

Improving the Professional Competence of Teachers through Learning Communities

Arifin^{1*}, Bestari Laia², Ni Luh Ika Windayani³, Lies Dian Marsa Ndraha⁴, Ni Wayan Risna Dewi⁵, Jean Imaniar Djara⁶, Imam Subayil⁷

¹ Universitas Muhammadiyah Kupang, Indonesia

^{3,5} Sekolah Tinggi Agama Hindu Negeri MPU Kuturan Singaraja, Indonesia

^{2,4} Universitas Nias Raya, Indonesia

⁶ Institut Pendidikan Soe, Indonesia

⁷ Dinas Pendidikan Kota Mataram, Indonesia

 arifin1arsyad2@gmail.com

ABSTRACT

This study explores community activities that contribute to enhancing teachers' professional competence. Employing a qualitative approach, data were collected through interviews, observations, and documentation and analyzed using the interactive model of Miles and Huberman, encompassing data collection, analysis, and reporting. Findings reveal that learning communities within schools significantly support teachers' learning processes and foster improvements in their professional competencies, evident in their teaching practices, material delivery, and commitment to the profession. The study underscores the importance of learning communities as platforms for sharing best practices, deepening content knowledge, enhancing pedagogical skills, and developing innovative teaching strategies – thereby cultivating a culture of professionalism and lifelong learning. Furthermore, the research contributes to the development of a collective-based professional development model that prioritizes collaboration over individual training, which often lacks sustained impact. Lastly, learning communities are shown to foster a sense of belonging and support among teachers, increasing motivation, self-confidence, and willingness to experiment with new approaches. This research thus strengthens the implementation of the Merdeka Curriculum by promoting collaborative and sustainable professional development for teachers.

Keywords: Teacher Competency, Learning Community, Teacher Professional Competence

ARTICLE INFO

Article history:

Received
December 12, 2024

Revised
May 02, 2025

Accepted
May 16, 2025

Published by
Website
Copyright



Institut Agama Islam Ma'arif NU (IAIMNU) Metro Lampung
<https://journal.iaimnumetrolampung.ac.id/index.php/ji/index>
This is an open access article under the CC BY SA license
<https://creativecommons.org/licenses/by-sa/4.0/>
© 2025 by the author (s)

INTRODUCTION

The study of learning communities in Indonesia has undergone quite dynamic development and has received serious attention from education practitioners (Nurkartika & Hartini, 2021). The latest developments in the study of learning communities lead to a study on improving practices and improving the quality of learning in educational units which begins with the development and improvement of teacher competence (Harlita & Ramadan, 2024; Murwanto et al., 2025). Teachers' involvement in the learning community can improve teaching practices, motivation, and a sense of belonging to their profession. This shows that effective management of teacher learning communities can contribute to improving the overall quality of education (Vangrieken et. al., 2017). Meanwhile, (Valckx et al., 2018) said that a well-managed teacher learning community can encourage the development of educational innovations through collaboration and discussion among members. This innovation not only enriches students' learning experiences but also strengthens teachers' capacity to adapt to changes in curriculum and dynamic educational demands (Agustin & Zumrotun, 2024).

The goal of the learning community as stated by (Han & Wang, 2021) is to educate community members by collecting and sharing information related to questions and problems related to practice and encouraging members to improve their self-competence through mutual sharing and discussion. While (Foerste dkk., 2017) the learning community can serve as a source of support for teachers, helping them cope with stress and professional challenges. This indicates that if teachers participate in the learning community, their competence as teachers can increase and it is also an indicator of improving the quality of teachers (Salleh & Ibrahim, 2020; Dahlan et al., 2025). Teachers' competence that gets better and improves after actively participating in the learning community has been proven in several previous studies. Among the results of the research (Sukarni, 2023a; Haratua et al., 2024, Maryani et al., 2024) which concludes that the learning community is a good means in developing a teacher's self. The reasons include that the learning community can increase teachers' motivation to continue learning, increase teachers' creativity in designing innovative learning, and accelerate the resolution of learning problems faced by teachers. In addition, the results of the study (Khusna & Priyanti, 2023) It also shows that through learning communities, teachers can interact with fellow teachers and share experiences and best practices, teachers can develop their competence in teaching. Participation in learning communities has a significant influence on teachers' pedagogic abilities. Furthermore, research (Titihlawa dkk., 2023) It concluded that the learning community and teacher competence had a significant relationship with the relationship category was at a fairly strong level.

Although much research has been conducted on the role of learning communities in improving teacher competence, there are still shortcomings in exploring the optimization of the role of these communities in more specific contexts, such as their impact on pedagogic competence and adaptation to curriculum changes (Prenger et al., 2019). It was also stated by (Nurulhaq dkk., 2024) that there is still a lack of involvement and active participation from teachers and this low participation is often caused by a lack of motivation and support from the school. In addition, there is a lack of coordination and strategy in the management of the learning community (Avalos, 2011).

The teacher of the future is a high-quality teacher. In this study, high quality refers to teachers who possess professional competence (Anning, 2025; Putri et al., 2025). Teachers must possess professional competence because they are the main actors in educational and learning activities (Aisah dkk., 2024). Law Number 14 of 2005 on Teachers and Lecturers states that a teacher is a professional educator whose main duties are to educate, teach, guide, and train students in early childhood education, formal education, basic education, and secondary education; regulated to conduct evaluations and assessments. Law Number 20 of 2003 on the National Education System states that educators are teachers, lecturers, consultants, speakers, tutors, trainers, and other titles according to their fields of expertise. Teachers play an important role in the world of education, therefore they must possess competencies regulated by the National Education System Law (Utomo & Kusumawati, 2024). Educators will also make learning more engaging, encourage students to learn comfortably, continuously develop their professionalism, and further advance by utilizing information and communication technology in the era of the Fourth Industrial Revolution (Darmiatun, 2019; Siregar, 2024; Brown, 2024).

Competence is a term often used by different people in different contexts (Hou dkk., 2023). Therefore, it is defined in different ways. Competence is a requirement for teacher education that is "competency-based," encompassing the knowledge, skills, and values that teachers must demonstrate to successfully complete a teacher education program (Nessipbayeva, 2022). Professionalism is a necessity that cannot be postponed any longer; the increasing and tightening competition in the era of globalization requires an enhancement of a teacher's professionalism so that it can positively impact the quality of graduates (Sulastri dkk., 2020). A professional teacher is a teacher who is able to apply relationships that are multidimensional (Ilyas, 2022). Professional teachers are the main factor in the process of quality and good education (Syahid Nur Arifin dkk., 2023). A quality teacher will be able to create a generation that is devout, intelligent, and possesses high reasoning ability, as well as being able to face the challenges of the times (Maure dkk., 2021). Therefore, this research is

important because teacher competence is the main factor in the learning process. By improving teachers' competencies, it is hoped that the quality of education provided to students will also improve (Sari dkk., 2018). This will have a positive impact on students' learning outcomes and overall student development. This research can encourage collaboration among teachers. By sharing experiences and best practices, teachers can support each other in their competency development. This can also create a positive learning culture in the school environment. And it can also provide long-term contributions to the sustainable development of teacher professionalism.

In reality, there are still many teachers who neglect to improve their professional competence. This is suspected to be due to the relatively low recognition received by teachers, such as low salaries, inadequate supervision, lack of special training, minimal collaboration within the school, limited financial support, and burdensome administration (Long dkk., 2024). According to (Sanusi dkk., 2020) Teachers cannot show their professionalism due to inappropriate academic qualifications, poor teacher welfare, teacher discipline and awareness, inadequate tutoring and training. Another piece of empirical evidence can be drawn from the author's experience when visiting schools during the visitation activities. The author found that many teachers are still unable to conduct lessons according to standards, teaching equipment is incomplete, teachers' media and teaching materials are inadequate, teachers' administration is very limited, and the school's management by the principal is not good, with limited self-development activities. Those issues cannot be ignored as they will impact the quality of teaching by the teachers and ultimately affect the quality of the graduates (Saipin dkk., 2014). Therefore, this research needs to be conducted to address the fundamental issues of teacher competence by maximizing collaboration and sharing among teachers through a learning community platform.

Before the existence of teacher learning communities, there were already self-development platforms such as KKG, MGMP, and KKKS in each cluster, sub-district, district, and even provincial levels based on subjects or fields of study (Arifin & Hanif, 2024). KKG and MGMP, based on various research findings, have not made a significant contribution to improving the quality of learning. KKG and MGMP are more focused on the personal quality improvement of teachers individually, and they do not run effectively because they require the involvement of teachers from other schools with the same or related fields of expertise. Often not optimal due to the busyness of teachers in teaching and educating, and the distance between school A and B being far with relatively difficult access (Rodi dkk., 2022). Recently, a new platform has emerged for teachers to develop themselves through more effective and efficient evaluation and reflection activities, and that platform is a learning community (Li & Hu, 2024).

This research aims to: Identify and Analyze the Role of Learning Communities: Researching how learning communities can contribute to improving teachers' competencies, both in pedagogical, personal, social, and professional aspects; Exploring the Factors that Influence the Success of Learning Communities: Identifying the factors that support and hinder the successful implementation of learning communities in schools, including support from the school administration, teacher participation, and the availability of resources; and Increasing Teacher Awareness and Participation: Increasing teachers' understanding and awareness of the importance of joining learning communities as an effort for self-development and improving the quality of education. Through learning communities, a group of educators and educational staff within a school can learn together and collaborate regularly and sustainably with clear and measurable goals to improve the quality of learning, thereby impacting student learning outcomes (Gum dkk., 2024). Learning communities are considered effective as a platform for teachers because they are at the school level, allowing teachers to share best practices related to their experiences and challenges at any time (Asmare, 2025).

METHOD

This research uses a qualitative research approach as a method. This research attempts to describe the phenomenon of teacher self-development activities on the global development stream and transformation of Education specifically on the professional competence of teachers. This research will also dig deeper improvement of teacher competence through the container of learning communities. This research is inductive, because it seeks to abstract and discover general patterns from specific data. The location of this study is six high school mobility with details of four mobility schools in Kupang City and two Mobility Schools in Rote Ndao District. All six of these schools are my secondary schools in an independent curriculum implementation program.

The researchers conducted participatory observations focused on learning community activities in each Education unit in terms of interaction, collaboration, and reflection carried out in the learning community container. Including planning, implementation, and factors that can contribute to the improvement of teacher competence. I've been observing the teachers' activities in the learning community through programmed school visits. Observations were conducted over six months at each of the educational units. This step is done to see directly the interaction of teachers in the learning community, the reflections done, the enthusiasm of the teachers, and the impact of the learning communities.

The researchers also conducted live interviews with the head of the school, teachers, and student representatives. The interviews focused on teacher participation in the learning community, reflective topics, and language material in learning community activities. Interviews also were conducted with students focusing on how to teach the teacher, the ability to deliver material, the use of methods, the application of learning models, and the attachment of students during learning activities.

The uniqueness of qualitative research, data analyzed before the implementation of field data collection and after data collection. Data analysis is carried out from the results of field records, interview transcripts write subjective ideas and keywords, video transcriptions of recordings, and outputs of relevant documents. The entire data analysis uses interactive analysis according to Milles and Huberman that includes data collection, data condensation, data presentation, and data conclusion. To guarantee the reliability of the data, researchers perform the validity of data through triangulation of the technique and triangulation of sources.

RESULT AND DISCUSSION

In the results section, data from interviews and observations of principals and teachers are then strengthened by student interviews. Classroom observations are also carried out to see firsthand the teacher's teaching activities.

1. Overview of Principals and Teachers' Understanding of Learning Communities

Based on the results of interviews with school principals and teachers with an understanding of the learning community. Here are the results of an interview with the principal of VW who said that:

"The learning community implemented in the independent curriculum is only a change of terms from the previous Subject Teacher Conference (MGMP), with the same function. This shows that there is skepticism about the changes proposed by education policy. According to VW, despite the name change, the substance and purpose of the container have not undergone a significant transformation. This could be an indication that teachers may need more support and training to understand and implement the new concepts expected from the learning community." (VW, August, 2023).

On the other hand, the principal of MT revealed:

"a more positive view of the learning community. He emphasized that learning communities serve as a forum to facilitate shared learning, where teachers can share experiences and good practices. Focusing on student needs, not teachers, shows that principals understand the importance of student orientation in the learning process. It reflects a deeper understanding of the purpose of the learning community as an effort to improve the quality of education (MT, August, 2023)

In addition, interviews are also conducted with school supervisors, school supervisors play an important role in this learning community, where supervisors play the role of a partner of the principal who controls and assists the implementation of the community. According to TW:

"Learning community as a forum that supports the development of teachers' competencies through collaboration and knowledge sharing. By emphasizing equality and the process of shared learning, learning communities can be an effective tool to improve the quality of education. Therefore, it is important for schools and education managers to support and facilitate the formation of an inclusive and collaborative learning community." (TW, August 2023).

The results of the above interview are strengthened by the results of the researcher's observations, where the researcher saw firsthand the activities of the teaching community in the assisted education unit. Based on the researcher's observations, it is explained that:

"The results of the observation show that all assisted schools have succeeded in forming a learning community and have started to mobilize community teams in each school. The establishment of learning communities across assisted schools has had a positive impact on increasing collaboration and professional development of teachers. With scheduled reflection and sharing activities, as well as a focus on teaching strategies and learning models, learning communities can contribute significantly to improving the quality of education. Therefore, it is important to continue to support and develop this learning community in order to provide greater benefits for teachers and students."

Based on the results of the interviews and observations above, it can be explained that the principal understands the concept of a learning community, the principal's understanding of the learning community is the first step in the growth of the learning community so that it can move teachers to actively participate in community activities. As a learning leader in schools, principals are expected to foster a school ecosystem that is dignified, safe, comfortable, and fun (Liu & Hallinger, 2024). The principal's understanding of the learning community is in line with the concept of learning community as explained by the Ministry of Education and Culture, the learning community is a group of educators in one Education unit who are committed to learning together and collaborating regularly and continuously with a clear and measurable goal to improve the quality of learning so as to have an impact on student learning outcomes (Leahy dkk., 2025).

According to (Sulastridkk., 2020) Transformative leadership of the principal and the creativity of teachers who are professional, innovative, creative, are one of the benchmarks in improving the quality of learning in schools, because these two elements are figures that are in direct contact with the learning process, these two elements are central figures that can give trust to the community/parents, students, community satisfaction will be seen from the outputs and outcomes carried out in each period.

In addition to delving into the knowledge of school principals, the researcher also conducted interviews with teachers to find out the initial understanding of the learning community. Initial understanding needs to be known because it will affect their perception and perspective, early knowledge can also encourage teachers to be actively involved in community activities in the Education unit.

The results of the interview with the AHH teacher said that:

"the learning community provides a lot of information, including online seminar activities and the presentation of simple research results by the teacher. This shows that the learning community plays a role in improving teachers' access to information and best practices in education. By decinating the results of the research, teachers can learn from the experiences of their peers and apply the findings in their teaching practices." (AHH, August 2023).

The results of interviews with EF teachers say that:

"the importance of sharing experiences and knowledge without patronizing each other. This reflects a positive collaborative culture in the learning community, where teachers feel comfortable sharing challenges and solutions without feeling pressured or judged. This can increase mutual trust and support among community members." (EF, August 2023)

Based on the interview results above, it can be explained that teachers emphasize that learning communities help them develop teaching skills, such as how to design learning tools

and conduct assessments. This shows that the learning community not only focuses on theory but also on concrete and practical applications (Sukarni, 2023b). By sharing effective strategies and techniques, teachers can improve the quality of their teaching and, in turn, the learning outcomes of their students. This shows that the learning community has provided significant benefits to teachers in terms of professional development and problem-solving (Kalman dkk., 2024). However, to maximize these benefits, it is important to continue encouraging active participation from all community members. The school authorities and education managers need to provide the necessary support, such as additional training or resources, to ensure that all teachers can contribute and benefit from the learning community. In addition, it is important to maintain the collaborative culture that has been established, where teachers feel safe to share challenges and learn from one another. This can be done through activities that encourage open discussions and sharing experiences. Through teacher learning communities, teachers are able to conduct a learning needs analysis before the teaching activities take place (Salamah dkk., 2024). This is adjusted to their talents and desires, thereby encouraging teachers to have the awareness to learn without being prompted by others, actively sharing ideas, and not feeling inferior when recounting good practices to their peers. (Shofwan & Kuntoro, 2014).

2. The Role of Supervisors, Principals, and Teachers in the Learning Community

The role of supervisor in the learning community is: 1) To accompany the head of school in conducting the analysis of learning needs as a learning leader; 2) To compile, conduct, and develop the needs analysis of the head in facilitating the learning needs of the heads of school and sharing the good practices of teachers; 3) To coaching the head to motivate the formation and activity of the Learning Community in the educational unit; 4) Also to play an active role in learning and sharing good practice in the Learning community (Triantoro & Erawanto, 2022).

The role of the head of the school in the learning community includes: 1) the head can accompany the teacher in the application of differentiated learning and according to the needs of the pupils; 2) the head is able to reflect, evaluate, and compile improvements to the implementation of the Merdeka curriculum; 3) the head develops a learning community actively and regularly; 4) the head manages the school's resources by using the application effectively and efficiently (Sekar & Kamarubiani, 2023).

The role of teachers in the learning community is as follows; 1) Educators develop classroom environments that facilitate safe and comfortable learning; 2) Educators implement differentiated learning applications in accordance with the needs of the learners; 3) Educators are active and develop themselves in learning communities. According to Kemdik Buddhstek, community learning can be done either online or on-line (Setyasari dkk., 2025). Here's an overview of the learning community on a slide. Meanwhile, the following is an overview of the online learning community. The learning community cycle in schools is described as follows:





Siklus belajar dalam komunitas belajar menunjukkan bahwa kegiatan belajar dalam komunitas merupakan proses utuh dan berkelanjutan mulai dari melakukan refleksi awal sampai Kembali lagi pada refleksi awal. Siklus ini memastikan hasil belajar dalam komunitas diimplementasikan dalam pembelajaran, merefleksikan dari implementasi, dan menjadi bahan diskusi dalam komunitas sehingga terjadi peningkatan dan perbaikan kualitas pembelajaran.

3. Improving the Professional Competence of Teachers Through Learning Communities

The learning cycle in the learning community shows that the learning activity in the community is an integral and continuous process ranging from the initial reflection to the return to the early reflection (Khusna & Priyanti, 2023). This cycle ensures the learning outcomes within the community are implemented in learning, reflecting on implementation, and being the subject of discussion in community until improvement and improvement of the quality of learning occurs (Isnawan dkk., 2024). The aim of the existence of a learning community is to become a forum for efforts to improve and innovate learning and develop pro-student programs designed in the form of collaborating with school members to realize educational goals, creating students who have the profile of Pancasila students (Roodi, 2023). According (Kemdikbudristek, 2022) there are three big ideas to optimize the development of learning communities that are centered on learning peserta didik namely;

1. Focus on Learning: When learning together within a community, educators are expected to focus on learning participants;
2. Facilitating collaboration and collective responsibility: Educators need to build a collaborative culture to work together and bear collective accountability in order to help students optimize their learning process. The optimal learning quality of the student is difficult to if the educator works individually. The collaboration of educators in educational units is expected not only to stop at discussing activities and sharing good

teaching practices, but to continue until the implementation of teaching activities in their respective classrooms. Therefore, helping each other, having an open mind, and having a good time solving problems together should become everyday habits. The learning development of students is no longer a personal responsibility of each educator, but a shared responsibility that must be pursued continuously (Kasmawati, 2020).

3. Result-oriented student: Shifting focus from teaching to learning is expected to help educators not only ensure that they have taught but also ensure that their students are learning. The way to ensure that students learn is by conducting continuous assessments and obtaining proof that students have the knowledge and skills required. Thus, the output and benchmark of a learning community awakening in an effective educational unit is not how well the plan has been formulated and implemented, but how it has an impact on improving the learning outcomes of the pupils (Nurkolis & Yuliejantiningasih, 2020).

Based on the above exposure, the learning community places its focus on student learning, facilitating collaboration and collective responsibility, as well as being oriented to student learning outcomes data. Thus, the school learning community is one of the strategies to enhance teacher competence, besides the teacher learning community, the teacher's competence can be enhanced through In House Training, Workshop, accompaniment, mentoring, coaching, further study, and so on.

Here's a presentation of the results of an interview with the hospital as a teacher of the learning committee he conveyed that:

"The learning community at our school has been formed under the name Isa Eta (one heart), we use this community every Saturday to discuss the development of student learning, because the community principle is oriented to improving student learning outcomes. Through the Isa Eta community, I and my friends and teachers not only learn together but also build good cooperation and collaboration in the school environment" (RS, August 2023).

The results of the interview above can be analyzed that RS emphasizes that the main principle of the community is oriented towards improving student learning outcomes. This shows that the main focus of community activities is to have a positive impact on students' academic development. By placing students at the center of attention, this community strives to create more effective and relevant teaching strategies. These regularly scheduled activities demonstrate the teachers' commitment to actively and sustainably engage in the learning process (Syahputra dkk., 2024). Regular meetings also create opportunities for teachers to share experiences and teaching strategies with each other. RS stated that through the Isa Eta community, good cooperation and collaboration have been established within the school environment. This reflects the importance of social interaction and support among colleagues in enhancing professionalism and teaching effectiveness. This collaboration can strengthen the support network among teachers, which in turn can enhance motivation and work enthusiasm.

The above opinion is supported by the perception of SP as a driving force of the learning community in his school. SP said that:

"The learning community has helped teachers in improving their competence, especially in the aspects of teaching and classroom management. This shows that learning communities serve as an effective platform for professional development, where teachers can learn and share best practices in teaching. Learning communities have successfully encouraged teachers to adopt a more interactive and responsive approach to student needs. Student-centered learning is key to increasing student engagement and motivation, which in turn can have a positive impact on learning outcomes." (SP, September, 2023).

I also conducted interviews with students. One of the WL students revealed that:

"The way of teaching our teachers is getting better, I know that every Saturday our teachers carry out community learning activities at school while we carry out the Pancasila student profile project. Let me take the example of my math teacher.. When I first started teaching, the teacher was very dominant in explaining formulas to us, but lately the mathematics teacher has given us ample opportunities to think and solve mathematical problems including finding

mathematical formulas. In addition, the way the teacher explained the material was easier for me to accept and understand. The quality of the material has improved and the quality of learning has also improved" (WL, September 2023).

Based on the interview above, it can be analyzed that there has been a transformation in the teacher's approach; Change in Teaching Methods: Students stated that the way the teacher teaches is getting better. This indicates a positive change in the teaching approach implemented by the teacher. This improvement can be linked to the learning community activities conducted by teachers every Saturday, which focus on competency development and collaboration among teachers; From Dominance of Explanation to Active Learning: Students provide concrete examples of a math teacher who initially dominated in explaining formulas, but now gives students the opportunity to think and solve problems. This change reflects a shift from a teacher-centered approach to a student-centered approach, where students are more actively involved in the learning process; Providing Opportunities for Critical Thinking: By giving students the chance to find formulas and solve problems, math teachers encourage the development of critical and creative thinking skills. This is an important aspect of education that can enhance students' understanding of the material; Improvement in Material Quality: Students stated that the way the teacher explains the material is becoming easier to accept and understand. This shows that the teacher has successfully simplified the delivery of the material, making it easier for students to understand. The improvement in the quality of the material contributes to a more positive learning experience; and Improving Learning Quality: Students feel that the quality of learning is getting better. This can be interpreted that changes in teaching methods not only impact the understanding of the material but also the overall learning experience of the students. The quality of good learning can enhance student motivation and engagement in the learning process.

The results of the above interviews are also supported by the results of the researcher's class observations in four classes with different teachers.

"The results of the observation showed that after three months of community learning activities, there was a significant improvement in the way teachers were taught. Teachers are more confident in implementing innovative learning methods, and are able to facilitate more interactive and participatory learning, which has a positive impact on the quality of student learning." (Observation, September 2023).

Figure, 1: Classroom observation activities after three months teachers participate in routine community learning activities in each educational unit
(source, personal document 2023)



DISCUSSION

Based on the results of the interviews and observations above, the researcher can explain that the learning community has a significant impact on the improvement of teachers' professional competence. Teachers are increasingly mastering classroom instruction, understanding learning objectives, being able to develop themselves, conducting self-evaluations, and utilizing technology in teaching (Fahara dkk., 2015). In addition, teachers can learn together at school to solve problems collaboratively (Sunarko & Musytamil, 2023). Therefore, learning communities become an excellent platform for teachers to develop themselves and enhance their competencies (Hong dkk., 2024).

The results of this study underscore that learning communities play a crucial role in enhancing teachers' professional competence. The main findings include increased teacher participation, effective community management, and the strengthening of a collaborative culture within the school environment, all of which contribute to the improvement of teaching quality in each educational unit.

The results of this study are different from the research (Giyanto dkk., 2023) which concludes that the learning community has not been effective in improving teachers' competencies, due to several obstacles such as inadequate facilities owned by the members of the learning community, lack of motivation among educators to participate in the learning community, insufficient support from the school principal, lack of clarity on discussion topics at each learning community meeting, and no periodic evaluations of the learning community. Recearsh (Afiah dkk., 2024) concluded that teachers' attendance in learning community activities significantly contributes to the improvement of pedagogical competence, which in turn enhances the quality of learning in schools. (Suryaatmaja, 2018) that the learning process that occurs in the classroom highly depends on the competence of the teacher as an important actor in the learning process, the professional competence of the teacher is the teacher's ability to perform their duties. Furthermore, the research results (Khusna & Priyanti, 2023) that the learning community has a significant effect on teachers' abilities. Through interaction and collaboration, teachers can gain knowledge and best practices in teaching. Learning communities provide support and motivation for sustainable professional development for teachers. Research results (Titihalawa dkk., 2023) It also revealed that the learning community has a strong relationship with improving teacher competence. Meanwhile (Pratikno dkk., 2022) revealed that quality human resources are needed to advance education in Indonesia, one of which is the resources of school principals and teacher resources. The result of (Supriyadi dkk., 2024) demonstrates the urgency of collaboration between community members to explore assets, provide support and facilitate the sharing of good practices. Thus, the empowerment of this learning community has a positive impact on the quality of learning, as well as strengthening the capacity of teachers in creating an inclusive learning environment (Ziheng & Xiaodong, 2022).

The effectiveness of the learning community in improving teachers' competencies is felt by the teachers at the schools targeted by this research, where teachers are increasingly enthusiastic about planning and implementing quality learning, and the mindset of teaching has shifted from merely filling the classroom to creating enjoyable and collaborative classes. That realization is also supported by the leadership of the principal (Zhahira dkk., 2022). A principal who can manage a learning community within their school will be able to enhance the professional competencies of their teachers. A democratic leadership style is needed to realize cooperation and collaboration in building capacity and quality through learning community platforms (Solihin dkk., 2021).

This research provides both theoretical and practical implications. The theoretical implications of this research reinforce theories on collaborative learning and continuous professional development, particularly in the context of the teaching profession. Where learning communities serve not only as a medium for sharing experiences but also as a means for enhancing knowledge, skills, and systematically reflecting on teaching practices. Thus, the concept of a learning community can serve as a strong theoretical framework in the development of the teaching profession. Meanwhile, practical implications can be directed

towards teachers, in which learning communities can serve as a platform for sharing best practices, discussing learning issues, and designing innovative strategies that can be directly applied in the teaching and learning process. It also has implications for school principals in the form of institutional support, both in the form of internal policies and the provision of time and resources, which are very important for the sustainability of the learning community.

This research has limitations in the method, where this study uses qualitative data methods only through interviews and observations, therefore it is not fully able to capture all dimensions of teachers' professional competence in depth, especially affective and reflective aspects in the collaborative learning process (Jalaludin dkk., 2022). In addition, this study focuses on the learning community as the main variable, but does not take into account in detail the influence of other factors such as the principal's leadership style, policy support, and individual motivation of teachers which can also affect the improvement of professional competence (Prenger dkk., 2019).

Thus, subsequent researchers can conduct studies at various educational levels and in more diverse geographical areas (such as cities, villages, or 3T regions) to obtain a more comprehensive and representative picture of the effectiveness of learning communities in different contexts. To measure the impact of learning communities more deeply, researchers can conduct longitudinal studies to observe the development of teachers' professional competencies over a specific period, such as 6 months to 1 year. Additionally, subsequent researchers can incorporate other relevant contextual variables, such as: the principal's leadership style; the school's organizational culture; the level of teacher motivation and readiness to learn; and the availability of supporting technological resources. Future researchers can also explore the effectiveness of digital or online learning communities, including the use of platforms such as WhatsApp Group, Google Classroom, or online forums as alternatives to face-to-face learning communities.

CONCLUSION

Based on the results of the research and discussion above, the learning community in schools is a supporting force for teachers in improving their professional competence. The learning community in schools makes a huge contribution and support to the teacher's learning process and is believed to have a direct impact on improving the quality of student learning. Thus, if the learning community is well utilized, supported by democratic and transformational leadership of school principals, the existence of financial support, and a high commitment to collaboration from teachers and all school residents, it will have a direct impact on improving teachers' professional competence.

ACKNOWLEDGEMENT

We would like to thank all parties who supported the implementation of this research, especially to the East Nusa Tenggara Province Teacher Driving Center (BGP) who facilitated activities and meetings with teachers, principals, and school supervisors. We would also like to thank the school supervisors, principals, and all teachers who have provided information during this research.

REFERENCES

- Afiah, A. U., Ismail, I., & Abbas, H. (2024). Peran Guru Penggerak Dalam Meningkatkan Kompetensi Pedagogik (Studi Kasus dan Implikasinya Pada Peningkatan Guru di UPT SD Negeri 331 Tempe Kabupaten Wajo). *Jurnal Pendidikan Indonesia: Teori, Penelitian dan Inovasi*, 4(3).
- Agustin, I. S., & Zumrotun, E. (2024). The Role of Learning Communities as A Means of Teacher Professionalism Development at SDN 1 Srobyong. *Jurnal Ilmiah Pendidikan Dasar*, 11(2), 166. <https://doi.org/10.30659/pendas.11.2.166-186>
- Aisah, A., Maufur, M., & Basukiyatno, B. (2024). Implementasi Komunitas Praktisi dalam Meningkatkan Kompetensi Profesional Guru Bersertifikat Pendidik. *Journal of Education Research*, 5(3), 3072–3082. <https://doi.org/10.37985/jer.v5i3.1417>

- Anning, A. S. (2025). Professional learning facilitators' contribution to sustainable STEM teacher learning in regional contexts. *International Journal of Educational Research Open*, 8, 100406. <https://doi.org/10.1016/j.ijedro.2024.100406>
- Arifin, J., & Hanif, M. (2024). Manajemen Program Komunitas Belajar Sekolah untuk Peningkatan Kompetensi Pedagogik Guru. *Ideguru: Jurnal Karya Ilmiah Guru*, 9(3), 1421–1432. <https://doi.org/10.51169/ideguru.v9i3.1112>
- Asmare, M. A. (2025). *Teachers' Experiences of Continuous Professional Development: Implications for Policy and Practice*. <https://doi.org/10.2139/ssrn.5117958>
- Brown, C. A. (2024). Shortcomings in the JET programme as a vehicle for English pronunciation teaching by native speakers. *Anglophile Journal*, 4(2), 77-90. <https://doi.org/10.51278/anglophile.v4i2.1191>
- Darmiatun, S. (2019). Peningkatan Kopetensi Pedagogig Dan Profesional Guru Tk Melalui Program Diklat Pengembangan Keprofesian Berkelanjutan (PKB) Di Kabupaten Dharmasraya. 3. <https://doi.org/10.31004/jptam.v3i2.271>
- Dahlan, J. A., Juandi, D., Bariyah, N., & Putri, A. D. (2025). The Minimum Competency Assessment Model Instrument Development Training for MTs Mathematics Teachers in Bandung. *International Journal of Community Engagement Payungi*, 5(1), 1-14. <https://doi.org/10.58879/ijcep.v5i1.58>
- Fahara, M., Bulnes, Ma. G., & Quintanilla, M. (2015). Building a Professional Learning Community: A Way of Teacher Participation in Mexican Public Elementary Schools. *International Journal of Educational Leadership and Management*, 3(2), 113–142. <https://doi.org/10.17583/ijelm.2015.1338>
- Foerste, E., Merler, A., & Vargiu, A. (2017). Partnership in Teacher Education: A Theoretical and Practical Analysis. *Creative Education*, 08(08), 1275–1291. <https://doi.org/10.4236/ce.2017.88090>
- Giyanto, B., Kurnia, P., Julizar, K., Sari, D. K., & Hartono, D. (2023). *Implementasi Kebijakan Komunitas Belajar Dalam Kurikulum Merdeka Belajar Di Indonesia*.
- Gum, L., Brown, A., Royals, R., Matricciani, L., & Kelly, M. A. (2024). Digital professionalism in preregistration nursing and midwifery students: A scoping review to explore perceptions of professionalism when using social media. *Nurse Education in Practice*, 80, 104128. <https://doi.org/10.1016/j.nepr.2024.104128>
- Haratua, Chandra S., Muslim Hanief, Asep Nurdin Toha, Ludi Muhamad Nur Mauludin, and Muhamad Ikhsan. "Faktor Intrinsik dan Ekstrinsik yang Mempengaruhi Kinerja Guru." *Attractive: Innovative Education Journal* 6, no. 3 (2024): 195-205. <https://doi.org/10.51278/aj.v6i3.1478>
- Han, H., & Wang, J. (2021). Teacher Learning Community and EFL Teacher Professional Development. *International Journal of Learning and Teaching*, 7(1), 54–58. <https://doi.org/10.18178/ijlt.7.1.54-58>
- Harlita, I., & Ramadan, Z. H. (2024). Peran Komunitas Belajar di Sekolah Dasar dalam Mengembangkan Kompetensi Guru. *Didaktika: Jurnal Kependidikan*, 13(3).
- Hong, N. V., Yen, D. T. H., Ly, N. T., Huyen, N. P., & Duong, N. T. (2024). Developing A Learning Community Model To Enhance Teachers' Professional Capacity. *Educational Administration: Theory and Practice*, 757–764. <https://doi.org/10.53555/kuey.v30i4.1909>
- Hou, Y., Chen, S., & Yu, S. (2023). Intersection of culture, professionalism, and gender: Why Chinese female novice teachers fail to manage conflicts in professional learning communities. *Teaching and Teacher Education*, 132, 104244. <https://doi.org/10.1016/j.tate.2023.104244>
- Ilyas, I. (2022). Strategi Peningkatan Kompetensi Profesional Guru. *Jurnal Inovasi, Evaluasi dan Pengembangan Pembelajaran (JIEPP)*, 2(1), 34–40. <https://doi.org/10.54371/jiepp.v2i1.158>
- Isnawan, M. G., Alsulami, N. M., & Sukarna, K. (2024). Pengembangan Komunitas Belajar di Sekolah Penggerak Kabupaten Sumbawa. *ALAMTANA: Jurnal Pengabdian Masyarakat UNW Mataram*, 5(2). <https://doi.org/10.51673/jaltn.v5i2.2163>
- Jalaludin, A. A., Kadir, S. A., Abdullah, A., & Mustakim, S. S. (2022). Competency Development through the Implementation of Professional Learning Community among Accounting

- Teachers. *The Eurasia Proceedings of Educational and Social Sciences*, 25, 100–112. <https://doi.org/10.55549/epess.1218204>
- Kalman, K., Muhammadiyah, M., & Hasbi, M. (2024). Implementasi Komunitas Belajar Dalam Peningkatan Kompetensi Guru UPTD Sekolah Dasar Negeri Di Kabupaten Mamuju Tengah. *Bosowa Journal of Education*, 5(1), 137–143. <https://doi.org/10.35965/bje.v5i1.5278>
- Kasmawati, Y. (2020). Peningkatan Kompetensi Melalui Kolaborasi: Suatu Tinjauan Teoritis Terhadap Guru. *Equilibrium: Jurnal Pendidikan*, 8(2), 136–142. <https://doi.org/10.26618/equilibrium.v8i2.3377>
- Kementerian Pendidikan dan Kebudayaan. (2003). Undang-Undang Nomor 14 tahun 2005 tentang Guru dan Dosen. Kementerian Pendidikan dan Kebudayaan.
- Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2022). Strategi Pengembangan Komunitas Belajar Guru dan KS untuk mendukung implementasi Kurikulum Merdeka. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2022). Panduan Komunitas Belajar: Seri Belajar Kurikulum. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2022). Refleksi Belajar Di Dalam Komunitas. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2023) Panduan Optimalisasi Komunitas Belajar. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- Khusna, R., & Priyanti, N. (2023). Pengaruh Komunitas Belajar Terhadap Kemampuan Pedagogik Guru Di Ikatan NSIN TK Bekasi. *Jurnal Ilmiah Potensia*, 8(2), 252–260. <https://doi.org/10.33369/jip.8.2.252-260>
- Leahy, K., Calderón, A., O'Meara, N., MacPhail, A., & O'Flaherty, J. (2025). Navigating times of change through communities of practice: A focus on teacher educators' realities and professional learning. *Teaching and Teacher Education*, 156, 104925. <https://doi.org/10.1016/j.tate.2025.104925>
- Li, X., & Hu, W. (2024). Peer versus teacher corrections through electronic learning communities and face-to-face classroom interactions and EFL learners' passion for learning, speaking fluency, and accuracy. *Heliyon*, 10(4), e25849. <https://doi.org/10.1016/j.heliyon.2024.e25849>
- Liu, S., & Hallinger, P. (2024). The effects of instructional leadership, teacher responsibility and procedural justice climate on professional learning communities: A cross-level moderated mediation examination. *Educational Management Administration and Leadership*, 52(3), 556–575. Scopus. <https://doi.org/10.1177/17411432221089185>
- Long, C., Li, C., Huang, G., & Fu, J. (2024). How to better promote teaching? Unveiling the links between Professional Learning Communities and Intrinsic Motivation among Foreign Language Teachers. *Heliyon*, 10(16), e36011. <https://doi.org/10.1016/j.heliyon.2024.e36011>
- Maure, F. S., Arifin, A., & Datuk, A. (2021). Peran Musyawarah Guru Mata Pelajaran (MGMP) dalam Meningkatkan Profesionalisme Guru Sosiologi di Kota Kupang. *Jurnal Ilmu Pendidikan (JIP) STKIP Kusuma Negara*, 12(2), 111–118. <https://doi.org/10.37640/jip.v12i2.534>
- Maryani, D., Cholidah, N., & Ambawani, C. S. L. (2024). Learning Strategy and Teacher's Role in Meeting 21st Century Students' Competences. *Bulletin of Science Education*, 4(2), 178–186. <https://doi.org/10.51278/bse.v4i2.1315>
- Murwanto, P., Wibagso, S. S., Triayomi, R., Kurniawati, A. F., & Sri, D. (2025). Pendampingan Digitalisasi dan Implementasi Model Pembelajaran untuk Sekolah Dasar. *Bulletin of Community Engagement*, 5(1), 15–26. <https://doi.org/10.51278/bce.v5i1.1699>
- Nessipbayeva, O. (2022). The Competencies Of The Modern Teacher. *Speeches/Meeting Papers; Reports - Evaluative*. <https://eric.ed.gov/?id=ED567059>
- Nurkartika, R. D., & Hartini, N. (2021). The Role of the Professional Learning Community to Develop Teacher Leadership. *Advances in Social Science, Education and Humanities*

- Research. 4th International Conference on Research of Educational Administration and Management (ICREAM 2020), Bandung, Indonesia. <https://doi.org/10.2991/assehr.k.210212.060>
- Nurkolis, & Yuliejantiningih, Y. (2020). The Effectiveness of Continuous Professional Development for Teachers to Improve the Quality of Education. *Proceedings of the 2nd International Conference on Education and Social Science Research (ICESRE 2019)*. 2nd International Conference on Education and Social Science Research (ICESRE 2019), Kota Semarang, Central Java, Indonesia. <https://doi.org/10.2991/assehr.k.200318.020>
- Nurulhaq, G., Kurniawan, E., Hikmawan, I., Ginanjar, R., & Firman. (2024). The Teacher Community Role toward Teacher Professionalism on Designing EFL Instructional Objectives. *Inspiring: English Education Journal*, 7(1), 140–162. <https://doi.org/10.35905/inspiring.v7i1.8940>
- Pratikno, Y., Hermawan, E., & Arifin, A. L. (2022). Human Resource ‘Kurikulum Merdeka’ from Design to Implementation in the School: What Worked and What not in Indonesian Education. *Jurnal Iqra’: Kajian Ilmu Pendidikan*, 7(1), 326–343. <https://doi.org/10.25217/ji.v7i1.1708>
- Prenger, R., Poortman, C. L., & Handelzalts, A. (2019). The Effects of Networked Professional Learning Communities. *Journal of Teacher Education*, 70(5), 441–452. <https://doi.org/10.1177/0022487117753574>
- Putri, D. S. R., Fadli, A. I., Pramodana, D. R., Bagaskara, F. R., Zulaikhah, S., & Syafe’i, I. (2025). The Importance of Effective Communication in Improving the Quality of Classroom Learning Interactions between Teachers and Students. *Bulletin of Pedagogical Research*, 5(2), 1–15. <https://doi.org/10.51278/bpr.v5i2.1789>
- Rodi, R., Sesmiarni, Z., & Ismail, F. (2022). Mengembangkan Kompetensi Guru Dalam Menerapkan Pembelajaran Berdiferensiasi Melalui Komunitas Praktisi. *Jurnal Penelitian Ilmu Pendidikan Indonesia*, 1(2), 463–469. <https://doi.org/10.31004/jpion.v1i2.75>
- Roodi, mohammadtaghi. (2023). A comparative study of the teacher education system of Iran and South Korea based on the recruitment and training process. *Iranian Journal of Comparative Education*, 7(3). <https://doi.org/10.22034/ijce.2023.408410.1513>
- Salamah, E. R., Tiyas Rifayanti, Z. E., Trisnawaty, W., & Fitra Raharja, H. (2024). Membangun Budaya Belajar Melalui Komunitas Belajar Dalam Peningkatan Hasil Belajar Peserta Didik. *ABIDUMASY Jurnal Pengabdian Kepada Masyarakat*, 5(01), 37–43. <https://doi.org/10.33752/abidumasy.v5i01.5894>
- Salleh, F., & Ibrahim, A. (2020). The Contribution of Professional Learning Community (PLC) to Teachers’ Workplace Learning and Career Development. *International Journal of Academic Research in Progressive Education and Development*, 9(2), Pages 775–785. <https://doi.org/10.6007/IJARPED/v9-i2/7849>
- Sanusi, A., Sauri, S., & Nurbayan, Y. (2020). Non-Native Arabic Language Teacher: Low Teacher’s Professional Competence Low Quality Outcomes? *Arabiyat : Jurnal Pendidikan Bahasa Arab Dan Kebahasaaraban*, 7(1), 45–60. <https://doi.org/10.15408/a.v7i1.12722>
- Saqipi, B., Asunta, T., & Korpinen, E. (2014). Understanding the Context of Teacher Professionalism in Education Systems Undergoing Transition – Kosovo Case. *Procedia - Social and Behavioral Sciences*, 112, 635–646. <https://doi.org/10.1016/j.sbspro.2014.01.1211>
- Sari, A., Suryadi, D., & Syaodih, E. (2018). A professional learning community model: A case study of primary teachers community in west Bandung. *Journal of Physics: Conference Series*, 1013, 012122. <https://doi.org/10.1088/1742-6596/1013/1/012122>
- Sekar, R. Y., & Kamarubiani, N. (2023). Komunitas Belajar Sebagai Sarana Belajar Dan Pengembangan Diri. *Indonesian Journal of Adult and Community Education*, 2(1), 10–15. <https://doi.org/10.17509/ijace.v2i1.28285>
- Setyasari, G. E., Sutopo, A., & Fuadi, D. (2025). Pengelolaan Komunitas Belajar Guru: Tantangan dan Peluang dalam Peningkatan Profesionalisme. *Didaktika: Jurnal Kependidikan*, 14(2). <https://doi.org/10.58230/27454312.2075>

- Shofwan, I., & Kuntoro, S. A. (2014). Pengelolaan Program Pembelajaran Pendidikan Alternatif Komunitas Belajar Qaryah Thayyibah Di Salatiga Jawa Tengah. *Jurnal Pendidikan dan Pemberdayaan Masyarakat*, 1(1), 50. <https://doi.org/10.21831/jppm.v1i1.2356>
- Siregar, T. P. (2024). The Effect of Project-Based Learning Method on Understanding Geometry Concepts in Secondary School Students. *Attractive: Innovative Education Journal*, 6(3), 302-310. <https://doi.org/10.51278/aj.v6i3.1545>
- Solihin, E., Giatman, M., & Ernawati. (2021). Dampak Gaya Kepemimpinan Kepala Sekolah pada Kepuasan Pekerjaan Guru dan Motivasi Kerja. *Jurnal Ilmiah Pendidikan dan Pembelajaran*, 5(2). <http://dx.doi.org/10.23887/jipp.v5i2>
- Sukarni, A. (2023a). Peningkatan Kompetensi Guru Dalam Implementasi Kurikulum Merdeka Melalui Komunitas Belajar Di Satuan Formal Sd Negeri Angkasa I Kecamatan Kalijati Tahun Pelajaran 2023/2024. *JPG: Jurnal Penelitian Guru*, 6(2). <https://doi.org/10.35569/jpg.v6i2.1824>
- Sukarni, A. (2023b). Peningkatan Kompetensi Guru Dalam Implementasi Kurikulum Merdeka Melalui Komunitas Belajar Di Satuan Formal Sd Negeri Angkasa I Kecamatan Kalijati Tahun Pelajaran 2023/2024. 6(2).
- Sulastri, S., Fitria, H., & Martha, A. (2020). Kompetensi Profesional Guru dalam Meningkatkan Mutu Pendidikan. *Journal of Education Research*, 1(3), 258-264. <https://doi.org/10.37985/jer.v1i3.30>
- Sunarko, Moh. H., & Musytamil, K. (2023). The Role of Guru Belajar Nusantara Community in Improving Teacher Competence. *Tadibia Islamika*, 3(1), 54-61. <https://doi.org/10.28918/tadibia.v3i1.350>
- Supriyadi, S., Maulina, D., Irwandani, I., & Kamelia, M. (2024). Pemberdayaan Komunitas Belajar Guru Dalam Mengimplementasikan Pembelajaran Berdiferensiasi. *Jurnal Pemberdayaan Masyarakat*, 3(1), 12-21. <https://doi.org/10.46843/jpm.v3i1.294>
- Suryaatmaja, M. (2018). Meningkatkan kemampuan guru kelas dalam menyusun alat penilaian pembelajaran melalui penerapan supervisi \$.\$(0,. Kepala sekolah. 5(1). <https://doi.org/doi.org/10.21009/JKKP.051.02>
- Syahid Nur Arifin, Mustafa Zahir, Taufik Nur Azis, & Farid, A. (2023). Implementasi program pembinaan kompetensi profesional guru di smk darunnajah cipining. *Jurnal ilmiah pendidikan kebudayaan dan agama*, 1(3), 42-48. <https://doi.org/10.59024/jipa.v1i3.243>
- Syahputra, F. R. H., Syaputra, R. E., & Windasari, W. (2024). Strategi Pengembangan Profesionalisme Guru Di Era Digital Pada Sd Negeri Lidah Wetan II. *Jurnal Penelitian Ilmu Pendidikan Indonesia*, 3(2), 291-298. <https://doi.org/10.31004/jpion.v3i2.273>
- Titihalawa, S., Prihatin, T., & Pramono, S. E. (2023). Peran Kepala Sekolah dan Komunitas Belajar dalam Meningkatkan Kompetensi Pedagogik Pendidik di SMA Gabungan Jayapura. 6(1).
- Triantoro, M., & Erawanto, U. (2022). Meningkatkan Kompetensi Guru Berbasis Komunitas bagi MGMP SMP Kota Blitar. *Prima Abdika: Jurnal Pengabdian Masyarakat*, 2(4), 440-446. <https://doi.org/10.37478/abdika.v2i4.2237>
- Utomo, U., & Kusumawati, D. (2024). Implementasi Pelatihan Mandiri Platform Merdeka Mengajar dalam Meningkatkan Kompetensi Guru. *Dawuh Guru: Jurnal Pendidikan MI/SD*, 4(1), 61-72. <https://doi.org/10.35878/guru.v4i1.1089>
- Zhahira, J., Shalahudin, & Jamilah. (2022). Kompetensi Manajerial Kepala Sekolah dalam Meningkatkan Kinerja Guru. *Journal of Educational Research*, 1(1), 85-100. <https://doi.org/10.56436/jer.v1i1.16>
- Ziheng, Y., & Xiaodong, Z. (2022). The Path Exploration on English Teachers' Professional Development from the Perspective of Learning Community. *Frontiers in Educational Research*, 5(10). <https://doi.org/10.25236/FER.2022.051014>