriate learning support for children with special needs and enhances the quality of inclusive learning practices. Similarly, the present study demonstrates that strengthening shadow teachers' competencies contributes to better implementation of inclusive education. However, unlike previous studies that primarily focused on pedagogical competence through conventional training approaches, this study extends the existing literature by integrating pedagogical competence with religiosity and self-awareness within a website-based digital learning platform.

The integration of religiosity and self-awareness also supports findings reported by (Masri & Wati, 2026), (Rahmawati & Astutik, 2025) who found that religious values and self-awareness improve educators' empathy, emotional regulation, and professional commitment when assisting children with special needs. The present study confirms these findings by demonstrating that embedding Qur'anic verses, Islamic inspirational stories, and reflective self-awareness activities into the REACH website provides shadow teachers with opportunities to strengthen not only their pedagogical knowledge but also their emotional and spiritual competencies. Consequently, shadow teachers are better prepared to understand the emotional, social, and developmental needs of children with special needs during the mentoring process.

Another important contribution of this study lies in the use of a website-based digital training model. Previous studies generally implemented competency development through face-to-face workshops or short-term professional training programs, whereas the REACH website provides a more flexible, accessible, and sustainable learning environment. Shadow teachers can access learning materials anytime and anywhere, revisit instructional content according to their individual needs, and continuously improve their competencies through independent learning. Therefore, this study not only confirms previous findings regarding the importance of educator competence in inclusive education but also contributes a novel digital training model that integrates pedagogical, psychological, and Islamic spiritual dimensions into a single learning platform. This innovation has

the potential to support the sustainable professional development of shadow teachers and improve the quality of inclusive education in schools implementing an inclusive curriculum.

However, this study has several limitations that should be considered when interpreting the results. First, the implementation of the REACH website was limited to 27 teacher assistants from a single inclusive elementary school, which may limit the generalizability of the findings to other educational settings with different institutional characteristics and teacher competencies. Second, the effectiveness of the REACH website was evaluated using a single-group pretest-posttest design without a comparison or control group. Consequently, although the findings indicate a significant improvement in teacher assistant competencies, the influence of external factors cannot be completely discounted. Third, the evaluation primarily focused on short-term competency improvements immediately following website implementation and did not examine the long-term sustainability of competency development or changes in teachers' professional practices over time. Furthermore, this study assessed the impact of the REACH website on teacher assistant competencies but did not directly measure their impact on the academic, social, emotional, and spiritual development of children with special needs. Therefore, future studies are recommended to involve larger and more diverse samples from various inclusive schools, employ quasi-experimental or experimental research designs with control groups, conduct longitudinal evaluations, and investigate the long-term impact of the REACH website on teacher competencies and learning outcomes of children with special needs. Such studies would provide stronger empirical evidence regarding the effectiveness and scalability of the REACH website in supporting inclusive education.

Conclusion

Based on the results of research on shadow teachers at Muhammadiyah 2 Tulangan Elementary School, it can be concluded that the development of the REACH website has proven effective as a website that helps improve the competence of shadow teachers in an inclusive curriculum. This is supported by the validation results, which show the level of website feasibility at a very feasible level with a media expert validation percentage of 86.7% and a material expert validation of 80%. In addition, the implementation of the website also showed a high number with an average pretest score of 60.74, which increased to 87.70 in the posttest, with an increase of 26.96 points. The results of the statistical test using a paired sample t-test showed a significance value of $p < 0,001 < 0.05$, which means there is a significant difference between before and after using the REACH website. In addition, the calculated t value of -23.618 and the confidence interval that does not cross zero further strengthen that the increase is significant and consistent. Thus, the REACH website innovation can be a relevant digital media innovation in supporting the improvement of the quality of inclusive education, especially in strengthening the competence of shadow teachers.

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