# Development Of Pedagogical Competence of Indonesian Primary School Teachers: Merdeka Learning Implementers

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#### Abstract

This research describes the development of driving teacher pedagogical competence. This study aims to describe teachers efforts in developing pedagogical competence, supporting and inhibiting factors in developing pedagogical competence for teachers driving Indonesian elementary schools using the LA (Appreciative Inquiry) approach. In this study, the subjects studied were 37 driving teachers in 25 public and private elementary schools in Klaten Regency. This research uses a descriptive qualitative approach. Data collection techniques through observation, interviews, field notes, and documentation. To check the validity of the data, triangulation of sources and research techniques was used. Data analysis techniques using Cresswell's 4-step analysis model. The pedagogical competency profile of driving teachers to explore pedagogical knowledge based on philosophy and psychology of the development of elementary school age children, based on reflective abilities, understanding and resilience of emotional intelligence has shown a fairly good classification for 42.3% of teachers and a good classification for 57.6% of teachers.

Keywords: Appreciative Inquiry, Driving Teacher, Freedom to Learn, Pedagogical Competence

## INTRODUCTION

Teacher pedagogical competence is the most important and fundamental aspect of the quality of education in Indonesia. The low level of teacher pedagogical competence is directly proportional to the lack of development of teacher pedagogical autonomy in carrying out their functions proportionally and professionally (Dewi, 2021). Various studies ("The Emotional Intelligence and Pedagogic Competence on Self-Efficacy and Teacher Performance," 2021) show that the quality of Indonesian education is still low, even teachers who are certified by regulations cannot be said to be competent teachers.

Pedagogical competence is an absolute requirement for teachers in the era of independent learning. With their pedagogical competence, teachers are able to create conducive and effective classroom learning management (Susilawati et al., 2022). Professional teachers certainly do not just know, but implement the foundations of education and prepare teaching programs to realize quality education(Mukekhe, 2019). Pedagogical competence is one of the four basic competencies that teachers must have (Aswinda et al., 2019). The lack of teacher pedagogical competence in understanding student characteristics has a negative impact on the quality of management of the learning process (Couch et al., n.d.)and the low quality of management of the teacher's learning process in the classroom(Maryani et al., 2022). The teacher's ability to hone educational interactions is due to the training and development programs provided and does not keep pace with the speed of development of science and technology [20]. A teacher's pedagogical competence is integrated into the ability to solve educational problems and has implications for improving the performance and quality of a teacher as a professional learning agent("The Emotional Intelligence and Pedagogic Competence on Self-Efficacy and Teacher Performance," 2021). Reliable teacher pedagogical competence is one of the factors for educational

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success . Therefore, a teacher is expected to have reliable pedagogical skills to be able to meet the independent curriculum.

The Ministry of Education and Culture (Kemmendikbud) finally released the Teacher and School Mobilization program on February 1 2021 with the Independent Curriculum (KurMer). Driving teachers and schools is a package of government initiatives in quality reform. Teachers and Driving Schools are expected to be catalysts in realizing the vision of Indonesian Education to create a generation of lifelong learners (Sariayu & Firman, n.d.). Therefore, the teacher mobilization program is a joint effort to improve teacher pedagogical competence.

There has been a lot of research on teacher pedagogical competency research. Pedagogical competence is an important factor in making students interested so that the learning process is successful. According to M. G. Khalik, "Teachers and their Problems," Kompasiana, Jakarta, 2016 (Puji & Lestari, 2021) low teacher pedagogical competence causes low formation of children's values and character. It is ironic, the reality is that 2.92 million teachers (51%) lack pedagogical competence. Teachers' adaptive abilities in pedagogical and professional terms are very much needed as solution actions are an important key to teacher success in the teaching and learning process (Ganendra, 2019). According to Hilda, through pedagogical competence teachers will be able to compete with globalization (Hanoum & Maulida, 2019). To become superior teachers, teachers need to improve their pedagogical abilities so they are able to guide students in various practical learning activities directly in the field. Research by Kalbaevna [24] found in the socio-pedagogical development of future teachers' competencies an important component of professional training. According to Tri Ani Hastuti (Satriawan et al., n.d.), states that the competencies possessed by teachers are not as expected, as evidenced by the average value of pedagogical competence, there has been no research regarding the development of a driving teacher pedagogical capability model using an appreciative inquiry approach(Sholeh et al., 2021).

This research is expected to contribute to the development of teacher pedagogical competence ("Improving Teacher Performance through Transformational Leadership Development, Pedagogic Competency, and Achievement Motivation," 2019). Based on the background of the problem, the objectives of this research are 1) to identify profiles, 2) to describe teachers' efforts in developing pedagogical competence, 3) to describe supporting and inhibiting factors in developing pedagogical competence for teachers driving Indonesian Elementary Schools using the IA (Appreciative Inquiry) approach.

### METHOD

Based on the research objectives, a descriptive qualitative research method was determined. Data collection techniques through observation, interviews, field notes, and documentation. To check the validity of the data, triangulation of sources and methods was used. Data analysis technique using Cresswell's 4 step analysis model: analyzing and interpreting data, developing data descriptions, analyzing data according to problems, and interpreting meaning. The case studied was the development of pedagogical competence of 37 mobilizing teachers in 25 elementary schools which had different organizational cultural backgrounds, referring to government regulations regarding the pedagogical competence of teachers and mobilizing teachers and also the obligation to follow special rules from the foundation, but the culture of developing pedagogical competence was different.

Karakteristik	Sub Karakteristik	Jumlah	Prosentase (%)
Jenis Kelamin	Perempuan	28	76%
	Laki-Laki	9	24%
Usia	25-35 tahun	13	35%
	36-45 tahun	22	60%
	45-55 tahun	2	5%
Status	PNS	21	57%
	PPPK	1	3%
	GTY	15	40%
Pendidikan	S1 Linier	34	92%
	S2 Linier	3	8%
Masa Kerja	1-10Tahun	6	16%

Table 1. Demographic Table of Motivating Teacher Respon-	dents
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	11-20 Tahun	31	84%
	>20 Tahun	0	0%
Sertifikat pendidik	Bersertifikat	29	78%
	Tidak Bersertifikat	8	22%

The research procedure was carried out by 1) preparatory study, 2) general exploratory study, and 3) special exploratory study. In the preparatory study, the place, object and focus of the research are determined. This is based on obstacles to developing teacher pedagogical competence, relevant literature review, and 3) the orientation of several schools through preliminary studies and determining the location, and objects and focus of research. General exploratory study, carried out with a general assessment related to the development of teacher competency which has been carried out through interviews and global observations. Finally, a special exploratory study begins with data collection, data analysis, checking research results and writing a research report.

Data collection was carried out by 1) in-depth interviews, 2) participant observation, 3) field notes and 4) documentation. The interview techniques used with interviewees are not standardized with question drafts that are not strict (can change). This interview technique was developed with (1) unstructured interviews, somewhat structured interviews, and (3) casual interviews. Participant observation techniques were used to complete the data and test the validity of the interview data. Documentation techniques are used to analyze documents related to the development of teacher pedagogical competence such as photos of teacher activities and portfolios.

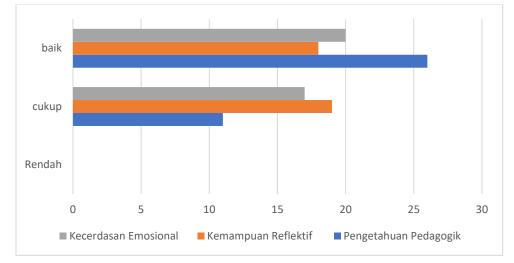
The data presented using diagrams includes data regarding teachers' needs for developing pedagogical competence and factors inhibiting and supporting the development of teacher pedagogical competence using the Appreciative Inquiry approach. In the discussion of the research results, inhibiting factors are linked together with the reasons for the emergence of these inhibiting factors. Apart from that, relevant opinions and theories from other references are also included to support the research results. Conclusions were drawn after a thorough discussion by the researcher. The concluded data is adjusted to answer the problem formulation of this research, so that the conclusions drawn in this research show results that are in accordance with the research objectives.

In this research, the validity of the data uses credibility which is carried out by triangulating sources and methods (Köğce, 2020). Source triangulation of the data validity test in this study was carried out by checking data obtained through several sources. In this study, researchers sought information regarding factors inhibiting the development of pedagogical competence for teachers and school principals. So the results of this research come from various points of view of the subjects studied. Triangulation of methods for testing credibility in this research was carried out by checking data from the same source with different methods. In this research, the results of the interviews that were obtained were matched with the results of documentation in the form of data regarding educators and education staff regarding the development of the pedagogical competence of driving teachers using the Appreciative Inquiry (IA) approach.

## **RESULTS AND DISCUSSION**

### Pedagogical Competency Profile of Driving Teachers

The results of the survey on the need for developing pedagogical competence of driving teachers through an appreciative inquiry approach stated that 100% of research teachers agreed. The pedagogical competency profile of elementary school driving teachers with the initial analysis instrument for measuring pedagogical competence regarding the principles of pedagogical knowledge into the profession for the 37 driving teachers shows that the results are good and need to be maintained. Pedagogical knowledge based on philosophy and psychology of the development of elementary school age children shows a profile of understanding and resilience in the fairly good classification of 30% of teachers and in the good classification of 70% of teachers. Meanwhile, 51% of teachers' understanding and resilience of reflective abilities are in a fair classification and 49% of teachers are in a good classification. Meanwhile, 46% of teachers' understanding and resilience of emotional intelligence are classified as quite good and 54% of teachers are classified as good. It cannot be denied that teachers have an essential role and have a big influence on the quality of learning (Ofte & Duggan, 2020).



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Figure 1 Pedagogical Competency Profile of Driving Teachers

### Efforts to Develop Pedagogical Competency of Driving Teachers

This research describes the efforts of driving teachers in developing pedagogical competence in elementary schools. The efforts of the driving teachers who have been interviewed in the graph show that 15 driving teachers use PMM for learning, KKG and KKG forums, IHT/Workshops and training, webinars, continuing Masters studies, active writing, teacher education, practitioner communities and sharing. good practices to improve the pedagogical competence of driving teachers.

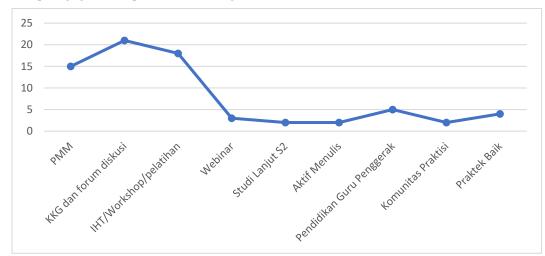


Figure 2 Efforts to Develop the Pedagogical Competence of Mobilizing Teachers

From the results of interviews regarding the needs for teacher pedagogical development of 7 school principals in Klaten Regency on 27 July 2022, the results show that the development of pedagogical competence needs to be developed on a priority scale. Meanwhile, the results of a survey conducted by researchers on 37 driving teachers in 25 state and private elementary schools showed that 100 percent of teachers needed pedagogical development for driving teachers using an appreciative inquiry approach. Schools need superior teacher human resources to produce graduates who are competitive and superior. Several studies state that there is an impact between teacher performance and teacher competence (Virginia et al., 2018) on increasing teacher performance and learning effectiveness (Susilawati et al., 2022) as well as improving the quality of learning (*Teacher Pedagogic Communication for Effective Learning.Pdf*, n.d.). Future superior teachers are able to meet the demands of the 21st Century, have good pedagogical competence so that they are able to build and design learning that supports students (Anggriani, 2019).

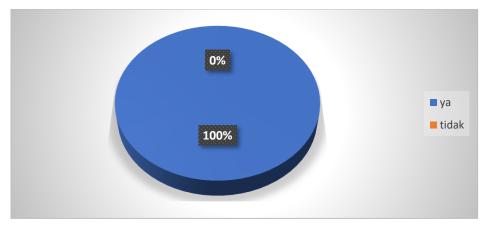


Figure 3: Needs for the Development of Pedagogical Competency for Driving Teachers

## Barriers and Support for the Development of Driving Teachers' Pedagogical Competencies in the Era of Independent Learning

Driving teachers are required to be creative and innovative in designing differentiated learning which is very important. Development of the teacher's professional pedagogical functions, implementation of moral values, which are the basis of socio-pedagogical activities; pedagogical assistance and support for students; close assistance to children in the socialization process (Aswinda et al., 2019). The rapid growth of technology is one of the main causes of shifts in the choice of learning materials (*SCHOOL OF MASTER TEACHER (SMT) TRAINING DEVELOPING TEACHERS' PEDAGOGIC COMPETENCE.Pdf*, n.d.). As a learning leader, a driving teacher with reliable pedagogical competence is a supporting factor in being able to become a learning leader. According to (Sunariati, n.d.), teacher competence in conducting differentiated learning stimulates students to think critically which is very necessary in the era of independent learning.

Barriers to developing teacher pedagogical competence are driven by internal and external factors. Internal factors, namely time management, are the main inhibiting factors experienced by teachers from the results of interviews on August 5 2022. In the development of students, they are still hampered by the distribution of time, making administration, poor time management. We have not been able to implement a differentiated curriculum in teaching and learning because 12 teachers feel there is still not enough time. The conceptual barrier and internal attitude of driving teachers in developing pedagogical competence is a lack of professional efficacy in making the task of collaborating with others seem scary and intimidating. Therefore, schools still need to develop pedagogical competencies for driving teachers.



Barriers to the development of pedagogical competence for driving teachers in the era of independent learning can be seen in the following picture.

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#### Figure 4 Barriers to the development of driving teacher pedagogical competence

Apart from that, teachers experience a lack of assistance, a new curriculum, infrastructure that is not yet supported, many different sources so that perceptions vary, many new teachers, limited references, various talents and different interests. Therefore, through Appreciative Inquiry (IA) teachers plan, follow the process, and take part and gain experience in the entire learning process. All the problems in planning learning and the differences that teachers find in designing project learning make teachers have to develop the potential for imagination, creativity and innovation. According to (Oktaviani, 2021) imagination is a source of creativity that will continue to grow in an atmosphere of freedom. Appreciative inquiry (IA) prioritizes adaptive and effective communication. between teachers. Where every teacher has initiative and positive action in providing contributions and solving problems to support the success of an organization in planning change. The habit of seeking and finding generative rather than destructive images seems to have much greater power (Liestari & Muhardis, 2021).

In inquiry, it is defined as a system of opportunities to see new potential and possibilities regarding the teacher's ability to design learning and look for possible solutions to the obstacles and problems faced. According to (Fatmawati, n.d.), motivation is encouragement caused by the existence of a target, high enthusiasm and the existence of a strong effort to achieve the goal. Appreciative means realizing the greatness of teachers to express strengths, successes and potential in the past or present. This process will be an opening to the process of self-strengthening for teachers to channel the wealth of experience and overall strength they have in creating meaningful learning. The various efforts that have been made by driving teachers to support the development of pedagogical competence are shown in the following diagram.

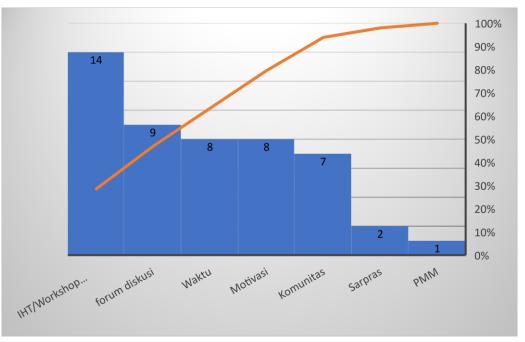


Figure 5 Factors that contribute to the development of Teacher Pedagogical competence

Supporting factors for developing the pedagogical competence of driving teachers in the Independent Learning Era include support from internal schools, learning committees, study groups, colleagues, school psychologists, parents, foundations and the government. The principal as the educational leader provides moral support, adequate school infrastructure, time and material support, technical guidance/training/IHT/workshops by the school, development programs by the school, and various discussion forums.

Based on interviews with driving teachers, it was stated that the principle of Appreciative Inquiry (IA) had been implemented, it was just not documented in the BAGJA draft. Appreciative Inquiry (IA) training needs to be held to be more in-depth and more applicable in the classroom. Various principles of Appreciative Inquiry (IA)

have been implemented, but they are not documented in the Appreciative Inquiry (IA) draft. Teachers need IA training to understand more so that it can be applied in the classroom. At least teachers with IA have tried to share good practices and meaningful learning with teachers, friends and students. Meaningful learning is learning that is able to facilitate students' learning constructively, so that knowledge becomes retained in long-term memory (Mukekhe, 2019). One of the meaningful learning, in the independent curriculum, these driving teachers have implemented the P5 project. To carry out P5 project learning with several disciplines requires a collaborative plan by teachers before the learning process is implemented.

Teachers can see the identification of various teachers from other workplaces, so that by providing references related to learning, it is hoped that the learning process in the future will be more advanced and more inspiring to other teachers. It would be good to always carry out activities to share good practices, both on social media and directly to support the progress of a truly meaningful and independent learning process.

There are many challenges for driving teachers in carrying out positive cultural changes through concrete actions. The role of the school as an organization is to ensure that a positive culture is formed in the character of all school members (Lahza et al., 2023). Constructive positive change in schools is usually gradual. Mobilizing Teachers in mobilizing their community must continue to practice developing themselves, and try to mobilize others, ready to take on responsibility with sincere intentions to realize the school's vision.

Managing positive change in schools of course requires change management, where this management is carried out in 5D stages using the appreciative inquiry (IA) paradigm, namely a collaborative approach in making changes based on positive forces by making teachers the driving force as the change initiative. However, the process of developing leadership for positive cultural change using the unfamiliar appreciative inquiry (IA) approach certainly has challenges or obstacles. According to (Yang et al., 2023)The development of organizational culture is an important factor that can increase school effectiveness, so that the set goals can be achieved. Communication in a co-teaching partnership is essential (Gately& Gately, 2001: Conderman et.al, 2009) A well-developed co-teaching relationship is characterized by teachers collaborating backwards, sharing responsibilities, and using communication skills to move the relationship forward. This phenomenon supports a new concept of a pedagogical competency development model for driving teachers based on Appreciative Inquiry (IA) in the P5 learning process.

### **CONCLUSION**

Based on the results and discussion of the research, it was concluded that the pedagogical competency profile of driving teachers to explore pedagogical knowledge based on philosophy and psychology of elementary school age children's development, reflective abilities and emotional intelligence had shown a fairly good classification. Supporting factors for developing the pedagogical competence of driving teachers in the Independent Learning Era include support from internal schools, learning committees, study groups, colleagues, school psychologists, parents, foundations and the government. The principal as the educational leader provides moral support, adequate school infrastructure, time and material support, technical guidance/training/IHT/workshops by the school, development programs by the school, and various discussion forums. Obstacles in developing professional teacher pedagogical competence are the new curriculum, inadequate infrastructure, time, self-motivation and communication. A teacher development model using an Appreciative Inquiry (IA) approach needs to be developed so that driving teachers continue to be motivated to develop their pedagogical competence as a requirement for 21st Century teachers who are able to build and design learning that supports students with P5.

### REFERENCES

- Anggriani, F. (2019). PENERAPAN STRATEGI PEMBELAJARAN INKUIRI UNTUK MENINGKATKAN KEMAMPUAN PAI SISWA KELAS VIII B SMPN I BENGKALIS. 15(2).
- Aswinda, A., Siraj, A., & Saprin, S. (2019). Effect of Principal Supervision on Teacher Pedagogic Competencies. Jurnal Ilmiah Ilmu Administrasi Publik, 9(1), 95. https://doi.org/10.26858/jiap.v9i1.9331
- Couch, D., Teschers, C., & Devine, N. (n.d.). The Teaching Council, teacher registration fees, and pedagogic incursions: Funding control through taxation?

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- Dewi, I. F. (2021). A Mentoring-Coaching to Improve Teacher Pedagogic Competence: An Action Research. JETL (Journal of Education, Teaching and Learning), 6(1), 1. https://doi.org/10.26737/jetl.v6i1.2270
- Fatmawati, M. (n.d.). Diajukan untuk Melengkapi Tugas-tugas dan Memenuhi Syarat-syarat Guna Memperoleh Gelar Sarjana Pendidikan (S.Pd) Dalam Ilmu Tarbiyah dan Keguruan.
- Ganendra, A. (2019). THE EFFECT OF TEACHER CERTIFICATION PROGRAMS AND EDUCATION AND TRAINING MODES ON IMPROVING PEDAGOGIC COMPETENCIES ON ELEMENTARY SCHOOL TEACHER IN DKI JAKARTA. International Journal, 3(2).
- Hanoum, N., & Maulida, U. (2019). Teacher Pedagogic Competency Contribution on Understanding of Basic School Students in Era of Disruptive Innovation. Proceedings of the 2nd International Conference on Educational Sciences (ICES 2018). Proceedings of the 2nd International Conference on Educational Sciences (ICES 2018), Bandung, Indonesia. https://doi.org/10.2991/ices-18.2019.43
- Improving Teacher Performance through Transformational Leadership Development, Pedagogic Competency, and Achievement Motivation. (2019). International Journal of Managerial Studies and Research, 7(12). https://doi.org/10.20431/2349-0349.0712001
- Köğce, D. (2020). Examining the Changes in Beliefs of Preservice Mathematics Teachers Attending the Pedagogic Formation Program about Teacher and Students Roles. World Journal of Education, 10(2), 89. https://doi.org/10.5430/wje.v10n2p89
- Lahza, H., Khosravi, H., & Demartini, G. (2023). Analytics of learning tactics and strategies in an online learnersourcing environment. Journal of Computer Assisted Learning, 39(1), 94–112. https://doi.org/10.1111/jcal.12729
- Liestari, S. P. & Muhardis. (2021). Teacher Pedagogic Competencies in the Perspective of Students: Based on the 2019 parentteacher support questionnaire, AKSI 2019. International Conference on Educational Assessment and Policy (ICEAP 2020), Jakarta, Indonesia. https://doi.org/10.2991/assehr.k.210423.075
- Maryani, M., Arafat, Y., & Setiawan, A. A. (2022). The Influence of Teacher Education Level and Working Period on Teacher Pedagogic Competence. Journal of Social Work and Science Education, 2(3), 198–207. https://doi.org/10.52690/jswse.v2i3.251
- Mukekhe, S. M. (2019). Assessment Strategies to be Emphasised in Physics Teacher Education for Acquisition of Pedagogic Skills requisite for Effective Secondary School Instruction. International Journal of Innovative Research and Development, 8(6). https://doi.org/10.24940/ijird/2019/v8/i6/JUN19011
- Ofte, I., & Duggan, J. (2020). Peer Feedback In Language Teacher Training: Students' Pedagogic Approaches and Interpersonal Positioning. Nordic Journal of Modern Language Methodology, 8(1), 30–54. https://doi.org/10.46364/njmlm.v8i1.482
- Oktaviani, R. E. (2021). PRINSIP-PRINSIP PEMBELAJARAN BAHASA INDONESIA SD / MI. PENTAS : Jurnal Ilmiah Pendidikan Bahasa dan Sastra Indonesia, 7(1), 1–9. https://doi.org/10.52166/pentas.v7i1.1528
- Puji, R. P. N., & Lestari, R. D. (2021). EVALUATING THE LEVEL OF TEACHER PERFOMANCE: PEDAGOGIC, SOCIAL AND PERSONAL COMPETENCY. Jurnal Pendidikan Sejarah Indonesia, 4(1), 86. https://doi.org/10.17977/um0330v4i1p86-97
- Sariayu, M. R., & Firman, F. (n.d.). DESAIN MODEL PEMBELAJARAN "TIRU (TEMUKAN, IMPIKAN, RANCANGKAN DAN UNGKAPKAN" DI SD.
- Satriawan, W., Santika, I. D., & Naim, A. (n.d.). GURU PENGGERAK DAN TRANSFORMASI SEKOLAH DALAM KERANGKA INKUIRI APRESIATIF.
- SCHOOL OF MASTER TEACHER (SMT) TRAINING DEVELOPING TEACHERS' PEDAGOGIC COMPETENCE.pdf. (n.d.).
- Sholeh, K., Kadaryati, K., Faizah, U., & Wahyono, H. (2021). Multi-intelligence-based literacy learning training to improve teacher pedagogic competence. Community Empowerment, 6(7), 1246–1254. https://doi.org/10.31603/ce.4550
- Sunariati, R. (n.d.). KOLABORATIF APRESIATIF : MENGEMBANGKAN KOMPETENSI IT GURU PROFESSIONAL DI ERA MERDEKA BELAJAR.
- Susilawati, D. T., Prayogo, T., & Santoso, A. S. (2022). Appreciative Inquiry Approach in Limited Face-To-Face Learning at SMAN 1 Pusakanagara. Edunesia: Jurnal Ilmiah Pendidikan, 3(2), 111–121. https://doi.org/10.51276/edu.v3i2.225
- Teacher Pedagogic Communication for Effective Learning.pdf. (n.d.).
- The Emotional Intelligence and Pedagogic Competence on Self-Efficacy and Teacher Performance. (2021). Journal of K6 Education and Management, 4(1), 1–10. https://doi.org/10.11594/jk6em.04.01.01
- Virginia, G., Susanto, B., & Proboyekti, U. (2018). Logical Framework Analysis dan Appreciative Inquiry dalam Perencanaan Strategis Sistem Informasi Manajemen Organisasi. 3(1).
- Yang, Q.-F., Lian, L.-W., & Zhao, J.-H. (2023). Developing a gamified artificial intelligence educational robot to promote learning effectiveness and behavior in laboratory safety courses for undergraduate students. International Journal of Educational Technology in Higher Education, 20(1), 18. https://doi.org/10.1186/s41239-023-00391-9