International Journal of Current Educational Research
Homepage: https://www.journal.iel-education.org/index.php/ijocer
Email: ijocer@iel-education.org
p-ISSN: 2961-8517; e-ISSN: 2961-8509

IJOCER, Vol. 1, No. 2, December 2022

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Development Educational Game Model "*Rekreasiku*" to Improve Childhood Language Literacy

Barokah Widuroyekti[1], Hadiqotul Luluk[2], Iswati[3]
[1,2,3] Universitas Terbuka, Jember, Indonesia

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DOI : https://doi.org/10.53621/ijocer.v1i2.189

Sections Info

Article history:
Submitted: November 30, 2022
Final Revised: December 17, 2022
Accepted: December 20, 2022
Published: December 31, 2022

Keywords:
Early Childhood
Education
Educational Games
Language Literacy

ABSTRACT

The purpose of this research is to develop a valid and effective Recreational Educational Game for increasing early childhood language literacy. Literacy is a good culture to develop, literacy is reading, listening, writing, and speaking, the basic things that must be done. Unesco said that Indonesia ranks second from the bottom in terms of world literacy, meaning that people's interest in reading and writing is very low. Among the factors that influence literacy are habituation and the media. The type of research used is research and development from Bord and Gall. The research subjects were 2 Early Childhood Education Programs units in Jember. The instruments used were model validation sheets, educational game questionnaire sheets, and literacy tests. Data were analyzed by descriptive quantitative. So as to create an Educational Recreation Game activity to increase literacy in early childhood without leaving the principle of playing for children. The Educational Games carried out refer to the curriculum that has been used by Early Childhood Education Programs teachers. The results of the study show that the Educational Recreation Game that was developed is valid as an appropriate learning medium for increasing early childhood literacy. Effective for increasing children's language literacy.

INTRODUCTION

Understanding appropriateness is very important in teaching and learning activities carried out by a teacher. Literacy is a word taken from Latin meaning marked with letters, literate or educated (Toharudin et al., 2014) the origin of the word Literacy is literatus, in society an easily accepted understanding is literacy is the ability to be a listener, reader, writer, and good talker. Even though the current definition of literacy has entered into a broader domain such as scientific literacy, computer literacy, mobile phone literacy, and mathematical literacy, so it's not just language literacy. Advances in technology require us to cultivate literacy in everyday life.

Early childhood has the characteristic of being an excellent imitator, children will do something they see, and the development of children's literacy cannot be separated from their habit of imitating the behavior of those around them. If the child's environment is familiar with the culture of reading, then the child will easily imitate it, but if it's the other way around, this will happen. Early childhood literacy consists of 3 (three) elements, the first is understanding, the second is uncovering and the third is increasing literacy understanding (Festl, 2021; Levesque et al., 2017; Markussen-Brown et al., 2017; Purpura et al., 2017; Yusuf et al., 2017). According to Hurlock (2018), literacy is included in 2 domains of ability, including children using forms of language that are meaningful to the people they communicate with and children also understanding the language used by other people so that speaking abilities affect children's social and personal intelligence (Basyiroh, 2018). The broader meaning of literacy that children

should have is basic literacy skills, namely oral and written literacy. Building literacy can be done through learning media. Learning media is something that can carry information and messages from learning resources to students or students. Learning media can be in the form of textbooks, manuals, modules, video programs, game programs, and printed teaching materials. Based on the needs analysis that has been carried out, the appropriate learning materials are in the form of Games and My Recreational Educational Game Guidebooks (Andrews, 2018).

Learning media that are suitable for the characteristics of early childhood are through educational games. This game was developed using Unity software and several other software tools. Apart from being safe for young children, because the images displayed are in accordance with the age of the child, then the time to use the game from start to finish also does not exceed the limit, so it is very safe for children to use accompanied by parents or teachers. The variations displayed in the game are very diverse so that it fits into the study of the theory of early childhood literacy skills in general as described by (Pilgrim & Martinez, 2013), which relates to reading and writing effectively in a variety of contexts, meaning that the process of literacy skills is not only in obtained from conventional methods using books, pencils and erasers only but using various methods, media, learning resources.

My Recreational Educational Game consists of three groups of material and is taught in 6 meetings or face-to-face in class, namely: 1) Listening to other people's words, understanding two commands given simultaneously, understanding the story being read, recognizing differences in words regarding adjectives, hear and discriminate sounds. 2) Revealing language includes repeating simple sentences, asking with correct sentences, answering questions according to questions, calling out familiar words, retelling stories or fairy tales that have been heard (Licia, 2018; Sayeef, 2019; Vaahtoranta et al., 2018, 2019), and participating in conversations. 3) Literacy, recognizing symbols, recognizing animal sounds or objects around them, making meaningful strokes, and imitating or writing letters (Affandi, 2014).

The growth and development of children will be achieved optimally if conducive situations and conditions are created according to the needs of children who are different from one another. Educational services provided must also pay attention to cultural diversity, religion, natural conditions, and patterns of children's daily lives (Lian et al., 2018; Ungar & Theron, 2020) . In addition, it is necessary to pay attention to the nature of children as individual, social, moral, and religious beings. Based on the objective conditions that exist in children as stated and to develop the potential of early childhood to the fullest, it is necessary to design something creative and innovative.

Based on a questionnaire that has been distributed to Early Childhood Education Programs teachers, students, and guardians of students in Besuki Jember residency, there is a need to create Online Language Applications for early childhood, so it is deemed important to do research and create my Recreation Education Game model to Increase Literacy in Early Childhood to improve children's language development and literacy. The games that are made will be tested for their level of validity and effectiveness after being used in class.

RESEARCH METHOD

The type of research used is Research and Development. The design flow can be in Figure 1.

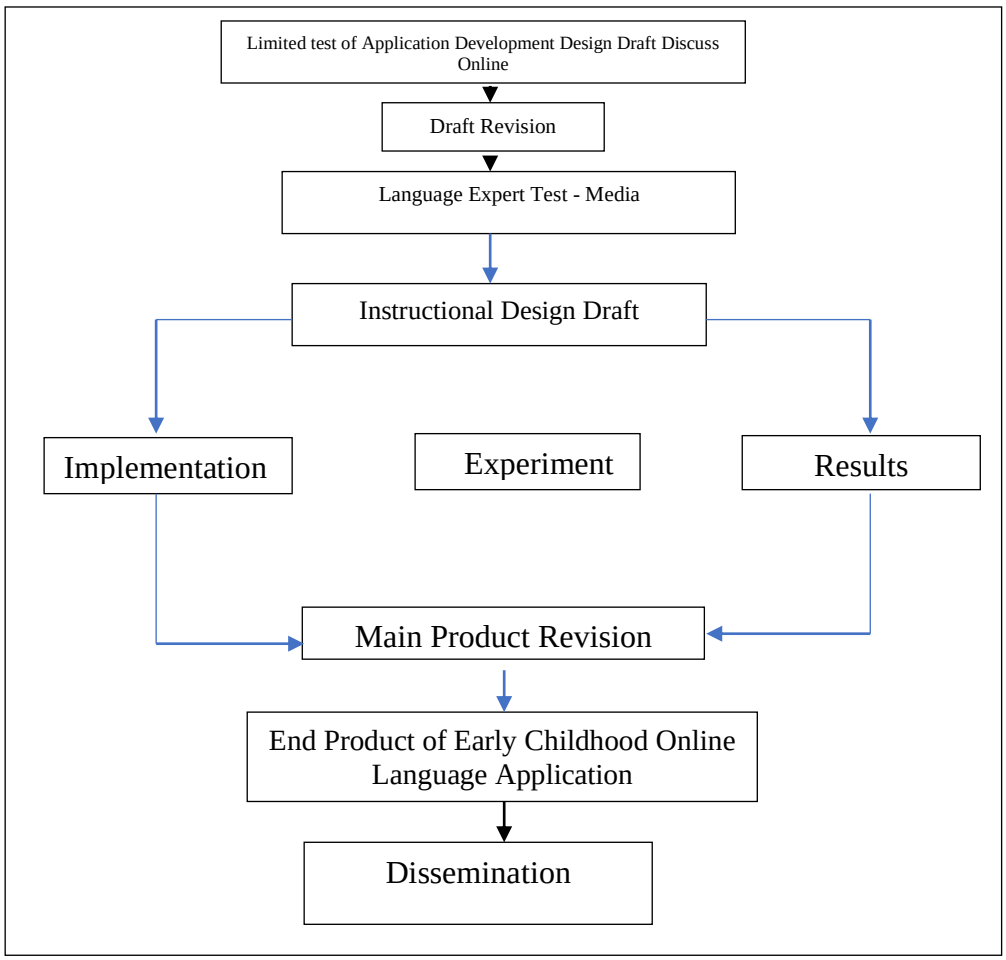

Figure 1. My Educational Game Development Design
(Adaptation Gall & Borg, 2017)

Referring to the design of Borg & Gall, the researchers adapted it into ten steps for implementing the research and development strategy, namely:

a. Data research and development, needs analysis, literature study, research on a small scale, and value judgments.
b. Planning, including the capabilities needed in carrying out the research, the formulation of the objectives to be achieved with the research, the design or steps of the research, and the possibility of examiners within a limited scope.
c. Development of material development product drafts, making my Recreational Educational Game products, the process of making evaluation instruments, and making assessment instruments.
d. Initial field trials, field tests on Early Childhood Education Programs educators with a total of 30 educators and 3 early childhood children, during the trials there were always observations, interviews, and distribution of questionnaires.
e. Revise trial 1 (one), and improve or perfect the trial results.
f. The field trial conducted a wider trial on 45 educators and seven early childhood children. Qualitative data on the appearance of educators before and after using the attempted model were collected (Al-Kumaim et al., 2021; Arista & Kuswanto, 2018; Beach, 2017; Dare et al., 2019; Gess-Newsome et al., 2019; Kleinheksel et al., 2020). The results of data collection are evaluated and, if possible, compared with the comparison group.

g. Improving the product from field trials, namely making improvements/improvements to the results of wider trials, so that the product being developed is already an operational model design that is ready to be validated.
h. Tested the effectiveness of my Recreational Educational Game on 30 children from 2 Early Childhood Education Programs units.
i. Product improvement results based on field implementation tests.
j. Dissemination and implementation, reporting the results in professional findings and journals, and publishing. Monitoring deployment for quality.

The location of research was carried out in the Jember district with the consideration that the population in the Jember district had a large number of students, especially in Early Childhood Education Programs. The trial was conducted in 2 EARLY Childhood Education Programs units in the Jember district.

The instrument used was a validation sheet for my educational game model, a questionnaire sheet regarding educational games, and a test instrument in the form of a pretest and post-test regarding language literacy in early childhood using the developed educational game. Furthermore, the data obtained were analyzed in a quantitative descriptive manner to answer questions or problems that have been submitted to be resolved related to language literacy using the My Education Game that has been developed.

RESULTS AND DISCUSSION

Feasibility of Developed Educational Game

The results of interviews with the three experts obtained suggestions and responses to the Literacy Educational Game.

Early Childhood Language and Learning Design Expert

The learning design expert who was asked to assess and provide feedback on the results of product development was Doctor Kustiyo Setyowati M. Pd who is a lecturer with an undergraduate and doctoral educational background in Early Childhood Education Programs (Andrews, 2018). Furthermore, suggestions and responses were obtained that the products developed below were suggestions from language experts in early childhood on the products being developed

Media Expert

Media experts asked to assess and provide feedback on the products being developed were Agung Muliawan, S.S.T., M.Tr.Kom. The media experts were interviewed. the results of interviews with media experts are used as input for improvements and revisions to media material that will be displayed in educational literacy games (Affandi, 2014).

Results of Trial 1 and Small Group Trial

Research on the development of My Recreational Educational Game Model to improve literacy development in early childhood was carried out through trials twice, namely trial one and small group trials, as well as large group effectiveness tests. The purpose of various types of trials is to find out whether the material in the literacy educational game is final and effective, and superior (Dean, 2014). The results of the product

development which have been revised based on input from experts are then carried out in trial 1 which is carried out on three children, namely Tu Syafiq Safin, and Dito. The children are randomly selected by lottery at Early Childhood Education Programs Nurul Habib. The conclusion from trial 1, Ananda Syafiq, Safin, and Dito, if given the opportunity to tell about what they have done in my Recreation Educational Game Model, they still seem rushed and have not been able to absorb the material ordered in the game optimally (Hartati, 2017).

Small Group Test Results

The small group test was carried out on seven children, namely Ha, Akb, Dit, Saf, Syaf, Dek Al, and Zak; based on the results of the small group trials, it was seen that the highest result was five, and the lowest was 3. Based on the data analysis carried out, the acquisition of the calculated value = 13.49 > table = 2.446, at the level of confidence α = 0.05, so it is concluded that the post-test has a significant value to the pretest, then Ho is rejected. The results of the small group trial showed a significant difference. Based on these results, it can be concluded that these seven children were given the opportunity to answer, respond, express, and carry out literacy activities (Revina, 2014).

Test the Effectiveness of My Educational Game Model

The effectiveness test of this model was carried out at two Early Childhood Education Programs Nurul Habib and RA Istiqlal Jember institutions. The model effectiveness test was carried out at the same time in 2 Early Childhood Education Programs units with 30 respondents or 15 children in each Early Childhood Education Programs unit and guided by 2 educators and researchers whose function was to make observations.

The effectiveness test on the Nurul Habib Jember Early Childhood Education Programs unit was carried out on ten children, namely Han, Akb, Dit, Saf, Syaf, Dek Al, Zak, Nab, Aim, and Nur. The activities carried out were the same as in the small group trial, where the children were given a pretest. Then the learning material for my Recreation Educational Game Model was carried out for two weeks with an allocation calculation every one week for two meetings. Each meeting was held for 2 hours—data analysis on pretest and post-test results using the Wilcoxon test (T).

The effectiveness test at the second Early Childhood Education Programs institution was Raudhotul Atfal in Arjasa District by learning the My Educational Recreation Game Model for ten children as follows: Ath, Nad, Ice, Aqi, Dan, Fir, Ron, Nan, Rid, and Ad. Defense in RA Istiqlal is the same as what was done in the previous Early Childhood Education Programs institution. The results of the pretest and post-test of the effectiveness test in Early Childhood Education Programs (Yamin, 2014).

Data Normality Test

The test results with SPSS show the following data in Table 1.

Table 1. Results of the one-sample kolmogorov-smirnov test data normality.

		Pretest	*Post-Test*
Normal Parameters [b]	Mean	20	20
Most Extreme Differences	Std. Deviation	5.4667	9.6000
Kolmogorov-Smirnov Z	Absolute Positive	1.59164	1.99309
As m . Si . 2-tailed	Negative	.198	.225
		.135 -.198	.137 -.225
		1 .084	1 .235

		.191	.095

Based on the data, information is obtained that the value of Asymp Sig. on the Kolmogorov-Smirnov test at the pretest stage at both test locations, namely the Nurul Habib Early Childhood Education Programs Large Group, and the RA Large Group. Istiqlal Jember of 0.191 > 0.05 indicates that Ho, which says data is normally distributed, is accepted, and Hl, which says data is not normally distributed, is rejected, or in other words, the data at the pretest stage is normally distributed. Likewise the value of Asymp Sig. on the Kolmogorov-Smirnov test at the post-test stage at the two test locations, namely: the Nurul Habib Jember Early Childhood Education Programs Large Group and the RA Large Group. Istiqlal Jember of 0.095 > 0.05 indicates that Ho, which says data is normally distributed, is accepted, and Hl, which says data is not normally distributed, is rejected, or in other words, the data at the post-test stage is normally distributed.

Homogeneity Test

The test results with SPSS show the following data in Table 2.

Table 2. Homogeneity of variances pre-test.

Levene Statistic	df1	df2	Sig.
1.578	4	22	0.215

Based on the data obtained information that the value of Sig. in the Levene test using data at both test locations, namely: the Nurul Habib Jember Large Early Childhood Education Programs Group and the RA Large Group. Istiqlal Jember of 0.215 > 0.05 indicates that Ho, which says data has a homogeneous variance, is accepted and Hl, which says data does not have a homogeneous variance, is rejected, or in other words, the variance of pretest values is homogeneous to the post-test stages.

Paired Two-Sample T Test

The test results with SPSS show the data in Table 3.

Table 3. The results of the t-test of two paired samples.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	*PRE-TEST*	5.4667	20	1.59164	0.29059
	POST-TEST	9.6000	20	1 .99309	0.36389

Paired Samples Correlations

		N	Correlation	Si.
Pair 1	*PRE-TEST* & POST-TEST	20	0.387	0.035

Paired Samples Test

		Paired Differences					df	Sig. 2tailed
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	POSTTEST	4.13333	2.01260	.36745	4.88485	3.38181	29	

The correlation value between the two pretest and post-test variables is 0.387, meaning that it has a strong and positive relationship. In other words, the treatment has an impact which can be seen from the existence of a strong and positive relationship between pretest scores and post-test scores. The effectiveness test of this model was carried out at two Early Childhood Education Programs institutions in the Jember district, namely Early Childhood Education Programs Nurul Habib and RA Liberty. Testing the effectiveness of the model was carried out at the same time in two Early Childhood Education Programs units with 30 respondents or each Early Childhood Education Programs unit with 15 children each and guided by two class educators and researchers whose function was to make observations. Based on the pretest and post-test recapitulation of the effectiveness test on 20 children, it is illustrated that the lowest pretest score is one and the highest is 7. Then the post-test results have the lowest score, 11, and the highest, 23. Pre-test The test was carried out using a children's storytelling ability test with 12 questions. The score obtained by the child is then calculated using the paired data t-test. The implementation of the post-test also uses a test of children's storytelling ability, with as many as 12 questions. The data from the pretest and post-test results were then analyzed using the t-test. Other studies, such as those conducted by (Arpiansah et al., 2021; Fithri & Setiawan, 2017; Rahayu & Fujiati, 2018), also support and conclude that games can teach literacy to children effectively by getting percentages above 80% or having a good or very good ratings.

CONCLUSION

Based on the results of the research and discussion that has been described, the conclusions, implications, and suggestions are formulated as follows: (1) In general, the conditions in the Early Childhood Education Programs unit Nurul Habib and RA Istiqlal still have not shown readiness to carry out the Educational Game model activities to Improve Literacy in Early Childhood either, while the factors that cause the absence of my Recreational Educational Game Model activities are no media and models, lack of knowledge and skills possessed by educators regarding the use of IT media as a source of learning for children. Parents still think that doing activities on mobile media is a waste of time and there are no benefits to be gained. (2) The design of the Educational Game Model conceptually has several scopes of language development, including Understanding the language, Listening, Revealing language, repeating simple sentences, asking with correct sentences, answering questions according to questions, and expressing feelings with adjectives. Literacy recognizes symbols. (3) Significant difference between the pretest and post-test results. Based on these results, it can be concluded that by using My Recreational Educational Game, there is a significant change in children's literacy in expressing language, namely: simple retelling experiences, listening to the words conveyed by educators and writing their own names.

REFERENCES

Al-Kumaim, N. H., Alhazmi, A. K., Mohammed, F., Gazem, N. A., Shabbir, M. S., & Fazea, Y. (2021). Exploring the impact of the covid-19 pandemic on university students' learning life: An integrated conceptual motivational model for sustainable and healthy online learning. *Sustainability (Switzerland)*, *13*(5), 1–21. https://doi.org/10.3390/su13052546

Andrews, B. R. (2018). Habit. *American Journal of Psychology*, *14*(2), 121-149.

Affandi, M. (2014). Pengaruh game online terhadap tingkat efektivitas komunikasi interpersonal pada kalangan pelajar kelas 5 SDN 9 samarinda. *Journal Ilmu Komunikasi, 1*(4), 177-187.

Arista, F. S., & Kuswanto, H. (2018). Virtual physics laboratory application based on the android smartphone to improve learning independence and conceptual understanding. *International Journal of Instruction*, *11*(1), 1–16. https://doi.org/10.12973/iji.2018.1111a

arpiansah, R., Fernando, Y., & Fakhrurozi, J. (2021). Game edukasi VR pengenalan dan pencegahan virus COVID-19 menggunakan metode MDLC untuk anak usia dini. *Jurnal Teknologi dan Sistem Informasi*, *2*(2), 88–93. https://doi.org/10.33365/jtsi.v2i2.867

Basyiroh, I. (2018). Program pengembangan kemampuan literasi anak usia dini. *Early Childhood Education Programs Stkip Siliwangi Bandung*, *3*(2), 120–134. https://doi.org/10.22460/ts.v3i2p120-134.646

Beach, P. (2017). Self-directed online learning: A theoretical model for understanding elementary teachers' online learning experiences. *Teaching And Teacher Education*, *61*, 60–72. https://doi.org/10.1016/j.tate.2016.10.007

Dare, E. A., Ring-Whalen, E. A., & Roehrig, G. H. (2019). Creating a continuum of stem models: exploring how k-12 science teachers conceptualize stem education. *International Journal Of Science Education*, *41*(12), 1701–1720. https://doi.org/10.1080/09500693.2019.1638531

Dean, J. (2014). The effective primary school classroom: the essential guide for new teachers. Routledge.

Festl, R. (2021). Social media literacy & adolescent social online behavior in germany. *Journal Of Children And Media*, *15*(2), 249–271. https://doi.org/10.1080/17482798.2020.1770110

Fithri, D. L., & Setiawan, D. A. (2017). Analisa dan perancangan game edukasi sebagai motivasi belajar untuk anak usia dini. *Simetris: Jurnal Teknik Mesin, Elektro dan Ilmu Komputer*, *8*(1), 225–230. http://dx.doi.org/10.24176/simet.v8i1.959

Gall, M. D., & Borg, W. R. (2017). *Educational research: An introduction*. Longman Publishing.

Gess-Newsome, J., Taylor, J. A., Carlson, J., Gardner, A. L., Wilson, C. D., & Stuhlsatz, M. A. M. (2019). Teacher pedagogical content knowledge, practice, and student achievement. *International Journal Of Science Education*, *41*(7), 944–963. https://doi.org/10.1080/09500693.2016.1265158

Hartati, S. (2017). *How to be a good teacher and to be a good mother*. Enno Media.

Hurlock, E. B. (2018). *Perkembangan anak.* Jilid 1 edisi keenam. Erlangga.

Kleinheksel, A. J., Rockich-Winston, N., Tawfik, H., & Wyatt, T. R. (2020). Qualitative research in pharmacy education: Demystifying content analysis. *American Journal Of Pharmaceutical Education*, *84*(1), 127–137. https://doi.org/10.5688/ajpe8417113

Levesque, K. C., Kieffer, M. J., & Deacon, S. H. (2017). Morphological awareness and reading comprehension: examining mediating factors. *Journal Of Experimental Child Psychology*, *160*, 1–20. https://doi.org/10.1016/j.jecp.2017.02.015

Lian, B., Kristiawan, M., & Fitriya, R. (2018). Giving creativity room to students through the friendly school's program. *International Journal Of Scientific and Technology Research*, *7*(7), 1–7.

Licia, M. (2018). Folk narrative and EFL: A narrative approach to language learning. *Journal Of Literature And Art Studies*, *8*(4), 640–658. https://doi.org/10.17265/2159-5836/2018.04.013

Markussen-Brown, J., Juhl, C. B., Piasta, S. B., Bleses, D., Højen, A., & Justice, L. M. (2017). The effects of language- and literacy-focused professional development on early educators and children: A best-evidence meta-analysis. *Early Childhood Research Quarterly*, *38*, 97–115. https://doi.org/10.1016/j.ecresq.2016.07.002

Pilgrim, J., & Martinez, E. E. (2013). Defining literacy in the 21st century: A guide to terminology and skills. *Texas Journal Of Literacy Education*, *1*(1), 60–69.

Purpura, D. J., Schmitt, S. A., & Ganley, C. M. (2017). Foundations of mathematics and literacy: the role of executive functioning components. *Journal Of Experimental Child Psychology*, *153*, 15–34. https://doi.org/10.1016/j.jecp.2016.08.010

Rahayu, S. L., & Fujiati, F. (2018). Penerapan game design document dalam perancangan game edukasi yang interaktif untuk menarik minat siswa dalam belajar bahasa inggris. *Jurnal Teknologi Informasi dan Ilmu Komputer*, *5*(3), 341–346. http://dx.doi.org/10.25126/jtiik.201853694

Revina, R. (2014). *Psikologi perkembangan anak usia dini.* Bidanku.

Sayeef, A. (2019). Teaching english language using popular folk tales in bangladesh. *international Journal Of Literature, Linguistics and Language Teaching*, *1*(1), 1-8.

Toharudin, U., Hendrawati, S., & Rustaman, A. (2014). Membangun literasi sains peserta didik. *Humaniora*, *1*(2), 1-21.

Ungar, M., & Theron, L. (2020). Resilience and mental health: How multisystemic processes contribute to positive outcomes. *The Lancet Psychiatry*, *7*(5), 441–448. https://doi.org/10.1016/s2215-0366(19)30434-1

Vaahtoranta, E., Lenhart, J., Suggate, S., & Lenhard, W. (2019). Interactive elaborative storytelling: engaging children as storytellers to foster vocabulary. *Frontiers In Psychology*, *10*, 1–13. https://doi.org/10.3389/fpsyg.2019.01534

Vaahtoranta, E., Suggate, S., Jachmann, C., Lenhart, J., & Lenhard, W. (2018). Can explaining less be more? enhancing vocabulary through explicit versus elaborative storytelling. *First Language*, *38*(2), 198–217. https://doi.org/10.1177/0142723717737452

Yamin, M., & Sanan, J. S. (2014). *Panduan early childhood education programs pendidikan anak usia dini*. Gaung Persada Press Group.

Yusuf, Q., Qismullah Yusuf, Y., Yusuf, B., & Nadya, A. (2017). Skimming and scanning techniques to assist efl students in understanding english reading texts. *Indonesian Research Journal in Education*, *1*(1), 43–57.

***Barokah Widuroyekti (Corresponding Author)**
PGSD, FKIP Universitas Terbuka, Indonesia
UPBJJ-UT Jember
Email: barokaw@ecampus.ut.ac.id

Hadiqotul Luluk
PGPAUD FKIP, Universitas Terbuka, Indonesia
UPBJJ-UT Jember
Email: lulu@ecampus.ut.ac.id

Iswati
PGPAUD, FKIP, Universitas Terbuka, Indonesia
UPBJJ-UT Jember
Email: iswati@ecampus.ut.ac.id