



## GAME: A SURVEY ON AWARENESS AND UTILISATION OF PRIMARY TEACHERS IN SOUTH WEST NIGERIA

ODEWUMI Micheal Olubunmi, BADA Tayo Abass✉

Department of Educational Technology, University of Ilorin, Ilorin. Nigeria.

### Article Info

Received January 2019

Accepted March 2019

Published June 2019

#### Keywords:

Art, Game, Gender, Perception, Learning.

### Abstrak

*Game has become an imperative source of improvement and innovation of efficiency for instructors across the globe, yet the awareness and utilisation are still lacking by the primary school teachers especially on creative arts instruction. Therefore, this paper investigated the perception of primary school teachers on awareness and utilisation of game for teaching and learning of creative arts in South-west, Nigeria. Teachers in the both public and private primary school in the South-west, Nigeria were sampled purposively. The study was a descriptive type by means of survey method. 2 research questions were forwarded and answered with 4 hypotheses tested at 0.05 significant levels. The research designed instrument was validated by experts and reliability coefficient of 0.72, and 0.79 were realised. Data collected through structured questionnaire were answered by mean and percentage. The four hypotheses were analysed with t-test. The findings show that primary school teachers had positive perception on the awareness and utilisation of game for learning of Creative Arts. It was concluded that primary school teachers perceived game to be important and easy to utilise in facilitating teaching learning. The study further recommended that the teachers in primary education classes should be encouraged to utilise game for teaching and learning.*

✉Corresponding author:

Department of Educational Technology, University of Ilorin, Ilorin. Nigeria

Email: agbegilerebunmi2@gmail.com, badatayo2@yahoo.com

## INTRODUCTION

Perception is a Latin word otherwise referred to as identification; organization and interpretation of impulse information from memory for correspond and understand the environs. Perceptions is collecting, receiving and taking active possession and apprehension of mind or senses in order to understand the sensory messages (Schacter, 2011; Falade, 2013; Olasedidun, 2014). Similarly, Bernstein, (2010) expressed that perception is an ultimate experience and processing of physical world within sensory input. Although, perception consisted of joint output of stimulation and process this is named as the perceptual process. In essence, perception is individuals experience of the physical world around, this involves recognition of impulse from environment and reciprocated actions in response to those impulse by the way of both procedural and conceptual senses.

Perception has been well pronounced in instructions. The usefulness of perception has been emphasised by scholars in teaching and learning context. For example, the study of Odewumi and Aiyedun (2016) on investigated the perception of pre service art teachers on the use of Plastic of Paris for modelling instructions, the study established no significant difference between the mean scores of learners exposed to Plastic of Paris (POP). Perceptions of students study architecture and their immediate environment were examined by Oluwatayo, Aderonmu and Aduwo (2015), the findings suggested that perceptions of the architecture students on their learning environment is wider than the available space and that perception support tutors and students' in a dimension that is relevant factor. More so, instructor should realize the need to present the instruction in sequence and orderly manners, utilising different teaching-learning tactics and pedagogy (Shafeeq & Imran, 2016).

The study of game arises in pedagogy, ethnology, philosophy, sociology psychology, arts, and others (Kováčević & Opić, 2014). Although, Game is one of the new creative pedagogical in emerging technology of instruction that enhance learning in diverse ways (Nasab, Esmaili & Sarem, 2015). According to Aðalnámskrá grunnskóla. Erlend mál (2007) ascribed game as a good method of instruction and a problem solving device. Similarly, Game serves as reinforcement for learning concept, it elicit fun and collaborate instructor together in the atmosphere of completion and learning (Van Ments, 1999; Gozcu & Caganaga, 2016). Also, Houghton, Aston, Featherstone, Perrotta, Houghton and

Aston (2013) classified game into the category of traditional and modern which is based on approved rules by the players. Game provides opportunity to learn with senses and promotes permanent and natural learning, an educational tool that promotes knowledge and skills acquisition (Firat, 2013; Goksen, 2014). In essence, game is a unique phenomenon that inseparable from man throughout man's life time starting from cradle and it can change behavioural act, if guided according to rules.

It has been observed that games is crucial and having positive effect on learning. For example, the study of Lenhart, Kahne, Middaugh, Macgill, Evans and Vitak (2008) affirmed that Game is having an important effect learning. Also, Game brings positive learning outcome (Sitzmann, 2011). Elicits significant values and knowledge (Oblinger, 2006). Game benefits learners and assists learners in thinking (McDaniel, Fadler and Pashler, 2013). Noteworthy and better in learning (Clark, Tanner-Smith and Killingsworth, 2015). Games are useful in developing cognitive domain in learners; they are relatively different in teaching mathematics. Educational based games are positive and valuable for instructional, game also significantly and benefitted in given instruction. (Boyle, 2011; Mayer, 2014; Clark, Tanner-Smith and Killingsworth, 2015; McLaren, Adams, Mayer and Forlizzi, 2017). In another development, Zirawaga, Olusanya and Maduku (2017) argued that games are predominately for social interaction and fun. Although Johnson and Mayer (2010) established that pupils benefits from educational games and Bunch, Robinson, Edwards, and Antonenko (2014) mentioned that instructors should handles game as an instrument of which is substitute in replacement of classroom teaching.

Recently, Game has currently become object of study especially in instruction. Game has been established as having a successful and positive impact on some related subjects on the school curriculum; Game has been also confirmed as another means of pedagogical medium. Nevertheless, Game is an alternative approach for teaching of sciences especially cell and molecular in secondary school axis (Spiegel, Alves, Cardona, Melim, 2008). in addition, Tanner-Smith and Killingsworth (2015) and Salman (2017) established that games is useful in learning of mathematics. Yien, Hung, Hwang and Lin (2011) discovering game as useful media in enhancing learning of nutrition course and dietary habits. Liu, Chen, Liou, Chang, Wu and Yuan, Lin (2013) emphasised the usefulness of game like Monopoly in

teaching of area of circles to the students. Kao (2014) stated that learning English language via the digital game-based was effective. Brad, Jonathan and Matthew (2015) revealed the positive influence of game on social studies instruction. Similarly, Bunch, Robinson, Edwards and Antonenko (2014) exposed the effectiveness of lecture method and discussion of game both agriculture and mathematics. Ibitoye and Olaifa (2018) appraised the influence of Yoruba Language through Game-based Model for both male and female students.

In another development, according to Vogel, Vogel, Cannon-Bowers, Bowers, Muse and Wright (2006) male and female learners elicited no significant differences in their performances when the learners exposed to games. In a study carried out by Kinzie and Joseph (2008), it was established that male preferred digital game for learning and discoveries. In addition, Adeleke (2008) stressed that male and female exhibited perfection in the evaluation via game instruction. Similarly, Bassey, Joshua and Asim (2008) emphasised significant differences in male learners achievement while exposed to game instruction. Likewise, Achor and Imoko (2010) confirmed that both male and female students has significant result on game for learning.

Based on awareness, the theoretical framework argued on the claim of the study of Bionco (2013) that the policy of educational programme assists the instructors and influences their methodology. Although, Game has becoming increasingly and progressively positive in favours of instructors, because the instructors talk less and their experience becomes widen. On conceptual aspect, many models proposed overtime in connection to technology integration of in instruction (Odewumi, 2017). The most famous is the Technology Acceptance Model (TAM), from Theory of Reasoned Action (TRA) to Instructional System Design (Odewumi, 2017). The Instructional System Design Model (ISD) refers to systematic approach in developing instructional specifications and theories, employing learning models for quality of instructions. The usefulness has evolved from the Theory of Reasoned Action (TRA) which was later adopted for teaching learning of new inventions like game.

#### STATEMENT OF PROBLEM

The advancement of instruction brought game into limelight as an instrument of teaching and learning. Although, the notion of people toward game is indifferent, despite it's primarily aims to elicit fun and entertainment. Impor-

tance of game and its usage for teaching as well as for learning is declining. Also, looking critically at the primary school axis of education, one can clued that some vital pedagogical instrument as well as a method of instruction is fading away gradually while game is inclusive. Studies of Bunch, Robinson, Edwards and Antonenko (2014), Brad, Maguth, Jonathan and Wunderle (2015), Egenfeldt-Nielson, (2016), Ibitoye, and Olaifa (2018), and Odewumi and Ola-Alani (2018) works confirmed game as positive for instructional delivery.

The afore-mentioned works depicted the insertion and relevance of Game in instruction. However, a variable such as utilisation and awareness of game among the primary school teachers is not investigated. In addition, using game in teaching in the primary school axis in Nigeria remained unknown. Therefore, the current study set to fill the gap yet to be occupied by the earlier work on game in instructional delivery in south-west, Nigeria primary school. Therefore, the study investigates perception of primary school teachers on awareness and utilisation of game for teaching and learning in South-west, Nigeria.

#### RESEARCH QUESTIONS

The following research questions were generated for the study:

1. How do primary school teachers perceived the awareness of game for creative arts instruction?
2. How do primary school teachers perceived the utilisation of game for creative arts instruction?

#### RESEARCH HYPOTHESIS

The following research questions were generated for the study:

HO1: There is no significant difference between the primary school teachers male and female awareness of game for creative arts instruction.

HO2: There is no significant difference between the private and public primary school teachers awareness of game for creative arts instruction.

HO3: There is no significant difference between the primary school teachers male and female utilisation of game for creative arts instruction.

HO4: There is no significant difference between the private and public primary school teachers utilisation of game for creative arts instruction.

#### Methodology

The sampling consisted of subjects from primary teachers in both private and public

schools in South-west, Nigeria, which consisted of 6 state; Oyo, Ogun, Ondo, Osun, Lagos and Ekiti. The study was a descriptive research type of cross-sectional survey. Primary teachers in 12 local governments, 2 from each state were randomly selected for the study this consisted of 1,200 teachers that were purposively sampled.

The structured questionnaire items were the instrument used to pull together the data on the teachers awareness and usefulness. A total number of 742 (61.8%) out of 1200 copies of structural questionnaires successful returned by sample population that involved in the study. The data produced on research questions 1 and 2, were collated and analyzed with descriptive statistics (frequency counts, means and percentages). Items on PRIMARY school teachers on awareness and utilisation is structured purposely to elicit from the respondents' outcome based on Likert rating scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SA). Senior lecturers in the Department of Primary Education, Test Measurement and Evaluation, and Educational Technology at the University of Ilorin, Nigeria validated instrument. Cronbach Alpha statistical from Statistical Package for Social Sciences (IBM SPSS) version 21 was used to established the reliability section by section thus reliability coefficients of  $r=0.77$ , and  $r=0.81$  were attained at 0.05 level of significance. The researchers gave the instrument and waited for few minutes before collecting the instrument back from the targeted sampled because the instrument were easy to attempt.

Note: the grand mean score of primary school teachers' utilisation of Game for teaching and learning of creative arts was 3.30. It is therefore inferred that the primary school teachers' utilisation of Game for teaching and learning of creative arts

## RESULT

HO1: There is no significant difference between the primary school teachers male and female awareness of game for instruction.

To test hypotheses one, t-test statics was used to compared the mean of primary school male and female teachers on awareness of game for creative arts instruction as shown in Table.

HO2: There is no significant difference between the private and public primary school teachers awareness of game for instruction.

To test this, t-test statics was used to compared the mean of primary school private and

Table 1:

Primary school teachers' awareness of Game for teaching and learning of creative arts.

S/N	Items	Mean
1	I am conscious of game for my teaching	3.89
2	I employ Game in teaching	3.68
3	I learnt of Game through seminars and workshops	4.05
4	My colleague introduce Game based instruction to me	3.92
5	Game concept in instruction is clear to me	4.03
6	I know that game is learners-centred	4.06
7	Am sensitive of game as emerging trend instruction	3.83
8	Game assists my instruction delivery	3.76
9	There are adequate Game for learning at my disposal	3.85
10	Utilising Game in teaching proves profitable and effective	3.94
Grand Mean		3.90

Table 2:

Primary school teachers' utilisation of Game for teaching and learning of creative arts

S/N	Items	Mean
1	Game makes my instruction to be more easily.	3.55
2	Game makes me finish part of my learning task quickly	2.75
3	Game increases more output in learning.	2.90
4	Game enhances efficacy in lesson	3.33
5	Game is counterproductive suitable to insufficient technical resources	3.45
6	Game makes my teaching more diverse	3.39
7	Game decreases monotony of my lesson	3.26
8	Game offers me absolute direct on my lesson.	3.11
9	Game is a supportive measure to lesson.	2.75
10	Utilizing Game reduce anxiety over my lesson	2.95
Grand Mean		3.30



Table 3: Male and female teachers' on awareness of game for instruction

Variable	N	Mean	D	Df	t	Sig. (2-tailed)
Male	367	31.54	.30	740	065	949
Female	375	31.52	5.26			

In the above table, the calculated  $F = 065$ , and  $p = 949$  at .05 alpha level of significant. This indicates the hypotheses is accepted.

HO2: There is no significant difference between the private and public primary school teachers awareness of game for instruction.

To test this, t-test statics was used to compared the mean of primary school private and public teachers' on awareness of game for creative arts as shown in Table 2.

Table 4: Private and public teachers' on awareness of game for instruction

Variable	N	Mean	D	Df	t	Sig. (2-tailed)
Male	359	1.5	5.25	40	275	.783
Female	392	1.4	5.29			

The above table recorded that calculated  $F$  value of 275 and the  $P$ -value .783 is greater than 0.05 alpha level, which indicates that there is no significant

difference between the mean scores of both male and female primary school teachers on awareness of game for instruction. Hence, hypotheses is retained.

HO3: There is no significant difference between the primary school teachers male and female utilisation of game for instruction.

To test the hypotheses three, t-test statics was used to compared the mean of primary school male and female teachers utilisation of game for creative arts as shown in Table below.

The table above shows that the calculated  $F$ -value 184 and the  $P$ -value .854 is greater than 0.05 alpha levels. The indication is that there is no significant difference in the mean of both male and female primary teachers' utilisation of game for instruction. Thus the null hypothesis was retained.

HO4: There is no significant difference between the private and public primary school te-

achers utilisation of game for instruction.

To test hypotheses four, t-test statics was used to compared the mean of primary private and public school teachers on utilisation of game for creative arts as shown in Table 4

Table 5: Male and female primary school teachers on utilisation of game for instruction

Variable	N	Mean	D	Df	t	Sig. (2-tailed)
Male	350	1.5	5.24	40	84	.854
Female	392	1.4	5.20			

## DISCUSSION OF THE FINDINGS

The study on perception of primary school teachers, awareness and utilisation of game for learning of creative arts in South-west Nigeria is positive. The tested hypothesis shows no significant difference in the mean of the teachers on both awareness and utilisation of game for creative arts instruction. Furthermore, the finding agreed with the study of Onuorah (2017) and McLaren, Adams, Mayer and Forlizzi (2017) who reported game as benefitted for learning and relevance for sports. Also, the finding is in agreement with the findings of Prince (2014) and Johnson and Mayer (2010) whose findings shows game as a teaching method and helpful for learners. Also, the findings of Vos, Van der Meijden, and Denessen (2011) who confirmed that games are more helpful to improve pupils cognitive learning.

The research results have established the awareness and usefulness of games for implementation of teaching learning of creative arts is positive. Although, the earlier results studies portraits teacher as not utilising game for teaching. Since, game proved supremacy in learning with the earlier studies. The study therefore concluded that primary school teachers, awareness and utilisation of game for learning of creative arts in south-west Nigeria is helpful for teaching learning of creative arts

## RECOMMENDATION

Based on these findings, it was suggested that primary school teacher should use game as a pedagogical methodology for transmitting creative arts and other related discipline on the primary school curriculum. Furthermore, government should organise in-service training and seminars on game as instructional delivery to the primary school teachers.

## REFERENCES

- Achor, E. E. & Imoko, B. I (2010). "Sex differentials in students' achievement and interest in geometry using games and simulations technique". Necatibey Faculty of Education Electronic". *Journal of Science and Mathematics Education*, 4 (1),1-10.
- Adeleke, M. A. (2008). Strategic improvement of mathematical problem-solving performance of secondary school students using procedural and conceptual learning strategies. *The African Symposium: An online Journal of African Educational Research Network*, 8(1),143-149.
- Bassey, S. W., Joshua, M. T. & Asim, A. E. (2008). "Gender differences and mathematics achievement of rural senior secondary students in Cross River State, Nigeria .*Proceedings of International Conference to Review Research in Science*,
- Bernstein, D. A. (2010). *Essentials of Psychology*. Cengage Learning. Pp. 123-124: ISBN 978-0-495-90693-3. Retrieved 25 March, 2011
- Bionco, L. J. (2010). Language policy and planning. In N. H. Hornberger & S. L. Mackay (Eds). *Sociolinguistics and Language*. Ontario: Multilingual Matters
- Brad, M., Maguth, M., . Jonathan S. L & Wunderle. M. (2015). "Teaching Social Studies with Video Games", *The Social Studies*, 106 (1)32-36..
- Boyle. S. (2011). "Teaching Toolkit: An Introduction to Games based learning". UCD Dublin, Ireland: UCD Teaching and Learning/ Resources. 2011. Retrieved from <https://www.ucd.ie/t4cms/UCDTLT0044.pdf>
- Brad, M., Maguth, M., . Jonathan S. L & Wunderle. M. (2015). "Teaching Social Studies with Video Games", *The Social Studies*, 106 (1)32-36
- Bunch, J. C., Robinson, J. S., Edwards, M. C. & Antonenko, P. D. (2014). " How a Serious Digital Game Affected Students' Animal Science and Mathematical Competence in Agricultural Education" *Journal of Agricultural Education*, 55(3),57-71.
- Bunch, J. C., Robinson, J. S., Edwards, M. C. & Antonenko, P. D. (2014). " How a Serious Digital Game Affected Students' Animal Science and Mathematical Competence in Agricultural Education" *Journal of Agricultural Education*, 55(3),57-71.
- Clark, D. B., Tanner-Smith, E. E., & Killingsworth, S. S. (2015). Digital games, design, and learning: A systematic review and meta-analysis. *Review of Educational Research*. doi: 10.3102/0034654315582065
- Egenfeldt-Nielsen, S. (2016). " Third generation educational use of computer games" *Journal of Educational Multimedia and Hypermedia*, 16(3),263-281.
- Falade A. A. (2013). Stakeholders' perception of integration of information technology and communication technology (ICT) in open and distance learning in Nigeria. (Unpublished Ph.D. thesis) Department of Educational Technology, Faculty of Education, University of Ilorin. Nigeria
- Firat, H. (2013). *Cocuk Oyunlari-Egitim* □liskisi: Bezirgân Basi Ornegi. *International Periodical For The Languages, Literature and History of Turkish or Turkic*,8(13),885-89
- Goksen, C. (2014). *Oyunlariin Cocuklarin Gelismine Katkilari ve Gaziantep Cocuk Oyunlari*. A. U. *Turkiyat Arastirmalari Enstitusu Dergisi [TAED]*, 229-259.
- Ibitoye, A. O. J. & O. T. I. Olaifa, O. T. I. (2018). " Predictive Analytic Game-based Model for Yoruba Language Learning Evaluation. *I.J. Modern Education and sComputer Science*, 2018, (2),43-47
- Olasedidun, O. K. (2014). Relationship among lecturers perceived usefulness, ease of use, attitude and intention towards social media in South West Nigeria. Unpublished Ph.D. thesis. Department of Educational Technology, University of Ilorin. Nigeria.
- Oluwatayo A. A., Aderonmu P. A. and Aduwo E. B. (2015) *Architecture Students' Perception of their Learning Environment and their Academic Performances*. *Learning Environment Research Journal* 18:129-142.
- Prince, U. I. (2014). An M.ed project report presented to the department of science education, university of nigeria, nsukka, in partial fulfilment of the requirement for the award of masters degree of in measurement and evaluation Technology and Mathematics.
- Kova□ evi□ T., & Opi□ . S. (2014). Contribution of Traditional Games to the Quality of Students' Relations and Frequency of Students' Socialization in Primary Education. *Croatian Journal of Education* 16 (1), 95-112
- Kinzie, M. & Joseph, D. (2008). "Gender differences in game activity preferences of middle school children: Implications for educational game design". *Educational Technology Research and Development*, 56 (5/6), 643-663
- Gozcu, E. & Caganaga, C. K. (2016). The importance of using games in EFL classrooms Cypriot. *Journal of Educational Science*. 11(3),126-135
- Houghton, E., Aston, H., Featherstone, G., Perrotta, C., Houghton, E., & Aston, H. et al. (2013). *Game-based learning: Latest evidence and future directions*. Slough: NFER.: (NFER Research Programme: Innovation in Education). Retrieved from <https://www.nfer.ac.uk/publications/GAME01>
- Ibitoye, A. O. J. & O. T. I. Olaifa, O. T. I. (2018). " Predictive Analytic Game-based Model for Yoruba Language Learning Evaluation. *I.J. Modern Education and Computer Science*, 2018, (2),43-47.
- Johnson, C. I. & Mayer, R. E. (2010). "Adding the self-explanation principle to multimedia learning in a computer-based game-like environ-

- ment” *Computers in Human Behaviour*, 2010, (26), 1246-1252.
- Johannesson, M., & Lundqvist, H. (2012). “Understanding Purpose and Circumstantial Context in the Use of Educational Games: designing a search function and updating a Metadata model (Masters)” University of Skövde. 2012.
- Kao, C., (2014). “The Effects of Digital Game-based Learning Task in English as a Foreign Language Contexts: A Meta-analysis”. *Education Journal*, 42,( 2), 113-141.
- Lenhart, A., Kahne, J., Middaugh, E., Macgill, A., Evans, C. & Vitak, J. (2008). *Teens, video games, and civics*. Pew Research Center. <http://www.pewinternet.org/2008/09/16/teens-video-games-and-civics/>
- Liu, E. Z. F., Lin, C. H., Hsiao, H. S., Chen, K. T., Lin, S. R., Hwang, W. Y. (2009). An analysis of the research of digital game-based learning and society in Taiwan. *Proceedings of GCCCE 2009, 13th Global Chinese Conference on Computers in Education*, National Taiwan Normal University
- Mayer, R. E. (2014). “Computer games for learning: An evidence-based approach”. Cambridge, MA: MIT Press.
- McLaren, B. M., Adams, D. M., Mayer, R. E. & Forlizzi, J. (2017). “A computer-based game that promotes mathematics learning more than a conventional approach”. *International Journal of Game-Based Learning (IJGBL)*, 7(1), 36-56.
- McDaniel, M. A., Fadler, C. L., & Pashler, H. (2013). Effects of spaced versus massed training in function learning. *Journal of Experimental Psychology*, 39, 1417–1432.
- McLaren, B. M., Adams, D. M., Mayer, R. E. & Forlizzi, J. (2017). “A computer-based game that promotes mathematics learning more than a conventional approach”. *International Journal of Game-Based Learning (IJGBL)*, 7(1), 36-56.
- Nasab, M. Z. Esmaceli, R. & Sarem, H. N. (2015). The use of teaching aids and their positive impact on student learning primary school”. *International Academic Journal of Social Sciences*, 2(11), 22-27.
- Oblinger, D. (2006). *Simulations, games, and learning*. Retrieved from <http://net.educause.edu/ir/library/pdf/ELI3004.pdf>
- Odewumi, M. O. (2017). Usefulness of Modelling Media As Perceived By Fine And Applied Arts Students Of Ahmadu Bello University, Zaria, Nigeria. *The Online Journal of Communication and Media* . 3(3), 39-43.
- Odewumi, M. O. & Ola-Alani, E. J. (2018). Using procedural and conceptual colour stimulation-game as an instructional gizmo for Nigerian students. *Journal of Game, Game Art and Gamification*. 03(02), 19-47.
- Salman, M. F. (2017). “Language And Problem Solving: The Mathematics Education Link” *The One Hundred And Sixty-Eighth (168th) Inaugural Lecture* University Of Ilorin
- Sitzmann, T. (2011). A meta-analytic examination of the instructional effectiveness of computer-based simulation games. *Personnel Psychology*, 64, 489–528.
- Spiegel, C. N., Alves, G., Cardona, T. S., Melim, L. (2008). Discovering the cell: An educational game about cell and molecular biology. *Journal of Biological Education* Winter 2008(1), 27-36
- Schacter, D. (2011). *Psychology of education*. Worth Publishers, Atlanta Georgia, USA
- Shafeeq, N. Y. & Imran, M. (2016). Teacher's attitude towards the use of Information and Computer Technology (ICT) in Classroom Teaching *The International Journal of Social Sciences and Humanities Invention*, 3(6), 2323-2329. v n\ thaniel
- Vogel, J. J., Vogel, D. S., Cannon-Bowers, J., Bowers, C. A., Muse, K., & Wright, M. (2006). Computer gaming and interactive simulations for learning: A meta-analysis. *Journal of Educational Computing Research*, 34(3), 229-243
- Yien, J. M., Hung, C. M., Hwang, G. J., & Lin, Y. C. (2011). A game-based learning approach to improving students' learning achievements in a nutrition course. *The Turkish online journal of educational technology*, 10(2), 1-10.
- Zirawaga, V. S., Olusanya, A. I. & Maduku, T. (2017) Gaming in Education: Using Games as a Support Tool to Teach History. *Journal of Education and Practice* 8(15), 54-64.