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Article

Multiple Intelligences and Student Self-Regulated Learning Based on Teacher Professionalism

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ABSTRACT

Professionalism has an important role to play in creating an effective learning environment and improving student achievement. In this context, multiple intelligences and student learning independence are considered as factors that have the potential to influence teacher professionalism. However, research on the relationship between multiple intelligences and student learning independence and science teacher professionalism is still limited, especially at the secondary education level. This study aims to analyze the relationship between multiple intelligences and student learning independence on science teacher professionalism. This study used a quantitative design using multiple intelligence assessment instruments and student learning independence, as well as science teacher professionalism assessment instruments. The research sample consisted of 62 science teachers and students at several secondary schools in Subang Regency. The results show that there is a negative correlation (-0.208) on the multiple intelligences variable and there is a positive correlation (+0.132) on the learning independence variable. The results of the F test show a significance value of 0.411 > 0.05 so there is no relationship between the two variables on the professionalism of science teachers. Teachers need to understand the diversity of students' intelligence and encourage their independent learning. The implication of this research is the importance of developing training programs for science teachers in integrating appropriate approaches to improve professionalism and student learning outcomes.

INTRODUCTION

The interaction between teachers and students is a major part in the field of education for the welfare and influence of teachers on the classroom learning atmosphere (Falcon et al., 2023). Various methods and theories have been developed to increase the effectiveness of teacher professionalism. An important approach is to understand students' intelligence and apply learning strategies that are tailored to their individual needs (Lismaya, 2020). The theory of multiple intelligences put forward by Howard Gardner in 1983 proposed the idea that individuals have various types of intelligence, such as linguistic-linguistic, logical-

mathematical, visual-spatial, musical, kinesthetic, interpersonal, introspective and naturalist intelligence (Armstrong, 2018). Education plays an important role in forming a competent and qualified generation. As the main agent in the learning process, the teacher's role is crucial in achieving quality education goals. However, the challenges faced by teachers in meeting the complex demands of modern education are growing. Entering the 21st century which is increasingly interactive and digital literacy which has many benefits in the field of education is currently in the spotlight of many groups. One of the benefits of the development of science and technology is that the development of thinking power in children, especially at the age of middle school children, is becoming more rapid. As in Class Rwanda (Nkundabakura et al., 2022) which provides mathematics and science learning using modernized tools and innovative learning methods. For example, studies (Hossain, 2023) interaction between teachers and smartphone-based students significantly influences academic professionalism. Thus, a good education does not only emphasize logic (mathematics) and language skills (Susanto et al., n.d.). Therefore, multiple intelligences generally work together in complex ways in their daily lives, so they need to be properly stimulated (Musfiroh, n.d.).

The development of ways of thinking that are always trained on students will have an impact. The positive impact of training students' ways of thinking can stimulate multiple intelligences that are innately owned by each student. However, often this multiple intelligence is not realized by students. It becomes a problem if multiple intelligences cannot be optimized in such a way. The role of educators as facilitators in schools can be carried out together to create real experiential situations in the process of student learning involvement (Abimanyu S, 2008). Intelligence that will be the foundation in creating an effective product or offering a service that is valued in a culture. Of course it is also possible for someone to solve problems in life, and the potential to find solutions to problems involves gathering new knowledge (Armstrong, 2018). Understanding students' multiple intelligences can help teachers design learning strategies that are more diverse and in accordance with student learning styles (Dignath C & Veenman, 2021). In addition, the concept of independent learning or self-regulated learning is also an important factor in increasing the effectiveness of student learning (Yan, 2020). Independent learning refers to students' ability to regulate, control and monitor their own behavior, as well as their own learning process. Students with good self-regulated learning skills tend to have high motivation, manage time well, have effective learning strategies, and able to overcome learning barriers (Choo K.A & Anthonysamy, 2021). Against this background, this study aims to explore the relationship between multiple intelligences and student learning independence with the effectiveness of teacher professionalism.

Talking about the formation of environments and situations that support the development of students' mindsets, learning strategies or approaches that are fun and of course meaningful are needed. Meaningful learning will provide a more memorable experience to get results from their own understanding and discovery (Nurmiyati & Dwiastuti Khasanah, 2016). The implementation of meaningful learning will have an impact on changes to make education in a better direction, the quality can be improved through improving the quality of learning, the effectiveness of learning methods, improving the curriculum, increasing teacher competence, improving learning facilities and infrastructure, as well as adequate teaching materials (Lismaya, 2020). For example, in terms of short formative assessments, it turns out that it can also influence teachers to evaluate their performance (Oudman et al., 2023). The case in Mexico found that it was necessary to consider when compiling the curriculum by taking into account the background and previous experiences of students, so that the multiple intelligences of students needed to be implemented in the curriculum (González-Treviño et al., 2020). In line with the previous statement, the curriculum as a plan (as a plan) will be a guide in achieving its goals (Sunan et al., n.d.). But often to create a comfortable atmosphere as expected by every educator is constrained by the nature and character of each student. Of course, this cannot be

separated from the intelligence of each student to achieve an educational goal. There have been many studies that found a correlation between students' intelligence test scores and achievement results at school (Benson NF & Kranzler J. H, 2016) which stated the results that the findings were strong and also the correlation between intelligence and achievement test scores was in large-scale assessments. So that the findings state in general that smarter students can learn more easily, are better at dealing with new material, and can transfer skill knowledge in every new learning situation.

Conditions that show students can excel through their multiple intelligences need to be balanced with professionalism that can support this. Teachers who understand and are able to recognize the diversity of student intelligence can adapt teaching methods that suit their learning styles consistently with the differences of each student (Alsalhi, 2020). However, challenges arise when teachers do not fully understand this diversity and have difficulty integrating approaches that pay attention to multiple intelligences in learning. It can be seen through students with unique patterns of strengths and weaknesses in skills at school, so that it becomes a challenge for a teacher in providing treatment and applying the theory of multiple intelligences in a balanced way (Al-Qatawneh et al., 2021). Why is the role of a teacher so important? Teachers as social beings who most often interact with their students to provide direction to achieve the expected educational goals. Plays an important role in improving relationships with students and colleagues in setting a good example (Saugadi & Noldi, 2020). Therefore, intellectual factors will greatly influence the achievement of teacher professionalism. Then, it is not only these factors that determine achievement and professionalism in the world of education. It is suspected that teacher motivation has changed due to communication interactions between teachers in their workplace. If the working conditions, relationships between teachers, relations with superiors and official policies are not in accordance with them then their morale will drop with low professionalism otherwise. As the findings (Cahyo et al., 2022) suggest that the work environment and leadership style can also affect teacher professionalism. That's not only from an intellectual or skill aspect but also from emotional intelligence that can affect professionalism (Hasyim M, 2020). The results of the study (Muslimin, 2020) show that teachers who are certified to provide training or guidance to their students only have a small amount of time and are limited, so that it can be a challenge for teachers in their performance.

In addition, learning independence is also an important factor in increasing teacher professionalism. Learning independence includes students' ability to take initiative, manage their own learning, and continue learning throughout life. As stated by (Barrientos-Fernández et al., 2019) the relationship of musical intelligence can help organize and plan students' studies by increasing learning independence. Supported by the results of research (Ambarsari et al., 2022) suggests that the method of applying lexical aspects in songs can also be material for honing verbal intelligence into varied learning. This means that it can support spontaneous learning independence of students and their motivation becomes better. As the findings (Sulistiyani, 2012) which suggests that between self-concept and learning independence can boost motivation in achievement. For teachers, independent learning means being able to develop themselves professionally, keep abreast of the latest developments in education, and apply innovative teaching methods. However, independent learning is not an easy skill to develop and it can be a challenge for teachers to find resources, support, and an environment that encourages independent learning. As (Saint et al., 2022) put forward the concept of self-directed learning based on certain learning objectives so that students have the right to choose the path they face with their external and internal conditions. Can be trained through an online learning system so that it can be well personalized for students in increasing their knowledge independently (Ingkavara et al., 2022). Of course, with the development of AI technology that can be utilized by students with hybrid intelligence and practicing independent learning can

also be combined in optimizing learning (Molenaar, 2022). In this case, an in-depth understanding will be carried out to be able to identify strategic steps to increase professionalism in achieving better educational goals.

In fact, in the field there have been many teachers who have attended training related to teaching media, science curriculum development, evaluation or assessments that support science learning, but reviewing good science learning outcomes is not necessarily the main factor that supports science professionalism. Therefore, this paper will carefully discuss the relationship between variables related to science professionalism in order to create inclusive, effective and innovative learning. Of course this is through collaborative efforts because this approach is taken in order to understand and supervise its performance.

METHODS

This quantitative research was conducted through a survey method with a questionnaire. A total of three questionnaires distributed with a Likert scale of 1-5 were used as instruments for measuring multiple intelligences, self-regulated learning and teacher effectiveness. This is a schematic of the research flow carried out in Figure 1.

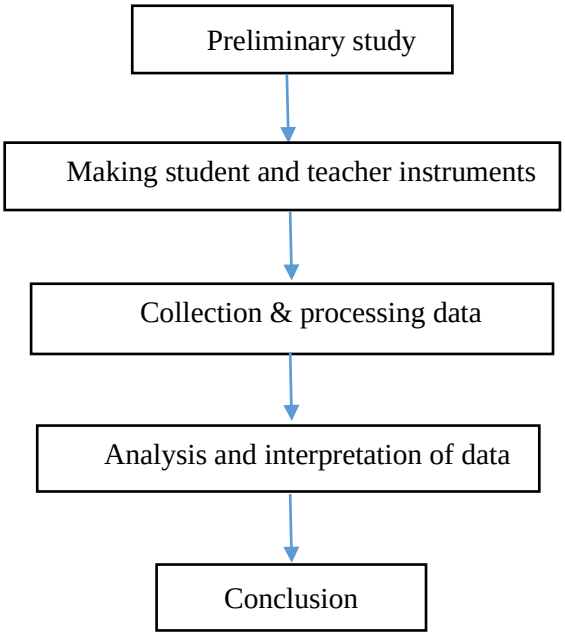

Figure 1. Schematic of the Research

The object of research were 62 teachers and 62 students at MTsN Kab. Subang. The research was conducted in the even semester of the 2022/2023 academic year. The research data was then processed using multiple regression in SPSS 26. The questionnaire instrument grids used are listed in Table 1.

Table 1. Indicator of Instruments

No.	Aspects Assessed	Number of Statements	Rating Score
1.	Multiple Intelligences Students	25 statements	1-5
2.	Self-Regulation Learning	30 statements	1-5
3.	Teacher Effectiveness	25 statements	1-5

RESULTS AND DISCUSSION

Results based on testing the data obtained through the respondents, the data results are normally distributed by paying attention to the probability plot graph where the values are distributed close to the diagonal line. The relationship between multiple intelligences (X_1) and self-regulated learning (X_2) variables on professionalism (Y). Based on the results of the histogram, the residual values form a normal curved curve like a bell. Strengthened by the

results of the normality test showing a significance value of 0.200 so that the assumption of residual data is normally distributed. Then the next test to find out whether there are symptoms of multicollinearity is then reviewed on the results of the analysis of the multicollinearity tolerance value of X_1 and X_2 of 0.993.

The Scatterplot graph shows that the distribution of data between variables X_1 and X_2 on the dependent variable of professionalism spreads well above and below the Y axis at number 0. This indicates that there are no symptoms of heteroscedasticity, thus fulfilling the equation of a good regression model. The output results to support the heteroscedasticity symptoms can be determined through the Glejser test with a significance value at X_1 indicating $0.632 > 0.05$. While the significance value at X_2 shows that $0.194 > 0.05$. This means that both variables meet the requirements for a significance value of >0.05 with the interpretation that there are no symptoms of heteroscedasticity. There is a test of the autocorrelation value to characterize that the regression equation model meets the assumptions proven by detailing the Durbin-Wartson value. Based on the results of the analysis to get a d value of 1.848. To fulfill this assumption, the value of d must be between the value of dU and 4 – dU. The dU value was obtained based on the Durbin-Wartson value table with a significance level of 5% with n = 62 samples and k = 2 (for the two independent variables in the study) which was 1.6561. For a value of 4 – dU of 2.152. Then it can be written as follows, $1.6561 < 1.848 < 2.152$. It can be concluded that the value of d is between the value of dU and 4 – dU.

In testing a good multiple regression model, it has fulfilled the assumption tests in the form of residual normality, multicollinearity, heteroscedasticity, and autocorrelation. Then all the assumptions have been fulfilled and will test whether there is a relationship between the independent variables and the dependent variable. Between variable X_1 (multiple intelligence) and science professionalism, a significance value of $0.249 > 0.05$ means H_0 is accepted. This means that there is no relationship between the multiple intelligences of students and science professionalism. So the regression equation is obtained as follows.

$$Y = 85.368 – 0.208\ X_1 + 0.132\ X_2$$

The coefficient on the variable X1shows a negative coefficient number which contrasts between the multiple intelligences of students and teacher professionalism. If multiple intelligences increase, it will be inversely proportional to science professionalism. If analyzed in depth, then this could occur due to several influencing factors. The first factor is the teacher's challenge in adjusting teaching. This can happen due to the multiple intelligences of students who are so complex and have different preferences, so that teachers still find it difficult to deal with it in adjusting their teaching methods in the classroom. Of course this can result in a mismatch of teaching methods to the multiple intelligences of these students which affects teacher professionalism.

The second factor that allows the correlation value between multiple intelligences and professionalism is the teacher's lack of understanding of the multiple intelligences themselves. Therefore, not all teachers can fully understand the multiple intelligences possessed by students so that they can be developed optimally. So this factor can have an impact on the negative correlation coefficient values in the interaction of learning in the classroom. The third factor, can occur due to lack of support and resources. Among them, the limited resources and support available to teachers in integrating multiple intelligences in learning can also affect their professionalism. Teachers may face difficulties in finding and implementing appropriate strategies to meet the diversity of student intelligence. The fourth factor, which can come from non-academic sections such as student motivation, discipline, learning environment, and other personal factors, can also influence the relationship between students' multiple intelligences and teacher professionalism. These four factors are not the standard for why the correlation between the multiple intelligences of students and science professionalism can be negative

(opposite). Further and in-depth analysis is needed to gain insight or conduct further research on this matter.

The results of student learning independence have a positive correlation coefficient (unidirectional) with science professionalism. Each school and individual context has unique dynamics, so that both internal and external factors can influence students' independent learning towards their teacher's professionalism. Factors that might explain the positive correlation value relationship between student learning independence and science professionalism include the first, learning that encourages student learning independence, for example problem-based learning, guided discussions, or collaborative projects. Through such learning will provide opportunities to develop self-reliance learning to responsibility and manage independently. So that teachers can increase student involvement and teacher professionalism. The second factor, through the provision of constructive feedback, thus providing clear guidelines and useful suggestions for students. In the end it will encourage the independent learning of students to continue to explore and understand learning material. The third factor, this positive correlation value can also be stimulated by providing space for exploration and experimentation. Teachers who provide exploration space for students will provide considerable opportunities to encourage independent learning by involving research, experiments, or creative projects from teachers that will stimulate solutions in problem solving. The fourth factor, of course, is a supportive and inclusive learning environment that can also support student learning independence. Teachers can create an atmosphere that welcomes and encourages collaboration, communication, and cooperation among students. Creating a safe and conducive environment, teachers can encourage students to take risks, ask questions, and develop independent learning. As a result, good communication between students and teachers has an impact on professionalism which leads to a positive correlation. Finally, there are coaching and support factors that can increase student learning independence, develop effective learning strategies, and overcome obstacles in achieving learning goals. The final result of the test is shown by the value of the coefficient of determination in Table 2. Creating a safe and conducive environment, teachers can encourage students to take risks, ask questions, and develop independent learning. As a result, good communication between students and teachers has an impact on professionalism which leads to a positive correlation. Finally, there are coaching and support factors that can increase student learning independence, develop effective learning strategies, and overcome obstacles in achieving learning goals.

Table 2. Determination R Value

Summary model					
Model	R	R Square	Adjusted R Square	std. Error of the Estimate	Durbin-Watson
	0.172a	0.030	-0.003	9.18363	1,747

The coefficient of determination shown in Table 2 is 0.03 so that it is converted to 3%. So it can be interpreted that 3% of the influence of multiple intelligences and independent learning of students on science professionalism in Subang Regency. The influence of 3% of multiple intelligences and student learning independence on science professionalism is a relatively small percentage. Nonetheless, this influence still has significant implications. Even though the effect is only 3%, high multiple intelligences in students can make a positive contribution to teacher professionalism. Students with good multiple intelligences may be able to better grasp and understand material, interact with teachers effectively, and respond more creatively to learning. The impact is that teachers will pay attention to the diversity of intelligence of their students and make learning even more interesting. Likewise, the meaning of 3% in student learning independence will have an impact on professionalism effectively

because it can provide more appropriate direction and support to students with good independent learning.

Solutions to the problems above include encouraging the development of students' multiple intelligences through diverse learning approaches, such as using various teaching methods, providing a learning environment that facilitates multiple intelligences, and providing assignments that encourage creative problem solving. This is in line with research results (Sumantri & Wibowo, 2023) which suggest that factors that influence student learning outcomes include supporting multiple intelligences through their attitudes. Attitude is defined as a tendency to act that is associated with a particular learning. Of course this will be part of a meaningful learning process. Therefore, maintaining the stability of students' learning attitudes during class will also influence teacher professionalism when they become educators.

Second, encouraging student learning independence through student-centered learning, providing assignments that involve critical thinking and reflection, providing clear guidelines for managing time and resources, and providing constructive feedback. Through this independent learning habit, it is also hoped that it can provide more motivation for students to optimize their multiple intelligences. As (Aulia et al., 2022) stated that independent learning can develop students' multiple intelligences from preliminary activities to closing activities. Develop intrapersonal intelligence, naturalistic intelligence, interpersonal, linguistic, and other multiple intelligences.

Third, increase collaboration between teachers and students to strengthen professionalism by adopting an approach that is responsive to students' needs and intelligence. It is true that every teacher has different ways of educating their students, but all teachers try to educate their students well and provide various experiences they have had. As (David Martinez Zayas & Rofi'ah, 2022) said, it's just that each teacher has a unique and critical attitude in reading opportunities and analyzing how students understand a learning concept. This unique attitude gives rise to creativity in each educator and has an impact on the professionalism of becoming a teacher who is able to present interesting learning in front of his students. Furthermore, without creativity in teachers it can lead to boring learning so that many students do not receive optimal knowledge transfer and this becomes a worry in the future.

Fourth, provide support and guidance to students to develop multiple intelligence skills and independent learning through self-development and facilitated learning programs. In fact, it all starts with teachers who, in educating students for the future, with the demands of 21st century learning, make efforts to increase the popularity of the theory of multiple intelligences so that they work together by applying the values of social justice and equality to interact for further exploration. about education (Ibrahim, 2023). Don't forget, all of these learning processes will not run well if they are carried out monotonously, because the dynamic nature of 21st century learning makes it possible to implement learning with varied activities (Priyambodo, 2019). The results of this research can still be developed further to find out other factors that can have a big influence on science professionalism in Subang Regency apart from the multiple intelligence factor and the learning independence factor of students.

CONCLUSION

These findings indicate that the multiple intelligences of students do not directly contribute to increasing teacher professionalism. Other factors may play a more significant role in determining teacher professionalism. However, research also shows that student learning independence is positively related to teacher professionalism. Learners who are more independent in learning tend to make a better contribution to teacher professionalism. The solution that can be offered is to increase the learning independence of students in learning. Teachers can provide more space and support for students to develop their independence abilities. Through a student-centered learning approach, giving assignments that encourage

problem solving, and providing constructive feedback, students can be empowered to take initiative in their learning. In conclusion, to increase teacher professionalism, it is important to pay attention to and develop student learning independence as one of the factors that can influence student contributions to teacher professionalism.

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REFERENCES

Abimanyu S. (2008). *Strategi Pembelajaran* . Direktorat Jendral Pendidikan Tinggi.

Al-Qatawneh, S. S., Alsalhi, N. R., Eltahir, M. E., & Siddig, O. A. (2021). The representation of multiple intelligences in an intermediate Arabic-language textbook, and teachers' awareness of them in Jordanian schools. *Heliyon*, *7*(5). https://doi.org/10.1016/j.heliyon.2021.e07004

Alsalhi, N. R. I. (2020). The representation of multiple intelligences in the science textbook and the extent of awareness of science teachers at the intermediate stage of this theory. *Thinking Skills and Creativity*, *38*. https://doi.org/10.1016/j.tsc.2020.100706

Ambarsari, T. A. B., Wijayanti, E., Kurniawan, A. A., & Prihatini, A. (2022). ASPEK LEKSIKO-GRAMATIKAL DALAM LAGU ANAK YANG BERMUATAN MULTIPLE INTELLIGENCE. *Fon: Jurnal Pendidikan Bahasa Dan Sastra Indonesia*, *18*(1), 77–90. https://doi.org/10.25134/fon.v18i1.5085

Armstrong, T. (2018). *Multiple Intelligences in the Classroom, 4th Edition* (4th ed.).

Aulia, A., Fitri, N. L., Rahman, T. A., Istiqomah, S., Tarbiyah, F., Al, I., & Tuban, H. (2022). *IMPLEMENTASI MODEL PEMBELAJARAN SENTRA UNTUK MENGOPTIMALKAN KECERDASAN MAJEMUK* (Vol. 6, Issue 2). http://journal.iaialhikmahtuban.ac.id/index.php/ijecie

Barrientos-Fernández, A., Sánchez-Cabrero, R., Arigita-García, A., Mañoso-Pacheco, L., Pericacho-Gómez, F. J., & Novillo-López, M. Á. (2019). Measurement of different types of intelligence (general, verbal vs. non-verbal, multiple), academic performance and study habits of secondary students at a Music Integrated Centre. *Data in Brief*, *25*. https://doi.org/10.1016/j.dib.2019.104124

Benson NF, & Kranzler J. H. (2016). Measurement Integrity Cognitive Abilities in Achievement Prediction : Comparisons and Differences Between Variables of Higher Order and Bifactor Models . *School Psychology Journal* , *58*(1), 1–19.

Cahyo, O., Sancoko, H., Sugiarti, R., Psikologi, M., Semarang, U., & Psikologi, F. (2022). *KINERJA GURU DAN FAKTOR YANG MEMPENGARUHINYA*. www.scopus.com

Choo K.A, & Anthonysamy, L. (2021). Investigating Self-Regulated Learning Strategies For Digital Learning Relevancy . *Malaysian Journal of Learning and Instruction* , *18*(1), 29–64.

David Martinez Zayas, J., & Rofi'ah, N. (2022). *The Effect of Digital Literacy Skills on Improving Teacher Creativity*. https://jurnal.iainponorogo.ac.id/index.php/insecta

Dignath C, & Veenman, M. V. J. (2021). The Role of Direct Strategy Instructions and Indirect Activation of Self-Regulated Learning Evidence From Classroom Observation Studies . *Educational Psychology Review*, *33*(2), 489–533.

Falcon, S., Admiraal, W., & Leon, J. (2023). Teachers' engaging messages and the relationship with students' performance and teachers' enthusiasm. *Learning and Instruction*, *86*, 101750. https://doi.org/10.1016/j.learninstruc.2023.101750

González-Treviño, I. M., Núñez-Rocha, G. M., Valencia-Hernández, J. M., & Arrona-Palacios, A. (2020). Assessment of multiple intelligences in elementary school students in Mexico: An exploratory study. *Heliyon*, *6*(4). https://doi.org/10.1016/j.heliyon.2020.e03777

Hasyim M, M. F. (2020). Pengaruh Kecerdasan Emosi, Motivasi, dan Lingkungan Kerja Terhadap Kinerja Guru dengan Komunikasi Kerja Sebagai Variabel Moderasi di SMK PGRI 1 Giri Banyuwangi . *ABM : International of Administration, Business, and Management*, *1*(1), 46–63.

Hossain, S. F. A. (2023). Smartphone-based teacher-student interaction and teachers' helping behavior on academic performance. *Computers in Human Behavior Reports*, *10*. https://doi.org/10.1016/j.chbr.2023.100292

Ibrahim, Maya N.S.K., Rabial K., Kris S., Zulkipli. (2023). Penerapan kecerdasan majemuk dalam pembelajaran. *Lencana : Jurnal Inovasi Ilmu Pendidikan*. DOI: https://doi.org/10.55606/lencana.v1i4.2255

Ingkavara, T., Panjaburee, P., Srisawasdi, N., & Sajjapanroj, S. (2022). The use of a personalized learning approach to implementing self-regulated online learning. *Computers and Education: Artificial Intelligence*, *3*. https://doi.org/10.1016/j.caeai.2022.100086

Lismaya, L. (2020). Multiple Intelligences dan Motivasi Belajar Siswa Melalui Demonstrasi dengan Kegiatan Outdoor. *Jurnal Pembelajaran Dan Pengajaran Indonesia* , *3*(1), 19–28.

Molenaar, I. (2022). The concept of hybrid human-AI regulation: Exemplifying how to support young learners' self-regulated learning. *Computers and Education: Artificial Intelligence*, *3*. https://doi.org/10.1016/j.caeai.2022.100070

Musfiroh, T. (n.d.). *Multiple Intelligences dan Implikasinya dalam Pendidikan*.

Muslimin. (2020). Program Penilaian Kinerja Guru dan Uji Kompetensi Guru Dalam Meningkatkan Prestasi Kerja Guru. *Indonesian Journal of Education Management & Administration Review*, *4*(1), 197–204.

Nkundabakura, P., Nsengimana, T., Byukusenge, C., Iyamuremye, A., Batamuliza, J., & Twahirwa, J. N. (2022). Teacher performance, attitude and classroom practices dataset collected to evaluate the Rwandan Quality Basic Education project. *Data in Brief*, *45*. https://doi.org/10.1016/j.dib.2022.108758

Nurmiyati, & Dwiastuti Khasanah. (2016). Pengaruh Model Pembelajaran Penemuan Terbimbing Terhadap LIterasi Sains Berbasis Kecerdasan Naturalis . *Prosiding Konferensi Pendidikan Biologi*, *13*(1), 346–351.

Oudman, S., van de Pol, J., & van Gog, T. (2023). Effects of cue availability on primary school teachers' accuracy and confidence in their judgments of students' mathematics performance. *Teaching and Teacher Education*, *122*. https://doi.org/10.1016/j.tate.2022.103982

Priyambodo, P. (2019). Ionovasi pembelajaran berbasis teori kecerdasan majemuk untuk pengembangan peran sekolah di era 4.0. *Humanika, Kajia Ilmiah Mata Kuliah Umum*. Vol 19 No 2 Hal 139-156.

Saint, J., Fan, Y., Gašević, D., & Pardo, A. (2022). Temporally-focused analytics of self-regulated learning: A systematic review of literature. In *Computers and Education: Artificial Intelligence* (Vol. 3). Elsevier B.V. https://doi.org/10.1016/j.caeai.2022.100060

Saugadi, T. I. J. P. ;, & Noldi, S. (2020). *Efektivitas Kinerja Guru Bersertifikasi Saugadi 1)* , Ronal Noldi 2) 1)* (Vol. 2, Issue 1).

Sulistiyani, N. W. (2012). Hubungan Konsep Diri dan Regulasi Diri dengan Motivasi Berprestasi. *Jurnal Psikostudia Universitas Mulawarman* , *1*(2), 118–126.

Sumantri, M. S., & Wibowo, C. (2023). *Factors Affecting the Ability of Science Pre-Service Teachers of Elementary Education in Indonesia*. https://jurnal.iainponorogo.ac.id/index.php/insecta

Sunan, U., Yogyakarta, K., & Marsda Adisuciptoyogyakarta, J. (n.d.). *Kepemimpinan Transformasional Kepala Madrasah Sebagai Respon terhadap Implementasi Kurikulum 2013 di Madrasah Dimensi Kecerdasan Majemuk Dalam Kurikulum 2013 Imam Machali*.

Susanto, H., Psi, S., Bimbingan, G., Smp, K., Penabur, B., & Opini, T. (n.d.). *Penerapan Multiple Intelligences dalam Sistem Pembelajaran*.

Yan, Z. (2020). Self Assesment in the Process of Self-Regulated Learning and Its Relationship With Academic Achievement. *Assesment and Evaluation in Higher Education* , *45*(2), 224–238.