

“Home to Hall”: Utilization of Modular Learning Approach and Its Relationship to the Reading Attitude and Performance of Basic Education Learners in the New Normal Context of Peru

Rafael Garay-Argandoña¹, Osmer Campos-Ugaz², Jesssica Paola Palacios Garay³, Yolvi Ocaña-Fernandez⁴, Ronald M. Hernández⁵, Joel Alanya-Beltran⁶, Freddy Ochoa Tataje⁷, Carlos Valderrama-Zapata⁸, Korakot Apiratwarakul⁹

¹*Universidad de San Martín de Porres, Lima, Perú, ORCID: <https://orcid.org/0000-0003-2156-2291>*

²*Universidad Católica Santo Toribio de Mogrovejo, Chiclayo, Perú,
ORCID: <https://orcid.org/0000-0002-3876-6605>, Email: ocampos@usat.edu.pe*

³*Universidad Norbert Wiener, Lima, Perú,
ORCID: <https://orcid.org/0000-0002-2315-1683>
jessica.palacios@uwiener.edu.pe*

⁴*Universidad Nacional Mayor de San Marcos, Lima, Perú,
Email: yolwallace1@gmail.com
ORCID: <https://orcid.org/0000-0003-1263-2454>*

⁵*Unidad de Virtualización Académica, Universidad de San Martín de Porres,
Email: ronald.hernandez@outlook.com.pe
ORCID: <https://orcid.org/0000-0003-1263-2454>*

⁶*Universidad Tecnológica del Perú
C18121@utp.edu.pe
<https://orcid.org/0000-0002-8058-6229>*

⁷*Universidad César Vallejo, Perú
fochoa@ucv.edu.pe
<https://orcid.org/0000-0002-1410-1588>*

⁸*Universidad San Ignacio de Loyola, Perú
carlos.valderrama@usil.pe*

⁹*Department of Emergency Medicine, Faculty of Medicine, Khon Kaen University,
Khon Kaen, Thailand korakot@kku.ac.th
ORCID: 0000-0002-1984-0865*

Abstract

School activities in Peru were suspended in March 2020 due to the COVID 19 Pandemic, with this, students were transformed to study in the comfort of their own homes. This study assessed the utilization of modular learning approach and its relationship to the reading attitude and performance of basic education learners in the new normal context. It employed descriptive correlational research design. A standardized test questionnaire was sent to 50 basic education students and their 50 parents in order to gather data. Results revealed that the general assessment of the basic education students towards reading is positive or slightly happy. This means that the students have a moderate level of reading attitude. It was also shown that students' recreational reading and attitude towards academic reading are positively favourable, showing that the learners are progressing in their reading skill and interest. Students' reading attitudes seem to be influenced by the modular approach in reading, but no significant relationship is found when reading performance is taken into account. The respondents' frustration and difficulties with the modular approach have led to creating an Enhanced English Reading Module.

Keywords: reading attitude, reading interest, reading performance, Peru, basic education learners, reading program, reading enhancement

1. Introduction

Concerned about these issues, the researcher set out on a project to boost kids' reading attitudes and skills throughout the 2020-2021 school year, particularly in grades 3 and 4. For the researcher, a more accurate assessment of the modular approach's effectiveness in their reading attitude and ability was also sought. For elementary students, there is a critical need for solid and supportive relationships that enable students to take advantage of abundant learning opportunities in cognitive and social, and emotional domains, as well as additional support physical (social, emotional, and academic) to address individual circumstances that need attention at a given time to maintain a positive developmental trajectory (Watanabe, 2021, Walgermo, et al., 2018, Habib, et al., 2019). Education must be arranged to work together coherently, it is underlined. All of these areas are interrelated.

Primary education students have a problem with their reading attitudes and abilities. They find it difficult to decipher the meaning of words. The percentage of pupils who say they didn't understand much of what they were taught has risen. Since there are so many activities and interruptions, it's difficult to focus on the material they're studying since they feel like they have no control over their learning. This study aimed to conduct a descriptive analysis of students' reading attitudes and abilities using a modular technique. The focus of the researcher's examination was on the attitudes and capacities of the students to read. Reading attitude is influenced by a piece of writing (Dave & Nayak, 2019, Rahmawati, 2020, Zare, Barjesteh & Biria, 2021). Depending on the social context, several reading attitudes may be discerned. There are varied results in the literature regarding the relationship between reading attitude and reading performance in the classroom. Students' judgments of their reading competency are connected to their perceptions of their cognitive factors; negative affect and anxiety are associated to bad sentiments about reading; and self-assessment is linked to students' perceptions of their reading

competence (Dotan & Katzir, 2018, Atilgan, et al, 201).

Theoretical Underpins

Constructivism, Schema Theory and Spady are employed in this study of the modular approach's impact on student reading attitudes and competence. There are many different ways to produce knowledge in the Constructivist Theory of Perkins (1991), but they all stem from interactions with the environment. Thus, a human can expand their knowledge by doing study or engaging in other activities that build on their current understanding. According to Kong (2019), the transmission of abstract and decontextualized knowledge from one individual to another is not simply a social process whereby knowledge is co-created; they suggest that such learning is situated in a specific context and embedded within a particular social and physical context. According to the Schema Theory (Kieras & Just, 2018), one of the most apparent reasons a given content schema may not exist for a reader is that the schema is culturally distinctive and is not part of a specific reader's cultural background. Anything from how readers perceive reading itself to its substance and formal schemata is attributed to reader cultures. Writing does not have significance in and of itself, according to schema theory. The book is not a text at all since it just instructs readers on how to retrieve or construct meaning from their own past knowledge. More likely, this idea is connected to the Cognitive Theory, which deals with cognitive capacities. Learning a new word may be easier for students if they can connect it to previous knowledge and then retain it in their long-term memory, as cognitive theory would predict. All students may learn and succeed, but not on the same day or in the same way (Diana, 2021). The more successful you are, the more successful you will be in the future. Students' academic achievement is directly influenced by a wide range of elements that fall within the purview of schools. In the end, it is more important for children to learn what and if they can learn than than how and when. Providing

pupils with an accurate picture of what is expected of them and the time to perform these activities is essential to preparing them for life beyond school; in-depth study of significant subjects is more helpful than superficial understanding of issues of little relevance.

Modular instruction is more successful in teaching-learning than conventional techniques (Miao & Mao, 2018, Lavrov & Lavrova, 2019, Wang, et al, 2018, Magulod, 2018a, 2018b, Magulod, 2019). In this technique, students are given immediate feedback on their practice activities, encouraging them and instilling a sense of interest. When students are involved in their own education, they are more likely to succeed. While instructors and students faced many challenges, parents and caregivers also had to deal with a variety of concerns. The lack of school funding, children's problems with self-study, and parents' incapacity to influence the academic development of their children (LeBlanc, 2021, Shanaa & Aboushi, 2021, Bradley, et al, 2021). Modular education is more successful in teaching-learning than conventional approaches since students may work at their own speed (Muister et al, 2021). Instant feedback and encouragement are offered to students throughout practice activities to keep them engaged and interested in the subject matter. The use of this technique facilitates a student-centered approach to learning. As a consequence of the advent of modular education, teachers, students, and parents encountered a number of challenges.

The study's main goal is to determine the impact of a modular approach on students' reading attitudes and abilities, notably in one basic education institution in Peru. Several factors were found in this research, as shown in figure 1: the respondents' profile, including their age, time spent reading, reading attitude, and their parents' profile, which includes time spent coaching learners in reading and their parents' educational achievement. The respondents' reading attitudes and proficiency and the substantial correlation between the respondents' profiles and their Perceived Effect of Modular Approach to Reading Attitude and Proficiency.

Objectives of the Study

Generally, the study assessed the implementation of Modular Learning Approach

and Its Relationship to the Reading Attitude and Performance of Basic Education Learners in the New Normal Context. It specifically aims to: (1) assess the Students Attitude towards Recreational and Academic Reading, (2) Ascertain the Respondents' Reading Performance; (3) Test the Difference on the Students' Profile and its effect to the actual reading competence; (4) ascertain the Relationship between Modular Learning Approach's perceived success in improving learners' reading competence connected to the learners' actual reading proficiency,

2. Method

2.1. Research Design

The study employed descriptive and comparative correlational research design, which is mainly quantitative research. Using a descriptive-correlational technique, pertinent data was collected and analyzed. A descriptive-correlational study may be used to find correlations between two or more variables. This strategy was used for data analysis and interpretation to examine the relationship between a modular approach to teaching reading skills and student attitudes about reading. The independent components of this study include the module approach to reading attitude and proficiency, their age, time spent in the library or reading and their parents' time spent coaching them in reading, and their educational level. However, participants' reading abilities serve as a dependent variable. Incorporating the modular approach, it was discovered that there was a strong connection between the respondents' profiles and their reading skills.

2.2. Respondents, Sampling, and Ethical Consideration

The respondents of the study were 50 students and 50 parents. The researcher used a simple random sampling method. It is a subset of a population that has been randomly selected, according to Thomas (2020). Using this sampling strategy, all members of the population in this study have an equal chance of being selected as respondents who are enrolled in Basic Education school in Peru. The data and personal information of the participants were handled in accordance with the study's concept of ethical research. Before the study selected

participants and conduct, the school's administration signed off on the written request. The researcher also obtained the parents' permission. Parents shared information about the potential harm and benefit that the research may have on their children. With the school principal's approval, the parents authorized their children to participate in the research. Both responders and their parents have signed data privacy agreements. Ethical concerns necessitated observing the anonymity of responders and institutions. Two-day Zoom conference was used to deliver an online introduction to the study's risk/benefits to participants, and all participants obtained informed permission.

Similarly, prior to initiating the research, the necessary coordination and permissions had been obtained. Parents were required to sign a consent form for their children under the age of 18 to participate in the study, which they did. The school and subject teachers made the last preparations so that the other classes could go on without interruption. The researcher used Google Meet to conduct a debriefing once the data gathering process was complete. To guarantee a thorough investigation, the identity and replies of participants will be kept private, and Data Privacy Consent will be requested from them. Students are the only method to identify the characters in this narrative. If there is a risk of plagiarism, the analyst will not share any strong judgments; just facts and conclusions drawn from the material collected are to be supplied. It passed the Turnitin plagiarism check with a similarity score of less than 20%.

2.3. Research Tool

As a part of this study, three sets of research instruments were used: reading proficiency performance inventory, a learner's profile (reading attitude), and a structured questionnaire. For this experiment, the researcher used a six-item test derived from the Reading Comprehension multiple kinds of examination to get the necessary information from the students. The first reading attitude testing was a ten-question multiple choice examination with two to four alternatives per topic. This gave the impression that the volunteers would be subjected to a legitimate examination. A student's performance on an exam was used to assess their reading habits and

abilities. Before the utilization of tools, the experts were consulted with regards to the quality of the reading materials and plan for instruction. They provided expert opinions on how the reading performance of pupils will be assessed. Cronbach's Alpha concept validation and reliability tests have been used to rigorously examine the validity and reliability of the Learner's Profile-Reading Attitude Questionnaire. Pupils were selected randomly to complete the Learners' Reading Proficiency test, while five instructors completed the Learners' Reading Attitude assessment. This ensured that the data was accurate. The first section of the instrument was adapted from the PHIL-IRI reading comprehension exam. The questionnaire was reworked and simplified to meet the demands of the participants. The principles for healthy living were followed to a tee. The questionnaire's general directions for filling it out were also given.

2.4. Data Analysis

Analyses of the reading data are carried out both objectively and statistically. Three levels of reaction for each passage: independent, instructive, and frustrated. These three levels will be used to measure the student's reading proficiency for each paragraph. The student's reading habits and the types of mistakes made are the focus of the qualitative examination. During the oral reading test, the responder assesses whether or not the reading content corresponds to the student's reading ability. For students who find grade-level reading material to be too difficult, the instructor may assign a lower level of readability. Each passage on the Phil-IRI reading test is graded according to a set of predetermined criteria. The percentage of right answers to comprehension questions and the percentage of correct word recognition accuracy are two of these requisites (derived from Johnson et al). The researcher utilized a quantitative approach to data handling. This is a collection of statistical procedures that are appropriate for the nature of the data and the test assumptions. For the inferential statistics, it employed Cramer's V and Kurskal-Wallis and Man-Whitney Test.

3. Results and Discussion

Assessment on the Students Attitude towards Recreational and Academic Reading

Table 1 depicts the learners' reading attitudes in terms of recreational reading. As can be shown, the general assessment of the pupils towards reading has the mean of 2.57 having the qualitative description of positive or slightly

happy. This means that the students have a moderate level of reading attitude. Looking at the table specifically, it can be seen from the students' recreational reading with the computed mean of 3.03 (sd=0.545) and attitude towards academic reading with the mean of 2.14 (sd=0.434), which is described as positive or slightly happy.

Table 1. Assessment on the Students Attitude towards Recreational and Academic Reading

Items	Weighted Mean	SD	Descriptive Value
Attitude towards Recreational Reading	3.03	0.545	Positive/ Slightly Happy
Attitude Towards Academic Reading	2.14	0.434	Positive/ Slightly Happy
Grand Mean	2.57		Positive/ Slightly Happy

Legend: 4- Happy, 3, Slightly Happy, 2, Not Happy, 1- Not at all happy

The key to developing reading habits in children is reading with them at home from a young age will allow learners to love and appreciate reading (Fajarina & Ma'rifatulloh, 2020, Janssens & De Corte, 2020). Every learner, on the other hand, learns and uniquely processes knowledge. As a result, certain youngsters may have an innate desire to read. Furthermore, parents often express their dissatisfaction with their early readers' ability to read but lack motivation. This is a period that most children go through, but you can help them get over it quickly. Of course, the child's issue is that he can read basic novels, but his imagination yearns for more complex narratives and characters. Those novels are excruciating to read, with far too many vocabularies he doesn't understand. The labor takes his attention away from the tale. What is the solution? He needs his parents to continue reading to him and keep him enthralled by the mysteries of literature. That is what will drive him to put in the effort necessary to become a competent reader. As a result of the research, the respondents' academic reading obtained the lowest overall score. Survey respondents have a weak grasp of English and come from homes where reading and writing skills are low. An attitude may be characterized as a positive or negative reaction through the

initial response of conduct (Ma,2021, Baba & Affendi, 2020 , Shelton, 2021).

Level of Respondents' Reading Performance

Table 2 shows the reading performance of the pupils. It can be seen from the data most of the respondents are instructional readers (56%), followed by 32 percent intended reader, and 12% frustration reader. In like manner, the least 12% are frustration. It can be seen from the table that the pupils are progressing in their reading skill. The findings suggest that the learners' comprehension score at the lowest oral reading level is 23.4 percent. It signifies that the students' reading level was in the middle of the spectrum. To establish a child's reading difficulty profile, looking at the fundamentals of reading. In order to better understand the child's unique skills and the best way to teach them, we need to conduct more detailed assessments. Each grade level will have its own set of challenges that may be used to form small, flexible groups for differentiation of instruction. For example, in a typical third-grade classroom, kids with comparable requirements may be put together to help them interpret two-syllable or multisyllabic words.

Table 2. Assessment on the Students Attitude towards Recreational and Academic Reading

Scores	Frequency	Percentage	Mean	Oral Reading Level
80 – 100	16	32	84.3	Independent
59 – 79	28	56	67	Instructional
58 and below	6	12	39.42	Frustration
Total	64	100	63.57	Instructional

Test of Difference o the Students’ Profile and its effect to the actual reading competence

Table 3 shows the analysis results of the differences in learners' oral reading proficiency when grouped according to their profile. According to the findings, students aged 10 showed a higher average level of oral reading comprehension than those in other age groups. There are considerable differences in the students' reading skills when they are classified according to their profile, which means that the null hypothesis must be rejected. According to the research, students' reading attitudes and abilities seem to be influenced by the modular

approach. Prior assessments or evaluations of learning processes did not include a survey of reading comprehension and attitude since modular methods significantly influence reading attitude and competence, as shown by the results of this study. Using a modularized program's teaching technique, students may work at their own pace, choose a learning style they like, and evaluate their strengths and weaknesses (Garfield, et al, 2021). Furthermore, it should be flexible in terms of the training's time, structure, and substance, taking into account individual variances.

Table 3. Test of Difference o the Students' Profile and its effect on the actual reading competence

Profile	Value	P value
Age	3.345	.198 ns
Availability of Books at Home	245.6	.222 ns
Period Spent in Reading	654.d	.321 ns
Parents Involvement in reading	145.5	.002*
Reading Attitude		

Critical value t (df=37): .05.2-tailed tests) =2.033

**= significant at .01 level

**= significant at .05

ns = not significant

Relationship between Modular Learning Approach's perceived success in improving learners' reading competence connected to the learners' actual reading proficiency

The Learners' Perceived Effect of Modular Learning Approach and Their Actual Oral Reading Proficiency are shown in Table 4. The findings reveal that there is no significant impact

since the p-value is the same. This suggests that the modular method has no effect on the respondents' attitudes about reading or their ability to read. Academic emotions are linked to students' motivation, learning techniques,

cognitive resources, self-regulation, and academic accomplishment, as well as personality and classroom antecedent (Donnelly et al, 2020).

Table 4. Relationship between Modular Learning Approach's perceived success in improving learners' reading competence connected to the learners' actual reading proficiency

Perceived Modular Approach	Effect of Learning	Oral Proficiency	Reading	Correlation Coefficient (Cramer's V)	p-value
Experience		Oral Reading Level		.302	.254
Benefits		Oral Reading Level		.302	.254

4. Conclusions

For the 2020-2021 academic year, researchers at MSU Integrated Laboratory School set out to see how the modular approach affected pupils' reading attitudes and skills. To collect the necessary data for this investigation, a standardized instrument was employed. In addition, a three-part online survey was used. Context is the focus of the first part of the Reading Proficiency course. The learner's age, reading habits, and reading attitude are all examined in the second phase. An in-depth questionnaire on how modular learning affects reading comprehension concludes the research. This research was sparked by concerns about the impact of the modular system on pupils' reading attitudes and abilities. So the study's goals were to: (a) analyze the learners' profile in terms of age, reading time and attitude; (b) determine the perceived effect of the modular learning approach on respondents' reading attitude and proficiency; (c) analyze the parents' profile in terms of time spent coaching their children to read, highest educational attainment; (d) determine the level of reading attitude and proficiency of the learners. A few of the most significant results in this area are the ones listed below.

5. Recommendations and Implications

Based on the findings of the research, the following suggestions have been made. In the

hopes of school administration, the findings of this study will allow students to return securely in the next months. The benefits of modular building extend to both short- and long-term planning. To help students and instructors, the findings of this study may be used to enhance the English reading module and think about ways to help each student meet the course's goals. The outcomes of the study provide parents with the time, appropriate comments, encouragement, and awards to assist their children become more excited about learning.. As a starting point, researchers may discover other elements that might assist enhance the English reading module. Teacher readiness, technical competency and teacher perceptions on introducing additional modalities like blended and online remote learning should be investigated in detail. Students in the primary level were the least competent of evaluating the learning materials they were using, especially the Self Learning Modules, hence another measure should be employed or created to evaluate their real learning in this Covid-19 program.

6. Limitations and Future Directions

This study has a number of limitations, but it may serve as a starting point for further research and confirmation. Keep in mind that this research relied mainly on self-reports from respondents from one Asian university, which is a serious flaw. Additional research institutes and more study participants are required to produce

more convincing results and to continue teaching. In addition to gender and age, other factors such as equality, autonomy, and education-related difficulties should have been included in the research. Hybrid and quasi-experimental study designs should be used in future research, as well as conventional methods.

References

- [1] Atilgan, N., Xiong, Y., & Legge, G. E. (2019). Print Size and Display Size Constraints on Reading with Reduced Acuity. *Investigative Ophthalmology & Visual Science*, 60(9), 5941-5941.
- [2] Baba, J., & Affendi, F. R. (2020). Reading Habit and Students' Attitudes towards Reading: A Study of Students in the Faculty of Education UiTM Puncak Alam. *Asian Journal of University Education*, 16(1), 109-122.
- [3] Bradley, G. L., Ferguson, S., & Zimmer-Gembeck, M. J. (2021). Parental support, peer support and school connectedness as foundations for student engagement and academic achievement in Australian youth. In *Handbook of Positive Youth Development* (pp. 219-236). Springer, Cham.
- [4] Dave, D., & Nayak, U. (2019). Evaluation of Modular Learning as a Teaching Methodology for Malnutrition in Undergraduate Students. *Journal of Research in Medical Education & Ethics*, 9(3), 193-198.
- [5] Diana, D. (2021). Reading as the means of existence for literary work. Theories of reading from the XXth century.
- [6] Donnelly, P. M., Gijbels, L., Larson, K., Matskewich, T., Linnerud, P., Kuhl, P. K., & Yeatman, J. D. (2020). A symbolic annotation of vowel sounds for emerging readers.
- [7] Dotan, S., & Katzir, T. (2018). Mind the gap: increased inter-letter spacing as a means of improving reading performance. *Journal of experimental child psychology*, 174, 13-28.
- [8] Fajarina, M., & Ma'rifatulloh, S. (2020). Mini Group Discussion: Cooperative Learning in Teaching Reading. *Jurnal Ilmiah Wahana Pendidikan*, 6(4), 659-666.
- [9] Garfield, K., Husbands, S., Thorn, J. C., Noble, S., & Hollingworth, W. (2021). Development of a brief, generic, modular resource-use measure (ModRUM): cognitive interviews with patients. *BMC health services research*, 21(1), 1-12.
- [10] Habib, M. A., Mustapha, M. A., & Ali, H. (2019). Use of Computer Assisted Instruction to Improve Students' Reading Skill in English Language. *Journal on English Language Teaching*, 9(1), 32-37.
- [11] Janssens, A., & De Corte, E. (2020). Differentiated Early Reading Instruction: Experiences with a Flemish Teaching-Learning Package. In *Reading and Writing Skills in Primary Education* (pp. 77-85). CRC Press.
- [12] Kieras, D. E., & Just, M. A. (Eds.). (2018). *New methods in reading comprehension research*. Routledge.
- [13] Kong, J. (2019). Theories of reading comprehension. In *Investigating the Role of Test Methods in Testing Reading Comprehension* (pp. 9-29). Springer, Singapore.
- [14] Lavrov, E., & Lavrova, O. (2019, June). Intelligent Adaptation Method for Human-Machine Interaction in Modular E-Learning Systems. In *ICTERI Workshops* (pp. 1000-1010).
- [15] LeBlanc, O. M. (2021). The Relationship between Classroom Variables and Academic Achievement across the Preschool Year.
- [16] Magulod Jr, G. C. (2018). Cognitive and Attitudinal Effects of Movie Poster Making Method in College Classroom. *Journal of Educational and Human Resource Development*, 6, 42-58.
- [17] Magulod Jr, G. C. (2018). Innovative learning tasks in enhancing the literary appreciation skills of students. *SAGE Open*, 8(4), 2158244018820382.
- [18] Magulod Jr, G. C. (2019). Learning Styles, Study Habits and Academic Performance of Filipino University Students in Applied Science Courses: Implications for Instruction. *Journal of Technology and Science Education*, 9(2), 184-198.
- [19] Ma, Q. (2021, August). Reading Attitude among Elementary School Students in China: A Comparison between Regions of Different Economic Development. In *The*

- Sixth International Conference on Information Management and Technology* (pp. 1-4).
- [20] Miao, J., & Mao, L. (2018). Influence Analysis of Computer Modular Learning Environment on College English Listening Teaching Effect. *International Journal of Emerging Technologies in Learning*, 13(4).
- [21] Munister, V. D., Zolkin, A. L., Vereschagina, E. A., & Kosnikova, O. V. (2021). Modular Teaching Didactic Foundations To Responsive Web Design And User Experience Design. *European Proceedings of Social and Behavioural Sciences*, 116.
- [22] Rahmawati, Y. D. (2020). Integrated learning of reading and writing in Industry 4.0. In *Teacher Education and Professional Development in Industry 4.0* (pp. 87-91). CRC Press.
- [23] Shanaa, H. A. A., & Aboushi, M. M. J. (2021). The Most Important Demographic and Non-Demographic Variables Predicting Academic Achievement Among Palestine Technical University (Kadoorie) Students. *Journal of Al-Quds Open University for Educational & Psychological Research & Studies*, 12(36), 6.
- [24] Shelton, J. D. (2021). *The Impact of the Next Step Forward in Guided Reading on Students Reading Fluency, Sight Word Reading, and Attitude toward Reading* (Doctoral dissertation, Trevecca Nazarene University).
- [25] Walgermo, B. R., Foldnes, N., Uppstad, P. H., & Solheim, O. J. (2018). Developmental dynamics of early reading skill, literacy interest and readers' self-concept within the first year of formal schooling. *Reading and writing*, 31(6), 1379-1399.
- [26] Wang, Y., He, H., & Sun, C. (2018). Learning to navigate through complex dynamic environment with modular deep reinforcement learning. *IEEE Transactions on Games*, 10(4), 400-412.
- [27] Watanabe, J. (2021). Teaching Neuroimmunology to Undergraduate Students: Resource for Full Course or Modular Implementation. *J Undergrad Neurosci Educ*, 19(2), A163-A184.
- [28] Zare, M., Barjesteh, H., & Biria, R. (2021). Enhancing EFL Learners' Reading Comprehension Skill through Critical Thinking-Oriented Dynamic Assessment. *Teaching English Language*, 15(1), 189-214.