Cendikia : Media Jurnal Ilmiah Pendidikan, 15 (3) (2025) pp. 220-228
Published by: IOCSCIENCE

Cendikia : Media Jurnal Ilmiah Pendidikan

Optimizing talent class to increase student creativity

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ARTICLEINFO

Article history:

Received Jan 9, 2025
Revised Jan 15, 2025
Accepted Jan 30, 2025

Keywords:

Design Thinking
Project-Based Learning
Society 5.0
Student Creativity
Talent Class

ABSTRACT

This research explores the implementation of the talent class model at SMP Muhammadiyah Plus Gunungpring to foster student creativity. The talent class program, integrated into the school curriculum for the past four years, offers various classes in arts, sports, science and technology, languages, and life skills, catering to diverse student interests. The program involves all 7th and 8th-grade students, with classes held every Saturday for 2 hours. The selection process includes student class choices, assessments by instructors, and guidance from school counselors. The study utilizes a qualitative case study approach, employing in-depth interviews with teachers, students, and the principal, along with classroom observations and document analysis. Findings reveal that the talent class model implementation aligns with student-centered and project-based learning principles. Teachers act as facilitators, providing students the autonomy to explore and develop their talents, fostering a positive learning environment. Students actively participate in discussions, projects, and collaborative activities, demonstrating enthusiasm and a perception of increased creativity. The study identifies supporting factors such as school commitment, dedicated teachers, and student engagement, along with challenges like limited resources and parental involvement. The research concludes that the talent class model effectively fosters student creativity and provides recommendations for program enhancement.

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INTRODUCTION

The Society 5.0 era demands an adaptive and responsive education system to technological developments, capable of producing graduates who not only master scientific knowledge but also possess 21st-century competencies such as creativity (Abdillah & Hamami, 2021). Creativity, defined as the ability to produce something new and valuable (Hidayah et al., 2022), enables individuals to adapt to change, create innovations and compete in the global market. In Indonesia, the development of student creativity is one of the main focuses in the Merdeka Curriculum (Kartika & Wahyuni, 2023), which encourages the implementation of student-centered learning, project-based learning, and the utilization of digital technology to create a learning environment that supports the development of creativity.

One learning model that is relevant to this goal is the talent class. This model places students in specialized classes based on their interests and talents, so that they can optimally develop their creative potential (Elhoweris et al., 2022). SMP Muhammadiyah Plus Gunungpring is one of the schools that implements the talent class model with an innovative approach that integrates design thinking and project-based learning, encouraging students to collaborate, create, and develop innovative solutions to problems in the surrounding environment (Jia et al., 2023). This model is unique because it is integrated into the school curriculum and becomes part of intracurricular learning (Nurfathurrahmah et al., 2020). In addition, the talent class here applies a design thinking approach that trains students to identify problems, find creative solutions, build prototypes, and test them iteratively (Noh & Karim, 2021). Students are given real projects related to issues in the surrounding environment, so that they can apply their knowledge and creativity to create useful solutions.

Talent class models have evolved to incorporate 21st-century skills and address the needs of the Society 5.0 era, integrating technology for enhanced creativity and talent development (Oktradiksa et al., 2021). Platforms such as virtual reality, augmented reality, and artificial intelligence are being utilized in innovative talent class programs globally (Wang et al., 2023). Design thinking has also been integrated into talent class models to foster creativity and problem-solving skills, with research highlighting the benefits and challenges of this approach (Baltador et al., 2021). Recent studies have explored the effectiveness of talent class models in promoting creativity, but further research is needed to analyze the impact of innovative approaches like design thinking and project-based learning on student creativity development (Guaman-Quintanilla et al., 2023).

Although many studies have discussed the talent class model, not many have explored its implementation in Indonesian schools by considering the context of Society 5.0, the integration of digital technology, and a holistic design thinking approach. Previous studies tend to focus on the effect of talent class on academic achievement or talent development in general, while studies on its effectiveness in improving student creativity with innovative approaches, especially those that integrate design thinking with project-based learning in the context of the Merdeka Curriculum, are still limited.

The research results of Sundari et al. (2023) showed that extracurricular activities can increase student enthusiasm and enthusiasm. However, this study has not explored the differences between structured and focused talent classes and general extracurricular activities in terms of effectiveness in increasing student creativity. The talent class at SMP Muhammadiyah Plus Gunungpring has a clear structure and focus, with a curriculum that is systematically organized and integrated with a design thinking approach. Hidayah et al. (2022) mentioned that in efforts to develop children's creative talents, it is necessary to emphasize the importance of synergy between parents, schools, and society. However, this study has not specifically examined how talent classes can be integrated into the school curriculum to support the development of children's creativity systematically. SMP Muhammadiyah Plus Gunungpring integrates talent class in the school curriculum by scheduling talent class activities in a structured manner and requiring grade 7 and 8 students to participate in this program. According to Christian (2021) the Project Based Learning approach shows its effectiveness in improving student creativity. However, there has been no analysis of how this approach can be applied in the context of the talent class to develop students' creativity more deeply and integrated with design thinking. SMP Muhammadiyah Plus Gunungpring applies Project Based Learning in the talent class by emphasizing the development of complex projects and oriented towards solving real problems.

This research addresses the gap in the literature by examining the implementation and effectiveness of an innovative talent class model that integrates design thinking and project-based learning in the context of the Merdeka Curriculum. It focuses on SMP Muhammadiyah Plus Gunungpring, which has uniquely integrated talent class into its curriculum, offering a structured

and focused program unlike general extracurricular activities. The study also explores the systematic integration of talent class within the school curriculum to support the development of children's creativity, going beyond previous research that emphasized the importance of synergy between parents, schools, and society. Furthermore, this research analyzes the application of Project Based Learning in the talent class context, specifically examining its effectiveness in developing students' creativity more deeply and integrating it with design thinking.

This study aims to describe the characteristics of the innovative talent class model applied at SMP Muhammadiyah Plus Gunungpring, analyze the implementation of the innovative talent class model at SMP Muhammadiyah Plus Gunungpring, and measure the effectiveness of the innovative talent class model in improving student creativity. The results of this study are expected to contribute as a talent class implementation model that is relevant to the needs of education in Indonesia in the era of Society 5.0, produce practical recommendations for teachers and schools in optimizing the talent class model for student creativity development, and provide information and empirical data for further research in the field of education and creativity development.

RESEARCH METHODOLOGY

This research uses a qualitative approach with a case study method. Creswell (2017) states that case studies are suitable for exploring phenomena in complex real-life contexts, thus allowing researchers to describe and analyze in depth the implementation of the talent class model at SMP Muhammadiyah Plus Gunungpring.

This research was conducted at Muhammadiyah Plus Gunungpring Junior High School. The research subjects were selected using purposive sampling technique. The criteria for the research subjects were teachers who taught in the talent class, students who attended the talent class, and the principal.

Data were obtained through three techniques, namely in-depth interviews, participatory observation, and document analysis. Interviews were conducted with teachers, students and principals to gain a comprehensive perspective on the implementation of the talent class. Interview guidelines were prepared based on the 4Ps (person, process, press, product) which included questions about the background of the research subject, the process of implementing talent class, supporting and inhibiting factors, and the results achieved. Observations were conducted during the talent class activities to observe student interactions and activities directly. An observation sheet was prepared to record aspects such as student enthusiasm, collaboration skills, and students' creative process in completing the project. Document analysis included curriculum, lesson plans, and talent class activity reports. These documents were analyzed to obtain data on the structure and content of the talent class program.

Data obtained from interviews, observations, and documents were analyzed using thematic analysis techniques by following the procedures outlined by Braun & Clarke (2006). The data analysis process included several stages, namely transcription of interview data, data coding, identification of main themes, and interpretation of findings. The researcher used Atlas.ti software to assist the coding and data analysis process.

To ensure data validity, researchers used source and method triangulation techniques. Source triangulation was done by comparing data obtained from interviews, observations, and document analysis. Method triangulation is done by using various data collection techniques to get a more comprehensive picture of the phenomenon under study (Denzin, 2012).

RESULTS AND DISCUSSIONS

The talent class program at SMP Muhammadiyah Plus Gunungpring is an integral part of the school curriculum designed to develop students' interests, talents, and creativity outside of regular

academic activities. The Talent Class aims to develop students' potential in non-academic areas, increase self-confidence, collaboration skills, and problem-solving abilities (Reis & Renzulli, 2022).

Talent classes are held every Saturday with a duration of two lessons, attended by all students in grades 7 and 8. There are 13 types of talent classes grouped into five main areas: arts, sports, science and technology, languages, and life skills. This diversity of areas and types of classes gives students a wide range of choices according to their interests and talents (Smedsrud et al., 2024).

Selection Process and Placement of Students in the Talent Class

The selection process at SMP Muhammadiyah Plus Gunungpring gives students the freedom to choose a talent class that suits their interests. This is important to maintain student motivation and enthusiasm in participating in activities (Johnsen, 2024). Selection is carried out by trainers with criteria tailored to the type of talent class. For example, the selection for futsal classes is based on basic futsal playing skills, while for public speaking classes through interviews to assess communication skills and self-confidence.

The selection process begins with the registration of students who are interested in joining the talent class. Students fill out a registration form that includes information about their interests and talents. After that, the trainer makes an initial selection based on the registration form and invites students to take a test or interview according to the type of class chosen.

The counseling teacher plays an important role in providing recommendations and considerations based on the student's academic and non-academic history, as well as the results of observations and communication with parents. Psychological aspects of students, such as their level of confidence and adaptability, are also considered in the selection process. Counseling teachers work closely with coaches to ensure that each student is placed in a class that suits their interests and talents and receives the necessary support to thrive.

The quota for each class is limited to ensure effective learning and optimal attention to each student. Each talent class has a limited number of students to allow coaches to provide more intensive and personalized guidance (Maker & Bahar, 2024). This also allows students to be more focused and actively involved in class activities.

Once the selection process is complete, the selected students are announced and placed in the appropriate talent class. The trainer then develops a learning plan that is tailored to the student's needs and potential. These lesson plans include a variety of activities designed to develop students' creativity, skills and knowledge in their areas of interest.

The Trainer's Role in Developing Student Creativity

Coaches at SMP Muhammadiyah Plus Gunungpring play an important role as facilitators, motivators and mentors for students. They not only teach technical skills, but also encourage students to explore new ideas, think critically, and find creative solutions. Trainers provide constructive feedback, helping students to continuously develop and improve their work (Yunarti et al., 2024).

Trainers use design thinking and project-based learning approaches to provide opportunities for students to develop their creativity. This design thinking approach involves students in an iterative process of problem identification, solution search, prototyping, and solution testing (Angelina et al., 2022). This process involves various stages, from understanding the problem, brainstorming ideas, designing, and building prototypes, to testing and improving the project that has been made. Trainers also play a role in creating a supportive and inspiring learning environment. They encourage collaboration between students, so that students can learn from each other and develop teamwork skills. Coaches also provide space for students to experiment and take risks, which are important elements in the creative process.

Talent class coaches at SMP Muhammadiyah Plus Gunungpring also act as models for students. They demonstrate a positive attitude towards learning and creativity, which can inspire

students to follow in their footsteps. Trainers often share personal experiences and provide real-life examples of how they overcome challenges and find creative solutions in their daily lives.

To ensure the effectiveness of learning, trainers conduct regular evaluations of student progress. This includes assessments of students' technical skills, critical thinking skills and creativity. Evaluation results are used to provide specific feedback and help students set higher learning goals (Phafiandita et al., 2022).

Student Outcomes and Achievements in Talent Class

The talent class program at SMP Muhammadiyah Plus Gunungpring has shown very positive results in developing students' creativity and talent. Students actively produce various works, such as artworks, technology products, and art performances. Some students have even won competitions at school, regional and national levels. These achievements show not only the students' technical abilities, but also their creativity and dedication in developing their respective talents (Zen et al., 2022).

Table 1. Championships won by students

Year	International	National	Regional
2022	41	24	64
2023	54	39	56
2024	73	41	72

These achievements show that the talent class program is effective in providing a platform for students to develop their potential and achieve achievements in non-academic fields. In addition, the program also contributes to the improvement of students' self-confidence, communication skills, and ability to work together. Students involved in the talent class reported a significant increase in their self-confidence, especially when they successfully completed projects or won competitions (Hidayat et al., 2023).

The talent class program also helps students develop better communication skills (Lee et al., 2021). Through project presentations, group discussions, and collaboration in teams, students learn to convey their ideas clearly and effectively. These skills are essential in their daily lives and professional futures.

In addition, students' cooperation skills are also improved through talent class activities. Students learn to work in teams, respect the opinions of others, and resolve conflicts in a constructive way. These skills are not only beneficial in an academic context, but also in their social lives.

School Support for the Talent Class Program

SMP Muhammadiyah Plus Gunungpring provides full support to the talent class program. This support is manifested in various forms, such as the provision of facilities, recruitment of trainers, integration with the curriculum, and assessment and evaluation of student learning outcomes in the talent class. This support is very important to ensure the success of the program and the optimal development of student creativity (Suryana, 2018).

Schools provide various facilities that support talent class activities. These facilities include specialized classrooms equipped with the necessary equipment and supplies, such as sports equipment, musical instruments, laboratory equipment and technology devices. The provision of adequate facilities allows students to study and practice comfortably, and develop their talents and creativity to the fullest (Kumala, 2023)1.

The school recruits competent and experienced coaches to ensure the quality of learning in the talent class. Trainers who have specialized expertise and practical experience can provide more effective and inspiring guidance to students. Recruitment of qualified trainers also helps to create a conducive learning environment that supports the development of students' creativity (Fitriani et al., 2024).

The talent class program is integrated with the school curriculum and scheduled in a structured manner every week. This integration ensures that talent class activities are not just an add-on, but an integral part of the daily learning process. Thus, students can develop their talents and creativity without compromising academic performance. This integration also allows students to apply the knowledge they gain in regular classes in talent class activities (Suharti, 2024).

Student learning outcomes in the talent class are included in the report card as one of the assessment components. This assessment covers various aspects, such as technical skills, creativity, ability to collaborate, and achievements. Comprehensive evaluations help teachers and trainers to monitor student progress and provide constructive feedback. Structured assessments also encourage students to continuously improve their abilities and reach higher achievements (Suryana, 2018).

Challenges and Obstacles in the Implementation of the Talent Class Program

Although it has shown positive results, the implementation of the talent class program at SMP Muhammadiyah Plus Gunungpring is not free from challenges and obstacles. One of the main challenges is the limited facilities. Although the school has provided various facilities, there are still limitations in terms of the number and types of facilities available. This can limit students' ability to develop their creativity optimally (Kumala, 2023).

The difference in abilities between students is also a challenge in implementing the talent class program. Students who take part in the talent class have varied abilities and talents, thus requiring trainers to apply differentiated learning methods. Trainers must be able to customize their approach to meet the individual needs of each student, which can be a challenging task (Fitriani et al., 2024).

The difficulty of maintaining student motivation is also an obstacle that is often faced. Some students experience a decrease in motivation over time, especially if they face difficulties in developing their talents. Therefore, trainers need to continue to provide support and encouragement to maintain students' enthusiasm (Suharti, 2024).

The limited time of talent class implementation (two lessons per week) is also an obstacle in developing students' creativity and talents optimally. This limited time can limit the number of activities and projects that can be carried out, so students may not get a deep enough learning experience (Yusuf, 2020).

Factors Affecting the Effectiveness of the Talent Class Program

Some of the factors that influence the effectiveness of the talent class program in improving student creativity at SMP Muhammadiyah Plus Gunungpring include school commitment, quality of trainers, learning approach, learning environment, and parental involvement.

School commitment is very important in supporting the success of the talent class program. Support from the school, whether in the form of providing facilities, recruiting trainers, or integrating with the curriculum, is a key factor in creating a learning environment conducive to the development of student creativity (Suryana, 2018).

The quality of trainers also plays an important role in the effectiveness of the talent class program. Competent, experienced and dedicated trainers can motivate and guide students in developing their creativity. Trainers who have specialized expertise and practical experience can provide more effective and inspiring guidance to students (Fitriani et al., 2024).

Innovative and student-centered learning approaches, such as design thinking and project-based learning, can stimulate students' creativity and problem-solving skills. This approach involves students in the process of problem identification, solution search, prototyping, and iterative testing of solutions (Larasati, 2021).

A conducive, supportive, and fun learning environment can also increase students' motivation and active participation in talent class activities. A positive environment can help students feel more comfortable and motivated to learn and create (Wulandari et al., 2019).

Parents' involvement in encouraging and motivating students also plays an important role in the success of the talent class program. Parental support and involvement can increase students' self-efficacy and motivation in achieving their goals (Fitriani et al., 2024)2.

The findings of this study are in line with several previous studies that show the effectiveness of talent classes in increasing student creativity. For example, research conducted by Larasati (2021) shows that talent classes with a project-based learning approach can improve students' creativity and problem-solving skills.

Study Limitations

This study has several limitations that need to be recognized. First, this study was only conducted in one school, namely Muhammadiyah Plus Gunungpring Junior High School. Therefore, generalization of the findings of this study needs to be done with caution. Second, this study used a qualitative approach with a limited number of research subjects. Third, this research was conducted in a relatively short period of time (one semester) (Creswell, 2018).

Nevertheless, this study still provides a valuable contribution in understanding the implementation and effectiveness of the talent class program in enhancing student creativity. Further research with a broader scale, different research design, and longer research duration is needed to gain a more comprehensive understanding (Denzin, 2017).

CONCLUSION

This study found that the implementation of the talent class model at Muhammadiyah Plus Gunungpring Junior High School succeeded in increasing students' creativity. The program has a clear structure and is integrated with the school curriculum, uses design thinking and project-based learning approaches, and is supported by competent trainers. The results showed that students actively produced various creative works and won competitions at various levels. Full support from the school, including the provision of facilities, recruitment of trainers, and integration with the curriculum, was crucial in the success of this program. However, there are some challenges such as limited facilities, differences in ability between students, and limited time for implementation. This research makes an important contribution in understanding how talent class programs can be effectively implemented to develop students' creativity in the Society 5.0 era. The implications of this study include practical recommendations for schools and teachers in optimizing the talent class program. Limitations of this study include limitations in the generalizability of the findings and the short duration of the study. Future research could expand the scale of the study, use different research designs, and extend the duration of the study to gain a more comprehensive understanding. The contributions of this paper have explicitly answered the research questions and provided valuable insights for the development of education in Indonesia.

References

Abdillah, K., & Hamami, T. (2021). Pengembangan Kurikulum Menghadapi Tuntutan Kompetensi Abad ke 21 di Indonesia. *JURNAL PENDIDIKAN ISLAM AL-ILMI*, *4*(1). https://doi.org/10.32529/AL-ILMI.V4I1.895

Angelina, K., Sutomo, E., & Nurcahyawati, V. (2022). Desain UI UX Aplikasi Penjualan dengan Menyelaraskan Kebutuhan Bisnis menggunakan Pendekatan Design Thinking. *TEMATIK*, *9*(1), 70–78. https://doi.org/10.38204/TEMATIK.V9I1.915

Baltador, L. A., Grecu, V., & Pentescu, A. (2021). Using Design Thinking to Redesign the Educational Experience. *MATEC Web of Conferences*, *343*, 11009. https://doi.org/10.1051/matecconf/202134311009

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.

Christian, Y. A. (2021). Meta Analisis Model Pembelajaran Project Based Learning terhadap Kreativitas dan Hasil Belajar Siswa di Sekolah Dasar. *EDUKATIF: JURNAL ILMU PENDIDIKAN*, *3*(4), 2271–2278. https://doi.org/10.31004/EDUKATIF.V3I4.1207

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Denzin, N. K. (2012). Triangulation 2.0*. *Http://Dx.Doi.Org/10.1177/1558689812437186*, *6*(2), 80–88. https://doi.org/10.1177/1558689812437186

Elhoweris, H., Alhosani, N., Alsheikh, N., Bacsal, R. M. G., & Bonti, E. (2022). The Impact of an Enrichment Program on the Emirati Verbally Gifted Children. *Journal of Intelligence*, *10*(3), 68. https://doi.org/10.3390/JINTELLIGENCE10030068/S1

Guaman-Quintanilla, S., Everaert, P., Chiluiza, K., & Valcke, M. (2023). Impact of design thinking in higher education: a multi-actor perspective on problem solving and creativity. *International Journal of Technology and Design Education*, *33*(1), 217–240. https://doi.org/10.1007/S10798-021-09724-Z/TABLES/7

Hidayah, A., Istiningsih, S., & Widodo, A. (2022). Pentingnya Pengembangan Bakat dan Kreativitas Anak Usia Sekolah Dasar. *Jurnal Pembelajaran, Bimbingan, Dan Pengelolaan Pendidikan*, *2*(12), 1151–1159. https://doi.org/10.17977/UM065V2I122022P1151-1159

Hidayat, A. Z., Zulaikha, S., & Rochanah, S. (2023). EVALUATION OF STUDENT INTEREST AND TALENT DEVELOPMENT PROGRAM AT YASPORBI 1 ELEMENTARY SCHOOL. *International Education Trend Issues*, *1*(2), 143–152. https://doi.org/10.56442/IETI.V1I3.196

Jia, L., Jalaludin, N. A., & Rasul, M. S. (2023). Design Thinking and Project-Based Learning (DT-PBL): A Review of the Literature. *International Journal of Learning, Teaching and Educational Research*, *22*(8), 376–390. https://doi.org/10.26803/IJLTER.22.8.20

Johnsen, S. K. (2024). Finding Talent: An Overview of Research about Best Practices in Identification. *Education Sciences 2024, Vol. 14, Page 1027*, *14*(9), 1027. https://doi.org/10.3390/EDUCSCI14091027

Kartika, R. P., & Wahyuni, A. (2023). Impact of Flipped Classroom on Elementary Students' Creative Thinking in the Merdeka Curriculum. *Jurnal Ilmu Pendidikan (JIP) STKIP Kusuma Negara*, *15*(1), 91–101. https://doi.org/10.37640/jip.v15i1.1800

Lee, L. E., Meyer, M. S., & Crutchfield, K. (2021). Gifted Classroom Environments and the Creative Process: A Systematic Review. *Https://Doi.Org/10.1177/01623532211001450*, *44*(2), 107–148. https://doi.org/10.1177/01623532211001450

Maker, J., & Bahar, K. (2024). Talent development in inclusive classrooms: An analysis of student growth. *Australasian Journal of Gifted Education*, *33*(2), 28–56. https://doi.org/10.21505/ajge.2024.0013

Noh, S. C., & Karim, A. M. A. (2021). Design thinking mindset to enhance education 4.0 competitiveness in Malaysia. *International Journal of Evaluation and Research in Education*, *10*(2), 494–501. https://doi.org/10.11591/ijere.v10i2.20988

Nurfathurrahmah, Indra Jayanti, M., & Ariyansyah. (2020). Pengaruh Model Pembelajaran Berbasis Project Based Learning (PjBL) Untuk Meningkatkan Kemampuan Berpikir Kreatif dan Sikap Kooperatif Mahasiswa. *ORYZA (JURNAL PENDIDIKAN BIOLOGI)*, *9*(2), 8–13. https://doi.org/10.33627/OZ.V9I2.380

Oktradiksa, A., Bhakti, C. P., Kurniawan, S. J., Rahman, F. A., & Ani. (2021). Utilization artificial intelligence to improve creativity skills in society 5.0. *Journal of Physics: Conference Series*, *1760*(1). https://doi.org/10.1088/1742-6596/1760/1/012032

Phafiandita, A. N., Permadani, A., Pradani, A. S., & Wahyudi, M. I. (2022). Urgensi evaluasi pembelajaran di kelas. *JIRA: Jurnal Inovasi Dan Riset Akademik*, *3*(2), 111–121.

Reis, S., & Renzulli, J. (2022). *The Schoolwide Enrichment Model: A Talent Development Approach Resulting in Opportunities, Resources, and Encouragement for All Students* (pp. 39–57). https://doi.org/10.4018/978-1-7998-8153-7.ch004

Smedsrud, J. H., Bungum, B., & Egeland Flø, E. (2024). Gifted students' experiences with participation in enrichment programs at talent centers in Norway. *Scandinavian Journal of Educational Research*. https://doi.org/10.1080/00313831.2024.2394388

Sundari, S., Syafii, M., Adrijanti, A., & Anis, F. (2023). Pengaruh Kegiatan Ekstrakurikuler terhadap Motivasi Belajar Siswa. *JIIP - Jurnal Ilmiah Ilmu Pendidikan*, *6*(1), 338–342. https://doi.org/10.54371/JIIP.V6I1.1487

Wang, S., Meng, J., Xie, Y., Jiang, L., Ding, H., & Shao, X. (2023). Reference training system for intelligent manufacturing talent education: platform construction and curriculum development. *Journal of Intelligent Manufacturing*, *34*(3), 1125–1164. https://doi.org/10.1007/S10845-021-01838-4/TABLES/6

Yunarti, T., Mutiarani, A., & Zariyatan, I. N. N. L. (2024). Strategi Umpan Balik yang Membangun Hubungan Positif Antara Guru dan Siswa: Kajian Pustaka. *Prosiding Seminar Nasional Pendidikan FKIP Universitas Lampung*, 677–685. http://e-jurnal.fkip.unila.ac.id/index.php/prosem/article/view/569

Zen, Z., Reflianto, Syamsuar, & Ariani, F. (2022). Academic achievement: the effect of project-based online learning method and student engagement. *Heliyon*, *8*(11), e11509. https://doi.org/10.1016/j.heliyon.2022.e11509