

Development of a Collaborative Learning-based Teacher Pedagogical Support Model at Vocational High Schools in Palembang: Needs Analysis

Afriany Dina¹, Muhammad Japar¹, Khaerudin¹

¹University Negeri Jakarta, Jakarta, Indonesia

Corresponding author e-mail: dina.afriany@mhs.unj.ac.id

Article History: Received on 8 September 2025, Revised on 6 October 2025,
Published on 19 December 2025

Abstract: The business and industrial sectors increasingly require Vocational High School (SMK) graduates to possess not only strong hard skills but also advanced soft skills. These competencies can only be developed through innovative and contextual learning practices. Many vocational teachers do not create tailored teaching materials that align with the curriculum, meet the needs of the business sector, and consider the characteristics of their students. To address these challenges, the involvement of learning support teacher, particularly School Supervisors and School Principals, is crucial in enhancing the quality of learning in schools. However, there is currently no structured support model that specifically addresses teachers' practices, and School Supervisors are not sufficiently engaged as coaching partners within the schools. From interviews, observations, and a survey of a random sample of 51 teachers from 147 vocational non-educational teachers in Palembang City, the average pedagogical understanding was 55.75, hence immediate measures are needed to address teachers with low pedagogical competence. Considering the varying expertise of each school assistant, the collaboration of learning that combines training and guidance with mentoring and optimises individual and group competencies by providing support in the form of coaching is currently the appropriate strategy.

Keywords: Collaborative Learning, Pedagogical Competence, Vocational High School

A. Introduction

Vocational High Schools produce graduates who are expected to have the skills, character, and mentality to be ready for work, entrepreneurship, or further education, in line with industry demands and the times. One of the recommended learning models to be implemented in Vocational High Schools (SMK) is Project-Based Learning (PjBL) (Maknun & Herman, 2024). Project-based learning (PjBL) is carried out through collaborative learning that creates a richer, more interactive, and effective learning environment capable of improving learning outcomes and developing the social and professional skills of all parties involved. According to (Barkley et al., 2005, p. 5) in the book *Collaborative Learning Techniques*, collaborative learning is learning

carried out by two or more students who work together and share the workload fairly in completing the intended learning outcomes.

Collaborative learning using online social media can facilitate students to become more creative, dynamic, and research-oriented (Ansari, 2020). Collaborative learning can also foster teachers' sensitivity to learning about teaching (Brooke et al., 2025). Collaboration is based on a safe, equal relationship in which opinions and ideas are shared to develop professionalism in a concise manner (Barrett & Zhukov, 2024). Collaborative learning is an equal partnership that provides benefits in terms of results and self-development as well as in the practice of improving professionalism. At SMK Kota Palembang, the average teacher teaching productive subjects is a teacher with a non-educational background (pure science). They have not been equipped with pedagogical knowledge, and they have not yet applied this competency well. This is evidenced by the average understanding of pedagogy score of 55.77. Collaborative mentoring can be effective when school supervisors, principals, and teachers share a sense of responsibility, togetherness, and involvement.

To address the low level of pedagogical competence among productive teachers at vocational schools in Palembang, special mentoring is needed to improve their understanding and pedagogical skills. In this case, learning collaboration involving school supervisors, principals, and teachers is the best option to overcome this problem. Learning collaboration will be carried out by combining *mentoring and coaching* strategies, where this approach ensures that teachers not only receive instructions from *mentoring* but are also encouraged to reflect and formulate their own innovative solutions through *coaching*, resulting in more authentic changes in teaching behaviour. This combination ensures that all challenge teachers face in the classroom is not only overcome with practical advice through *mentoring*, but also transformed into opportunities for self-development through powerful reflective questions and *coaching* solutions.

Mentoring is the provision of support by a *mentor* in certain activities, where there can be more than one mentor (Lunsford et al., 2017, p. 317). Mentoring is not merely a process of giving advice or guidance, but also an interaction focused on mutual learning between mentor and *mentee* (Blaj-Ward, 2023). *Mentoring* is an activity carried out by a mentor in guiding a mentee to develop their competencies, as well as the alignment of perceptions between the mentor and mentee (Kedrowicz, 2025). *Mentoring* is an activity of providing support to individuals to free them from social and financial resource deficiencies (Elisha, 2025). Meanwhile, the purpose of coaching is to provide learning assistance in order to unlock a person's potential to maximise their own performance (Whitmore, 1992, p. 10)(Jonathan Passmore et al., 2013).

Coaching is a partnership between a coach and a coachee to support evidence-based education, reflection and feedback that is specifically designed (Schachner et al., 2024).

Coaching is mutual observation and discussion between peers with the main objective of shared learning (Myrberg et al., 2025). Coaching is a mentoring programme that has the potential to influence student development in various core competencies using a logic model framework, where communication is led by faculty and involves various departments (Jensen et al., 2025). Combining these two techniques in the mentoring process will be highly efficient, as teachers' specific needs are quickly met with expert advice, and at the same time, teachers are trained to become independent problem solvers in the future. It was found that many teachers with a non-education background (pure academics) are still unable to present vocational material in the context of the real world of work or current industry issues. Non-education teachers are not yet able to analyse the current curriculum by analysing existing learning outcomes, determining the operational verbs and content to be used to determine the learning objectives of the existing learning outcomes. This makes it difficult for teachers to vary these learning objectives according to the needs of the business and industrial world. Teachers still find it difficult to shift their role from information deliverers to facilitators and *coaches* for students in project-based learning or problem solving.

Teachers are not accustomed to conducting in-depth post-learning reflection to identify *gaps* and plan innovative pedagogical improvements. Current challenges in the global social environment, particularly in the education system, require teachers to master modern pedagogical methods and technologies (Prosina et al., 2024). Pedagogical competence is holistic in nature, developed in line with the times, such as technological advances and scientific revolutions, including lecturers' abilities in various aspects of learning (Mayasari et al., 2024). Teachers' pedagogical competencies play a significant role in the success of learning through the relationship between one variable and another, namely effective classroom management, effective teaching practices, and technological skills (Oyata et al., 2023). The pedagogical competencies of educators in the era of generative artificial intelligence (GAI) have four basic areas, namely: GAI-supported digital resources, AI-enhanced teaching and learning, AI-enhanced assessment, and empowering learners with AI (Zou et al., 2025). Teachers' pedagogical competencies are the main foundation that determines the success of the learning process and the achievement of educational goals. Pedagogical competencies are core abilities that enable teachers *to not only master* the material (*professional competencies*) but also *convey* that material effectively to students. Currently, there is no specific mentoring model to improve teachers' pedagogical competencies. School supervisors only provide mentoring to school principals; there is no direct mentoring for teachers. This study aims to: (1) diagnose the current state of pedagogical competence among non-education vocational teachers in Palembang, and (2) propose and detail a collaborative learning-based pedagogical support model to address the identified deficiencies.

B. Methods

This research is a needs assessment study as a basis for planning a mentoring model to be implemented by school supervisors. The population in this study was 51 vocational teachers from vocational secondary schools in Palembang, selected at random to represent each vocational secondary school in Palembang from a total of 447 non-educational teachers. The instruments used include a Self-Assessment Questionnaire, a Classroom Observation Instrument (Checklist/ Assessment Scale), and an Analysis of Lesson Plans/Teaching Modules. The data obtained will be analysed using descriptive statistics to identify the highest priority *gaps* in pedagogical competence. The instrument used in this needs assessment study is the learning planning feedback instrument in Table 1. This instrument was developed by the Ministry of Education and Culture of the Republic of Indonesia, through technical guidance from the 2025 in-depth learning facilitators. It uses multiple-choice questions about teachers' understanding of pedagogy. The scale used in the analysis is as follows:

- 0 = none
- 1 = very poor
- 2 = insufficient
- 3 = good
- 4 = very good

Table 1. In-depth Learning Planning

No	Aspects observed	Scale					Critical Comments
		0	1	2	3	4	
Harmony							
1	Learning objectives, learning steps, and learning assessments are already geared towards achieving the Graduate Profile Dimensions						
2	Learning objectives, learning steps, and learning assessments are aligned						
Learning Framework							
3	's pedagogical practices are reflected in the learning steps and/or learning assessments.						
4	The learning environment described is reflected in the learning steps and/or learning assessment						
5	The learning partnerships described are reflected in the learning steps and/or learning assessment						
6	The use of digital technology described is reflected in the learning steps and/or learning assessment						
Learning Steps							
7	Learning steps can facilitate students to experience learning by understanding (actively constructing knowledge in order to deeply comprehend concepts or materials from various sources and contexts). Connecting new knowledge with prior knowledge						

- Stimulating students' thinking processes
 - Connecting with real-life contexts and/or everyday life
 - Providing freedom for exploration and collaboration
 - Instilling moral and ethical values and other positive values
 - Linking learning to the development of students' character
- 8 Learning steps can facilitate students to experience learning APPLYING (applying contextual understanding in real life as part of deepening knowledge)
Connecting new concepts with prior knowledge.
Applying knowledge to real-life situations or other fields.
Developing understanding through further exploration.
Thinking critically and seeking innovative solutions based on existing knowledge.
 - 9 Learning steps can facilitate students to experience REFLECTIVE learning (evaluating and interpreting the process and results of their actions or practical experiences and determining future follow-up actions; as well as managing their learning process independently).
Motivating oneself to continue learning how to learn
Reflecting on the achievement of learning objectives (self-evaluation)
Applying thinking strategies
Possessing metacognitive abilities (self-regulation in learning)
Regulating emotions in learning
 - 10 Learning planning steps can facilitate mutual RESPECT between Teacher-Student, Student-Teacher, Student-Student, as reflected in verbal and nonverbal language
 - 11 The principles of deep learning, which are conscious, meaningful, and/or enjoyable, are reflected in every learning experience in the learning steps.
 - 12 Learning planning has accommodated learning experiences that are appropriate to the characteristics of the learners
- Assessment
- 13 Assessment at the beginning of learning has been carried out to obtain evidence of emotional and mental readiness to learn, prior knowledge, and learning needs of students.
 - 14 Assessments during the learning process have been carried out according to plan to monitor student learning progress and provide feedback for continuous improvement (both from teacher to student and from student to teacher) through a variety of techniques

- 15 Learning outcome assessments are planned to measure competency achievement as evidence of learning success through various methods, including tests, portfolios, projects, presentations, etc.
 - 16 List the advantages of Learning Planning:
 - 17 List the areas that need improvement in Learning Planning:
 - 18 Write down recommendations and proceed with revising the Lesson Plan according to PM principles
-

The pedagogical field measured in this study is lesson planning, with the assumption that successful learning activities must begin with a valid lesson plan.

C. Results and Discussion

From the results of the observation, the learning tools created by the teacher are only used to fulfill administrative requirements, and the learning tools are not developed by considering students' learning styles, so the learning tools do not become a reference for teachers in conducting classroom learning. From the education report of district 7 SMK in Palembang city, the participation in the Merdeka Teaching Platform is generally low, the proportion of resource utilization by schools for quality improvement is lacking, and tends to be unavailable. This indicates a lack of concern among education unit residents in improving learning quality at the school. Based on the interview results with the principal and teachers, it was found that 90% of respondents feel that there is a need for a new breakthrough to support teachers in improving their pedagogical competencies. Based on the results of the survey 51 out of 147 vocational teachers who are non-education graduates, the average understanding level of teachers is 55.75, with a range from 6.67 to 96.67. As shown in the chart below:

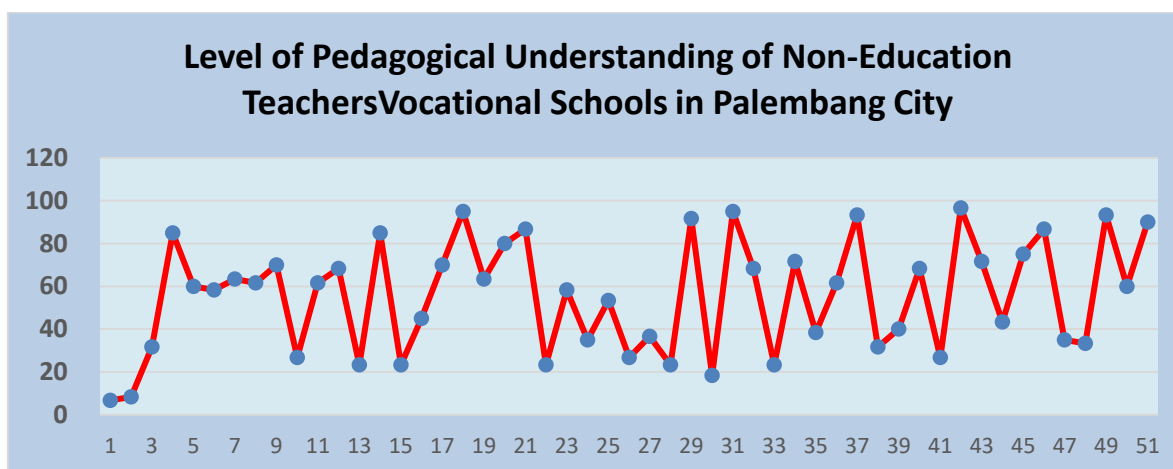


Figure 1. Chart Understanding of the pedagogy of vocational teachers at vocational schools in Palembang

From the diagram above, it can be seen that the understanding of pedagogical skills of teachers in the sample of 51 vocational teachers in Palembang city includes, among other things, a score range of 80 - 100 = 12 people, a score range of 60 - 80 = 15 people, and those who scored below 60 = 24 people.

From the results of the assessment of classroom learning implementation by 145 teachers in sub-districts 7 and 9 of vocational secondary schools in Palembang City in 2024, data was obtained for the preliminary assessment of learning appreciation and motivation with an average of 59.45, for the delivery of competencies and activity plans with an average of 67.79. For core activities, mastery of learning materials averaged 63.28, application of educational learning strategies averaged 72.05, application and scientific approaches averaged 64.97, and utilisation of learning resources averaged 65.38. For closing activities, the average score was 67.31. Thus, the average score for learning implementation in the classroom was 66.75. Looking at the results of the assessment of learning implementation for non-education teachers in Sub-Rayon 7 and Sub-Rayon 9 in 2024, which are still far from a good rating (75-85), 63 people scored below 60, 32 people scored between 60 and 75, 32 people scored between 75 and 85, and 18 people scored above 85-100. There is a need for school supervisors to work with school principals to improve the quality of learning in educational units.

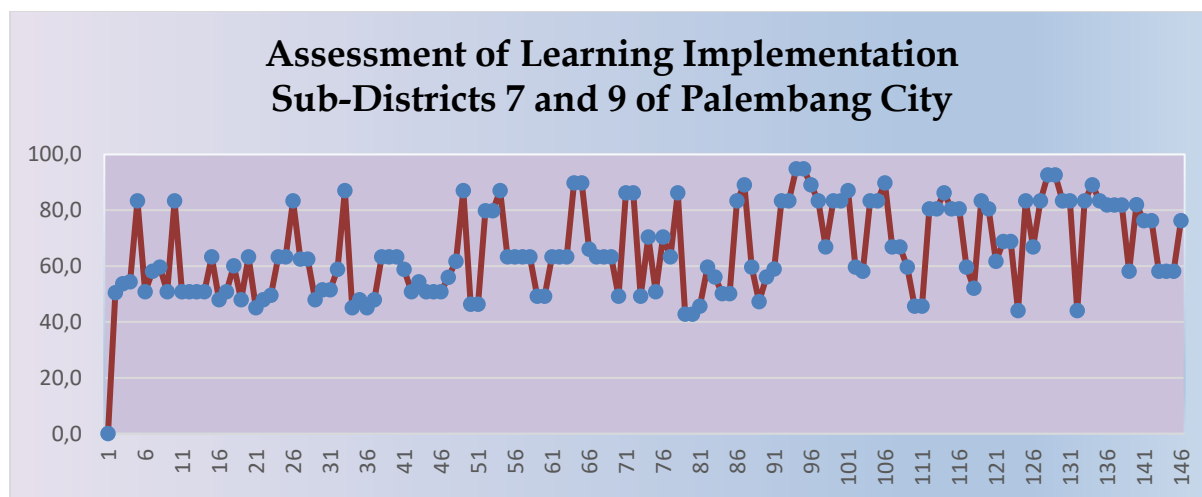


Figure 2. Learning Implementation Assessment Chart

In developing strategies to improve the pedagogical competence of non-education teachers, previous research is needed as a reference for developing a mentoring model. Previous references are used as a reference so that the model developed can be used by school supervisors to assist school principals, and also accepted by non-education teachers as a conscious effort to develop their pedagogical competence potential. Educators focus more on practice, specifically activities that involve

educating and guiding children directly (Langeveld, 1946). Educators can utilize artificial intelligence (AI) to tailor content and learning experiences according to the needs and learning styles of each student (Zou et al., 2025). Innovation in Learning in the form of Massive Open Online Course (MOOCs) video content that contains multimedia content, especially videos, facilitates instructors or supervisors (lecturers or school supervisors) in teaching effectively to improve the pedagogical competence of Indonesian teachers (Sukirman et al., 2022).

During the pandemic era, teachers' competencies in pedagogical and personality aspects greatly support education, especially character education (Hasbiyallah et al., 2023). In order to realize a sustainable future in the world, pedagogy must not be a taboo word in educating future business leaders, third sector organizations, and the public sector with skills, competencies, and knowledge (Feezel, 2018; Mason et al., 2024). Teachers must understand the correct training model in order to improve their pedagogical and professional competence (Erviana et al., 2023). The partnership between family and school is used as teacher education (teacher certification) and has a direct impact on the knowledge, competencies, values, and attitudes of prospective teachers (Williams, 2023). Workshops and capacity-building programs for teachers must be continuously held to enhance the pedagogical competencies of academic staff (Tigma et al., 2024). The principal is responsible for mentoring and supporting teachers in the development of their pedagogical competencies (Setiawan et al., 2025). The initial experience conducted by a coach is a suitable pedagogical introduction for the coachee (Mizushima et al., 2025). Pedagogical competencies include classroom management, planning, teaching, assessment (both general and from a subject-specific perspective), and understanding cognitive, motivational, and emotional factors that regulate the student learning process (Paakkari et al., 2024). Clinical supervision that integrates multicultural values has significant importance, as it has proven capable of accelerating the development of pedagogical, personality, social, and professional competencies (Arifin et al., 2023).

Knowledge of supervisors in training regarding the orientation and assessment of preparedness, as well as arranging and enriching participants' pedagogical practices, varies. This is influenced by three factors, namely the practice of scientific discipline, situational requirements, and clinical preferences in facilitating learning for participants (Noble et al., 2024). Good character is formed through pedagogical pathways, not merely as a result of individual efforts to improve oneself, but is shaped by the educational process and deeper social interactions within the environment (Sunyol & Browning, 2024). Adopting a learning approach that is tailored to the characteristics and interests of students to maximize their development is one of the pedagogical knowledge that teachers must possess (Krisnaresanti et al., 2025). The pedagogical competence of an effective educator, capable of maximizing student development by adjusting teaching approaches (differentiated learning) to match their characteristics and interests. This is realized through the implementation of

interactive methods such as Project-Based Learning (PjBL) and Problem-Based Learning (PBL) to sharpen practical skills. Additionally, they have strong classroom management skills, which are not only for managing students, but also for motivating and fostering entrepreneurial spirit such as being innovative, independent, and willing to take risks. In this pedagogical competence mentoring activity for teachers, mentoring activities will be carried out, but according to (Niazi et al., 2024) mentoring should only be provided to mentees who request it, as forced mentoring will lead to negative outcomes. Therefore, the appropriate form of mentoring is group mentoring, where each group consists of 3-6 people and each group is assigned 1 mentor who also acts as a mentee to enable collaborative learning within the group.

In the development of a mentorship model to improve the pedagogical competence of non-teaching staff at vocational high schools in Palembang, a conceptual model, a procedural model, and a physical model of the mentorship model to be developed are required. The conceptual model of this support model can be seen in figure 3.

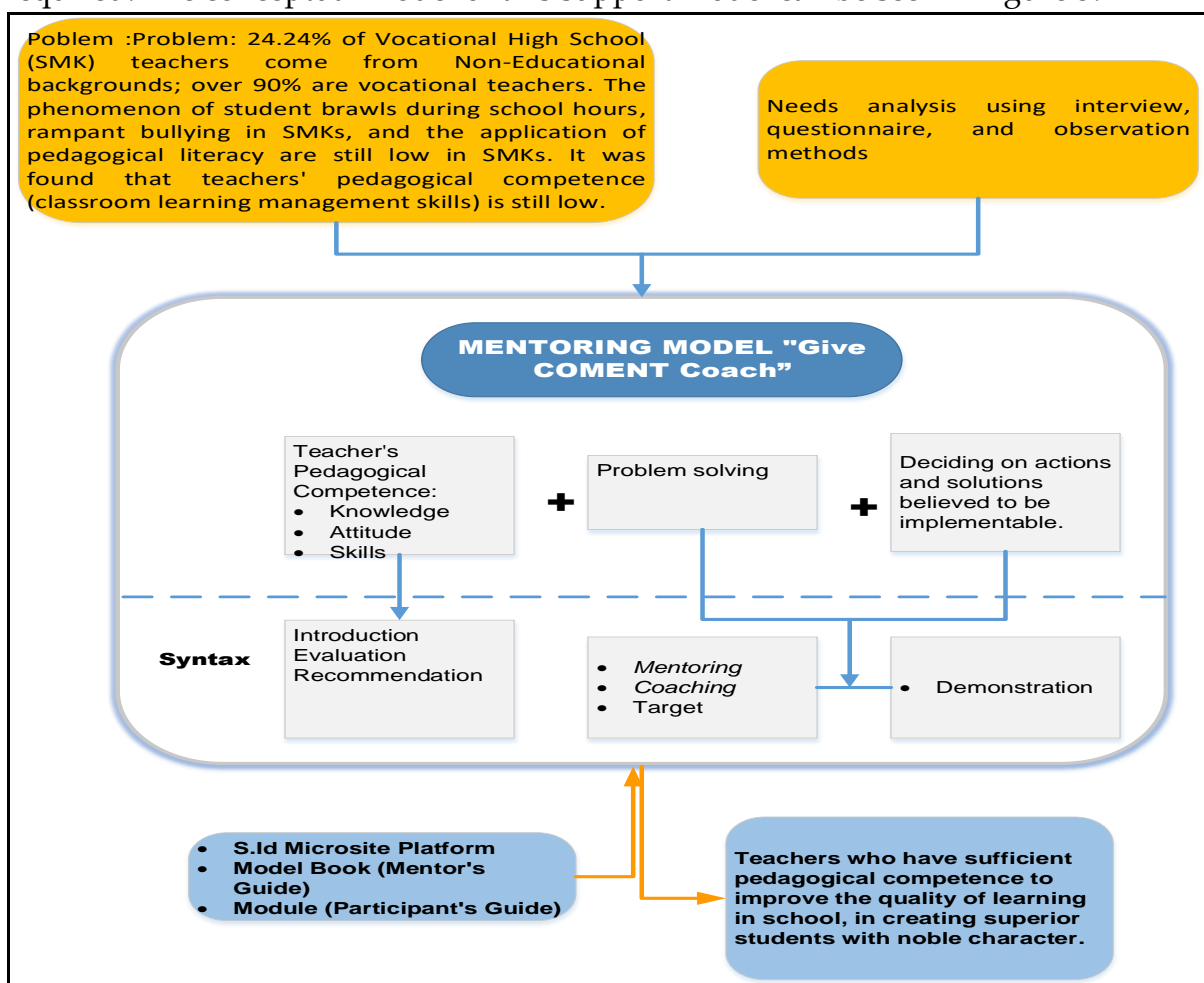


Figure 3. Conceptual Model of Teacher Pedagogical Competency Assistance

For the procedural model of the assistance model developed, see figure 4.

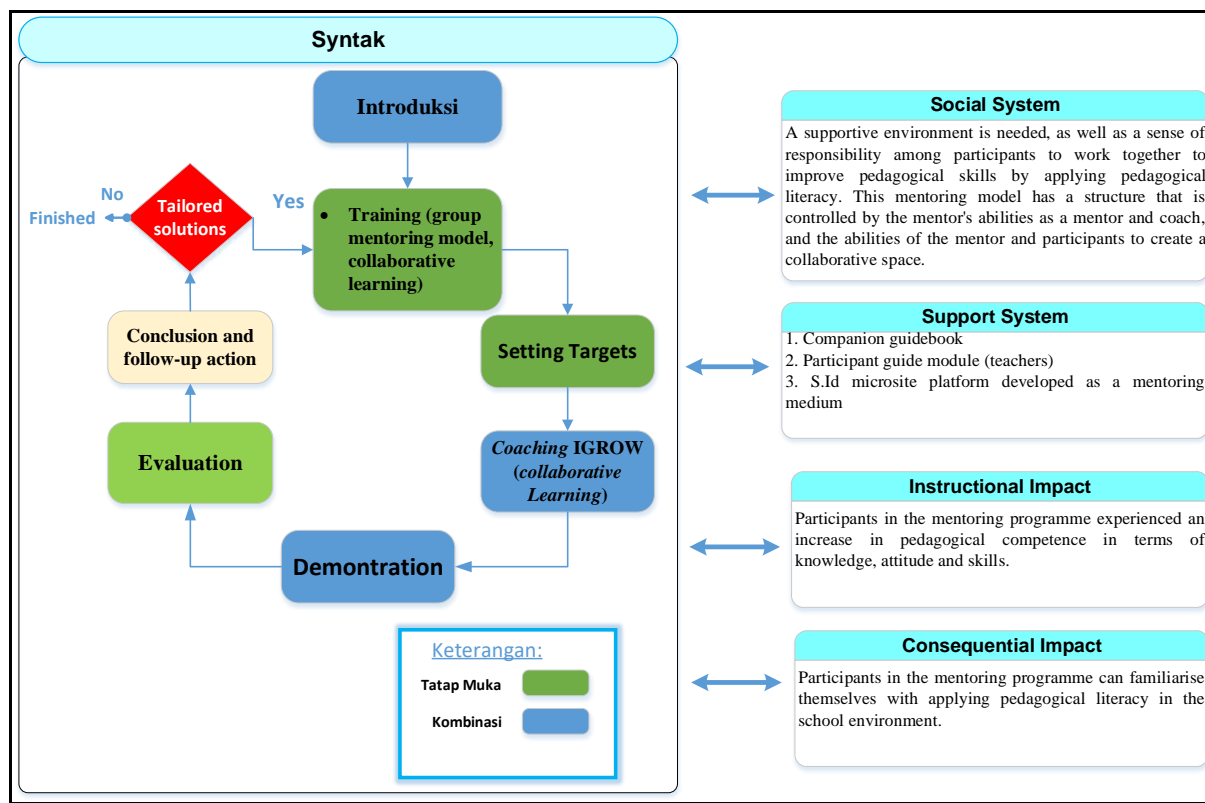


Figure 4. Procedural Model for Assisting Teachers' Pedagogical Competence

In a procedural model, the syntax is developed as a sequence from the supporting model. Syntax developed for the pedagogical competency support model for non-educational teachers, as seen in Table 2:

Table 2. Pedagogical Competency Assistance Model Syntax for Teachers

No.	Syntax	Activity	Purpose
1	Introduction This stage where the accompanying person prepares the participants for assistance For the training activity pretest st	The facilitator provides a summative question to assess the initial pedagogical competence of the participants 2. The facilitator introduces the mentoring model "comment coach" from the mentoring goals, scope of material, targets to be agreed upon by the participants, activities to achieve the targets, evaluation, and follow-up of the mentoring 3. The activity of the facilitator (school supervisor) provides reinforcement regarding pedagogical competence theory	The foundation of knowledge regarding pedagogical competence
2.	Training Group Mentoring	Divide participants into groups of 3-6 people based on their respective vocational fields, with each group being assigned one facilitator (school supervisor). • Each group creates a Learning Objective from the existing Learning Achievement, and	Improving participants' understanding of the pedagogical competencies they must possess

No.	Syntax	Activity	Purpose
3.	Target	<p>arranges it into a Learning Objective Flow.</p> <ul style="list-style-type: none"> • Each group chooses one Learning Achievement from the subject they teach, and develops that Learning Achievement into a lesson plan. • Conduct microteaching based on the discussion results. • Mentors and other groups observe and provide feedback on the teacher's practice. • Conduct joint reflections for improvement. <p>Each group is given the structured task to develop learning devices (syllabus, lesson plan, and teaching materials)</p> <ul style="list-style-type: none"> • Setting targets (agreements) for when to complete the learning devices. 	Deadline for completing the task
4.	Coaching IGROW	<p>Issue (Problem Identification)</p> <p>Participants express the issues encountered in teaching practice</p> <p>Facilitators help formulate the problems more specifically within the context of the classroom and pedagogical competencies</p> <p>Goal</p> <p>Participants set the objectives to be achieved in the development of teaching tools</p> <p>Reality (current condition)</p> <p>Facilitators explore what facts the teachers have already implemented, what has been successful, and what has not been effective</p> <p>Option (alternative solutions)</p> <p>Participants and facilitators engage in open discussion about various available options (teaching methods, media use, assessment approaches, etc.)</p> <p>Encouraging creativity and the uniqueness of each participant</p> <p>Will (commitment and action)</p> <p>Teachers develop an action plan to implement the tools they have developed and express their commitment to execute it</p> <p>Facilitators establish success indicators and a supervision schedule</p>	Having an in-depth understanding of pedagogical competence and when it should be implemented
4.	Demonstration	<p>Participants display their action and reflection outcomes during class supervision or submit a video of learning activities in the classroom via the provided Microsite S.Id link</p>	Practising pedagogical skills
5.	Evaluation of Support	<p>Assistants use the pedagogical competence assessment rubric from classroom supervision or learning video recordings conducted in the classroom, a pedagogical competence question to facilitate evaluation</p>	Applying knowledge and attitudes of pedagogical competence

No.	Syntax	Activity	Purpose
6.	Recommendation	Participants make notes of recommendations for the issues resolved <ul style="list-style-type: none"> The accompanying person responds to the recommendations with the following two steps If the recommendation indicates that additional training is needed to address the issue, the accompanying person will repeat step 2, which is training. If the recommendation indicates that the proposed solution has addressed the issue, the accompanying person will cease training.	Applying knowledge, attitudes, and critical thinking skills.

Besides the conceptual and procedural models, in implementing the supporting model, a physical model is also required. The physical model developed is: (1) Printed support materials include the Participant Support Module, the Teacher Support Module, and the Support Model Book which will be used by the facilitator in implementing the support model, (2) Develop the S.Id Microsite platform, adapted with Google Classroom as an online training and collaboration space application with content developed to support the support model. The S.Id Microsite collaborates with High Tech Teacher Indonesia (HTTI), which is a platform supporting the acceleration of digitalisation in education in Indonesia. High Tech Teacher Indonesia is a platform that has a mission committed to contributing to the advancement of technology in the education sector.

To measure the success of the mentoring model developed, a tool for assessing teachers' pedagogical competence is needed. There are two measurement tools that will be used in this research, namely: (1) observation sheets for the implementation of learning in the classroom; (2) providing Pre-Test and Post-Test questions for assisting participants. The observation sheets are shown in Table 2, while the question grid for the Pre-Test and Post-Test is in Table 3.

Table 3. Learning Implementation Assessment Rubric

Aspect Being Observed	Yes	No	Note
Preliminary Activity			
Perception and Motivation			
1			Preparing the physical and mental condition of students by greeting and giving greetings
2			Connecting current learning materials with students' experiences or previous learning.
3			Ask challenging questions to motivate.
4			Convey the benefits of the learning materials
5			Demonstrating something related to the learning material
Presentation of Competencies and Work Plan			
1			Conveying the skills that students will achieve

Aspect Being Observed	Yes	No	Note
2 Presenting activity plans such as individual, group work, and conducting observations			
Core Activities			
Mastery of the Lesson Material			
1 Ability to adapt the material to the learning objectives			
2 Ability to relate materials with other relevant knowledge, scientific advancements, and real life			
3 Presenting instructional material discussion accurately			
4 Presenting material in a systematic way (from easy to difficult, from concrete to abstract)			
Application of a Pedagogical Strategy for Teaching			
1 Implementing learning in accordance with the competencies to be achieved			
2 Implement sequential learning			
3 Take control of the class			
4 Implementing learning that fosters active participation of students in asking questions			
5 Implementing learning that fosters active participation of students in expressing their opinions.			
6 Implementing learning that develops students' skills in accordance with the teaching material			
7 Implementing contextual learning			
8 Implementing learning that allows for the development of positive habits and attitudes (nurturant effect)			
9 Implementing learning in accordance with the planned time allocation.			
Application of a Scientific Approach			
1 Facilitating and presenting activities for learners to observe			
2 Encouraging students to ask what, why, and how			
3 Facilitating and presenting activities for students to gather information			
4 Facilitating and presenting activities for learners to associate data and information collected.			
5 Facilitating and presenting activities for learners to communicate the knowledge and skills they have acquired.			
Utilisation of learning resources/ media in teaching			
1 Demonstrating skills in the use of various learning resources			
2 Demonstrating skills in the use of educational media			
3 Engaging students in utilising learning resource sources			
4 Involving students in the utilisation of teaching media			
5 Creating an engaging message			
Closing Activity			
End of learning			
1 Facilitating and guiding learners to summarise lesson content			
2 Facilitating and guiding students to reflect on the process and material of the lesson			
3 Administering a verbal or written test			

Aspect Being Observed	Yes	No	Note
4			Compiling work results as portfolio material
5			Carrying out follow-up actions by providing guidance on the next activities and enrichment tasks
Amount			

Table 4. Pre-Test and Post Test question grid

No.	Skill being tested	Scope of Material	Material	Cognitive Level	Question indicator	Form of the Questions	Question number
1.	Participants are able to plan effective learning that meets students' needs.	Creating a lesson plan	Learning planning		Presented are the questions: 1. preparing learning objectives, 2. selecting teaching methods, 3. developing lesson plan, 4. preparing learning media, 5. creating learning materials for students with special needs, 6. managing time in learning, 7. adjusting teaching to students' characteristics, 8. developing assessment for learning, 9. problem-based learning, 10. and utilising technology in teaching.	Multiple Choice (MCQ)	1 2 3 4 5 6 7 8 9 10
2.	Participants are capable of managing the dynamics of the class during the learning process	Carrying out the learning implementation	Implementation of learning		Presented question 1. manage the class dynamics during the learning process. 2. utilise learning media effectively to support the learning process 3. deliver material clearly and effectively 4. interact with students to enhance their understanding and engagement 5. manage time to ensure the learning runs effectively	MCQ	11 12 13 14 15

No.	Skill being tested	Scope of Material	Material	Cognitive Level	Question indicator	Form of the Questions	Question number
					6. adjust methods or learning strategies based on the existing classroom conditions		16
					7. make learning interesting by using a variety of methods		17
					8. address differences in students' ability to learn		18
					9. carry out evaluations to assess students' competency achievement		19
					10. tailor learning to diverse student learning styles		20
3.	Participants are able to perform types of learning assessment evaluations	Conducting an evaluation of the learning assessment	Assessment of learning evaluation		1. Presented questions: understanding and selecting the appropriate assessment types to measure students' competency achievement		21
					2. conducting authentic assessments that reflect students' skills in real-life contexts		22
					3. developing clear and measurable assessment instruments.		23
					4. using performance assessments to evaluate students' skills in completing tasks or projects		24
					5. using portfolios as tools to assess students' development over time.		25
					6. providing feedback through formative assessments to improve students' understanding		26
					7. using rubrics for objective and consistent evaluation		27
					8. using rubrics for objective and consistent evaluation		28
					9. analysing assessment results to determine the effectiveness of teaching and students' needs.		29

No.	Skill being tested	Scope of Material	Material	Cognitive Level	Question indicator	Form of the Questions	Question number
					conducting final assessments that cover the entire competency taught		30
4.	The participant is capable of: Managing the classroom well	Able to manage the classroom	Class management		1. Maintaining order	PG	31
				2. Establishing clear classroom rules			32
				3. Building positive relationships with students			33
				4. Handling late or absent students			34
				5. Time management in teaching			35
				6. Managing student diversity in the classroom			36
				7. Resolving conflicts between students			37
				8. Applying consistent discipline			38
				9. Organising effective classroom activities			39
				10. Addressing students who are not engaged in learning			40
5.	Participants are capable of: Engaging in continuous professional development	Developing a sustainable profession	Continuous Professional Development		1. The Importance of Professional Development for Teachers	PG	41
				2. Participating in Educational Training and Seminars			42
				3. Benefits of Collaboration with Peers			43
				4. Utilising Technology for Professional Growth			44
				5. Self-Reflection for Career Development			45
				6. Applying Innovation in Teaching			46
				7. Using Research-Based Learning			47
				8. Evaluation of Learning for Professional Improvement			48
				9. Participation in Educational Communities			49

No.	Skill being tested	Scope of Material	Material	Cognitive Level	Question indicator	Form of the Questions	Question number
					10. Staying Updated with the Latest Developments in Education		50
6.	Participants are able to: Develop creativity and innovation in learning	Developing creativity and innovation in learning	Creativity and innovation in learning		1. Implementing Creative Learning Methods		51
					2. Integration of Technology in Learning		52
					3. Applying Problem-Based Learning		53
					4. Developing Assignments that Encourage Creativity		54
					5. Using Discussion and Debate Techniques		55
					6. Creating a Learning Environment that Supports Innovation		56
					7. Utilisation of Creative Educational Media		57
					8. Collaboration among Students in Creative Projects		58
					9. Evaluation of Student Creativity		59
					10. Experiential Learning		60

D. Conclusions

Looking at the results of the teachers' pedagogical understanding questionnaire, which remain low with an average score of 55.75 out of 51 vocational teachers in the Non-Educational sector, as well as the interview and observation results of teachers' pedagogical competence in Sub Rayon 07 and Sub Rayon 09 of SMK (Vocational High Schools) in Palembang City. Hasil penilaian pelaksanaan pembelajaran guru Non-Kependidikan tahun 2024 gi dapat data untuk penilaian pendahuluan pembelajaran apresepsi dan motivasi rata-rata 59,45, untuk penyampaian kompetensi dan rencana kegiatan rata-rata 67,79. For the core activities of mastering learning materials, the average is 63.28, for the application of instructional strategies that educate, the average is 72.05, for the scientific approach and implementation, the average is 64.97, and for utilisation of learning resources, the average is 65.38. For the concluding activity, the average score was 67.31. Additionally, based on references from previous research, it can be concluded: (1) a mentoring model involving collaboration between school supervisors and principals to enhance teachers' pedagogical competence needs to be developed, (2) systematic training and mentoring for teachers should be organised to motivate teachers to improve their pedagogical skills, (3) print and online media

containing multimedia content, especially videos that will support mentors (school supervisors and principals) in assisting teachers to improve their pedagogical competence, need to be developed. In analysing the need to develop a model for supporting teachers' pedagogical competencies, it is recommended that further analysis be conducted on the syntax, the observation sheets for assessing learning implementation, and the pre-test and post-test grids used.

E. Acknowledgement

We would like to express my gratitude to or supervisor, who have greatly assisted us in completing this research. We would also like to thank our fellow PhD students in Educational Technology from the 2023 cohort, who have provided motivation, enthusiasm, and time for discussions in completing the writing of this journal. Special thanks to the governor of South Sumatra province for providing us with the opportunity to pursue higher education. We would also like to express our gratitude to our fellow school supervisors, the principal of the Palembang Vocational High School, and all the teachers at the Vocational High School who have assisted us in conducting this research. Thank you also to our family, who have provided encouragement and assistance in completing this research.

References

- Ansari, J. A. N. (2020). Exploring the role of social media in collaborative learning the new domain of learning. *Smart Learning Environments*, 7(1). <https://doi.org/10.1186/s40561-020-00118-7>
- Arifin, S., Sutarna, Aryani, S. A., Prayitno, H. J., & Waston. (2023). Improving The Professional Teacher Competence Through Clinical Supervision Based on Multicultural Values in Pesantren. *Nazhruna: Jurnal Pendidikan Islam*, 6(3), 386-402. <https://doi.org/10.31538/nzh.v6i3.4037>
- Barkley, E. F., Major, C. H., & Cross, K. P. (2005). *Collaborative learning techniques: A handbook for college faculty*. John Wiley & Sons.
- Barrett, M. S., & Zhukov, K. (2024). Enduring impacts of collaborative workplace music mentoring for early childhood generalist teachers, music mentors and students. *Music Education Research*, 26(5), 556-569. <https://doi.org/10.1080/14613808.2024.2416244>
- Blaj-Ward, L. (2023). Conclusion: Sustainable mentoring in academia for and beyond the SDGs. *Mentoring Within and Beyond Academia: Achieving the SDGs*, 117-130.
- Brooke, S., MacDonald, A., & Hunter, M. A. (2025). Becoming Ecological: The Contribution of Collaborative a/r/tography to Generalist Primary Teachers'

- Agency in Arts Education. *Qualitative Inquiry*, 31(2), 201–215.
<https://doi.org/10.1177/10778004241231920>
- Elisha, E. (2025). society in action: insights into volunteer-based community mentoring for reentry support. *Health and Justice*, 13(1).
<https://doi.org/10.1186/s40352-025-00366-0>
- Erviana, V. Y., Ghufron, A., Haryanto, & Retnawati, H. (2023). Validity and Reliability of IoJEPD Model Instruments to Improve Elementary School Teacher Competence. *Pegem Egitim ve Ogretim Dergisi*, 13(2), 200–206.
<https://doi.org/10.47750/pegegog.13.02.24>
- Feezel, J. (2018). The Evolution of Communication Pedagogy. *Journal of Communication Pedagogy*, 1(1), 3–8. <https://doi.org/10.31446/jcp.2018.02>
- Hasbiyallah, Munadi, M., & Nurulhaq, D. (2023). Character Education Model for High School Students during the Pandemic in terms of Pedagogic Competence and Teacher Personality. *International Journal of Instruction*, 16(2), 1077–1094.
<https://doi.org/10.29333/iji.2023.16257a>
- Jensen, R. M., Sasnal, M., Mai, U. T., Korndorffer, J. R., Miller-Kuhlmann, R. K., Morris, A. M., Nassar, A. K., & Gold, C. A. (2025). Implementation and evaluation of a communication coaching program: a CFIR-Informed qualitative analysis mapped onto a logic model. *BMC Medical Education*, 25(1).
<https://doi.org/10.1186/s12909-025-07188-6>
- Jonathan Passmore, by, Peterson, D. B., Freire, T., & Passmore, J. (2013). *The Wiley-Blackwell Handbook of the Psychology of Coaching and Mentoring, First Edition*. Edited The Psychology of Coaching and Mentoring.
- Kedrowicz, A. (2025). The impact of a research mentoring program on graduate trainees' perceptions of mentoring competencies. *Discover Education*, 4(1).
<https://doi.org/10.1007/s44217-025-00531-5>
- Krisnaresanti, A., Naufalin, L. R., & Rokhayati, H. (2025). Identifying Problems in Entrepreneurship Learning at Vocational High Schools: TPACK and Sustainable Development Goals Alignment. In C. Jan, I. Anwer, L. Li, S. Ferse, M. Nishi, & P. Puangprakhon (Eds.), *E3S Web of Conferences* (Vol. 609). EDP Sciences.
<https://doi.org/10.1051/e3sconf/202560905011>
- Langeveld, M. J. (1946). *Beknopte theoretische paedagogiek*. J. B. Wolters.
- Lunsford, L., Crisp, G., Dolan, E., & Wuethrick, B. (2017). Chapter 20: Mentoring in higher education. *The Sage Handbook of Mentoring*, 316–334.
- Maknun, J., & Herman, N. D. (2024). Developing Critical Thinking Skills In Vocational High School Students Through The Application Of Physics Project Team

- Learning Model Integrated With Vocational-Based Worksheets. *Revista de Gestao Social e Ambiental*, 18(7). <https://doi.org/10.24857/rgsa.v18n7-042>
- Mason, K., Anderson, L., Black, K., & Roberts, A. (2024). A Shout-out for the Value of Management Education Research: 'Pedagogy is not a Dirty Word.' *British Journal of Management*, 35(2), 539–549. <https://doi.org/10.1111/1467-8551.12805>
- Mayasari, V., Indyastuti, D. L., & Daryono. (2024). Pedagogic Competence of Lecturers with Non-Educational Backgrounds in the Challenges of 21st Century Learning. *Salud, Ciencia y Tecnologia - Serie de Conferencias*, 3. <https://doi.org/10.56294/SCTCONF2024.996>
- Mizushima, J., Kajitani, R., & Kuki, S. (2025). Negotiating academic and coaching identities: A case study of occupational socialization of a Japanese university track and field teacher-coach. *International Journal of Sports Science and Coaching*, 20(5), 2149–2158. <https://doi.org/10.1177/17479541251349095>
- Myrberg, E., Henningsson, M., Tennerhed, C., Wahlqvist, M., & Liljedahl, M. (2025). How peer coaching can contribute to doctors' development as clinical supervisors: an interview study. *BMC Medical Education*, 25(1). <https://doi.org/10.1186/s12909-025-07660-3>
- Niazi, M., Mahboob, U., Shaheen, N., Gul, S., Saeed, M. H. Bin, & Kiyani, A. (2024). Exploring the factors affecting career progression in informal faculty mentoring sessions within mentor and mentee relationships: a qualitative study. *BMC Medical Education*, 24(1). <https://doi.org/10.1186/s12909-024-06170-y>
- Noble, C., Hilder, J., Billett, S., Teodorczuk, A., & Ajjawi, R. (2024). Supervisory knowing in practice across medical specialities. *Advances in Health Sciences Education*, 29(1), 107–128. <https://doi.org/10.1007/s10459-023-10251-w>
- Otaya, L. G., Anwar, H., Yahiji, K., & Rahmawati. (2023). The Assessment of Fit Data Model Feasibility of the Teachers' Pedagogic Competency Variables. *International Journal of Instruction*, 16(2), 909–926. <https://doi.org/10.29333/iji.2023.16248a>
- Paakkari, O., Kulmala, M., Lyyra, N., Saaranen, T., Lindfors, P., & Tyrväinen, H. (2024). The core competencies of a health education teacher. *Health Promotion International*, 39(4). <https://doi.org/10.1093/heapro/daae078>
- Prosina, O., Kyrychenko, M., Sergeieva, L., & Fedorova, Y. (2024). Exploration of Pedagogical Staff Readiness for Professional Transformation: Analysis of Synchronous Online Focus Group (SOFG) Study Results. *African Journal of Applied Research*, 10(1), 400–417. <https://doi.org/10.26437/ajar.30.06.2024.24>
- Schachner, A., Yun, C., Melnick, H., & Barajas, J. (2024). *Coaching at scale: A strategy for strengthening the early learning workforce*. <https://doi.org/10.54300/984.909>

- Setiawan, D., Triyono, M. B., Sukarno, Nurtanto, M., Majid, N. W. A., & Hamid, M. A. (2025). Assessing pedagogical competence of productive teachers in vocational secondary schools: a mixed approach. *Journal of Education and Learning*, 19(2), 792–804. <https://doi.org/10.11591/edulearn.v19i2.21930>
- Sukirman, D., Setiawan, B., & Riyana, C. (2022). Development of Massive Open Online Courses (MOOC) Content to Improve Indonesian Teachers' Pedagogical Competence: MOOC Technology Instructional Process. *Academic Journal of Interdisciplinary Studies*, 11(6), 255–270. <https://doi.org/10.36941/ajis-2022-0166>
- Sunyol, A., & Browning, P. (2024). The “pedagogy of personality”: Becoming better people in the English language teaching and learning space. *International Journal of the Sociology of Language*, 2024(285), 133–153. <https://doi.org/10.1515/ijsl-2023-0034>
- Tigma, M. Y., Etomes, S., & Ndille, R. (2024). Pedagogic and programmes change and the enhancement of relevance of state higher education system in Cameroon. *Perspectives in Education*, 42(4), 70–100. <https://doi.org/10.38140/pie.v42i4.7891>
- Williams, K. (2023). Bernstein's theoretical-empirical dialectic as a methodological basis for uncovering the social relations of pedagogic communication about family-school partnerships in the initial teacher education curriculum. *International Journal of Research and Method in Education*, 46(2), 133–143. <https://doi.org/10.1080/1743727X.2022.2094357>
- Zou, D., Xie, H., & Kohnke, L. (2025). Navigating the Future: Establishing a Framework for Educators' Pedagogic Artificial Intelligence Competence. *European Journal of Education*, 60(2). <https://doi.org/10.1111/ejed.70117>