



Role-Playing Game (RPG) to Increase Student's Learning Motivation

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ARTICLE INFO

Article history:

Received March 11, 2022

Revised March 20, 2022

Accepted August 12, 2022

Available online November 25, 2022

Kata Kunci:

RPG, Motivasi, Pembelajaran Online, RnD

Keywords:

RPG, Motivation, Online Learning, RnD

DOI:

<https://doi.org/10.23887/jet.v6i4.45471>

ABSTRAK

Pembelajaran online selama masa pandemi Covid-19 membuat guru dan siswa belajar secara terpisah dan mengakibatkan antusias belajar siswa menjadi rendah. Penelitian ini bertujuan untuk menciptakan media pembelajaran Role-Playing Game (RPG) untuk meningkatkan motivasi belajar siswa. Penelitian ini merupakan Penelitian dan Pengembangan dengan model Alessi & Trollip. Populasi dalam penelitian ini berjumlah 512. Teknik pengambilan sampel dengan simple random sampling sebanyak 120 siswa. Pada tahap uji alpha media divalidasi oleh 3 ahli media dan 3 ahli materi. Setelah dilakukan revisi dalam uji alpha, kemudian media diuji beta untuk mengetahui efektivitasnya dalam meningkatkan motivasi belajar siswa. Metode pengumpulan data yaitu kuantitatif menggunakan instrumen kuesioner dan analisis data kuantitatif menggunakan program SPSS 25. Hasil penelitian menunjukkan bahwa media RPG yang diciptakan dalam kategori "Sangat Sesuai" dengan persentase rata-rata 95%. Disimpulkan bahwa pembelajaran menggunakan media RPG terbukti lebih efektif dibandingkan kelas yang tidak menggunakan media RPG atau konvensional dengan perolehan skor dari hasil uji statistik taraf signifikansi 0,000 yang lebih kecil dari 0,05 (0,000<0,05). Implikasi dalam penelitian ini ialah guru perlu memilih media yang sesuai dengan kebutuhan pembelajaran untuk menarik antusiasme siswa dalam belajar.

ABSTRACT

Online learning during the Covid-19 pandemic made teachers and students study separately and resulting in low student learning enthusiasm. This study aims to create a learning media Role-Playing Game (RPG) to increase student motivation. This research is Research and Development with the Alessi & Trollip model. The population in this study amounted to 512. The sampling technique was a simple random sampling of 120 students. At the alpha test stage, the media was validated by 3 media experts and 3 material experts. After the revision was carried out in the alpha test, the media was beta tested to determine its effectiveness in increasing student learning motivation. The data collection method is quantitative, using a questionnaire instrument and quantitative data analysis using the SPSS 25 program. The results showed that the RPG media created was in the "Very Appropriate" category with an average percentage of 95%. It was concluded that learning using RPG media proved to be more effective than classes that did not use RPG or conventional media, with a score obtained from the statistical test results at a significance level of 0.000 which is less than 0.05 (0.000<0.05). This study implies that teachers need to choose media suitable for learning needs to attract students' enthusiasm for learning.

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1. INTRODUCTION

The COVID-19 pandemic has had a tremendous impact on various aspects of life, not only in the medical world but also in the world of education. Routine and traditional learning that emphasizes teacher-student interaction in the classroom has now turned into distance learning (Abidah et al., 2020; Qazi et al., 2021; Schneider & Council, 2021). This online learning activity is the right solution to replace conventional classrooms during the COVID-19 pandemic (Amon et al., 2022; Bao, 2020; Besser et al., 2022). The International Association of Universities and UNESCO report at least 1.5 billion students in 185 countries whose learning has been hampered by university closures since April 2020 (Fernando M. Reimers & Schleicher, 2020). The implementation of social restrictions by the Indonesian government also has an impact on the routines of the community and students in the learning system. Distance learning or using an online system has provided a solution for schools that have started implementing the Learning from Home (BDR) system. (N. M. S. Dewi & Mudiasih, 2021; Rasmitadila et al., 2020; Suartini, 2021). The principle of this BDR activity is that students can access learning materials and resources without limitations of place and time, in other words anywhere (Bojović et al., 2020; Kurniasari et al., 2020; Surma & Kirschner, 2020). So, online learning besides being a solution also has its own challenges.

Online learning is indeed the right antidote as a better learning solution during the COVID-19 pandemic for both teachers and students (Dhawan, 2020; Mohalik & Sahoo, 2020; Mukhtar et al., 2020). However this requires preparation from educational institutions that are equipped and familiar with online learning, and how well teachers are prepared and engaged in online learning (Lapada et al., 2020; Racat & Lichy, 2022; Reimers & Schleicher, 2020). Among them are the learning methods, the media to be used, the use of learning time related to the time of application use, psychological and social factors that have a significant effect on teacher motivation when teaching, as well as the form of online learning assessment used (Paliwal & Singh, 2021; Rasmitadila et al., 2020; Suryanti et al., 2021). Educators in online teaching are required to improve their digital literacy skills, design online learning content and be trained with various educational philosophies (Howard et al., 2021; Korkmaz & Toraman, 2020; Li et al., 2019). For teachers, this is certainly a big challenge, because the teacher's intention to continue using online learning is strongly influenced by students' intrinsic motivation during learning (Gustiani, 2020; Panisoara et al., 2020; Pelikan et al., 2021).

As a result of school closures and distance learning during the current COVID-19 pandemic, conditions that threaten student competency satisfaction and learning engagement needs, causing boredom and hampering students' academic motivation (Izzatunnisa et al., 2021; Kusumaningrum et al., 2020; Zaccoletti et al., 2020). Student motivation (i.e., their willingness to work toward or complete a particular activity or goal) plays an important role in self-directed learning (Daumiller & Dresel, 2019; Octavia, 2020; Winata, 2021). Based on the results of the questionnaire data, it is known that as many as 63% of students admit that teachers do not use media to provide material explanations, students are only given assignments to do. This has a negative impact on students, only 10% of students understand the material and only 35% of students feel happy to learn the material. Ideally distance learning should be balanced with adequate learning motivation to optimize students' independent learning activities (Arifin & Abduh, 2021; Aruma & Hanachor, 2017; Syachtiyani & Trisnawati, 2021). So that appropriate teaching solutions are needed to maintain student learning motivation during online learning (Gopalan et al., 2017; Gustiani, 2020; Muawanah & Muhid, 2021). One alternative to overcome the low learning motivation of students is to use innovative learning media so that it can attract students' attention (Eldiana & Muliawati, 2019; Mariyah et al., 2021; Salsabila et al., 2021). There are various kinds of learning media that can be used by teachers, but this article will focus on RPG educational game media.

Digital educational games in the form of Role-Playing Games (RPGs) allow players to play the game from the character's point of view to explore the complex virtual world, and the challenges associated with the story that players have to face (Dewi & Sujana, 2021; Pramuditya et al., 2018; Wang et al., 2018). Because students will find games interesting, more and more teachers are looking for ways to incorporate educational games into their classrooms in order to attract students' enthusiasm (Anastasiadis et al., 2018; Ge & Ifenthaler, 2018; Prager, 2019). Game-based learning multimedia can be an alternative media to provide opportunities for students to utilize knowledge and facilitate their learning motivation (Shofa & Surjono, 2018; Tokarieva et al., 2019; Yu et al., 2020). RPG media can offer more benefits for enhancing student learning experiences and improving learning and teaching procedures while also promoting active interaction and communication between students and educators (Anastasiadis et al., 2018; Chapman & Rich, 2018; Leitão et al., 2022). Educational games can also balance learning designs that align assessments firmly while challenging students to be actively involved in problem solving, exploration, goal achievement, strategic thinking, and increasing creativity (De Freitas, 2018; Eyupoglu & Niefeld, 2019; Westera, 2019). Interactive games are a good vehicle for instilling curriculum content in a fun way (Liu, 2018; Ratminingsih et al., 2018).

The purpose of this study is to increase the learning motivation of high school students during online learning in the Covid-19 era by developing and utilizing RPG learning media. The independent variable in this study is the use of RPG-based educational game development. Then the dependent variable in this study is student motivation. In order to increase students' learning motivation, the development of RPG educational games is prepared by taking into account the suitability of the material and the principles of media development. The development of RPG learning media is carried out as an effort to support the achievement of learning objectives for students. The development of RPG media is expected to provide benefits to both teachers and students, in order to make the teaching and learning process more active, fun, varied and more meaningful for both teachers and students.

There are several studies that are similar to this research, previous research serves to analyze and enrich the research discussion, as well as distinguish it from the current research. The use of multimedia in the form of RPG makes students active and enthusiastic to learn learning content (Faiz et al., 2017; Mufida & Kurniawan, 2018; Satria & Herumurti, 2021). This media game also shows that students' understanding through RPGs has increased, especially in the realm of creativity and student satisfaction with joy, sympathy, and immersion during the game is very high because it invites students to explore. (De Freitas, 2018; Shim et al., 2019; Westera, 2019). In addition, the use of media as measured by students' conceptual mastery shows that the mobile learning game model is able to improve students' conceptual mastery of subject matter (Aripin, 2018; Rasyid & Gaffar, 2019; Shofa & Surjono, 2018). Subject matter can be uniquely provided through RPGs to become a means of

entertainment for students to overcome the boredom they feel while studying at home because it presents an exciting adventure (Rasyid & Gaffar, 2019; Saputri & Ferawati, 2021).

Several other researchers have developed this RPG media, but researchers have developed this media with several novelties and advantages, including presenting unique *quests* related to the material, so that it is not boring and indirectly makes students learn. This media game consists of 5 (five) areas/location settings so as to maximize students' exploration in playing and minimize boredom. In addition, this media also presents presentation materials and learning evaluations in one game media. So, it becomes a complete media in one unit.

2. METHOD

This research was conducted in 512 public junior high schools in Semarang city . The sampling technique used was simple random sampling technique and obtained as many as 120 students. This study uses an R&D (Research and Development) approach using the Alessi and Trollip media development model. Data collection techniques using interviews, questionnaires, documentation & observation. The media development procedure in this study consisted of 3 stages, namely planning, design, and development (Alessi & Trollip, 2001). The planning stage includes activities to analyze the initial conditions or existing problems, identify the needs and characteristics of students, determine the scope, determine and collect sources, create planning documents, and determine the appearance of the product. The design stage includes activities to develop content ideas, carry out initial product descriptions, create prototypes, create scripts and storyboards. While the development stage includes a series of media production, testing, improvement, and product validation which will be validated by media expert validators, material expert validators and tested in a limited class before the final product is tested in the real class. The qualitative data analysis method in this study used the analytical method of Miles and Huberman (Sugiyono, 2017), while the quantitative data used the Kolmogorov Smirnov test technique with the help of SPSS.

The expert validation process is carried out by giving RPG media to the validators, then they will assess the feasibility of the media using the validation instrument grid. The validation instrument grid in Tables 1, and Table 2.

Table 1 . Material Validation Box

No	Aspect	Indicator	Items
1	theory	Compatibility with syllabus	1.1
		Easy to understand material	1.2
		Supporting image	1.3
		Formula understanding materials	1.4
		Material of some counting operations	1.5
		Function understanding material	1.6
		Material for some statistical function	1.7
2	Benefits	Help with learning problems	2.1
		Facilitate students' understanding of the material	2.2
		Help teacher	2.3

Table 2 . Media Validation Box

No	Aspect	Indicator	Items
1	Visual Communication	Text	1.1
		Color	1.2, 1.3
		Navigation/Buttons	1.4
2	Illustrator	Layout	1.5
		Conformity to actual conditions	2.1, 2.2
3	Benefits	Help with learning problems	3.1
		Facilitate students' understanding of the materials	3.2
		Help teacher	3.3

The percentage of validation in this study using a validation questionnaire with a Likert scale. The validity of the instrument will be said to be feasible if it gets an interpretation of 61%. The criteria for interpretation of the evaluation instrument scores in Table 3. Media that has been tested and declared suitable for use, then the media will be used during learning to increase the learning motivation of junior high school students in Semarang.

Table 3 . Achievement Rate Conversion Validation

Score	Information
81 – 100%	Very worth it
61 – 80%	Worthy
41 – 60%	worthy worthy
21 – 40%	Not worth it
0 – 20%	Not feasible

3. RESULT AND DISCUSSION

Result

Step planning, design, and development. After the development is complete, the results of the media development on students' learning motivation will be presented. This initial production stage is the manufacture of learning media products in the form of Role-Playing Game (RPG)-based educational games. The researcher made the initial product using a game maker program, namely MV RPG Maker which was then converted into an application using Android Studio. The compilation process generates *. apk files that can be installed on Android devices. RPG Based Educational Game Development showed in Figure 1.

**Figure 1. RPG Based Educational Game Development**

This media has the advantage that it can be used offline or without internet, and with * apk format so that it can be used either through smartphones, tablets or PCs (multiplatform). The display of the educational game can be seen in Figures 2.

**Figure 2. Role-Playing Game (RPG)**

Alpha test results obtained from media assessment data by several experts, namely: first, 3 media experts will assess aspects of visual communication, illustration, and media benefits. Second, 3 material experts as practitioners will assess aspects of the content of the material and the benefits of the material. The results of the expert validation assessment showed that media experts and material experts stated that the educational game media developed by the researchers obtained the predicate "Very Eligible" with an average percentage of 95%. The results of the assessment on the alpha test can be seen in Table 4.

Table 4. Expert Assessment Recapitulation

No	Expert Validator	Percentage Value	Interpretation
1	Media expert 1	95%	Very Worthy
2	Media expert 2	92.5%	
3	Media expert 3	95%	
4	Material Expert 1	100%	Very Worthy
5	Material Expert 2	92.5%	
6	Material expert 3	95%	

Beta testing results in product usage and display functionality. The results of the beta testing then become the basis for the distribution of the final product. This beta test was conducted on 120 junior high school students in the city of Semarang. Table 6 shows the results of the student response questionnaire to the developed media product. Questionnaire of students' responses to the media showed in Table 5.

Table 5. Questionnaire of Students' Responses to the Media

Aspect	Question Number	Total	Percentage
Ease of understanding	1,2,3,4,5,6	2104	17.42%
Motivation	7,8,9,10,11,12	2273	18.82%
Interests and media	13,14,15,16,17,18	2135	17.68%
Media presentation	19,20,21,22,23,24	2278	18.86%
Media use	25,26,27,28,29,30	1962	16.24%
Total		10752	89.02%
Maximum	30 Questions	12078	100%

Table 5 shows students' opinions about media products developed by researchers with a score of 89,02 % with the criteria "Very feasible". After the media is tested and declared suitable for use, then the media will be used in classroom learning to increase the learning motivation of junior high school students in Semarang. The results of this test are presented in Table 6.

Table 6. Independent Sample Test Results

		F	Signat ure.	t	df	Signatu re. (2- tail)	Differ ence Means	Std. error differ ence	95% Confidence Interval of Difference Lower On	
student motivation	The same variance is assumed	3.429	0.067	19.145	118	0.000	11.383	0.595	10.206	12.561
	Equal variance is not assumed			19.145	112.709	0.000	11.383	0.595	10.205	12.561

Based on the table of statistical test results with the SPSS 25 program, the learning motivation of the two groups of students obtained a significance level of 0.000 which is smaller than 0.05 (0.000 < 0.05) then Ho is rejected and Ha is accepted or there is a significant difference between the learning motivation of students who use RPG media with student learning motivation who do not use RPG media. The comparison of students' learning motivation in the experimental class and the control class can be seen in Table 7.

Table 7. Independent Sample Test Results

Class	Means	Std. Deviation	Std. Mistakes Mean
Student Motivation	Experiment Class	81.67	.464
	Control Class	70.28	.372

Based on the statistical test results table with the SPSS 25 program, the posttest value of the experimental class students' learning motivation was higher with an average score of 81.67 when compared to the control class which only obtained a score of 70.28. These results indicate that learning using RPG-based educational game learning media is more effective than classes that do not use educational or conventional game learning media.

Discussion

Online learning makes teachers have to think more creatively in choosing the right media to present material while keeping students enthusiastic about learning. The RPG-based educational game learning media that was developed was proven to be able to significantly increase students' learning motivation. Media experts and material experts confirmed that the learning media for the RPG educational game developed was "very feasible" and could be used as a learning medium, both in terms of the suitability of the material and the completeness of the media aspect. RPG is able to facilitate students to understand teaching materials and help student learning problems such as boredom (Rasyid & Gaffar, 2019; Saputri & Ferawati, 2021). They found that RPG educational games can be useful for the learning process such as gaining new knowledge and making the learning process more fun (Dewi & Sujana, 2021; Faiz et al., 2017; Wang et al., 2018) . The RPG learning media developed is also

very feasible in terms of functionality and product use. This is because educational games have playing settings that are more familiar to them than other learning media they have used before (All et al., 2015; Prager, 2019; Wang et al., 2018). RPG game media can provide a playing experience and create motivation in learning, while motivation presents an inner drive that encourages users to enter and continue to return to activities (Alrehaili & Al Osman, 2019; Von Der Heiden et al., 2019). By integrating lively graphic presentations in RPG games, it turns out that it can be useful to increase students' learning motivation. This can be obtained because games can make learning activities that were originally rigid become more fun and make students inadvertently continue to study the material (Eldiana & Muliawati, 2019; Saputri & Ferawati, 2021; Wang et al., 2018).

Previous researchers who developed RPGs also stated that the use of RPG media could improve students' understanding of learning during online learning (Prager, 2019; Satria & Herumurti, 2021; Shim et al., 2019). RPG has also been proven to motivate students in learning and even improve understanding of the concept of subject matter (Aripin, 2018; Mufida & Kurniawan, 2018). The development of RPG media carried out by previous researchers was still constrained by several things, namely the media only provided 1 field or fields, so that students were less able to explore RPGs. They only develop the material and minimal variation in the delivery of the material. The developed media drains a lot of internal storage on mobile devices. Media development by researchers is very suitable and has answered the shortcomings of previous researchers, there are 5 fields or fields available in the media, complete material with various variations of material delivery, and of course students can use media on their respective cellphones without having to worry about space. storage because the game size has been developed to a smaller size. Media games with serious settings can have a high impact on students' learning motivation (De Freitas, 2018; Leitão et al., 2022).

The media that has been developed gets the "very feasible" predicate by expert validators and this student validation certainly adds to the teacher's reference in choosing learning media innovations that will be used in the teaching and learning process. Moreover, the use of RPG media is proven to be able to increase students' learning motivation compared to those who do not use it. The use of RPG educational game learning media seems to bring activities into multigames and makes learning more interactive and fun so that every student can master games that provide a lot of knowledge that has an impact on their learning motivation (De Freitas, 2018; Giannakos, 2013; Tokarieva et al., 2019). The development of this RPG can be implied by being used as a supporting medium for online learning or distance learning in an effort to increase student learning motivation. Media can also be used to support the creation of a pleasant learning atmosphere. The procedure for operating RPG media will hinder the utilization of this media so that it is not optimal. So this media needs to be accompanied by tutorials and media usage habits so that learning can run effectively. In short, this study confirms that the development of RPG educational games has been proven to be feasible and effective to use to increase students' learning motivation. The limitation of this RPG media is that the learning evaluation quiz is not connected or integrated with the teacher's account, so the teacher cannot find out the student's score automatically. Suggestions that can be given for further research is that RPG game media should be able to integrate student scores into teacher accounts automatically.

4. CONCLUSION

Learning using RPG-based educational game learning media is proven to be able to increase students' learning motivation during online learning. RPG is the right choice for teachers in order to provide creative and innovative learning to students. Apart from the large number of smartphone users among students, RPG games are also one of the most popular types of games. The development of RPG educational game media is needed to overcome learning problems, namely the low learning motivation of students. Media development by researchers shows that media experts, material experts, and students have positive opinions about this RPG-based educational game media. All media experts and materials experts stated that this media was "Very Appropriate". The results of the student response questionnaire to this media were also rated "High Quality".

5. REFERENCES

- Abidah, A., Hidayatullaah, H. N., Simamora, R. M., Fehabutar, D., & Mutakinati, L. (2020). The Impact of Covid-19 to Indonesian Education and Its Relation to the Philosophy of "Merdeka Belajar". *Studies in Philosophy of Science and Education*, 1(1), 38–49. <https://doi.org/10.46627/sipose.v1i1.9>.
- Alessi, S. M., & Trollip, S. R. (2001). Multimedia For Learning: Methods And Development. *European journal of education studies*, 1(1).
- All, A., Nuñez Castellar, E. P., & Van Looy, J. (2015). Towards a Conceptual Framework for Assessing the Effectiveness of Digital Game-Based Learning. *Computers and Education*, 88, 29–37. <https://doi.org/10.1016/j.compedu.2015.04.012>.
- Alrehaili, E. A., & Al Osman, H. (2019). A Virtual Reality Role-Playing Serious Game for Experiential Learning.

- Interactive Learning Environments*, 30(5), 922–935. <https://doi.org/10.1080/10494820.2019.1703008>.
- Amon, L., Jela, K., Margareta, M., & Anggal, N. (2022). Online Learning during the COVID-19 Pandemic: An Experience of Catholic Religion Teacher. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 5(1), 2541–2549. <https://doi.org/10.33258/birci.v5i1.3864>
- Anastasiadis, T., Lampropoulos, G., & Siakas, K. (2018). Digital Game-based Learning and Serious Games in Education. *International Journal of Advances in Scientific Research and Engineering*, 4(12), 139–144. <https://doi.org/10.31695/ijasre.2018.33016>.
- Arifin, M., & Abduh, M. (2021). Peningkatan Motivasi Belajar Model Pembelajaran Blended Learning. *Jurnal Basicedu*, 5(4), 2339–2347. <https://doi.org/10.31004/BASICEDU.V5I4.1201>.
- Aripin, I. (2018). Mobile Learning Development of Games Based Model Using RPG Maker MV in Ecosystem Concept. *International Conference on Mathematics and Science Education*, 3, 29–34.
- Aruma, D. E. O., & Hanachor, D. M. E. (2017). Abraham Maslow's Hierarchy of Needs and Assessment of Needs in Community Development. *International Journal of Development and Economic Sustainability*, 5(7), 15–27.
- Bao, W. (2020). COVID -19 and online teaching in higher education: A case study of Peking University . *Human Behavior and Emerging Technologies*. <https://doi.org/10.1002/hbe2.191>.
- Besser, A., Flett, G. L., & Zeigler-Hill, V. (2022). Adaptability to A Sudden Transition to Online Learning during the COVID-19 Pandemic: Understanding the Challenges for Students. *Scholarship of Teaching and Learning in Psychology*, 8(2), 85–105. <https://doi.org/10.1037/stl0000198>.
- Bojović, Ž., Bojović, P. D., Vujošević, D., & Šuh, J. (2020). Education in Times of Crisis: Rapid Transition to Distance Learning. *Computer Applications in Engineering Education*, 28(6), 1467–1489. <https://doi.org/10.1002/cae.22318>.
- Chapman, J. R., & Rich, P. J. (2018). Does Educational Gamification Improve Students' Motivation? If So, Which Game Elements Work Best? <https://doi.org/10.1080/08832323.2018.1490687>, 93(7), 314–321. <https://doi.org/10.1080/08832323.2018.1490687>.
- Daumiller, M., & Dresel, M. (2019). Supporting Self-Regulated Learning with Digital Media Using Motivational Regulation and Metacognitive Prompts. *Journal of Experimental Education*, 87(1), 161–176. <https://doi.org/10.1080/00220973.2018.1448744>.
- De Freitas, S. (2018). Are Games Effective Learning Tools? A Review of Educational Games. *Journal of Educational Technology & Society*, 21(2), 74–84.
- Dewi, N. L. P. J., & Sujana, I. W. (2021). Learning Multimedia Based on RPG Maker MV Material for Circumference and Area of Flat Shapes for Elementary School Students. *Journal of Education Technology*, 5(3), 365. <https://doi.org/10.23887/jet.v5i2.34462>.
- Dewi, N. M. S., & Mudiasih, N. W. (2021). Belajar dari Rumah (BDR) Pada Masa Pandemi Covid-19. *PENSI: Jurnal Ilmiah Pendidikan Seni*, 1(2), 1–7.
- Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>.
- Eldiana, N. F., & Muliawati, N. E. (2019). Pengembangan Game “COC” RPG Maker MV Sebagai Media Pembelajaran Pada Materi KPK. *APOTEMA : Jurnal Program Studi Pendidikan Matematika*, 5(2), 150–160.
- Eyupoglu, T. F., & Nietfeld, J. L. (2019). Intrinsic Motivation in Game-Based Learning Environments. In *Motivation in Game-based Learning* (bll 85–102). Springer, Cham. https://doi.org/10.1007/978-3-030-15569-8_5.
- Faiz, M. I., Darminto, B. P., & Wibowo, T. (2017). Keefektifan Media Role Playing Game Education “RPG Edu” Pada Pembelajaran Era Covid-19 Terhadap Minat Belajar. *Prosiding Sendika*, 350–357.
- Fernando M. Reimers, & Schleicher, A. (2020). A Framework to Guide an Education Response to the COVID - 19 Pandemic of 2020. *Oecd*.
- Ge, X., & Ifenthaler, D. (2018). Designing Engaging Educational Games and Assessing Engagement in Game-Based Learning. *IGI Global*, 1–19. <https://doi.org/10.4018/978-1-5225-5198-0.CH001>.
- Giannakos, M. N. (2013). Enjoy and Learn with Educational Games: Examining Factors Affecting Learning Performance. *Computers and Education*, 68(246016), 429–439. <https://doi.org/10.1016/j.compedu.2013.06.005>.
- Gopalan, V., Bakar, J. A. A., Zulkifli, A. N., Alwi, A., & Mat, R. C. (2017). A Review of the Motivation Theories in Learning. *AIP Conference Proceedings*, 1891(October). <https://doi.org/10.1063/1.5005376>.
- Gustiani, S. (2020). Students ' Motivation in Online Learning During Covid-19 Pandemic Era : a Case Study. *Holistics Journal*, 12(2), 23–40.
- Howard, S. K., Tondeur, J., Siddiq, F., & Scherer, R. (2021). Ready, Set, Go! Profiling Teachers' Readiness for Online Teaching in Secondary Education. *Technology, Pedagogy and Education*, 30(1), 141–158. https://doi.org/10.1080/1475939X.2020.1839543/SUPPL_FILE/RTPE_A_1839543_SM2505.PDF.

- Izzatunnisa, L., Suryanda, A., Kholifah, A. S., Loka, C., Pertiwi, P., Goesvita, I., Aghata, P. S., & Anggraeni, S. (2021). Motivasi Belajar Siswa Selama Pandemi dalam Proses Belajar dari Rumah. *Jurnal Pendidikan*, 9(2), 7–14. <https://doi.org/10.36232/pendidikan.v9i2.811>.
- Korkmaz, G., & Toraman, Ç. (2020). Are We Ready for the Post-COVID-19 Educational Practice? An Investigation into What Educators Think as to Online Learning. *International Journal of Technology in Education and Science*, 4(4), 293–309. <https://doi.org/10.46328/ijtes.v4i4.110>.
- Kurniasari, A., Pribowo, F. S. P., & Putra, D. A. (2020). Analisis Efektivitas Pelaksanaan Belajar dari Rumah (BDR) Selama Pandemi COVID-19. *Jurnal Review Pendidikan Dasar : Jurnal Kajian Pendidikan dan Hasil Penelitian*, 6(3), 246–253. <https://doi.org/10.26740/JRPD.V6N3.P246-253>.
- Kusumaningrum, D. E., Budiarti, E. M., Triwiyanto, T., & Utari, R. (2020). The Effect of Distance Learning in an Online Learning Framework on Student Learning Independence during the Covid-19 Pandemic. *Proceedings - 2020 6th International Conference on Education and Technology, ICET 2020*, 182–185. <https://doi.org/10.1109/ICET51153.2020.9276564>.
- Lapada, A. A., Miguel, F. F., Robledo, D. A. R., & Alam, Z. F. (2020). Teachers' Covid-19 Awareness, Distance Learning Education Experiences and Perceptions towards Institutional Readiness and Challenges. *International Journal of Learning, Teaching and Educational Research*, 19(6), 127–144. <https://doi.org/10.26803/ijlter.19.6.8>.
- Leitão, R., Maguire, M., Turner, S., & Guimarães, L. (2022). A Systematic Evaluation of Game Elements Effects on Students' Motivation. *Education and Information Technologies*, 27(1), 1081–1103. <https://doi.org/10.1007/S10639-021-10651-8/FIGURES/5>.
- Li, Y., Garza, V., Keicher, A., & Popov, V. (2019). Predicting High School Teacher Use of Technology: Pedagogical Beliefs, Technological Beliefs and Attitudes, and Teacher Training. *Technology, Knowledge and Learning*, 24(3), 501–518. <https://doi.org/10.1007/S10758-018-9355-2/TABLES/3>.
- Liu, Y. (2018). Understanding the Transition of Teachers from Game Users to Game Designers. *PRISM: University of Calgary's Digital Repository*. <https://doi.org/10.11575/PRISM/32354>.
- Mariyah, Y. S., Budiman, A., Rohayani, H., & Audina, W. D. (2021). Meningkatkan Motivasi Belajar Siswa Melalui Pemanfaatan Media Audio Visual : Studi Eksperimen Dalam Pembelajaran Tari. *Journal of Education, Humaniora and Social Sciences (JEHSS)*, 4(2), 959–967. <https://doi.org/10.34007/JEHSS.V4I2.778>.
- Mohalik, P. R., & Sahoo, S. (2020). E-Readiness and Perception of Student Teachers' Towards Online Learning in the Midst of COVID-19 Pandemic. *SSRN Electronic Journal*. <https://doi.org/10.2139/SSRN.3666914>.
- Muawanah, E. I., & Muhid, A. (2021). Strategi Meningkatkan Motivasi Belajar Siswa Selama Pandemi Covid-19. *Jurnal Ilmiah Bimbingan Konseling Undiksha*, 12(1), 90–98. <https://doi.org/10.23887/JJBK.V12I1.31311>.
- Mufida, R. Z., & Kurniawan, D. (2018). The Development of Role Playing Game (RPG) “in Meinem Traum” as A Learning Media for German Reading Skill in Eleventh Grade of SMA. *Journal Deutsch als Fremdsprache in Indonesia*, 2(1). <https://doi.org/10.17977/um079v2i12018p174%20-%2020181>.
- Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, Limitations and Recommendations for Online Learning during COVID-19 Pandemic Era. *Pakistan Journal of Medical Sciences*, 36(COVID19-S4), S27. <https://doi.org/10.12669/PJMS.36.COVID19-S4.2785>.
- Octavia, S. (2020). *Motivasi Belajar dalam Perkembangan Remaja*. Deepublish.
- Paliwal, M., & Singh, A. (2021). Teacher Readiness for Online Teaching-Learning during COVID –19 Outbreak: a Study of Indian Institutions of Higher Education. *Interactive Technology and Smart Education*, 18(3), 403–421. <https://doi.org/10.1108/ITSE-07-2020-0118/FULL/PDF>.
- Panisoara, I. O., Lazar, I., Panisoara, G., Chirca, R., & Ursu, A. S. (2020). Motivation and Continuance Intention towards Online Instruction among Teachers during the COVID-19 Pandemic: The Mediating Effect of Burnout and Technostress. *International Journal of Environmental Research and Public Health*, 17(21), 8002. <https://doi.org/10.3390/IJERPH17218002>.
- Pelikan, E. R., Lüftenegger, M., Holzer, J., Korlat, S., Spiel, C., & Schober, B. (2021). Learning during COVID-19: the Role of Self-regulated Learning, Motivation, and Procrastination for Perceived Competence. *Zeitschrift für Erziehungswissenschaft*, 24(2), 393–418. <https://doi.org/10.1007/S11618-021-01002-X/FIGURES/3>.
- Prager, R. H. P. (2019). Exploring The Use of Role-playing Games In Education. *Master of Teaching Research Journal*, 2.
- Pramuditya, S. A., Noto, M. S., & Purwono, H. (2018). Desain Game Edukasi Berbasis Android Pada Materi Logika Matematika. *JNPM (Jurnal Nasional Pendidikan Matematika)*, 2(2), 165. <https://doi.org/10.33603/jnpm.v2i2.919>.
- Qazi, A., Qazi, J., Naseer, K., Zeeshan, M., Qazi, S., Abayomi-alli, O., Ahmad, I. S., Darwich, M., Talpur, A., Hardaker, G., Naseem, U., Yang, S., & Haruna, K. (2021). Adaption of Distance Learning to Continue

- the Academic Year Amid COVID-19 Lockdown. *Journal Pre-proofs (Children and Youth Services Review)*, 1–20. <https://doi.org/10.1016/j.childyouth.2021.106038>.
- Racat, M., & Lichy, J. (2022). Negative Effects of Distance Learning Accentuated by COVID-19 Outbreak: a Perspective of Learners and Teachers. *Knowledge Management Research & Practic.* <https://doi.org/10.1080/14778238.2022.2075807>.
- Rasmitadila, Aliyyah, R. R., Rachmadtullah, R., Samsudin, A., Syaodih, E., Nurtanto, M., & Tambunan, A. R. S. (2020). The Perceptions of Primary School Teachers of Online Learning during the COVID-19 Pandemic Period: A Case Study in Indonesia. *Journal of Ethnic and Cultural Studies*, 7(2), 90–109. <https://doi.org/10.29333/ejecs/388>.
- Rasyid, A., & Gaffar, A. A. (2019). Pengembangan Aplikasi Mobile Learning Model Games “Antibody vs Antigen” Menggunakan RPG Maker MV Pada Materi Sistem Imun. *Biodik: Jurnal Ilmiah Pendidikan Biologi*, 5(3), 225–238. <https://doi.org/10.22437/bio.v5i3.7870>.
- Ratminingsih, N. M., Mahadewi, L. P. P., & Divayana, D. G. H. (2018). ICT-Based Interactive Game in TEYL: Teachers’ Perception, Students’ Motivation, and Achievement. *International Journal of Emerging Technologies in Learning (IJET)*, 13(09), 190–203. <https://doi.org/10.3991/IJET.V13I09.8170>.
- Reimers, F. M., & Schleicher, A. (2020). A Framework to Guide an Education Response to the COVID-19 Pandemic of 2020. *Review of Educational Research*, 66(3), 227–268.
- Salsabila, U. H., Utami, S. N., Zahra, A., Haikal, F., & Cahyono, A. (2021). Pengaruh Penggunaan Media Belajar Online Selama Pandemi. *Jurnal Ilmiah Wahana Pendidikan*, 7(1), 1–9. <https://doi.org/10.5281/ZENODO.4412063>.
- Saputri, F. H., & Ferawati, F. (2021). Development of Media for Introduction and Prevention of Covid-19 Based on Role Playing Game for Elementary School. *Journal of Sisfotek Global*, 11(2), 108–114.
- Satria, V. H., & Herumurti, D. (2021). Role-Playing Game as Learning Media To Support Online Learning. *Journal of Education Technology*, 5(4), 579–587. <https://doi.org/10.23887/JET.V5I4.39718>.
- Schneider, S. L., & Council, M. L. (2021). Distance learning in the era of COVID-19. *Archives of Dermatological Research*, 313(5), 389–390. <https://doi.org/10.1007/s00403-020-02088-9>.
- Shim, E., Choe, S., & Kim, C. (2019). Development and Application of a Science History Role-Playing Game for High School Students’ Understanding of Nature of Science: Focus on Storytelling of the Continental Drift Theory. *Journal of the Korean Association for Science Education*, 39(1), 45–57.
- Shofa, H., & Surjono, H. D. (2018). Pengembangan Multimedia Pembelajaran Berbasis Role Playing Games (RPG) Pada Materi Lingkaran untuk Siswa SMP/MTs Kelas VIII. *Jurnal Inovasi Teknologi Pendidikan*, 5(2), 151–164. <https://doi.org/10.21831/jitp.v5i2.15048>.
- Suartini, N. N. (2021). Efektivitas Pelaksanaan Belajar dari Rumah (BDR) secara Online di Masa Pandemi Covid 19 Pada Mata Pelajaran Agama Hindu. *Jurnal Inovasi*, 7(15), 77–81.
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Surma, T., & Kirschner, P. A. (2020). Virtual Special Issue Computers in Human Behavior Technology Enhanced Distance Learning Should Not Forget How Learning Happens. *Computers in Human Behavior*, 110. <https://doi.org/10.1016/j.chb.2020.106390>.
- Suryanti, S., Sutaji, D., Nusantara, T., & Subanji. (2021). An Assessment of Teachers’ Readiness for Online Teaching. *Journal of Physics: Conference Series*, 1933(1), 012117. <https://doi.org/10.1088/1742-6596/1933/1/012117>.
- Syachtiyani, W. R., & Trisnawati, N. (2021). Analisis Motivasi Belajar dan Hasil Belajar Siswa di Masa Pandemi Covid-19. *Prima Magistra: Jurnal Ilmiah Kependidikan*, 2(1), 90–101. <https://doi.org/10.37478/JPM.V2I1.878>.
- Tokarieva, A. V., Volkova, N. P., Harkusha, I. V., & Soloviev, V. N. (2019). Educational Digital Games: Models and Implementation. *CEUR Workshop Proceedings*, 2433, 74–89. <https://doi.org/10.31812/EDUCDIM.V53I1.3872>.
- Von Der Heiden, J. M., Braun, B., Müller, K. W., & Eglhoff, B. (2019). The Association Between Video Gaming and Psychological Functioning. *Frontiers in Psychology*, 10, 1–11. <https://doi.org/10.3389/fpsyg.2019.01731>.
- Wang, S. Y., Chang, S. C., Hwang, G. J., & Chen, P. Y. (2018). A Microworld-based Role-playing Game Development Approach to Engaging Students in Interactive, Enjoyable, and Effective Mathematics Learning. *Interactive Learning Environments*, 26(3), 411–423. <https://doi.org/10.1080/10494820.2017.1337038>.
- Westera, W. (2019). Why and How Serious Games Can Become Far More Effective: Accommodating Productive Learning Experiences, Learner Motivation and the Monitoring of Learning Gains. *International Forum of Educational Technology & Society*, 22(1), 59–69.
- Winata, I. K. (2021). Konsentrasi dan Motivasi Belajar Siswa terhadap Pembelajaran Online Selama Masa Pandemi Covid-19. *Jurnal Komunikasi Pendidikan*, 5(1), 13. <https://doi.org/10.32585/jkp.v5i1.1062>.

- Yu, Z., Gao, M., & Wang, L. (2020). The Effect of Educational Games on Learning Outcomes, Student Motivation, Engagement and Satisfaction. *https://doi.org/10.1177/0735633120969214*, 59(3), 522–546. <https://doi.org/10.1177/0735633120969214>.
- Zaccoletti, S., Camacho, A., Correia, N., Aguiar, C., Mason, L., Alves, R. A., & Daniel, J. R. (2020). Parents' Perceptions of Student Academic Motivation during the COVID-19 Lockdown: A Cross-Country Comparison. *Frontiers in Psychology, 11*, 3602. <https://doi.org/10.3389/FPSYG.2020.592670/BIBTEX>.