Analyzing the Impact of Self-Regulated Learning on Academic Performance and Student Engagement

The Impact of Self-Regulated Learning on Academic Achievement and Student Engagement

Fany Rifqoh[1]; Muhammad Nur Wangid[2]; Suwarjo[3]

Corresponding author: Fanyrifqoh.2023@student.uny.ac.id

[1,2,3]Faculty of Education and Psychology, Yogyakarta State University

ABSTRACT

This study aims to analyze the impact of SFL in learning for students at school. Data were obtained from Scopus with the keywords self, regulated, learning, achievement, student (2020-2024), resulting in 226 documents. The data was analyzed using VOSviewer with Co-occurrence analysis with a minimum of 4 keyword occurrences, resulting in 86 thresholds. Irrelevant keywords, such as human, medical student, and others, were eliminated to focus on the main theme of the research. Based on the results of the analysis, it can be concluded that research on analyzing the impact of self-regulated learning on academic achievement and student engagement is a relatively new research and has been done a lot, but there are still few related to the themes of achievement goals, learning strategies, metacognition, motivation. So that further research is needed. Based on the results of the overlay visualization analysis, it can be seen that research related to self-regulated learning on academic achievement and student involvement in the 2020-2024 period was mostly carried out in mid-2021 and at most in 2022, then the research trend began to decline in 2023 until now. Furthermore, from the results of the Network visualization analysis, it can be identified that the least used theme in self-regulated learning research can be seen in cluster 5 where there are only 4 research theme items related to self-regulated learning, namely achievement goals, learning strategies, metacognition, motivation. This indicates that the research is still rarely researched. Based on the Density visualization analysis, research on self-regulated learning has been widely conducted, but related to its impact on academic achievement and student involvement is still rarely done, so it can be concluded that research on the Impact Analysis of self-regulated learning on academic achievement and student involvement is still relatively new and still rarely done.

Key words: Self-regulated learning, Learning, Students, achievement.

INTRODUCTION

Good learning management will support the achievement of learning objectives. (van Houten-Schat et al., 2018). It will be more meaningful if done by students (Utomo & Syamsi, 2019). Self-regulated learning (SRL) is a key concept in modern education, which refers to the ability of students to independently plan, organize, and evaluate their learning process [3]. (Zimmerman, 2002). Self-regulated learning (SRL) includes cognitive, metacognitive, behavioral, motivational, and emotional aspects in the learning process. (Ernesto Panadero, 2017). This ability is considered as one of the determinants of student success in improving academic achievement and engagement in learning. Such achievement is very important for students (Elola & Oskoz, 2010)

The current problem, although the relevance of SRL has been widely recognized in educational theory, the usefulness of SRL analysis of the Scopus research database shows that research that specifically explores the relationship between SRL, academic achievement, and student engagement is still relatively limited and can even be said to be lacking.

Based on a review of the literature in Scopus, most research on SRL focuses on its development in the context of online learning, its effect on motivation, or its relationship with specific learning strategies. (Yot-Domínguez & Marcelo, 2017). However, in-depth research on

the direct impact of SRL on students' academic achievement has not received sufficient attention. This is especially true in the context of primary and secondary education, where SRL skills are often still in the early stages of development. This is in line with research (Saks & Leijen, 2014) which states that SRL is closely related to educational and cognitive psychology whose presence is continuous.

The next problem that occurs is that research on the relationship of SRL with student engagement also shows shortcomings (Wan et al., 2012). Student engagement, which includes emotional, behavioral, and cognitive aspects, is an important element in the learning process. While SRL is seen as one of the factors that can improve student engagement, the literature in Scopus shows that research in this area tends to be fragmented, with many studies only focusing on one aspect of engagement without looking at its impact comprehensively.

This is evidenced by the interlinking research findings. These research findings are (Carter et al., 2020); (Butler, 2023); (Winne, 2014) indicate that currently research on SRL that relates to learner competence is very lacking, even though learner competence in the realm of learning currently needs to be improved. Of course, this is a problem that must be solved, by presenting a variety of studies on SRL that are linked to learner competence. (Schunk, 2008).

Based on what has been said, it can be said that the gaps in this research have significant implications. (Qin et al., 2024). When teachers and students do not understand what the relationship of SRL is in the context of learning which of course will affect student competence, student achievement, therefore this research is very important to do (R Himawan & Suyata, 2021). Research that underscores especially in exploring the direct relationship of SRL with academic achievement and student engagement is very important to be presented. Some relevant studies that relate to the topic are (Ben-Eliyahu & Linnenbrink-Garcia, 2013); (*View of Pengaruh Model Pembelajaran Kolaboratif Berbasis Lesson Study Terhadap Kemampuan Berpikir Kritis Siswa*, n.d.); (Mary & Anastasia, 2013); (McCaslin & Hickey, 2013); (E. Panadero & Alonso-Tapia, 2014); (Schunk, 2008). These studies have contributed to providing references in the form of a review of SFL analysis so that it is said to be relevant to the research. Matters related to SRL will be processed and become the basis for reviewing research data. Overall, it can be seen that by utilizing broader data and methodologies, such as those available in Scopus, future research can provide richer and more relevant insights to improve the quality of education at various levels.(Coulthard, 2004). SRL will be the thing that can improve students' competence and achievement through learning.

METHODS

VOSViewer is a computer program that can be developed to build and view bibliometric maps. VOSviewer (www.vosviewer.com) is used to build and depict bibliometric networks. It offers text mining functions that can be used to build and visualize networks or relationships (correlation) in an article citation. (Wong et al., 2019). Research data search through scopus with keywords self, regulated, learning, achievement, student. (Reza Ardiansyah, 2017). By taking the time range from 2020-2024. From these results, 226 documents were obtained which will then be analyzed using VOSviewer software, metadata, RIS that have been obtained are then entered into the VOSviewer software to analyze bibliometrix between keywords by selecting Co-occurrence in type off analysis (Himawan et al., 2024). Then on the minimum number of occurrence off keyword menu, select 4 keywords and get 86 thresholds. After obtaining 86 thresholds, we then eliminate

keywords that have no connection or relationship with the themes discussed, namely *human, medical student, adult, medical student, medical education, controlled study, procedures, major clinical study, young adult, undergraduate medical education, medical school, curriculum, achievement emotions, emotions, sytematic review*.

DISCUSSION RESULT

As we know before. VOSviewer is software often used in bibliometric research that is used to visualize or map research data based on available networks. VOSviewer is used to conduct bibliometrix analysis and visualization of research on the impact of self-regulated learning on academic achievement and student engagement. Self-regulated learning, also known as self-regulated learning (SRL), allows students to actively supervise and assess their own learning process. The application of SRL in education affects two important aspects: student academic achievement and student engagement in the learning process.

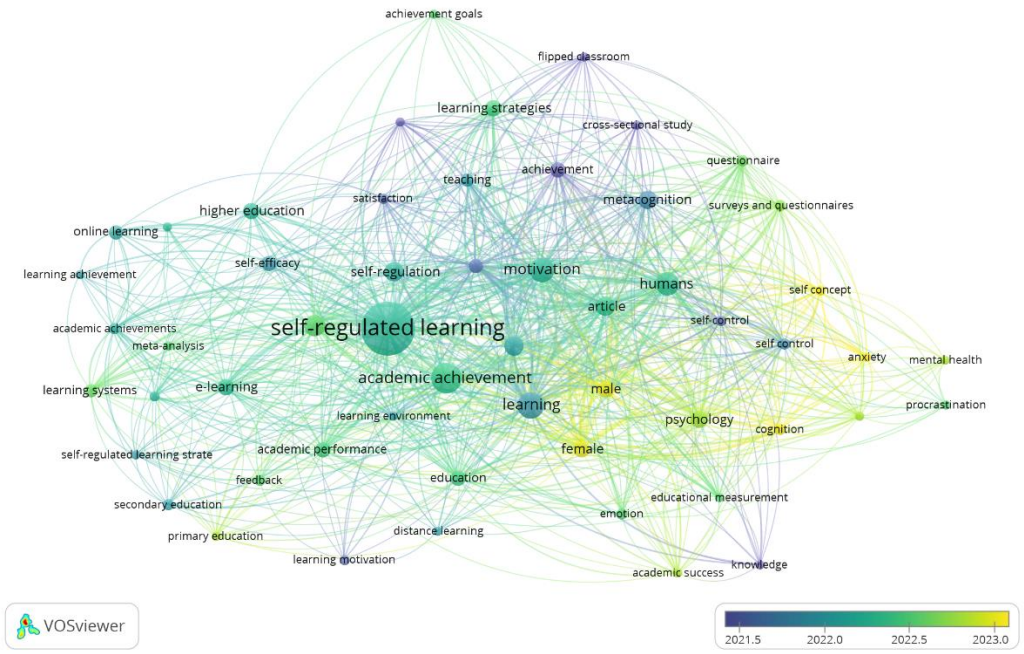
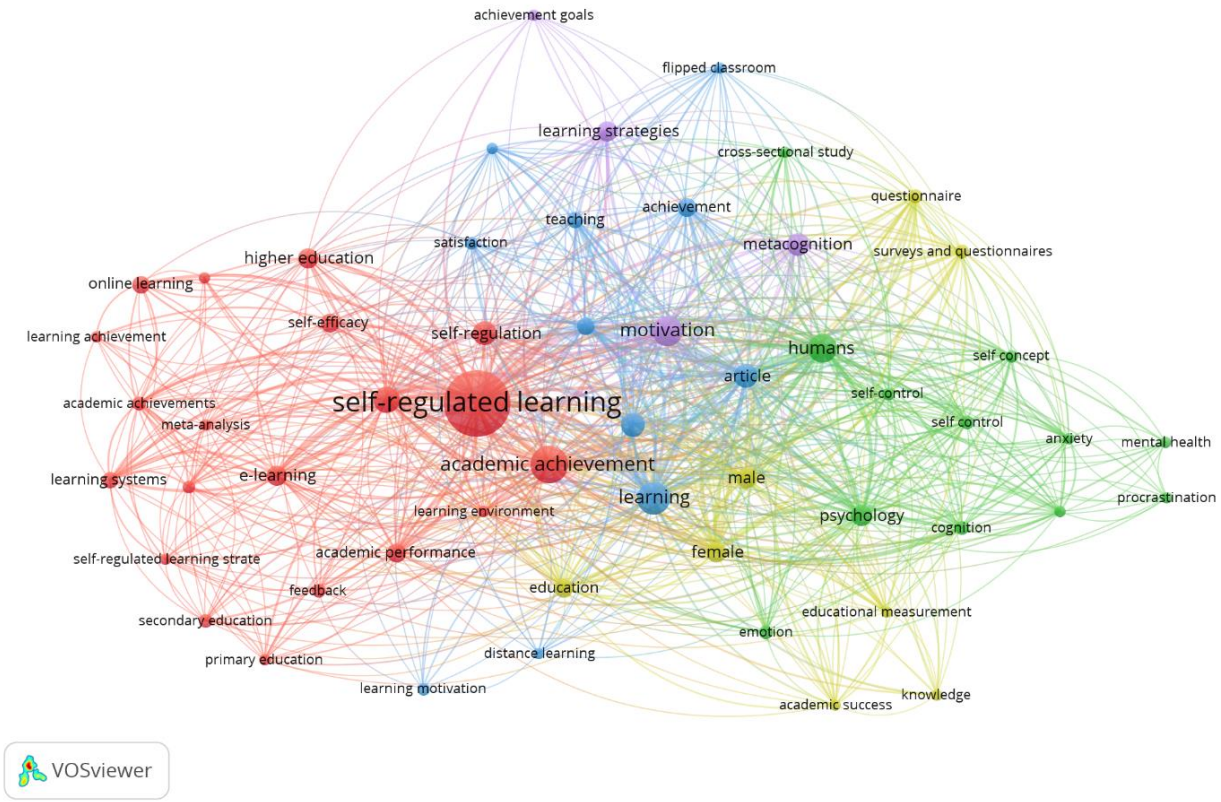


Figure 1. Results of visualization overlay analysis

Based on Figure 1 above, it is known that in 2021.5, learning motivation, knowledge, self control, satisfaction, achievement, problem based learning, human experiment, cross sectional study, flipped classroom, self efficacy, learning. Then in 2022.0, many studies discuss self-regulated learning, achievement goals, learning strategies, self regulation, motivation, humans, articles, academic achievements, e-learning, learning achievement, online learning, higher education, teaching, metacognition, self control. In 2022.5 many studies discuss, questionare, survey veysn questionaires, meta analysis, mental health, learning systems, academic achievement, procrastination, psychology, academic performance, feedback, education, educational measurement, emotion, primary education, academic success, kk2023.0 self concept, anxiety, male,

cognition, female. In this regard, it can be concluded that research on analyzing the impact of self-regulated learning on academic achievement and student engagement is a relatively new research which is marked by the color of the items.



Network visualization analysis results

The results of the network visualization analysis in Figure 2 show that based on keywords (co-words), the Analysis of the Impact of self-regulated learning on academic achievement and student involvement in 2020-2024 forms into 55 items (5 clusters). Cluster 1 (20 items) in red, consists of topics; academic achievement, academic achievements, academic performance, blended learning, computer aided instruction, e-learning, feedback, higher education, learning achievement, learning environmentlearning systems, meta-analysis, online learning, primary education, secondary education, self-efficacy, self-regulated learning, self-regulated learning, self-regulation, students. Then in Cluster 2 (12 items) colored green, discussing; Anxiety, cognition, cross-sectional study, emotion, humans, mental health, procrastination, psychology self concept, self control, time management. In cluster 3 (11 items) marked in blue, it discusses; Achievement, article, distance learning, flipped classroom, human experiment, learning, learning motivation, problem-based learning, student satisfaction, teaching. And in cluster 4 (8 items) in yellow, consisting of topics; Academic success, education, self-regulated learning strategy, educational

measurement, fernale, knowledge, male, secondary education, primary education, questionnaire, surveys and questionnai. And finally in cluster 5 (4 items) in purple there are topics; achievement goals learning strategies, metacognition, motivation.

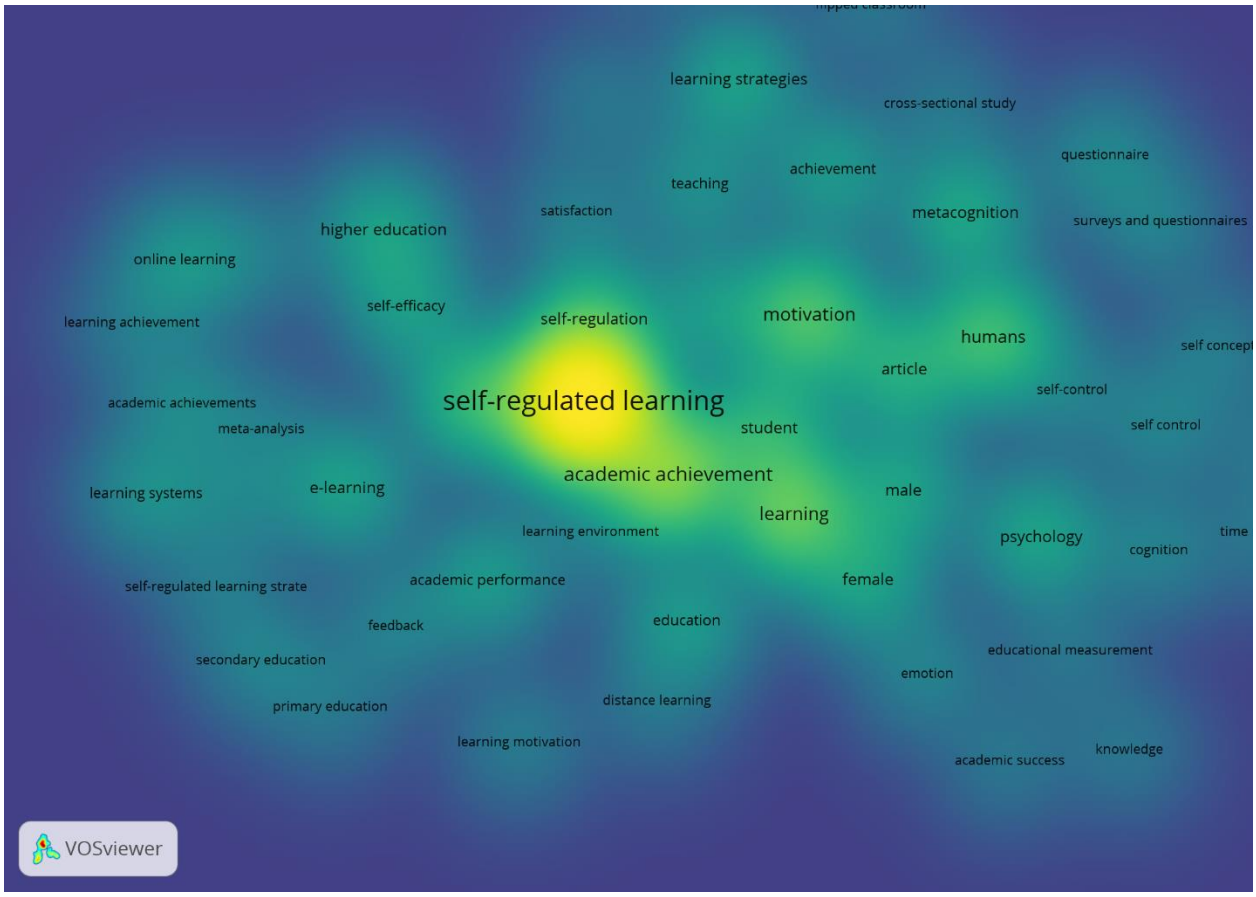


Figure 3. Density visualization Analysis of the impact of self-regulated learning on academic achievement and student engagement.

Studies on analyzing the impact of self-regulated learning on academic achievement and student engagement based on Figure 3, are still few in research especially those that discuss academic achievement and student engagement. Studies have shown that self-regulated learning (SRL) improves academic achievement. According to a meta-analysis of 14 effect sizes from 3,899 subjects, there was a positive correlation between SRL strategies and academic achievement ($r = 0.26$) (Latipah, 2015). An experimental study found that students who received SRL instruction had significantly better academic results than students who did not receive such instruction (Fatimah, 2013). However, another study found that SRL instruction had no direct impact on academic achievement, but self-efficacy had a significant impact (Tarumasely, 2021). In addition, SRL has been shown to mediate the relationship between parental participation and students' academic achievement in high school. This emphasizes the importance of building students' ability to plan and manage learning activities (Freddy et al., 2021). These results suggest that SRL

CONCLUSION

Self-Regulated Learning (SRL) is an important skill that enables students to manage their learning independently, thus positively impacting academic achievement and engagement in the learning process. Although much research has been conducted on SRL, bibliometric analysis with VOSviewer shows that studies directly linking SRL to academic achievement and student engagement are limited. Research trends in the period 2020-2024 show an increased interest in this topic, especially in 2021-2022, but tends to decrease in 2023. The study identified that aspects such as achievement goals, learning strategies, metacognition and motivation still receive less attention in research on the impact of SRL on learning outcomes. The visualization results show that research on SRL has grown, but it is still partial, with many studies highlighting only one particular aspect without looking at its impact holistically. Of the five research clusters analyzed, few studies specifically address how SRL affects students' achievement goals and learning strategies. In addition, previous research suggests that while SRL can improve academic achievement, other factors such as self-efficacy and student engagement also have a significant role in determining learning success. Therefore, further studies are needed to explore the relationship between SRL and these supporting variables to get a more comprehensive picture. Based on these findings, it can be concluded that research on the impact of SRL on academic achievement and student engagement still has many opportunities to be developed. Future research needs to highlight how SRL can be effectively integrated in various learning strategies, as well as how psychological factors such as motivation and metacognition play a role in enhancing the effectiveness of SRL. With a deeper understanding, educational strategies can be better tailored to help students develop sustainable self-learning skills, resulting in improved academic achievement and active engagement in the learning process.

REFERENCES

Ben-Eliyahu, A., & Linnenbrink-Garcia, L. (2013). Extending self-regulated learning to include self-regulated emotion strategies. *Motivation and Emotion*, *37*(3), 558–573. https://doi.org/10.1007/s11031-012-9332-3

Butler, D. L. (2023). Qualitative approaches to investigating self-regulated learning: Contributions and challenges. *Using Qualitative Methods To Enrich Understandings of Self-Regulated Learning: A Special Issue of Educational Psychologist*, *1520*(January), 59–63. https://doi.org/10.4324/9781410608529-7

Carter, R. A., Rice, M., Yang, S., & Jackson, H. A. (2020). Self-regulated learning in online learning environments: strategies for remote learning. *Information and Learning Science*, *121*(5–6), 311–319. https://doi.org/10.1108/ILS-04-2020-0114

Coulthard, M. (2004). Author identification, idiolect, and linguistic uniqueness. *Applied Linguistics*, *25*(4), 431–447. https://doi.org/10.1093/applin/25.4.431

Elola, I., & Oskoz, A. (2010). Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning and Technology*, *14*(3), 51–71.

Hertel, S., Reschke, K., & Karlen, Y. (2024). Are profiles of self-regulated learning and intelligence mindsets related to students' self-regulated learning and achievement? *Learning and Instruction, 90*, 101850. https://doi.org/10.1016/j.learninstruc.2023.101850:contentReference[oaicite:0]{index=0}

Himawan, R, & Suyata, P. (2021). Analisis Kebutuhan Pengembangan Soal HOTS dalam Pembelajaran Teks Pidato Persuasif di MGMP SMP Wilayah Kabupaten Bantul. *GHANCARAN: Jurnal Pendidikan …*, 117–128. https://doi.org/10.19105/ghancaran.vi.5399

Himawan, Riswanda, Nurgiyantoro, B., & Widyartono, D. (2024). *ITEMAN-Based Evaluation of End-of-Semester Assessment Items: A Case Study of Language Test in Indonesian School Context 387 Indonesian Journal on Learning and Advanced Education*. *6*(3), 387–402. https://doi.org/10.23917/ijolae.v6i3.23254

López, Z. M., Nouws, S., Villar, E., Mayo, M. E., & Tinajero, C. (2023). Perceived social support and self-regulated learning: A systematic review and meta-analysis. *International Journal of Educational Research Open, 5*, 100291.

Mary, & Anastasia. (2013). Supporting Student Self-Regulated Learning in Problem- and Project-Based Learning. *Interdisciplinary Journal of Problem-Based Learning*, *7*(2), 127–150. http://10.0.30.91/1541-5015.1339%5Cnhttp://search.ebscohost.com/login.aspx?direct=true&db=eue&AN=90663292&amp%5Cnlang=ko&site=ehost-live

McCaslin, M., & Hickey, D. T. (2013). Self-Regulated Learning and Academic Achievement: A Vygotskian View. *Self-Regulated Learning and Academic Achievement: Theoretical Perspectives, Second Edition*, *October*, 213–238. https://doi.org/10.4324/9781410601032-7

Panadero, E., & Alonso-Tapia, J. (2014). How do students self-regulate? Review of Zimmerman's cyclical model of self-regulated learning. *Anales de Psicologia*, *30*(2), 450–462. https://doi.org/10.6018/analesps.30.2.167221

Panadero, Ernesto. (2017). A review of self-regulated learning: Six models and four directions for research. *Frontiers in Psychology*, *8*(APR), 1–28. https://doi.org/10.3389/fpsyg.2017.00422

Qin, J., Qin, J., Qiu, J., Liu, Q., Li, M., & Ma, Q. (2024). SRL-ORCA: A Socially Aware Multi-Agent Mapless Navigation Algorithm in Complex Dynamic Scenes. *IEEE Robotics and Automation Letters*, *9*(1), 143–150. https://doi.org/10.1109/LRA.2023.3331621

Reza Ardiansyah, A. D. C. F. R. (2017). Analisis Kebutuhan Pengembangan Bahan Ajar. *Analisis Kebutuhan Pengembangan Bahan Ajar Perubahan Materi Genetik Pada Matakuliah Genetika Di Universitas Negeri Malang*, *2016*, 836–844.

Saks, K., & Leijen, Ä. (2014). Distinguishing Self-directed and Self-regulated Learning and Measuring them in the E-learning Context. *Procedia - Social and Behavioral Sciences*, *112*(Iceepsy 2013), 190–198. https://doi.org/10.1016/j.sbspro.2014.01.1155

Schunk, D. H. (2008). Metacognition, self-regulation, and self-regulated learning: Research recommendations. *Educational Psychology Review*, *20*(4), 463–467. https://doi.org/10.1007/s10648-008-9086-3

Tise, J. C., Hernandez, P. R., & Schultz, P. W. (2023). Mentoring underrepresented students for success: Self-regulated learning strategies as a critical link between mentor support and educational attainment. *Contemporary Educational Psychology, 75*, 102233.

Toering, T., Elferink-Gemser, M. T., Jonker, L., van Heuvelen, M. J. G., & Visscher, C. (2012). Measuring self-regulation in a learning context: Reliability and validity of the Self-Regulation of

Learning Self-Report Scale (SRL-SRS). *International Journal of Sport and Exercise Psychology*.

Utomo, A. C., & Syamsi, K. (2019). *The Effect of PBL and DRTA on Critical Thinking and Reading Comprehension to Students in Elementary School*. *326*(Iccie 2018), 95–101. https://doi.org/10.2991/iccie-18.2019.17

Van Houten-Schat, M. A., Berkhout, J. J., van Dijk, N., Endedijk, M. D., Jaarsma, A. D. C., & Diemers, A. D. (2018). Self-regulated learning in the clinical context: a systematic review. *Medical Education*, *52*(10), 1008–1015. https://doi.org/10.1111/medu.13615

View of Pengaruh Model Pembelajaran Kolaboratif berbasis Lesson Study terhadap Kemampuan Berpikir Kritis Siswa. (n.d.).

Wan, Z., Compeau, D., & Haggerty, N. (2012). The effects of self-regulated learning processes on e-learning outcomes in organizational settings. *Journal of Management Information Systems*, *29*(1), 307–340. https://doi.org/10.2753/MIS0742-1222290109

Winne, P. H. (2014). Issues in researching self-regulated learning as patterns of events. *Metacognition and Learning*, *9*(2), 229–237. https://doi.org/10.1007/s11409-014-9113-3

Wong, J., Baars, M., Davis, D., Van Der Zee, T., Houben, G. J., & Paas, F. (2019). Supporting Self-Regulated Learning in Online Learning Environments and MOOCs: A Systematic Review. *International Journal of Human-Computer Interaction*, *35*(4–5), 356–373. https://doi.org/10.1080/10447318.2018.1543084

Yot-Domínguez, C., & Marcelo, C. (2017). University students' self-regulated learning using digital technologies. *International Journal of Educational Technology in Higher Education*, *14*(1). https://doi.org/10.1186/s41239-017-0076-8

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, *41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2