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How does work motivation and emotional intelligence affect teacher competence in remote areas? A systematic review of the literature

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Abstract: Teachers' competence in improving education quality is essential, especially in remote areas like Tojo Una-Una, Central Sulawesi. There are some unique challenges for teachers in that region: low access to educational resources and low professional support. Both work motivation and emotional intelligence have been identified as influencing competencies among teachers, but not much research is still exploring this context of remote areas. The present study will discuss the existing literature that evaluated work motivation and emotional intelligence's impact on teacher competencies in remote areas concerning identifying factors that could optimise such competencies in challenging geographical conditions. This study adopts an SLR strategy so that pertinent literature is sourced, examined, and synthesised to construct a broad and meaningful perception. The selection process includes scanning the title, abstract, and published work in a reputable journal. The research results indicate that work motivation and emotional intelligence significantly impact teacher competence, specifically in the hinterlands. Significant work motivation and robust emotional intelligence produce an even higher synergistic effect than the two dimensions working individually. In conclusion, developing teacher training programs in remote areas should improve work motivation and emotional intelligence, contributing to a better quality of education in the region.

Keywords: teacher competence; work motivation; emotional intelligence; remote areas; education improvement.

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1 Introduction

Attempts to enhance the quality of education in different regions have long focused on improving teacher competence. Not only does the high competence of teachers affect the teaching and learning process in the classroom, but it also affects the academic achievement of students (Bawaneh et al., 2023; Callo and Yazon, 2020; Cefai et al., 2022). These competencies are mastering the material, effective teaching techniques, classroom management, and providing constructive feedback to students. In addition, teacher competencies also embrace emotional and social features, such as relating well with the learners, colleagues, and parents of the students. Competent teachers, in the broader sense, have to be leaders within and beyond the classroom who can motivate and inspire the students to actualise their potential (Álamo and Falla, 2023; Bai et al., 2022; Cann et al., 2021; Herrmann et al., 2021; Oliveira et al., 2022; Van Wyk et al., 2022).

Two significant factors in enhancing teacher competence in research are emotional intelligence and work motivation. Meanwhile, work motivation is often viewed as an essential driver that steers teachers to make continuous efforts to improve the quality of their teaching (Cabero-Almenara et al., 2022; Daumiller et al., 2021; Goodyear et al., 2021; Hooda et al., 2022; Prado-Gascó et al., 2020). High motivation may generally be linked to solid commitment, shown in teachers' willingness to spend more time preparing lessons, conducting ongoing assessments, and following professional development.

Teachers who can look at their challenges with a positive attitude and try to innovate as they search for solutions to problems that arise in the teaching process will also tend to be motivated (Daumiller et al., 2021; Econ, 2023; García-Martínez et al., 2023; Gui and Wu, 2023; Han, 2022).

Emotional intelligence is the ability to recognise, understand, and manage the emotions of oneself and others. In the context of education, teachers' emotional intelligence is critical to their ability to create a safe and supportive learning environment for all students (Alenezi, 2020; Devis-Rozental and Farquharson, 2020; Iqbal et al., 2022; Malki et al., 2024; Ngui and Lay, 2020). Teachers high on the emotional intelligence scale can manage stress more effectively, embrace change, and relate well with students. They are more effective in dealing with conflicts in class and helping students enhance their emotional skills, thus boosting the eventual well-being and achievement of the students (Chamizo-Nieto et al., 2021; Davaei et al., 2022; Khodajou-Masouleh and Barekat, 2022; Trabelsi et al., 2023; Wang, 2022b).

About teachers, studies have proved that a strong connection exists between work motivation, emotional intelligence, and teacher competence. For instance, studies have shown that highly motivated teachers show a great disposition to engage in professional development, hence possessing a high desire to improve teaching skills (Bisquerra Alzina and López-Cassà, 2021; Cai et al., 2022a; Kakulavarapu and Elkbuli, 2021; Pozo-Rico et al., 2020; Valente and Lourenço, 2020). The result of this engagement most often ends in competence and capability, which improves effectiveness in teaching and students' learning. On the other hand, teachers with high emotional intelligence can tackle the emotional and social demands that come with the process of teaching; thus, the ability to support students effectively may increase (Atik et al., 2024; Chongcharoen et al., 2024; Dolev et al., 2021; Gavriluţă et al., 2022; Koç et al., 2024).

Therefore, while much research has been conducted into the relationship between work motivation, emotional intelligence, and teacher competence, most of these studies have concentrated on teachers who work in urban or regional settings that afford better access to educational resources (Alimni et al., 2022; Anastasiou, 2020; D'Amico and Geraci, 2022; Li et al., 2023; Tian and Cui, 2022). Urban conditions are more resourceful for competency development among teachers. Professional training and support from educational communities with easy access to educational technologies abound in urban areas. Teachers working in remote areas often face much greater hardships due to limited resources, geographical isolation, and lack of professional support (Avidov-Ungar and Hayak, 2023; Spiker et al., 2023; Wullur and Werang, 2020).

For instance, the example of Tojo Una-Una in Central Sulawesi is a stark contrast to urban areas. There, the teachers work under adversity, with limited teaching materials, few opportunities for professional training, and at quite a distance from the educational centres (Casimir et al., 2023; Chamane et al., 2022; Do et al., 2022; Muktiarni et al., 2021). Besides, hard natural conditions and social isolation might hurt teachers' emotional status and working motivation. All these, taken together, can contribute to the low level of teacher competence in remote areas, which further might deteriorate the quality of education received by the students from the region (Bianchi et al., 2022; Collie, 2023; Hasin and Nasir, 2021; Muhaimin et al., 2020; Wang et al., 2021a; Zhou et al., 2022).

The effect of work motivation and emotional intelligence on teacher competence has not been thoroughly investigated in the context of remote locations. It is still on major points that some studies are now focusing, given that more reinforcing conditions exist in urban areas or regions with easier access to educational resources (Guzzo et al., 2022; Liu et al., 2021; Murray et al., 2023; Phongluxa et al., 2020). Therefore, a significant gap exists in the literature regarding how these two factors may be operationalised within the same remote areas, where teachers suffer from more complex, heterogeneous impediments that obstruct the development of effective education delivery.

The systematic literature review (SLR) will call for further evaluation into the existence of studies now, and filling this gap is needed. SLR is a structured, straightforward approach to reviewing and synthesising existing literature that can help researchers identify the patterns and gaps in state-of-the-art and new research opportunities (Bhatti et al., 2023; Hossain et al., 2022; Sadeghi Moghadam et al., 2021; Shahab et al., 2022; Thirumalesh Madanaguli et al., 2023; Wulandari and Raharjo, 2023; Zhu et al., 2021). The researchers will be able to utilise this procedure and gather more solid evidence about how work motivation and emotional intelligence affect teacher competence in remote areas. These results can further probe current dynamics and develop interventions that will be most effective and contextual (Camacho et al., 2022; Hollweck and Lofthouse, 2021; Luu and Trinh, 2023).

It will use the SLR approach to examine the different studies in that field of interest, which lies in a remote area like Tojo Una-Una. The process involves the identification, selection, and analysis of relevant literature, which will then be synthesised to come up with a comprehensive picture of the topic under research (Brennan et al., 2022; Freitas et al., 2023; Medeiros et al., 2021; Scuteri et al., 2021; Yeo et al., 2024). Research works that will be considered in the present study should be published in reputable journals and address the issues of work motivation, emotional intelligence, and the competence of a teacher concerning remote area schooling (Diallo et al., 2023; Larrain and Groene, 2021; Meyer et al., 2022; Molina-Guzmán et al., 2022).

The SLR to be conducted in this study will highlight key findings from previous research and will identify knowledge gaps and areas where research is needed (Ahmad et al., 2022; El-Masri et al., 2020; Rahmani et al., 2021; Sepriano et al., 2020). Therefore, this study will contribute to educational academic literature, significantly improving teacher competence in remote areas. The findings from this study are also hoped to give practical insights to education policymakers and school managers on the ground about designing professional development programs in tandem with the needs of teachers in remote areas (Ahmad et al., 2022; Ilomäki et al., 2023; Molavi, 2024; Sağlam et al., 2023).

The importance of performing SLR in this context cannot be ignored. In addition to theoretical contributions, this research aims to produce practical recommendations that education policymakers can implement. For example, the results of this study can be used to design training programs that focus more on developing teachers' work motivation and emotional intelligence, taking into account the specific challenges faced by teachers in remote areas (Bonato et al., 2024; Fernández-Sánchez et al., 2022; Hidayat et al., 2022; Majitol and Yunus, 2023; Rashid and Wong, 2023). Such programs shall considerably boost the capability and well-being of teachers, resulting in a rise in the overall education quality of the region and fostering better outcomes for students.

This study will fill an existing knowledge gap. It will also contribute to the formulation of more effective strategies aimed at enhancing teacher competence in remote areas, leading to improved educational outcomes and community development (Akram et al., 2021; Chan and Lee, 2023; Mynaříková and Novotný, 2020; Ortega-Ochoa

et al., 2024; Sonnleitner and Kovacs, 2020). This will provide a more solid foundation for developing education policies that are more contextual and to local needs. Further, the results of this study will also hope to inspire other research in this area with greater focus on the challenges and opportunities that exist in these underserved areas (Bariu et al., 2022; Cheng et al., 2020; Ho et al., 2023; Oberrauch et al., 2021; Zumbach et al., 2021).

At a personal level, the main agenda for this study was to make a real contribution toward raising the quality of education in remote areas, such as Tojo Una-Una. In this regard, by understanding how work motivation and emotional intelligence have led to teacher competence, it will be pretty easy to conceptualise better ways of interventions that can work effectively and are relevant to this context (Alenezi, 2020; Corti and Gelati, 2020; Lindgren et al., 2020; Park et al., 2023; Rivera-Pérez et al., 2021). These interventions will ensure that all children receive quality education regardless of residence. This will be highly increased through competent, motivated, and emotionally intelligent teachers, thereby creating a level learning field and promoting performance in school work from the students (Dell'Angela et al., 2020; Isaacowitz et al., 2021; Papadakis et al., 2020; Philipp et al., 2020; Pinero de Plaza et al., 2023).

Thus, the research would significantly contribute to academic literature and educational practice in the field. The knowledge derived through the findings of the study is likely to be used by the formulators of education policy, school managers, and planners of training programs to help formulate better strategies to enhance teacher competencies in remote areas (Bhatia and Joseph, 2023; Buchta et al., 2021; Frangou et al., 2023; Kritkharuehart et al., 2024; Yikici et al., 2022). In the end, it is expected that the research will contribute to efforts by the government and other stakeholders to improve the quality of education throughout Indonesia, even in the most remote areas (Alonso-García et al., 2021; Jung et al., 2024; Kennedy et al., 2022; Pulgar et al., 2022; Yikici et al., 2022).

2 Research methods

SLR: the approach conducted a review, identification, evaluation, and synthesis of related works in the area regarding the influence of work motivation and emotional intelligence on teacher competence in remote areas (Alenezi, 2020; Fernández Herrero et al., 2023; Lucas-Mangas et al., 2022; Soemantri et al., 2023). SLR: This approach carried out a review, identification, evaluation, and synthesis of related works in the area regarding the influence of work motivation and emotional intelligence on teacher competence in remote areas (Bisquerra Alzina and López-Cassà, 2021; Fernández Herrero et al., 2023; Mérida-López et al., 2022; Vermooten et al., 2021).

This study's population represents the global academic literature about work motivation, emotional intelligence, and teacher competence in remote areas. The sample from the literature selected for this study includes articles that satisfy specified inclusion criteria (Aleksandrovna et al., 2023; Kakulavarapu and Elkbuli, 2021; Karamuk and Dulay, 2023; Syamsiah et al., 2024; van der Loos et al., 2020). The inclusion criteria established were that the study should be published in a reputed journal, related to an educational context, and provide empirical data on the variables. Thus, sample selection was carefully conducted to consider only high-quality and relevant studies for final analysis.

The literature search guide and study quality checklists are the main instruments for this study. Keywords such as 'work motivation', 'emotional intelligence', 'teacher competence', and 'remote areas' are used in the literature search guide for major academic databases, such as Scopus, PubMed, and Google Scholar. A quality checklist has been applied to the studies to assess internal and external validity. This tool helps ensure the high methodological quality and reliability of the results of the included studies (Boal et al., 2024; Jeffery et al., 2023; Stratil et al., 2021; Terry et al., 2021).

The research process starts by identifying the relevant study for which a search was conducted in an academic database. Therefore, the first selection stage is screening titles and abstracts of studies in order to evaluate whether they meet the inclusion criteria. Reading the entire text deeply evaluates the studies that pass through this step. Only the most relevant and quality studies are included in the final synthesis. In the final stage, a thorough discussion of the key findings, the methodology, and the relevance of each study to the objective of this study is given (Chauhan et al., 2021; Hina et al., 2022; Ligthart et al., 2021; Mariani et al., 2023; Ribeiro-Navarrete et al., 2021).

This was followed by synthesis after identifying and reviewing relevant studies to understand how work motivation and emotional intelligence influence teacher competence in the hinterlands. Data from these studies have been synthesised to uncover general patterns, contradictions, and gaps in the existing literature. As such, the study presents not only a profound overview of the issues studied but also provides new insights that can be used in designing more effective interventions and policies for the context of education in rural areas (Hammond et al., 2020; Karki et al., 2020; Marsch et al., 2020; Siopis et al., 2020; Yadav et al., 2021).

3 Discussion

3.1 The relationship between work motivation and teacher competence in remote areas

This review of the existing literature emphasises the significance of work motivation in the context of education in remote areas. It has been established that the motivation to work intensely drives teachers; almost all studies reveal that teachers are motivated to perform their duties with enthusiasm (Hamoen et al., 2020; Ruhendi and Kosim, 2022; Shibiti, 2020; van der Loos et al., 2020). Therefore, in remote areas, characterised by working conditions that are considered more gruelling than in urban settings, teachers need robust work motivation to remain in the teaching profession. High motivation creates readiness within teachers to approach hardships with a positive outlook and continue making efforts toward the provision of quality teaching despite facing numerous limitations (Daumiller et al., 2021; Gan, 2020; Getie, 2020; Mäkipää et al., 2022; Sales et al., 2020).

More significantly, work motivation does not only affect the attitude teachers have towards duties but directly enhances professional competence, which causes better performance in the teaching process, outcomes for learners, and more positive and dynamic educational environment in the long run (Czabanowska and Kuhlmann, 2021; Durand-Bush et al., 2023; Granero-Gallegos et al., 2020; Hagqvist et al., 2020; Yangari and Inga, 2021). Consequently, motivated teachers will be more eager to improve their mastery of the teaching material, develop effective techniques for teaching, and quickly master classroom management. That is to say, work motivation provides a ground that makes different constituents of teacher competence more solid, whether it is pedagogical

abilities, classroom management, or interaction with students (Martinelli et al., 2021; Wang, 2022a). In situations where professional support is limited, as is often the case in remote areas, work motivation becomes a determining factor that allows teachers to continue to develop professionally.

The challenges teachers' faces in remote areas are much more significant than their counterparts in the more developed areas. Some of the problems that teachers in this region face include geographical isolation, limited access to educational resources, and lack of professional support (Bastoni et al., 2024; Katz et al., 2022; Kotera et al., 2022; Stanciu, 2022; Szabó et al., 2023). Work motivation is an inner strength that drives a teacher to try his best. Available research revealed that teachers with high work motivation could take a handle on difficulties and continue their core task, which is providing quality education to students (Behrendt et al., 2023; Guralnik et al., 2023; Macanovic and Przepiorka, 2024; Oyibo and Morita, 2022).

In addition, strong work motivation is positively associated with increasing the teachers' initiative and creativity in the teaching process. Highly motivated teachers have an enhanced tendency of being proactive in searching for creative ways to solve the existing constraints (Amann et al., 2023; Jepson, 2022; Oreopoulos, 2021; Penmetsa and Camara, 2022). For example, they prepare alternative teaching materials or utilise local resources to support learning. This proactive attitude enhances teaching effectiveness and improves professional competence because they continuously polish their skills and enhance knowledge through hands-on experience in the field (Albahri et al., 2024; Ramanadhan et al., 2023; Signorini et al., 2022; Syundyukov et al., 2021).

Besides, high work motivation often maintains ongoing professional development. Although the opportunities for formal training can be somewhat limited in remote locations, motivated teachers will likely seek other chances to learn by all available means, such as professional networking, literature, or self-paced learning (Daliman and James, 2023; Ferreira-da-Silva et al., 2023; Malish et al., 2023; Yaw Atiglo et al., 2024). In other words, work motivation encourages teachers toward ongoing learning and development, ultimately improving their competence in the long run. It follows that work motivation does not only influence teachers' daily performance but comes to take part in the formation of teachers' general competencies (Bali et al., 2020; Chaisson and Martinson, 2020; Daumiller et al., 2021; Gagné et al., 2022; Sailer and Sailer, 2021).

Additionally, work motivation also causes an increase in job satisfaction and teacher well-being. Teacher motivation allows a more positive look at work; this can help in emotional well-being and reduce the risk of burnout (Phytanza and Burhaein, 2020; Posangi, 2024; Sailer and Sailer, 2021; Santoso et al., 2024; Wahid et al., 2020). In other words, what concerns the quality of the well-being of teachers translates into questions of professional sustainability: they will remain in the profession and continue to influence education. As hard as it is to uphold good working conditions in remote areas, they are an essential condition for good teaching (Mooij et al., 2022; Murwaningsih and Fauziah, 2023; Phytanza and Burhaein, 2020; Posangi, 2024; Steel et al., 2021).

In addition, work motivation will also lead to a better relationship between the teacher and the learner. Motivated teachers usually tend to be more zealous and enthusiastic in teaching, hence creating a more friendly and supportive learning environment (Grady-Dominguez et al., 2021; He et al., 2022; Kraus and Wojtas, 2021; Raudeliuniene et al., 2020). This positive relationship between students and teachers becomes essential, especially in remote areas where the students are probably faced with additional difficulties. Teachers who can engage in close relationships with their students

will be able to provide much-needed emotional and motivational support, which in turn will improve the student learning outcomes (Anaktototy et al., 2023; Chiva-Bartoll et al., 2020; Dorothy Catherine and Anitha Devi, 2023; Garcia-Sampedro and Prado, 2020; Hao, 2023).

The research concludes that work motivation is essential in raising teachers' competencies, particularly in remote areas. Motivation does not only affect the daily activities of the teachers but also is an essential factor in their long-term development and emotional state (Anaktototy et al., 2023; Gawlik-Kobylińska et al., 2023; Liu, 2020; Mojtahedzadeh et al., 2024; Trujillo-Torres et al., 2020). Therefore, work motivation in remote areas has to be a priority in trying to increase efforts on the part of teachers, as it will be directly beneficial for the quality of education in those areas.

3.2 The role of emotional intelligence in facing challenges in remote areas

Emotional intelligence is a critical factor in teachers' success, mainly when dealing with the complex challenges often encountered in remote areas, helping them manage stress, build strong relationships, and adapt to diverse educational needs (Deng et al., 2023; Iacolino et al., 2023; Lockdown et al., 2023). Being geographically isolated may be one of a teacher's most significant challenges in a remote work setting, where he or she often has no support from professionals or colleagues. In this situation, emotional intelligence is essential to help teachers handle loneliness and its consequent stress. In understanding and regulating their emotions, the teacher will be motivated and focused on their primary teaching work, even under stress. This emotional resilience improves their well-being and is positively related to the quality of education that is produced in these challenging environments (Aldrup et al., 2020; Bardach et al., 2022; Blewitt et al., 2020; Deng et al., 2023; Iqbal et al., 2022).

In addition to isolation, teachers in remote areas face significant challenges due to limited resources. These constraints, including a lack of teaching materials, inadequate infrastructure, and limited access to educational technology, often make the teaching process more challenging (D'Amico et al., 2020; Hodson, 2020; Hsieh et al., 2020; Khodajou-Masouleh and Barekat, 2022; Wang, 2022b). Emotional intelligence enables teachers to stay optimistic and seek creative solutions. Teachers with high emotional intelligence are generally more adaptable and flexible, allowing them to make the most of local resources or develop alternative teaching methods effectively, even in the face of limitations (Agyapong et al., 2023; AlZu'bi et al., 2022; Dewaele and Wu, 2021; Elmi, 2020; Trabelsi et al., 2023).

High work pressure is another common challenge in remote areas, where teachers often have to handle multiple subjects simultaneously, manage large student groups, and work with inadequate facilities (Iacolino et al., 2023; Pan et al., 2022). This situation can be highly stressful, particularly when teachers feel they are not receiving sufficient support. However, teachers with high emotional intelligence are better equipped to manage this pressure. Their more vital coping skills enable them to remain calm under stress and make more informed decisions under challenging circumstances (Gao, 2022; Iacolino et al., 2023; Pan et al., 2022; Seng, 2022).

This situation can be particularly stressful, especially when teachers feel unsupported. However, teachers with high emotional intelligence are better able to handle such pressure. Their enhanced coping skills allow them to stay composed under stress and make more thoughtful decisions in challenging situations (Castrellón et al., 2021; Lovett,

2023; Parlangeli et al., 2022; Skyhar, 2021). Teachers with high emotional intelligence can establish strong relationships with their students, fostering a more supportive and conducive learning environment. These positive relationships not only boost student engagement in the learning process but also assist in addressing various challenges that may arise, both inside and outside the classroom (Skyhar, 2021; Yuan and Yi, 2021; Zhao et al., 2024).

Furthermore, emotional intelligence helps teachers adapt to changing situations in remote areas. For instance, extreme weather changes or unreliable infrastructure can disrupt the teaching and learning process, but teachers with high emotional intelligence are better equipped to handle such disruptions effectively (Agrati and Vinci, 2022; Almonacid-Fierro et al., 2021; Casimir et al., 2023; Hernandez et al., 2023). Teachers with high emotional intelligence can adapt swiftly while maintaining their focus on educational goals. This adaptability is crucial for ensuring the continuity of teaching and making sure that students continue to receive a quality education, even in challenging circumstances (Almufarreh, 2024; Bobo et al., 2020; Jakubowski and Sitko-Dominik, 2021; Kumar et al., 2021; Răducu and Stănculescu, 2021).

Research has also demonstrated that emotional intelligence enables teachers to remain effective under pressure. The ability to manage stress effectively allows them to maintain the quality of their teaching, even when confronted with significant challenges |(de Mesquita Comelli et al., 2021; Iacolino et al., 2023; Lockdown et al., 2023; Zapata-Garibay et al., 2021). Teachers who can control their emotions tend to be better able to make calm and rational decisions, especially in a teaching environment full of stress and uncertainty. This effectiveness contributes directly to the improvement of teaching competence and, ultimately, student learning outcomes (Romero et al., 2023; Sadłowska-Wrzesińska et al., 2022; Shimony et al., 2022; Soriano et al., 2023; van der Loos et al., 2020).

In addition, emotional intelligence plays a vital role in improving the overall well-being of teachers. Teachers who can manage their emotions effectively tend to experience higher job satisfaction, lower stress levels, and a significantly reduced risk of burnout (Fessell and Cherniss, 2020; Fiorilli et al., 2020; Galaiya et al., 2020; Hayes et al., 2020; Soto-Rubio et al., 2020). In the long term, ensuring the well-being of teachers is crucial to maintaining their ability to deliver quality education without succumbing to excessive fatigue. This is particularly important in remote areas, where demanding work conditions can easily lead to stress and exhaustion, which negatively affect teaching performance (Agyapong et al., 2023; Cao et al., 2022; Farina et al., 2021; Golisch et al., 2023; Guerrero-Barona et al., 2020).

Overall, the importance of emotional intelligence in managing challenges in remote areas cannot be overstated. This skill not only helps teachers cope with isolation, limited resources, and high work demands but also enables them to build strong relationships with students and colleagues, adapt to change, and remain effective under pressure (Chachula, 2021; Epifanio et al., 2023; Iacolino et al., 2023; Maalouf et al., 2022; Ricker et al., 2020). Therefore, efforts to enhance the emotional intelligence of teachers in remote areas should be a key component of professional development programs, as this will directly influence the quality of teaching and, ultimately, the learning outcomes of students in the most underserved regions (Aronen et al., 2021; Gavín Chocano et al., 2020; Kachel et al., 2021; Singer-Chang et al., 2020).

3.3 The importance of a contextual approach in teacher professional development in remote areas

This study underscores the importance of a contextual approach in teacher professional development, particularly in remote regions like Tojo Una-Una and Central Sulawesi. This approach is vital given the substantial differences in conditions between remote and urban areas (Agyapong et al., 2023; D'Amico et al., 2020; Iacolino et al., 2023; Pozo-Rico et al., 2020; Romano et al., 2020; Sánchez-Pujalte et al., 2021, 2023). Most previous studies have focused on teachers in urban areas, who generally have greater access to educational resources and professional support. This includes access to professional training, educational technology, and a broad support network (Ismail et al., 2020; Lucas-Mangas et al., 2022; Martínez-Ramón et al., 2021; Xing, 2022). In contrast, teachers in remote areas often work in isolation, with limited resources and more significant environmental challenges.

A contextual approach is essential in remote areas because teachers' challenges differ significantly from those in urban areas. For instance, in Tojo Una-Una, teachers must contend with geographical isolation, which limits their access to professional training and support centres (Cohen and Abedallah, 2020; De Vera García and Gambarte, 2020; Karakus et al., 2021; Lockdown et al., 2023; Schoeps et al., 2021). Limited infrastructure and difficult access increase their workload, requiring them to be more self-reliant in developing their competencies. Without intervention strategies tailored to this context, efforts to enhance teacher competence may be ineffective or even counterproductive (Iacolino et al., 2023; Kant and Shanker, 2021; Mancini et al., 2022; Wang et al., 2022).

The contextual approach must also consider the resource limitations in remote areas. In these regions, resources such as teaching materials, technology, and access to formal training are often severely restricted (Kumar et al., 2022; Li et al., 2023; Pan et al., 2022; Salinas-Falquez et al., 2022). Therefore, teacher professional development should be designed to leverage local potential. For instance, incorporating natural resources or local culture into teaching can effectively address limitations. By utilising what is available in the environment, teachers can create teaching methods that are both relevant and meaningful to their students (Chirico et al., 2020; Li et al., 2020; Matiz et al., 2020; Prado-Gascó et al., 2020; Pyhältö et al., 2021).

Furthermore, the contextual approach must account for remote areas' social and cultural dynamics. Teachers in these regions not only fulfill their role as educators but also serve as vital members of the local community (Hidayat and Patras, 2024; Pérez et al., 2021; Redondo-Flórez et al., 2020; Thuy et al., 2024; Tungsupreechameth et al., 2023). Therefore, professional development should consider teachers' role in society and how they can contribute positively. Teacher competency development should encompass not only pedagogical skills but also the ability to build strong relationships with students, parents, and other community members (Abdullah et al., 2022; Muhibbin et al., 2023; Wang et al., 2024).

A contextual approach to professional development must also include strategies to combat the professional isolation often experienced by teachers in remote areas. The lack of peer support and limited access to professional networks can lead to feelings of isolation and decreased motivation among these teachers (Hodson, 2020; Lockdown et al., 2023; Pan et al., 2022; Pozo-Rico et al., 2023; Velander et al., 2024). Practical solutions include creating study groups or local professional networks that enable teachers to share experiences, knowledge, and emotional support. Additionally,

technology can be harnessed to connect teachers in remote areas with peers and broader training resources (Bakhmat et al., 2023; de Klerk and Smith, 2021; Nina-Gutiérrez et al., 2024; Sakhi et al., 2024; Thuy et al., 2024).

In addition, a contextual approach should incorporate strategies to tackle the logistical challenges frequently encountered by teachers in remote areas (Aldrup et al., 2020; Cristóvão et al., 2023; Gautam et al., 2021; Muassomah et al., 2020; Namaziandost et al., 2024). For instance, challenging transportation and inadequate infrastructure can render training outside the region impractical. Therefore, professional development programs should be designed to be locally accessible or tailored to the teacher's workplace. Community-based training or mentorship programs involving experienced local teachers can effectively help overcome these barriers (Cree-Green et al., 2020; Kung et al., 2020).

A more contextual approach also highlights the importance of involving local communities in the teacher professional development process. Collaboration between schools and communities can lead to more relevant and supportive programs for teachers (Chasen, 2023; Moreno-Guerrero et al., 2020; Prenger et al., 2021; Rodríguez et al., 2021). For instance, involving community leaders or parents in school activities can offer teachers valuable insights into the needs and expectations of the community, enabling them to adapt their teaching to the local context better. This involvement also fosters a sense of belonging and community support for the school, which can, in turn, enhance teachers' motivation and well-being (Birhan et al., 2021; Le and Pham, 2024; Llinares-Insa et al., 2020; Sainz-Gómez et al., 2024).

Overall, this study demonstrates that a contextual approach to teacher professional development in remote areas is not merely an option but a necessity. By considering the unique challenges faced by teachers in these regions and leveraging local resources, professional development strategies can be crafted to be more relevant and practical (Abbasi et al., 2024; Andrei, 2023; Estaji and Fatalaki, 2022; Palmer et al., 2023; Sáez-Delgado et al., 2023). This will improve teacher competence and the overall quality of education in the areas most in need. This approach underscores the importance of flexibility, local relevance, and community involvement in professional development efforts aimed at empowering teachers in remote regions (Gualda et al., 2023; Iqbal et al., 2022; Li et al., 2024; Llinares-Insa et al., 2020; van der Plas et al., 2021).

3.4 Implications for education policy in remote areas

The findings of this study highlight the need for a more comprehensive reformulation of education policies, particularly in the development of training and support programs for teachers in remote areas (Farrell, 2020; Soares and Borges, 2021; Unsworth, 2024; Watson and Barnes, 2022). One of the key findings is the importance of enhancing teachers' work motivation and emotional intelligence. In many instances, existing education policies focus primarily on technical and academic aspects while neglecting the psychological and emotional factors that significantly influence teacher performance (Casacchia et al., 2021; Garcia-Holgado et al., 2020; Mujahid et al., 2021; Vergara et al., 2021; Zou et al., 2021). Policies that focus solely on technical skills may fall short of addressing the unique challenges faced by teachers in remote areas, where work pressure and social isolation often pose significant barriers (Addy et al., 2021; Newton et al., 2020; Shah et al., 2020; Wilson and Lipsey, 2024).

To address this, education policies should be crafted to offer holistic training that includes not only the development of technical skills but also psychological and

emotional support (Baena-Morales et al., 2020; Dadaczynski et al., 2020; Nind et al., 2020; Omar et al., 2020; Veckalne and Tambovceva, 2022; Yikici et al., 2022). This training can include modules on stress management, enhancing emotional intelligence, and building work motivation. Moreover, the training should be tailored to the local context, considering the specific challenges in remote areas, such as limited access to resources and professional support (Al-Busaidi et al., 2021; Gaunt et al., 2021; Heltne et al., 2023; Köpsén, 2022; Pérez-Rodríguez et al., 2022). Thus, education policies can be more responsive to the real needs of teachers in the field.

Practical training in remote areas must also be supported by improved accessibility. Many teachers in remote regions are unable to attend training sessions in urban centres due to geographical and infrastructure constraints (Baratta, 2023; Flynn et al., 2021; Olupeliyawa et al., 2020; Sawalmeh and Dey, 2023; Wahyuningsih et al., 2018). Therefore, education policies should incorporate strategies to address this issue, such as leveraging distance learning technologies. E-learning and online-based training can be highly effective tools for reaching teachers in remote areas, providing them with access to quality educational resources without the need to leave their workplaces (Bordoloi et al., 2021; Li et al., 2021; Marek et al., 2021; Oliveira et al., 2021; Selvaraj et al., 2021).

In addition to technology, policies should also explore options to bring trainers to remote areas. On-site coaches are essential for offering more practical and contextual training that directly addresses the unique needs of teachers in these regions (Kantzara and Loos, 2021; Lepinoy et al., 2023; Richmond et al., 2021; Suhrheinrich et al., 2022; Wu et al., 2023). The government and other stakeholders should support these programs by allocating the necessary funds and resources to ensure trainers can regularly visit remote areas. Direct guidance from experienced trainers will not only enhance teachers' technical skills but also offer much-needed emotional support, which is often lacking in isolated regions (Dhaliwal and Hauer, 2021; Jermaina et al., 2022; Mahony et al., 2022; Teunissen et al., 2021).

Continued support from the government and other stakeholders is essential for the success of this policy. Without a long-term commitment, training and support programs for teachers in remote areas may not operate effectively (Bergdahl and Nouri, 2021; Lemay et al., 2021; Lie et al., 2020; Rasmitadila et al., 2020). The government must ensure that the policies created are temporary and can be implemented consistently and sustainably. This involves sufficient budget allocation, rigorous program monitoring and evaluation, and adapting policies based on feedback from teachers in the field (d'Orville, 2020; Du et al., 2020; Lorente et al., 2020; Poudel et al., 2020).

In addition to the government, non-governmental organisations and the private sector can also play a crucial role in supporting education policies in remote areas (Hamdani et al., 2021; Isnandar et al., 2023; Milner et al., 2020; van Reeuwijk et al., 2023; Yashadhana et al., 2021). Collaboration between various parties can create a more potent synergy to enhance teacher competence. For instance, the private sector can contribute by supplying technology and training resources, while non-governmental organisations can assist in program implementation and offer direct guidance to teachers in the field (Arinaitwe, 2021; d'Orville, 2020; Hadriana et al., 2021; Rasmitadila et al., 2020).

Finally, education policies in remote areas must be inclusive, actively involving teachers in both the planning and implementation processes (Bhatia and Joseph, 2023; Chen et al., 2022; Cooper et al., 2021; Duan et al., 2021; Jevsikova et al., 2021). The resulting policies will be more attuned to their needs by actively involving teachers. This involvement will also foster a sense of ownership and commitment to the programs,

ultimately leading to improved teacher competence and performance in the field (Do et al., 2022; Doh Nubia and Blignaut, 2024; Gibson et al., 2022; Que, 2021; Wang et al., 2023).

3.5 Challenges and opportunities in teacher competency development in remote areas

This research highlights several unique challenges in developing teacher competency in remote areas. One of the primary challenges is geographical isolation, which often leaves teachers in these regions feeling disconnected from their professional networks and broader educational resources (Bhatia and Joseph, 2023; Cooper et al., 2021; Jevsikova et al., 2021; Xue and Li, 2022). This isolation affects the availability of training and support and can also impact teachers' motivation and emotional well-being. When teachers feel alone and undersupported, developing their competencies becomes much more challenging (Hannum and Wang, 2022; Mapunda and Gibson, 2022; Mitchell et al., 2022; Qin et al., 2024; Stadler-Heer, 2021).

Along with isolation, limited infrastructure poses a significant obstacle to developing teacher competencies in remote areas. Inadequate infrastructure, such as difficult-to-access roads, minimal school facilities, and a lack of access to technology, makes training and professional development more challenging (Bhatia and Joseph, 2023; Ledger et al., 2021; Noçka et al., 2023; Zhu et al., 2022). Teachers in these areas may lack access to modern teaching materials, educational technology, or the training needed to enhance their skills. These limitations often intensify their sense of isolation, leaving teachers feeling under-equipped to succeed (Bezerra, 2020; Morrison and Vlachopoulos, 2023; Pan et al., 2021; Prieto-Ballester et al., 2021; Trabelsi et al., 2022).

However, these challenges present an opportunity to develop new, more effective, relevant approaches to teacher competency development. For instance, the use of technology for distance learning offers a promising solution to combat the issue of isolation (Aristovnik et al., 2023; Mystakidis and Christopoulos, 2022; Rizun and Strzelecki, 2020; Sosa Díaz, 2021; Wasson and Kirschner, 2020). Through technology, teachers in remote areas can connect with their peers, participate in online training, and access educational resources that were previously inaccessible. Technology also allows for more flexible training, which can be tailored to the individual needs of teachers, making it more effective and relevant to the local context (Levina et al., 2021; Lubkov et al., 2020; Martínez-Pérez et al., 2022; Olivares et al., 2021; Wang, 2023).

In addition to technology, collaboration with local communities presents an excellent opportunity to address resource limitations. Local communities often possess knowledge and resources that can be leveraged to support teachers' professional development (Arispe and Hoye, 2023; Makeleni et al., 2023; Suhrheinrich et al., 2020). For instance, community leaders or parents of students could participate in teaching or training programs, offering insights relevant to the local context. This not only aids in developing teacher competencies but also strengthens the relationship between the school and the community, fostering more significant support for education as a whole (Cai et al., 2022b; Hervás-Gómez et al., 2021; Khasawneh et al., 2023; Krainer et al., 2021; Suhrheinrich et al., 2020).

Teacher competency development in remote areas can also be optimised through strategies that are more adaptive and tailored to the local context (Arispe and Hoye, 2023; Cunningham et al., 2022; Fernández Álvarez et al., 2022; Makeleni et al., 2023). For

example, training programs can emphasise practical skills relevant to local conditions, such as incorporating natural resources or local culture into teaching. By tailoring training to the specific needs and challenges of remote areas, professional development programs can become more effective and have a direct impact on teaching quality (Bautista et al., 2021; Chen et al., 2022; Franco et al., 2021; Kim et al., 2021; Prieto-Ballester et al., 2021; Short et al., 2021).

Innovative approaches such as community-based learning or on-the-job mentorship can help overcome infrastructure challenges. These programs enable teachers to learn and grow without leaving their workplaces, which is especially crucial in regions where transportation and physical access are limited (Gharaibeh et al., 2022; Lavidas et al., 2022; Lowe et al., 2021; Salloum et al., 2023; Wahab et al., 2021). Additionally, mentorship programs involving senior teachers or local trainers can offer more personalised and contextually relevant support, which is often difficult to achieve through formal, generalised training.

Finally, teacher competency development in remote areas must be viewed as an ongoing process, not merely a one-time intervention. Policies and programs should incorporate a long-term strategy that includes continuous monitoring, evaluation, and adaptation (Markaki et al., 2021; Mikhail et al., 2021; Nadim et al., 2023; Recke and Perna, 2021; Weinberg et al., 2021). With a sustainable approach, existing challenges can be addressed more effectively, and new opportunities can be leveraged to impact the quality of education in remote areas significantly (Carvalho and Santos, 2021; Finkle et al., 2024; Morzillo et al., 2022; Rostami et al., 2024; Shen et al., 2022).

4 Conclusions

This study emphasises that the development of training programs for teachers in remote areas must be focused on increasing work motivation and emotional intelligence. These two factors have proven critical in improving teacher competence, especially in regions that face various challenges such as geographical isolation, resource limitations, and high work pressure. Strong work motivation allows teachers to stay committed and motivated in the face of obstacles, while emotional intelligence helps them manage stress and build positive relationships with students and colleagues. Thus, training programs that focus on the development of these two aspects can have a more significant impact on improving teacher competence.

Furthermore, the importance of considering local contexts in designing interventions for teacher development cannot be ignored. Each remote area has unique characteristics that affect teachers' needs and challenges. Therefore, interventions designed by understanding and considering the specific conditions in the region will be more effective and relevant. This contextual approach ensures that training programs provide general solutions and specific ones based on the realities teachers face in the field.

The findings of this study also underline that efforts to improve teacher competence in remote areas cannot be separated from the continuous support from various parties, including the government, educational institutions, and local communities. This collaboration between various stakeholders is essential to create a supportive environment for teachers to continue to develop professionally. With strong and structured support, teachers in remote areas can more easily access the resources and training they need to improve their competencies.

Overall, this study significantly contributes to filling the knowledge gap related to the role of work motivation and emotional intelligence in teacher competency development in remote areas. The research offers new theoretical insights and practical recommendations that policymakers and education managers can implement. By implementing these findings, teacher development programs can become more effective contextually and directly impact the quality of education in areas most in need.

Finally, continuing research is essential to deepen our understanding of other factors affecting teacher competence in remote areas. Further research can also explore innovative strategies that can be applied in different contexts. By continuously researching and developing better approaches, we can ensure that all teachers, no matter where they are, have equal access to professional development opportunities to help them reach their full potential and provide high-quality education for all students.

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