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Mentor, Observe, Support, Take Action (MOST): a model for continuing professional development of teacher leaders

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This study aims to identify literacy competencies, self-efficacy, and Technological Pedagogical Knowledge (TPK) among teacher leaders (TL) as the foundation for developing a model of sustained professional development. The survey involved 153 respondents, TL at the junior high school level in Riau and Riau Islands. Instruments were used to measure literacy skills (environmental, numerical, digital) and TPK employed multiple-choice tests. The questions underwent item analysis, piloted with 30 respondents. A questionnaire measured self-efficacy, the role of TL, and the implementation of the Emancipated Curriculum. Descriptive data analysis determined demographic characteristics and the average competence of TL. Inferential analysis to identify relationships between variables used Structural Equation Modeling (SEM) with Lisrel 8.80 software. Research results reveal that the competence level of TL (literacy, TPK, and self-efficacy) ranges from moderate (60.60) to high (91.20). Based on SEM analysis, the developed model meets the criteria as a well-fitting model. Validation results show that all loading factors are > 0.5, t statistics > 1.96. This study recommends the development of a TL Professional Development model with the acronym MOST (mentor, observe, support, take action) as stages for their professional development to fulfill the mission of moving, acting, and driving the implementation of the Emancipated Curriculum in Indonesia.

KEYWORDS

mentor, observe, support, take action, teacher leaders, Emancipated Curriculum

1 Introduction

Teacher leaders (TL), as outlined in Minister of Education and Culture regulation No. 26 of 2022, are educators who meet the competency profile and are certified through TL education activities. The motto of TL is to be moved, to move, and to inspire movement. TL are required to possess four capabilities: (1) Conducting learning according to students' needs (2) Collaborating with the school community to build educational units (3) Developing competencies independently and sustainably, and (4) Cultivating the learning ecosystem in schools (Ministry of Education and Culture, 2022a).

The implementation of the teacher leader program is based on the vision of education in 2025 to realize intelligent and competitive individuals in Indonesia (Prawitasari and Suharto, 2020). Teacher leaders are expected to become educational leaders, driving the transformation of education in Indonesia. They play a role as leaders in the learning process, capable of implementing independent learning activities and contributing to the development of the educational ecosystem (Manao et al., 2021). According to Mulyasa (2021), the role of TL is to create change in schools, starting with changes in the classroom through independent learning activities and helping to improve the quality of teaching. The implementation of TL activities alongside catalyst schools has been ongoing for three years, starting in 2020. A total of 168 districts, with a total of 131,444 teachers, have participated in the teacher leader program (Ministry of Education and Culture, 2022b). Through this program, teachers are trained to become educational leaders who realize an outstanding generation of Indonesians (Syahril, 2020).

The achievement of the program and the role of TL in education reform requires teacher's motivation, efficacy, literacy, technology proficiency, and competence. The competencies required for teachers in their role as TL include pedagogical, professional, social, personal, and leadership competencies, as well as the ability to lead and bring ab Ministry out change (Ministry of Education and Culture, 2023). The urgency of this research is based on field research findings indicating various inhibiting factors in the implementation of TL activities. These factors originate from schools, teachers, and students (Riowati and Yoenanto, 2022). Inhibiting factors related to teachers involve efficacy, competence, and literacy (Zee and Koomen, 2016; Yada et al., 2021). Professional competence of teachers, as described by Safrizal et al. (2022), is still below average with teachers unable to choose methods according to student characteristics, and instead resorting to conventional learning styles (Lissa et al., 2021).

The low professional competence of teachers is further substantiated by the results of the teacher competency test (TCT) which indicates an average score of only 53.02, which is below the minimum competency standard of 55 (Yohamintin et al., 2021). Furthermore, the literacy skills in environmental, numerical, and digital domains of teachers in various studies are categorized as low to moderate (Pahrudin et al., 2019; Sumanik et al., 2021). Environmental knowledge and skills are identified as a focus area that needs improvement (Suryawati et al., 2023). The results of a digital literacy review indicate that teachers' digital proficiency ranges from 56.6 to 65.4, with female teachers showing a lower proficiency than male teachers (Suryawati et al., 2021). Numeracy assessments of teachers in Indonesia also yield average results below grade B, categorized as medium to low. The limited ability to use technology and numeracy acts as a hindrance to the performance and competence of teachers (Nida et al., 2020; Rusydiyah et al., 2020).

The focus of this study encompasses competence, literacy, self-efficacy, and TPK. The literacy and TPK abilities of teachers must be accompanied by self-confidence (self-efficacy). Self-efficacy is crucial for a teacher to enhance their professionalism as an educator (Holzberger et al., 2013; Künsting et al., 2016). Research findings indicate that with self-efficacy, teachers can develop their abilities, master teaching, and manage classrooms effectively (Ryan et al., 2015; Schiefele and Schaffner, 2015). Self-efficacy is

needed by teachers to assess and convince themselves to overcome challenges.

The literacy skills possessed by teachers will correlate with TPACK (Fakhriyah et al., 2022). The dynamics of TPACK teacher competencies have been a current concern. Teachers, as crucial learning facilitators, need a knowledge of pedagogy, content, and technology. Muslimin et al. (2023) explain that knowledge of pedagogy, content, and technology alone is not sufficient, and teachers must also be able to integrate this knowledge into the learning process. The integration of pedagogical, content, and technological knowledge is related to how teachers choose appropriate learning models and media for students' needs (Sojanah et al., 2021). TPK competence is accompanied by basic literacy skills and the teacher's willingness to develop. The focus of this research is on the ability of Technological Pedagogical Knowledge.

The balance between literacy skills, TPK, and self-efficacy of TL will consequently impact the fulfillment of their roles in the implementation of the Emancipated Curriculum. According to Minister of Education and Culture Regulation No. 262 of 2022, the Emancipated Curriculum is described as a curriculum that provides flexibility and focuses on essential materials to develop students' competencies as lifelong learners with Pancasila character. The Emancipated Curriculum is based on the principle of empowering schools, teachers, and students to determine the content, learning methods, and assessment (Minister of Education and Culture Regulation, 2022). TL play roles as: (1) Catalyzing the school's learning community, (2) Instructing fellow teachers, (3) Shaping students' leadership qualities, (4) Facilitating collaborative spaces and discussions with fellow teachers/parents, and (5) Leading in the learning process.

These roles are integrated into the implementation of the Emancipated Curriculum where TL serve as examples for their fellow teachers in the planning, execution, and teaching processes of the curriculum. The fulfillment of these roles needs to be based on the abilities, competencies, and self-confidence of the TL. This aligns with Syahril's (2020) statement in the launch speech of TL, emphasizing that becoming a teacher who can drive educational reform requires skills, strong determination, and a high learning spirit.

Teacher leaders are agents of change in education, especially for students and fellow teachers. Based on these objectives, there is a need for efforts to enhance the roles of TL to maximize their responsibilities as educational leaders. The improvement of the roles and performance of TL can be achieved by strengthening the literacy and competence of teachers in continuous professional development (CPD), enabling TL to maximize their role as leaders in learning during the implementation of the Emancipated Curriculum. Given this background, this research is conducted to address the question of how to enhance the competence of TL (literacy, TPK, and self-efficacy) in fulfilling their roles as curriculum implementers in Junior High Schools.

2 Materials and methods

This investigation employed a quantitative research approach using a survey method to understand the competence and roles of

TL in implementing the Emancipated Curriculum. The population comprises TL in the Riau and Riau Islands Provinces, with a sample of 153 junior high school-level TL, including 46 males and 107 females. The teaching areas cover language, mathematics, natural science, and social science. Of the sample, 126 individuals (82.3%) are civil servants and 136 individuals (88.9%) hold teaching certificates. The average age is ≤ 40 and the teaching experience ranges from 10 to 15 years. The mapped profiles of TL serve as valuable information and a reference for continuous professionalism development Manuscript Formatting.

2.1 Instrument and procedures

The instruments used in this study consist of tests and questionnaires. The literacy skills and TPK of teachers are measured using a 45-item multiple-choice test. The environmental literacy test questions are adapted and reconstructed from the Middle School Environmental Literacy Instrument (MSELI) (Hollweg et al., 2011). Questions on digital literacy and numeracy are developed based on standardized indicators (Ministry of Education and Culture, 2017a,b). TPK question instruments are adapted from the development by Suryawati et al. (2017). Questionnaires on self-efficacy, the role of TL, and the implementation of the Emancipated Curriculum are prepared based on their respective indicators. The breakdown of the number of questions and questionnaires is presented in Table 1.

2.2 Data analysis

The research instruments, comprising of tests and questionnaires, underwent validity and reliability testing using Smart PLS. The primary data obtained was descriptively analyzed to understand the demographic characteristics of the sample and the average competence of TL. Inferential data analysis, aimed at determining relationships between variables, was conducted using Structural Equation Modeling (SEM) with Lisrel 8.80 software.

3 Results

3.1 Competence of teacher leaders

Teachers as educational leaders must demonstrate high-quality competence. The assessment of teacher competence involves three key aspects: literacy, TPK, and self-efficacy. The research data is subsequently discussed for each indicator of these abilities, as outlined in Table 2.

The assessment results from Table 2 indicate that the literacy competence of TL falls within the moderate category, with an average ranging between 60.6 and 64.2. Notably, among the three literacy competencies, digital literacy receives the lowest average. The assessment TPK of TL, with indicators of pedagogical knowledge, technological knowledge, and Technological Pedagogical Knowledge, yields averages of 66.9, 84.8, and 71.0, respectively, categorizing them as moderate to high. Based

TABLE 1 Distribution of questionnaire and test items.

No	Instrument test	Number of items
Literacy test		**30**
1	Environmental literacy	10
2	Numeracy literacy	10
3	Digital literacy	10
TPK test		**15**
4	Technological knowledge (TK)	5
5	Pedagogical knowledge (PK)	5
6	Technological Pedagogical Knowledge	5

No	Instrument questionnaire	Number of items
Self-efficacy questionnaire		**15**
1	Confidence in task completion	3
2	Self-motivation	3
3	Effort, persistence, and perseverance	3
4	Confidence in facing obstacles and difficulties	3
5	Confidence in task completion from a broad and narrow perspective	3
Teacher leader role questionnaire		**5**
1	Role in leading and running the school's learning community	1
2	Role as a practical instructor for fellow teachers	1
3	Role in nurturing students' leadership qualities	1
4	Role as an opener of collaborative spaces and discussions with fellow teachers/parents	1
5	Role as a learning leader and promoter of the wellbeing of the school's ecosystem	1
Emancipated Curriculum implementation questionnaire		**15**
1	Lesson planning	5
2	Lesson implementation	5
3	Lesson evaluation	5

on the results, the technological knowledge indicator obtains the highest average of 84.8. The calculation of the self-efficacy abilities of teachers across five indicators results in averages ranging from 82.3 to 91.2, categorizing them as high. It is observed that teachers have a high level of confidence, demonstrating perseverance and diligence, and are capable of self-motivation to complete training tasks.

3.2 Strengthening model of teacher leaders competence

The results of the model for strengthening the competence of TL (literacy, TPK, and self-efficacy) in relation to the role of TL in
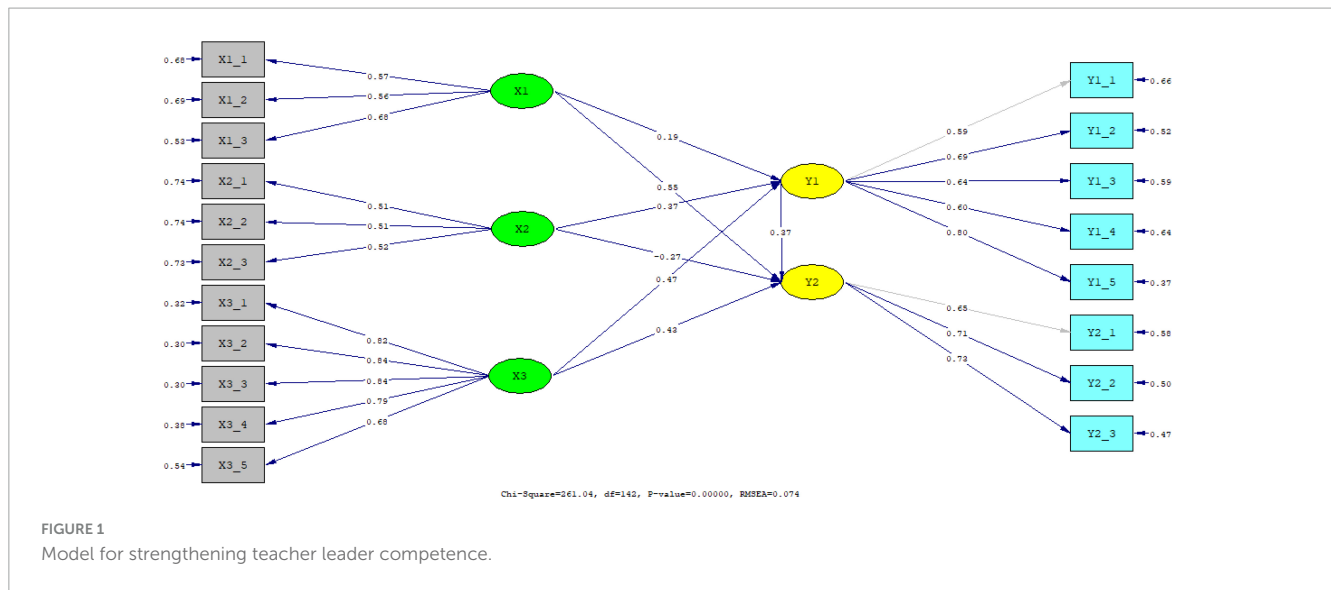
FIGURE 1
Model for strengthening teacher leader competence.

TABLE 2 Average competence of TL (literacy, TPK, and self-efficacy).

No	Competence	Avg. score
1	**Literacy**	
	a. Environmental literacy	64.3
	b. Numeracy literacy	64.2
	c. Digital literacy	60.6
2	**Technological Pedagogical Knowledge (TPK)**	
	a. Pedagogical knowledge	66.9
	b. Technological knowledge	84.8
	c. Technological Pedagogical Knowledge	71
No	Competence	Avg. Score
3	**Self-efficacy**	
	a. Confidence in task completion	89.8
	b. Self-motivation	91.2
	c. Effort, persistence, and perseverance	90.5
	d. Confidence in facing obstacles and difficulties	85.6
	e. Confidence in task completion from a broad and narrow perspective	82.3

the implementation of the Emancipated Curriculum are outlined in Figure 1.

The continuous professional development model for teacher leaders, hereafter referred to as the MOST model, is an acronym for mentor, observe, support, take action. This model is related to the competencies of teacher leaders in carrying out their roles in the implementation of the Emancipated Curriculum. The MOST model is based on the competencies of teacher leaders, which include literacy skills (X1), TPK skills (X2), and self-efficacy (X3). The rationale for developing this model is related to the motto of teacher leaders, which is to act as mentors, constantly observe, provide support to the community, and always produce tangible actions. Furthermore, the competencies of teacher leaders will

illustrate the execution of their roles as instructional leaders (Y1) in the implementation of the Emancipated Curriculum (Y2), thereby creating a wellbeing ecosystem in schools.

Based on the results of the SEM analysis, it was found that the model developed in this study meets the criteria as a well-fitting model. This is evident as all model fit indices are satisfactory, with the following values: RMSEA = 0.074, SRMR = 0.062, NFI = 0.92, and TLI = 0.96. Therefore, the model developed in this study fits well with the data. The results of validity and reliability estimates for each variable in the model are detailed in Table 3.

The results of the validity testing indicate that all loading factors exceed 0.5 and the t-statistics exceed 1.96. Therefore, it can be concluded that all indicators used to measure variables have good construct validity. Meanwhile, reliability estimates show that the construct reliability values exceed 0.6, except for the TPK variable. Nevertheless, it can be concluded that the reliability of the instruments developed in this study meets the criteria for good validity and reliability. The results of testing the influence of competence on the role of TL and the implementation of the Emancipated Curriculum are detailed in Tables 4, 5.

The results of the hypothesis testing indicate that among the three competency indicators, the self-efficacy ability of teachers has a direct influence on the role of TL with a coefficient value of 0.47 and a t-statistic of 3.33 > 1.96 (rejecting the null hypothesis). Furthermore, literacy competence and self-efficacy have a direct impact on the implementation of the Emancipated Curriculum. The literacy competence of teachers has a coefficient value of 0.55 with a t-statistic of 2.32 > 1.96 (rejecting the null hypothesis), and self-efficacy has a coefficient value of 0.34 with a t-statistic of 2.53 > 1.96 (rejecting the null hypothesis). TPK competence does not have a significant direct influence on the role of TL and the implementation of the Emancipated Curriculum.

A review of the implementation of the Emancipated Curriculum through the role of TL indicates that literacy competence, self-efficacy, and TPK have an indirect impact on the successful implementation of learning using the Emancipated Curriculum. The t-statistic values for the relationships between these variables are < 1.94.

TABLE 3 Validation and reliability findings.

No	Competence	Loading factor	t- statistic	Construct reliability
1	**Literacy**			**0.633**
	a. Environmental literacy	0.57	6.59	
	b. Numeracy literacy	0.56	6.46	
	c. Digital literacy	0.68	8.03	
2	**Technological Pedagogical Knowledge (TPK)**			**0.518**
	a. Pedagogical knowledge	0.51	5.61	
	b. Technological knowledge	0.51	5.57	
	c. Technological Pedagogical Knowledge	0.52	5.69	
3	**Self-efficacy**			**0.896**
	a. Confidence in task completion	0.82	12.10	
	b. Self-motivation	0.84	12.43	
	c. Effort, persistence, and perseverance	0.84	12.46	
	d. Confidence in facing obstacles and difficulties	0.79	11.28	
	e. Confidence in task completion from a broad and narrow perspective	0.68	9.21	
No	Competence	Loading factor	t- statistic	Construct reliability
4	**Teacher leaders role**			**0.799**
	a. Role in leading and running the school's learning community	0.59	–	
	b. Role as a practical instructor for fellow teachers	0.69	6.59	
	c. Role in nurturing students' leadership qualities	0.64	6.28	
	d. Role as an opener of collaborative spaces and discussions with fellow teachers/parents	0.60	5.98	
	e. Role as a learning leader and promoter of the wellbeing of the school's ecosystem	0.80	7.20	
5	**Implementation of the Emancipated Curriculum**			**0.739**
	a. Lesson planning	0.65	–	
	b. Lesson implementation	0.71	7.34	
	c. Lesson evaluation	0.73	7.51	

TABLE 4 Results of direct influence testing.

No	Variable	Coefficient	t- statistic	Remarks
	Direct influence			
1.	Literacy → teacher leader role	0.19	0.94	Ho accepted
2.	TPACK → teacher leader role	0.37	1.40	Ho accepted
3.	Self-efficacy → teacher leader role	0.47	3.33	Ho rejected
4.	Literacy → implementation of the Emancipated Curriculum	0.55	2.32	Ho rejected
5.	TPACK → implementation of the Emancipated Curriculum	−0.27	−0.75	Ho accepted
6.	Self-efficacy → implementation of the Emancipated Curriculum	0.43	2.53	Ho rejected
7.	Teacher leader role → implementation of the Emancipated Curriculum	0.37	1.27	Ho accepted

4 Discussion

4.1 Teacher leaders literacy

Environmental literacy is described as the ability to care for, mitigate, and address environmental issues (Kinslow et al., 2019). Individuals with good literacy are willing to participate in improving the wellbeing of the community and the global environment (Syamsussabri et al., 2019; Wicaksono et al., 2019).

Environmental literacy in teachers is manifested as the ability to understand environmental issues and the capacity to integrate environmentally friendly education into students (Liu et al., 2015). According to Wulandari et al. (2021), tangible actions for environmental literacy are marked by behavioral changes aimed at improving the environmental conditions around them. These findings align with the research of Maurer and Bogner (2020), which explains a linear relationship between environmental knowledge and behavioral changes in environmental literacy competence.

TABLE 5 Results of indirect influence testing.

No	Variable	Co-efficient	t-statistic	Remarks
Indirect influence				
1.	Literacy → implementation of the Emancipated Curriculum	0.07	1.06	Ho accepted
2.	TPK → implementation of the Emancipated Curriculum	0.14	0.78	Ho accepted
3.	Self-efficacy → implementation of the Emancipated Curriculum	0.17	1.35	Ho accepted

Teachers, as facilitators in the classroom, play a crucial role in possessing environmental literacy skills. This enables them to subsequently develop strategies and learning models which support students' scientific literacy (Safitri et al., 2020). Nida et al. (2020) explain that as much as 26.3% of teachers still lack knowledge, attitudes, and skills related to environmental literacy. The knowledge and attitudes of teachers toward the environment are crucial points for realizing environmental literacy in the learning process at school (Suryawati et al., 2020). TL, as agents of change, need to enhance their environmental literacy skills, especially in the aspect of knowledge and attitudes (Suryawati et al., 2023). Through these competencies, it is expected that teachers can develop sustainability-based learning by implementing the Emancipated Curriculum.

The second fundamental literacy skill that TL should possess is numeracy literacy. Numeracy literacy is described as the ability to apply mathematical concepts and calculations in everyday life (Abidin and Mulyati, 2017). Numeracy literacy is characterized by proficiency in symbol reasoning and effective communication, both orally and in writing (Reyna and Brainerd, 2023). In the design of the (Ministry of Education and Culture, 2017b), numeracy literacy is delineated into two skills: (a) using numbers and symbols related to mathematics to solve everyday problems and (b) analyzing presented information to make decisions.

The results of data analysis indicate that the numeracy skills of TL falls into the moderate category, suggesting a need for improvement in teachers' numeracy skills in the future. According to Campbell et al. (2020), nearly 50% of teachers lack confidence in their ability to calculate and reason through mathematical problems. Teachers with low numeracy skills can only identify and access relevant mathematical information, but are not yet able to engage in procedures and develop opinions in problem-solving. Conversely, teachers with good numeracy skills have been able to find mathematical information, use procedures, and develop opinions in the problem-solving process (Yustitia et al., 2021).

The development of numeracy literacy skills for teachers can be achieved through problem-based learning activities. Through problem-based learning, teachers can apply mathematics to the problem-solving process (Reyna and Brainerd, 2023). Efforts to improve numeracy literacy can also be carried out through self-training by working on problems. The improvement in numeracy literacy among TL can motivate their colleagues to enhance their professional competence. Numeracy literacy is further

developed in computational thinking skills, which encompass abstraction, algorithmic thinking, automation, decomposition and generalization, all of which are crucial in mathematical reasoning and problem-solving (Zahid, 2020).

The third fundamental literacy which is analyzed is digital literacy. Digital literacy is the ability to create and share in different modes and forms, to produce, collaborate, and communicate more effectively, and to also understand how and when to use digital technology appropriately to support these processes (Gudmundsdottir and Hatlevik, 2018; Aslan, 2020). Digital literacy has become a key component for teachers to carry out life-long learning (Yusup and Saepudin, 2017). There are two levels of digital literacy: general computer usage skills, including the use of computer devices, file management using digital devices, and internet use (Instefjord and Munthe, 2017; Inbal and Blau, 2020). The second level involves the integration of technology and computers in learning, such as the use of Learning Management Systems (LMS), social media, podcasting, and other tools (Gudmundsdottir and Hatlevik, 2018).

The proficiency of teachers' literacy skills is measured by the success of implementing learning through the application of technology and computers, as well as the ability to responsibly use digital media (Reyes et al., 2017). Syahroni et al. (2020) state that based on their research, teachers' familiarity with digital learning applications through training will enhance their literacy skills (Syahroni et al., 2020). Additionally, Antuñano et al. (2022) add that based on their findings, teachers' knowledge and skills in digital use will vary in terms of age, degree, and educational background with teaching. However, these results contradict Zhang (2023), who found that age, gender, education level, and teaching experience are not related to digital literacy abilities. The high or low level of teachers' literacy skills can be influenced by their confidence levels in using digital devices (Siyam, 2019).

Educators who are confident in using and leveraging digital devices in teaching will possess superior digital literacy skills and a positive attitude in applying digital content to the learning process (Mlambo et al., 2020). The literacy skills of teachers serve as a benchmark for professional competence and support the learning activities that will be carried out by the teachers (Pastore, 2023). TL, serving as motivators and leaders in the learning community, are expected to exhibit strong digital literacy skills to mentor other teachers (Silvester et al., 2022). Basic literacy serves as a foundation for teachers to develop additional competencies such as Technological Pedagogical and Content Knowledge (TPACK). Proficiency in these competencies is reinforced by teachers' confidence and self-efficacy.

4.2 Competence of TPK and self-efficacy of TL

The competence of TPK in this study is delineated into three competencies: pedagogical knowledge, technological knowledge, and Technological Pedagogical Knowledge. These TPK components need to be integrated by teachers in the learning process to generate meaningful learning. Demographic characteristics (gender) and professional variables (teaching experience, level of education, and certification), as well as

differences in school levels, are all factors which are influencing teachers' Technological Pedagogical and Content Knowledge (TPACK) (Tseng et al., 2022). Profiling analysis of TL indicates that based on demographic characteristics and professional variables, teachers have experience and are certified as professional educators (Sholihah et al., 2016; Fakhriyah et al., 2022).

Based on the research results, it is found that the competence of pedagogical knowledge of teachers tends to be lower than the other two components. This result emphasizes the need for training for teachers to adapt teaching strategies, approaches, and models with the use of technology. In their research, Muslimin et al. (2023) found that many teachers already have technological and pedagogical knowledge, but still face challenges in integrating technology into the learning process. Effective TPACK competence is demonstrated by teachers' ability to create instructional media, devise meaningful learning experiences for students (Wilujeng et al., 2020; Kusuma, 2021), master learning strategies, and use technology appropriately, considering the analysis of learning capabilities and student characteristics (Muslimin et al., 2023). TPACK requires multi-interaction and synergy between content, pedagogy, and technology, so teachers need to have basic skills such as literacy and the self-confidence to be willing to practice (Erlina et al., 2019).

Self-efficacy is the teacher's belief in their ability to plan, organize, and implement specific tasks related to teaching that are necessary to achieve the desired goals (Granziera and Perera, 2019). According to research, the level of teacher self-efficacy influences their competence in their work (Skaalvik and Skaalvik, 2014; Zee and Koomen, 2016). Teacher self-efficacy is also positively related to the teacher's attitude toward learning, where teachers tend to be more professional and take initiative in implementing lessons with good confidence (Yada et al., 2021).

The factors influencing a teacher's self-efficacy can include experience, environment, and social persuasion (Wangid et al., 2020), physical and mental conditions, as well as the strength and beliefs of each individual (Erlina et al., 2019; Muenchhausen et al., 2021). Jin and Harp (2020) state that the self-efficacy of teachers in leadership positions tends to be higher than that of pre-service teachers who have no leadership power. Self-efficacy and the ability of teachers to lead learning are related to the teaching tenure and teaching experience (Xie et al., 2022). Teachers with more senior experience, competence, and teaching tenure have greater confidence in integrating TPACK into their teaching. Overall, the research results explain that the TPK competence of TL is at a good level based on high self-confidence. Teachers with high self-efficacy will be able to apply technological and pedagogical knowledge in teaching according to the achievements of competencies and characteristics of students (Dai, 2023). Good literacy, competence, and self-efficacy of TL will impact the effectiveness of their role in the implementation of the Emancipated Curriculum.

4.3 The role of TL and the implementation of the Emancipated Curriculum

The role of TL is broadly explained in five terms: (1) Innovator (driving and running the learning community), (2) Active Learner

(TL as practical instructors for other colleagues), (3) Personal Mentor (TL as mentors for each student to shape leadership and independence in learning), (4) Facilitator (creating space for collaboration and discussion with fellow teachers, parents, and other school community members), and (5) Motivator (as a learning leader and promoter of the wellbeing of the school ecosystem) (Ministry of Education and Culture, 2023). Based on the questionnaire analysis, it is known that TL have performed their roles quite well. This result is also supported by interviews with the head of the catalyst school regarding the implementation of the role of TL in the school.

TL, as learning innovators, play a crucial role in mobilizing and leading the community. This role is evident in activities such as sharing information with fellow teachers about teaching practices and project implementation. TL organize scheduled meetings to address challenges in the school, fostering a community of teachers engaged in activities to develop innovative learning approaches (Prawitasari and Suharto, 2020). As active learners who strive to collaborate and learn alongside their colleagues, TL are actively involved in mentoring activities to support colleagues facing challenges in teaching, ultimately aiming to enhance the overall quality of learning. Throughout the learning process, TL in collaboration with their colleagues, conduct an initial mapping of children's competencies and learning styles extending across each subject area. This mapping of children's competencies and learning styles is pivotal for the successful implementation of differentiated learning.

The third role is as a personal mentor, where in this case, TL play a role in guiding each student to shape their leadership qualities. The development of leadership qualities in students is manifested through project activities such as batik making, creating digital magazines, establishing digital libraries, and producing school podcasts. These various activities provide students with the opportunity to create and take responsibility for assigned tasks. Examples of other activities that foster students' leadership qualities include involvement in school organizations (Student Council), scouting activities, and extra-curricular activities. As mentors, TL guide students to develop both soft and hard skills (Sibagariang et al., 2021).

The fourth role is as a facilitator who will facilitate discussions and collaboration activities with fellow teachers, parents, and stakeholders at the school. The realization of this role includes: (1) Regular discussions between the school principal and TL integrated into Principal Working Group called MKKS meetings and teacher work groups, (2) The sharing of innovations from one catalyst school as a benchmark for activities carried out in visiting schools, and (3) Hosting an exhibition of project results (P5) by students for parents and the community to inform parents about their children's progress, and to also provide a platform for school activities to be introduced to the community.

The fifth role is as a motivator who leads learning and promotes the wellbeing of the school ecosystem. In this role, TL along with their colleagues strives to create a school that is comfortable and safe for students, bringing about an environmentally friendly, child-friendly, and anti-bullying environment. They also implement environmental love programs for students. Examples of environmental love programs include the creation of eco-bricks, the utilization of eco-enzymes, composting, and the creation of smart

waste bins. These various activities are realized by TL in collaboration with the school principal, fellow teachers, parents, and the community to generate wellbeing within the school ecosystem.

The implementation of the TL role overall will manifest the realization of the Emancipated Curriculum. The actualization of the Emancipated Curriculum by teachers, based on the average questionnaire results, indicates that teachers are capable of planning, implementing, and evaluating learning (Rahayu et al., 2022). In the planning phase, teachers start by determining effective learning days through the analysis of the academic calendar and the creation of the syllabus. Subsequently, teachers proceed to elaborate on learning objectives, design lessons summarized in teaching modules, and create evaluation plans. During the implementation of learning activities, teachers apply active student learning models that align with the learning objectives. Teachers have also utilized various teaching media according to students' learning styles. Learning evaluation activities are carried out by TL, both in a formative and summative manner. Teachers also conduct diagnostic assessments to map students' abilities. The types of assessments performed are diverse and based on authentic assessment criteria.

4.4 Strengthening the competence of TL for the implementation of roles and the Emancipated Curriculum

The level of professionalism of teachers in carrying out their role as educational leaders is assessed through four competencies: pedagogical competence, professional competence, social competence, and personality competence (Rusilowati and Wahyudi, 2020). Professional competence of teachers can include literacy skills (Boud and Dawson, 2023), TPK (Sojanah et al., 2021) and self-efficacy (Tanel, 2013; Pujaningsih and Ambarwati, 2020). Teacher competence is related to empowering students in both the learning process and the development of other skills. The professionalism of teachers needs to be enhanced in line with the requirements of 21st-century skills (Caena and Redecker, 2019).

TL, with their primary role as learning leaders, has the main task of driving the implementation of the Emancipated Curriculum. To support this task, having professional competence and self-efficacy is crucial (Riowati and Yoenanto, 2022). The competence and self-efficacy of teachers can influence the implementation of roles and the learning process in the classroom. Based on the results of hypothesis testing, it is found that teacher self-efficacy has a significantly direct impact on the implementation of the teacher's leader role and the implementation of the Emancipated Curriculum. This result aligns with the average description of self-efficacy indicators which indicate values in the range of 80–91 (high category).

Teacher's confidence is related to ownership of the learning process and the awareness to fulfill the role as an educator (Ilhan et al., 2015). Teachers with high confidence and competence are motivated to perform better and continuously develop their potential (Valdmann et al., 2020). According to the research by Granziera and Perera (2019), teacher efficacy has a direct

reciprocal relationship with job engagement. Efficacy is the foundation of teachers' motivation and self-confidence for their professional development (Dai, 2023). In the learning process, teachers with high self-efficacy can design innovative lessons, adapt flexibly to the learning process, respond to students' needs, and also remain focused on achieving students' learning outcomes (Woodcock et al., 2022).

TL need self-efficacy and emotional support from their environment, superiors, and colleagues to fulfill their roles effectively (Andriansyah et al., 2022). As role models in education and learning leaders, TL can sometimes face many obstacles and pressures. Given these roles, trust in oneself and the teacher's ability to complete the tasks as a teacher leader and to embrace colleagues in the development of the Emancipated Curriculum are necessary. Improving teacher efficacy can begin with enhancements in social persuasion, leadership appreciation, and participation in learning discussion forums (Marschall, 2022).

Literacy competence directly influences the implementation of the Emancipated Curriculum but does not have a direct impact on the implementation of the teacher's leader role. Meanwhile, Technological Pedagogical Knowledge (TPK) competence does not have a direct effect on the implementation of the teacher's leader role or the implementation of the Emancipated Curriculum. According to Valtonen et al. (2021), 21st-century competencies of teachers including literacy, influence their professionalism in teaching. Teachers are expected to be literate and skilled in using technology to align with educational developments. The skills in using technology and integrating it into teaching are closely related to the success of teachers in creating interactive learning (Li et al., 2021). Teacher competencies and skills will not develop if teachers do not have self-efficacy, so efficacy is emphasized as a key factor in the implementation of teachers' tasks in educational reform (Gordon et al., 2023).

Teachers play a crucial role in designing, implementing, and evaluating learning. As facilitators of learning, they must optimize the needs and competencies of students during the learning process (Boud and Dawson, 2023). The effectiveness of a teacher's role provides valuable feedback on students' success in learning (Chong, 2021). The optimization of the teacher's role is supported by literacy and pedagogical competencies, as well as confidence in one's abilities. The challenge lies in renewing competencies and skills to align with the requirements of 21st-century learning and the innovations within the curriculum (Caena and Redecker, 2019). The research underscores the need for continuous professional development (CPD). Enhancing the competencies of TL, particularly in literacy and TPK, can be achieved through training and addressing teachers' specific needs. Professional development for educators should focus on self-directed learning and the development of specific skills needed to improve the quality of students' learning experiences (Helate et al., 2022; Karkouti et al., 2022; Zeng, 2023). Additionally, the formation of a learning community is recommended for fostering professional development among teachers (Wang and Zhang, 2023). The limitations of the study are as follows: (1) The separate locations of teacher leaders in various regions pose challenges in data collection, especially in 3T (Underdeveloped, Remote, and Frontier) areas; (2) The researchers faced difficulties in analyzing teacher competencies based on subject specifications because the

data on teacher leaders for each subject were insufficient; and (3) Data processing and analysis to develop a fitting model require time and intensive communication between the researchers and statistical experts.

5 Conclusion and implications

Based on the findings, the following conclusions can be drawn: (1) The analysis of the competency levels of TL shows that among the three competencies (literacy, TPK, and self-efficacy), self-efficacy is the competency with an average indicator categorized as high, while literacy and TPK are in the moderate category. (2) The implementation of the TL role and the Emancipated Curriculum is satisfactory. The research results demonstrate that TL have successfully embraced the role of learning leaders and promoters of the wellbeing ecosystem in planning, implementing, and evaluating lessons within the framework of the Emancipated Curriculum. (3) The SEM analysis indicates that the model developed in this study meets the criteria as a well-fitting model that aligns with the data. (4) The hypothesis testing results reveal that, among the three competencies, self-ffficacy has a direct impact on the teacher's leader role and the implementation of the Emancipated Curriculum. Literacy only directly affects the implementation of the Emancipated Curriculum and indirectly influences the execution of the teacher's leader role. Meanwhile, TPK has both indirect effects on the implementation of the teacher's leader role and the execution of the Emancipated Curriculum. The study suggests that the competencies of TL, particularly in literacy and TPK, need further improvement.

Enhancing these competencies can be achieved through continuous professional development (CPD), such as empowering books, workshops, training, and other mentoring activities. This study recommends a professional development model for TL with the acronym MOST (mentor, observe, support, take action) as a stepwise approach to professional development, aligning with the mission of being moved, moving, and moving others. It is hoped that the development of the professionalism of TL can maximize their roles as learning leaders in the implementation of the Emancipated Curriculum in Indonesia.

Recommendations for future research after the development of the MOST (mentor, observe, support, take action) model suggest enhancing teachers' performance through training to improve the competence of teacher leaders in accordance with the motto of teacher leaders "Move, Be Moved, and Move Others" to improve the quality of education in Indonesia. The training follows the stages of the MOST model, supplemented with the CPD-TL workbook and an evaluation instrument for the performance of teacher leaders. These materials can be used as considerations by stakeholders (Teacher Leader Centers) in evaluating the performance of teacher leaders.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Ns. Nurul Huda, M.Kep., Sp.Kep.MB., Ph.D (Ethics Committee, Faculty of Nursing, University of Riau). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

ES: Conceptualization, Data curation, Funding acquisition, Investigation, Writing – original draft, Writing – review & editing. SS: Data curation, Formal analysis, Investigation, Validation, Writing – review & editing. ZH: Conceptualization, Methodology, Resources, Visualization, Writing – original draft. AM: Data curation, Formal analysis, Methodology, Software, Supervision, Validation, Writing – review & editing. PD: Investigation, Project administration, Software, Writing – original draft. NS: Conceptualization, Validation, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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