Analysis of Online Teacher Professional Development (OTPD) Readiness through a Website-Based Online Course Platform

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Abstract. Online Teacher Professional Development (OTPD) emerges as an alternative strategic approach to enhance teacher competency in a comprehensive, flexible, and sustainable manner. The current OTPD program is still delivery-oriented, without attention to learning strategies essential for independent context-based online learning. This study analyzes the preparation of the online courses website for OTPD. This research uses descriptive quantitative research. This focuses on in-depth data collection and analysis, from numbers to provide a clear and detailed picture of the variables studied, without testing hypotheses or exploring in-depth connections between variables. A sample research was conducted with 100 teachers from various levels in Indonesia. The preparation aspects analyzed include computer operating skills, use of computer applications, internet mastery skills, and understanding of online courses, as well as websites for online course readiness and needs-based services in the work environment. The analysis results of the preparation aspect of the website-based online course for OTPD were 77.47%, with a good category. The preparation process of the website-based online course for OTPD. There are general constraints or obstacles. Website-based online courses have a positive impact on OTPD.

Keywords: ICT in teacher education; online teacher professional development (OTPD); website-based online courses.

INTRODUCTION

Technology Information and Communication (ICT) in education is one of the most important issues in education reform in many Asian countries (Cheng et al., 2017). The implementation of ICT is crucial for developing 21st-century

skills, particularly digital skills (Odewumi et al., 2020), as learning has shifted from teacher-centered to student-centered approaches. When implementing ICT in education, a country must establish a policy on Information Technology in Education (ITEd) to provide guidelines.

Data literacy is an important component for the effective use of data (Schildkamp et al., 2017). Ability to transfer data or information to instructions and practices that can be expanded by collecting, analyzing, and storing all data types to help determine instructional procedures (Mandinach & Gummer, 2016). Teachers not ready to use data, such as pre-service teacher education or preparation, are early teachers in their positions (Mandinach et al., 2015; Reeves, 2017). Maker policy emphasizes the importance of supporting teacher data literacy through the development of professionals (Mandinach & Schildkamp, 2021).

In teacher education and development, the teaching profession is vital for improving education, enhancing skills and knowledge, and shaping teachers' beliefs to better educate students and become more effective teachers. Challenges and problems include being unable to customize with teachers and not adapting to a busy timetable (Trust & Pektas, 2018).

Shift fast and mandatory to online learning because of the pandemic, teaching distance learning (Hartshorne et al., 2020). Teaching distance learning is temporarily shifted due to the crisis (Moorhouse & Kohnke, 2021)—the emergence of distance teaching. Far emergency needs repair and support sustainable interests for all stakeholders in the education sector (Tafazoli et al., 2021), including teachers, which can be offered through Online Teacher Professional Development (OTPD) courses (Hartshorne et al., 2020). Online Teacher Professional Development (OTPD) refers to courses, workshops, or module learning delivered online for teachers (Powell & Bodur, 2019). Online learning is not a temporary solution but an important educational component. (Kessler, 2018; Kohnke & Moorhouse, 2022)Empirical evidence supports the assumption that the teacher does not Ready For Work cross online modality (Bartlett, 2022; Crompton et al., 2022).

With the development of knowledge and technology, dependence on the internet has become a new method for teachers to develop professionally. Online learning helps teachers according to their talent, is very comfortable, and allows discussion asynchronously without constraints on space and time (Parsons et al., 2019). Teachers' online learning is more effective than face-to-face learning because of the development programs that online professionals provide, community online practice for teachers, which offers a chance for reflection, a place to express their thoughts, and immersive virtual simulations. Online development professionals are compared with development professionals in the general public, who rely on local sources and use more powerful sources (Wilson, 2013).

Based on study literature, Indonesia has developed a source of Power education open through the Learning House and Indonesia- Open Educational Resources (I-OER). The Rumah Belajar platform has a total of 779,365 users, comprising over 224,394 teachers and 554,971 students, according to data from the Ministry of Education and Culture for 2019. According to the report by United Nations Educational (2013), there are 3.7 million teachers and 51.3 million students in Indonesia. In other words, the platform is new and is used by 1% of total teachers and students. The other platform is Indonesia- Open Educational Resources (I-OER), developed by the University of Indonesia. The I-OER website was mentioned as partnering with 50 universities to collaborate on and develop its content in 2019. According to the report by United Nations Educational (2013), there are 3,696 universities in Indonesia, so website acquisition is still 1% of the total number of universities. The platform is Still Not getting Many users, although the material is free and can be accessed anywhere and at any time.

Many OTPD programs provide training. However, not all OTPDs achieve the expected results. Phenomenon . Several factors contribute to this, including limited teacher participation due to time and opportunity, as well as a lack of motivation as a mediator towards teacher readiness in implementing ICT in the teaching-learning process. Problems secondly influence teachers' knowledge, skills, and use of ICT. Third is a lack of design thinking and teacher disposition. K four No. There is a planned strategy for applying ICT in education and standard teacher competency in ICT. Fifth is a government moment, focusing on well-being-based and stabilization politics; the last one is content learning. Using ICT is limited to Indonesians.

The underlying factors of OTPD in these conditions are currently being studied. This approach solves the problem with an online course-based website. The successful use of digital technology in development programs depends on the teaching profession's acceptance of digital technology. Understanding and sustainability in using online course-

based websites are fundamental to OTPD. This study aims to analyze the preparation for implementing online courses. Website-based for OTPD,

The implementation of online learning (OTPD) is not without challenges, particularly during the preparation phase. These challenges include the readiness of technological infrastructure, teachers' ability to operate computer devices and supporting applications, and varying levels of digital literacy among teachers. Teachers' understanding of the concept of website-based online courses and the suitability of the OTPD program to the needs of their respective workplaces are also important factors determining the success of OTPD implementation.

This study, focusing on a comprehensive analysis of the preparation aspects for implementing web-based online courses for OTPD, focuses on: (1) computer operating skills, (2) use of computer applications, (3) internet proficiency, (4) understanding of website-based online courses, (5) readiness for website-based online courses, and (6) the need for website-based online courses in the workplace. The analysis of these aspects is expected to provide a comprehensive picture of the level of teacher readiness. It serves as a basis for OTPD implementation and will support the development of more effective and relevant training strategies in the future.

The novelty of this research lies in the development of an analytical framework for OTPD readiness through a more comprehensive mapping of teacher readiness. Utilizing learning analytics from interaction data within the platform makes readiness measurements more valid, dynamic, and grounded in actual behavior, rather than relying solely on self-reports. The implementation of an adaptive website-based online course platform allows the system to adjust its appearance and features to suit the teacher's readiness profile. This integration results in a more personalized, responsive, and relevant OTPD (teacher professional development) for teachers in the digital age.

METHODS

This research design uses quantitative research, which obtains data in numerical form. This type of research is descriptive, which determines the value of a single independent variable without making comparisons or linking it to other variables (Sugiyono, 2014).

The study population comprises teachers from various levels of education and regions in Indonesia. A sample of research respondents was selected using a random sampling method. Research. These samples were taken from 100 teachers, with a population of 140 teachers, based on the Krejcie table. For a significance level of 0.05, the samples obtained have a level of trust of 100% against the population. Equation 1 shows the equation used to determine the sample size.

$$n = \frac{x^2 Np(1-p)}{e^2(N-1)+(x^2 p(1-p)} \quad (1)$$

(Krejcie & Morgan, 1970)

Table 1 shows the number of samples from a certain population with error levels of 1%, 5%, and 10%, as follows.

TABLE 1. Determination of the number of samples from a certain population with error rates of 1%, 5%, and 10%

N	1%	5%	10%
110	94	84	78
120	102	89	83
130	109	95	88
140	116	100	92
150	122	105	97
160	129	110	101
170	135	114	105
180	142	119	108
190	148	123	112
200	154	127	115

Sampling is the process of selecting and taking samples. Random sampling is a technique in which all individuals in the population, individually or collectively, are given an equal opportunity to be selected as sample members. Random sampling is a technique in which all individuals in the population, individually or collectively, are given an equal opportunity to be selected as sample members. Simple random sampling (also known as simple random sampling) is important because the difference in possible characteristics among every element or element population is crucial for planning analysis. This technique utilizes homogeneous population elements, meaning that any element selected as a sample can accurately represent the population.

Website-based online course research for OTPD 140 teachers from the total population. Then, sampling was carried out on 100 teachers. Each of the 140 teachers will be assigned a unique number, which will be listed in a database. Then, from the data, a random sample of 100 teachers was chosen for sample testing.

Data collection using an online survey is easy to manage and can be accessed from various devices. A questionnaire using a Google Forms link to operate an online survey for teachers. The measurement method, with a developed scale in accordance with analysis needs, will be website-based online courses for OTPD.

Data analysis will be done quantitatively using statistical analysis. Descriptive statistics analysis is a method for analyzing data to describe the data that has been collected, without intending to draw applicable conclusions for generalization.

A questionnaire data analysis evaluation of teachers' needs requires a website-based online course for the OTPD use method scale, using a Likert scale. Answer every item in the instrument using a Likert scale with gradation from very positive to very negative, and answers are given a score (Sugiyono, 2014). Table 2 shows the criteria used for scoring.

TABLE 2. Guidelines for teacher assessment scores

Score	Information
5	Very good
4	Good
3	Enough
2	Bad
1	Very bad

Next, all data from the questionnaire evaluation were recapitulated and calculated for each grain statement using the following formula shown in Equation 2 (Widoyoko, 2014).

$$p = \frac{total\ score\ of\ data\ collection\ results}{total\ criteria\ score}\ x\ 100\% \quad (2)$$

Note: P = Percentage per statement item

Based on calculations, the interpretation score is categorized. The category is outstanding, good, sufficient, less, and significantly less, as given in Table 3 (Riduwan, 2015).

TABLE 3. Criteria score interpretation

No.	Score Interval (%)	Category
1	81 – 100	Very good
2	61 – 80	Good
3	41 – 60	Enough
4	21 – 40	Not enough
5	0 – 20	Very less

The analysis aims to determine whether teachers require online courses for OTPD delivered via a website.

RESULTS AND DISCUSSION

Result

An analysis is necessary to determine the current preparation and planning for the online course-based website for OTPD. This includes examining the need for literature on the characteristics, potential, issues, engagement, and benefits of data sources in research. A literature review is required for developing an online course-based website for OTPD. Observation will start in the study to gather information about various obstacles and suggest solutions for improving quality. Initial observations indicate existing challenges in an online course-based website for OTPD.

The study aims to reveal the actual conditions, identifying factors that either support or hinder development, and will focus on an online course-based website for OTPD. The field study will assess the condition of online course websites, support factors, implementation processes, and teachers' perceptions, as well as the availability of facilities and infrastructure for online courses. The results from this fieldwork, derived from preparation and planning stages, will provide data on OTPD in relation to the online course-based website. Analyzing these findings will lay the groundwork for the implementation phase.

An online course website for OTPD is being developed. The analysis of learners' perceptions across all aspects of education must focus on efforts to deliver high-quality education and enable institutions to evaluate and improve their services, ensuring outcomes meet established standards. An ongoing evaluation can identify strengths and weaknesses, guiding efforts to enhance quality. Evaluation should be continuous, comprehensive, and motivate educators and administrators, fostering ongoing educational improvement. This process is conducted periodically and transparently, with objective guidelines, empowering educational units to develop resources supporting the country's educational goals. The perception analysis considers how online course websites for OTPD influence learners' attitudes.

Subjects' perceptions regarding instructional quality and product presentation were assessed using narrative descriptive analysis with percentage distributions. Each item in the perception questionnaire is scored on a scale from 1 to 5, with the following meanings: 1 = very poor, 2 = poor, 3 = satisfactory, 4 = good, 5 = excellent.

The study included 140 teachers from the population, with a randomly selected sample of 100 teachers. Each teacher was assigned a number in a database, and the sample was chosen randomly from this list.

The preparation of an online course website aims to develop teachers into online professionals. The preparation criteria include: a. computer skills, b. use of computer applications, c. internet proficiency, d. understanding of online courses based on the website, e. readiness for online courses, and f. the need for online courses in the workplace. The results regarding preparation aspects are summarized in the following table.

TABLE 4. Computer operating skills

a. Computer operating skills					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	2	3	3.0	3.0	3.0
	3	19	19.0	19.0	22.0
	4	51	51.0	51.0	73.0
	5	27	27.0	27.0	100.0
	Total	**100**	**100.0**	**100.0**	

Table 4 data show the computer operating ability ratings for respondents: very bad, 0% (none); bad, 3% (three respondents); fair, 19% (nineteen respondents); good, 51% (fifty-one respondents); and very good, 27% (twenty-seven respondents).

TABLE 5. Computer application utilization capabilities

b Ability to utilize computer applications					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	2	5	5.0	5.0	5.0
	3	29	29.0	29.0	34.0
	4	46	46.0	46.0	80.0
	5	20	20.0	20.0	100.0
	Total	**100**	**100.0**	**100.0**	

Table 5 data show the ability to use computer applications among respondents: very bad, 0% (none); bad, 5% (five respondents); sufficient, 29% (29 respondents); good, 46% (46 respondents); and very good, 20% (20 respondents).

TABLE 6. Internet mastery skills

c. Internet mastery skills					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	2	4	4.0	4.0	4.0
	3	15	15.0	15.0	19.0
	4	59	59.0	59.0	78.0
	5	22	22.0	22.0	100.0
	Total	**100**	**100.0**	**100.0**	

Table 6 data show internet mastery skills based on responses: very bad, 0% (none); bad, 4% (4 respondents); enough, 15% (15 respondents); good, 59% (59 respondents); and very good, 22% (22 respondents).

TABLE 7. Understanding of website-based online courses (online learning)

d. understanding of website-based online courses (online learning)					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	2	4	4.0	4.0	4.0
	3	28	28.0	28.0	32.0
	4	50	50.0	50.0	82.0
	5	18	18.0	18.0	100.0
	Total	**100**	**100.0**	**100.0**	

Table 7 data shows the understanding of website-based online courses (online learning) among respondents with the following ratings: very bad, none or 0%; bad, four respondents or 4%; fair, 28 respondents or 28%; good, 50 respondents or 40%; and very good, 18 respondents or 18%.

TABLE 8. Readiness to conduct website-based online courses (online learning)

e. Readiness to conduct online courses (online learning) based on websites					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	2	4	4.0	4.0	4.0
	3	32	32.0	32.0	36.0
	4	46	46.0	46.0	82.0
	5	18	18.0	18.0	100.0
	Total	**100**	**100.0**	**100.0**	

Table 8 presents data on readiness to undertake website-based online courses (online learning) among respondents categorized by their answers: very bad, none or 0%, bad, four respondents or 4%, fair, 32 respondents or 32%, good, 46 respondents or 46%, and very good, 18 respondents or 18%.

TABLE 9. Need for website-based online courses (online learning) in the work environment

f. The need for website-based online courses (online learning) in the work environment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	4	4.0	4.0	4.0
	3	30	30.0	30.0	34.0
	4	46	46.0	46.0	80.0
	5	20	20.0	20.0	100.0
	Total	**100**	**100.0**	**100.0**	

Table 9 data. Need for website-based online courses (online learning) in the work environment for those who answered: very bad, none or 0%, bad, four respondents or 4%, sufficient, thirty respondents or 30%, good, forty-six respondents or 46%, and very good, twenty respondents or 20%.

Based on the assessment of preparation aspects, with six indicators, the scores are shown in Table 10 and Figure 1.

TABLE 10. Assessment of preparation aspects

A	B	C	D	E	F	Amount
402	381	399	382	378	382	2324

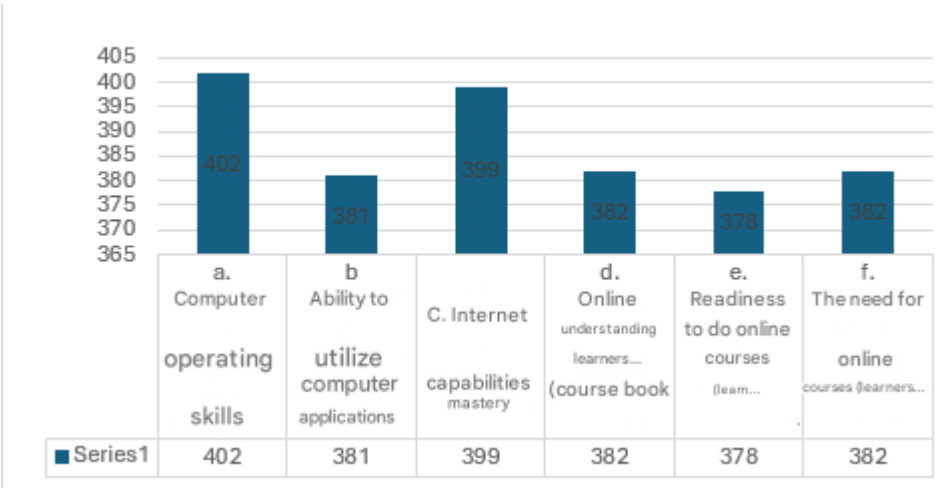

FIGURE 1. Assessment of preparation aspect scores

Table 10 presents the data, and Figure 1 illustrates it. The assessment of preparation aspects includes: a. computer operating skills scored at 402, b. utilization of computer applications at 381, c. internet mastery at 399, d. understanding of website-based online courses (online learning) at 382, e. readiness for website-based online courses at 378, and f. the need for website-based online courses in the work environment, which also scored 382.

Furthermore, all the data from the questionnaire evaluation were recapitulated, and the calculation for each statement item is carried out using the following formula shown in Equation 3.

$$p = \frac{total\ score\ of\ data\ collection\ results}{total\ criteria\ score}\ x\ 100\% \quad | \quad p = \frac{2324}{30}\ x\ 100\% = 77{,}47\% \qquad (3)$$

Based on the calculations, the percentage score for teachers' online course preparation in OTPD was 77.47%, which falls into the "good" category. This indicates that, overall, teacher readiness for online courses in the preparation aspect is considered good.

Discussion

Based on research data from teacher responses to the preparation aspect, including computer operating skills, the study shows that the majority of teachers already possess basic computer skills, particularly in the use of Microsoft Word and spreadsheet applications. This finding suggests that basic computer literacy is a minimum requirement for participating in ICT-based learning programs. Skills for integrating technology into learning still need improvement. The OTPD program should facilitate the development of advanced digital skills through website-based online courses.

Regarding preparation for utilizing computer applications, teachers generally still use computers for administrative purposes, such as typing documents or processing grades. Only a small proportion of those utilizing computer applications have utilized learning applications, including LMS. This gap exists between technical skills and ICT-based pedagogical skills. The use of interactive learning applications can enhance the effectiveness of OTPD by providing training in their use, which should be a key focus in OTPD.

Regarding preparation for internet proficiency, most teachers are accustomed to using the internet to search for information. However, they are still limited in utilizing the internet for learning, such as uploading materials or participating in discussion forums. These results indicate that teachers' internet literacy tends to be passive (information consumers) rather than active (content creators). The findings suggest that teachers' digital competencies should be focused on utilizing the internet for collaboration and active learning.

Regarding preparation for understanding website-based online courses, teachers' understanding of the concept of online courses remains low because some have never taken formal online courses. This situation indicates the need for a socialization or orientation phase before implementing the OTPD. Initial orientation can increase teacher engagement in online learning. OTPD should design an orientation module to introduce the system, flow, and benefits of online courses.

Regarding preparation for online courses, the majority of teachers stated they were ready to take online courses. However, they still faced challenges related to time, network access, and device availability. Readiness is not only a matter of technical ability but is also influenced by external factors. OTPD emphasizes the importance of flexible learning design; OTPD programs must provide flexible access, for example, through asynchronous learning systems that can be accessed at teachers' own time.

Regarding the preparation of online courses in the workplace, teachers stated that the most needed online courses are those relevant to teaching tasks, such as developing teaching materials, active learning strategies, and curriculum-based assessments. These results emphasize the importance of aligning training with work practices. OTPD materials must be based on teachers' needs to be more applicable and have a tangible impact on the learning process.

This research has important implications for the development of online teacher education (OTPD). The research findings indicate that website-based online courses have the potential to: 1) Improve teachers' digital literacy through training in computer operation, application utilization, and internet proficiency. 2) Strengthen educational infrastructure by encouraging schools and local governments to provide adequate ICT facilities. 3) Optimize the online teacher education (OTPD) course platform to be more user-friendly, accessible, and tailored to teachers' needs. 4) Provide mentoring and incentives to increase teacher participation and motivation in taking online courses. 5) Encourage ongoing evaluation to ensure the effectiveness of OTPD in improving teachers' professional competence.

OTPD offers numerous benefits, including access to development, flexibility, cost-effectiveness, and quality, without geographical or time constraints (Elliott, 2017; Powell & Bodur, 2019). Potential benefits of OTPD for teachers include developing knowledge and connecting them with a global community of peers through objective learning, as well as sharing sources and ideas with professionals who share similar perspectives and ideas (Appova & Arbaugh, 2018; Moorhouse & Kohnke, 2021). Development professionals in online teacher communities foster

support and peer-to-peer interaction (Lantz-Andersson et al., 2018; Philipsen et al., 2019). OTPD courses can contribute to the development of professional teachers (Kessler, 2018; Lockee, 2021). OTPD courses for enhancing teacher technology skills. Consensus among participants was that the OTPD was in accordance with their interests and needs.

OTPD contributes to the development and practice of teachers by increasing their skills and knowledge in technology. Developed an OTPD course for support skills for reflective teachers (Mohammadi & Tafazoli, 2022). An online course-based website can enhance teacher reflection skills by facilitating helpful online discussions for teachers, modeling interaction between technology, pedagogy, and content through trainers, and influencing their technological development. Online courses based on a website for OTPD can give recency in innovative education.

The results and discussion of this study confirm that teacher readiness in six aspects of preparation (computer operating skills, computer application utilization, internet mastery skills, understanding of website-based online courses, readiness for website-based online courses, the need for website-based online courses in the workplace) can be used as a basis for designing more relevant, flexible, and effective OTPD (Online Course Development Program). This study makes an important initial contribution to assessing teacher readiness for participating in OTPD, based on a website-based online course platform. The finding that the readiness score falls into the "good" category is a strong positive signal, reassuring the audience of the program's potential. However, it also highlights the need for structural and strategic improvements to ensure the OTPD program can be implemented sustainably.

CONCLUSION AND SUGGESTION

Conclusion

Based on the research findings on preparation for implementing website-based online courses for Online Teacher Professional Development (OTPD), the following conclusions can be drawn.

1. Computer skills: The majority of teachers already possess basic skills such as using MS Word and Excel. These basic skills indicate sufficient initial capital to participate in OTPD, although advanced skills are still limited.
2. Computer application utilization: The majority of teachers still use computer applications for administrative purposes, and their utilization of ICT-based learning applications remains low. This low utilization of computer applications indicates the need for more targeted training on the use of interactive learning applications.
3. Internet proficiency: Teachers are accustomed to using the internet for information searches, but they are still limited in utilizing it for active learning activities, such as uploading materials, managing online classes, or digitally collaborating.
4. Understanding of website-based online courses: Some teachers lack experience taking formal online courses. This experience yields a limited understanding of the mechanisms and benefits of online courses, making initial orientation particularly crucial.
5. Readiness to participate in online courses: Most teachers expressed readiness to participate in website-based online courses for OTPD. External limitations, such as time, internet access, and device availability, remain significant obstacles that must be addressed in program design.
6. Need for online courses in the workplace: Teachers desire online courses relevant to their daily teaching practices, such as those on teaching materials development, active learning strategies, and curriculum-based assessments.

Overall, research findings suggest that teachers possess the necessary readiness to participate in website-based online courses for OTPD. Gaps exist in the utilization of learning applications, understanding of online courses, and technical and external constraints. The implementation of website-based OTPD needs to be designed flexibly, relevantly, and supported by adequate infrastructure.

Suggestion

For OTPD organizers, it is important to provide an initial orientation phase for teachers before implementing OTPD, design programs with flexibility in time and access such as asynchronous learning, and offer specific training on learning applications or LMSs to enable teachers to utilize them pedagogically. Additionally, ensuring platform accessibility through a simple, lightweight, and user-friendly interface is crucial.

For teachers, developing digital skills independently via online courses, actively participating in discussion forums to enhance collaboration, and integrating online learning outcomes into daily teaching practices are recommended.

Future researchers should consider expanding their research scope with larger and more representative samples, examining institutional factors like school support, government policies, and infrastructure that influence OTPD success, and studying the implementation of website-based OTPD to assess its effectiveness in the field.

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