



NIGERIAN JOURNAL OF EDUCATIONAL PHILOSOPHY

**PHILOSOPHY, ARTIFICIAL
INTELLIGENCE, AND DIGITAL
EDUCATION**

VOLUME 35 NO. 2, OCTOBER, 2025

**ISSN: 0794-0114
e-ISSN: 2971-5652**

Published by

PHILOSOPHERS OF EDUCATION ASSOCIATION OF NIGERIA (PEAN)
www.peanpapers.com.ng

Formatted & Printed in Nigeria by



www.timsmek.com | info@timsmek.com | +234-703-455-9895

EDITORIAL POLICY/GUIDELINES OF NIGERIAN JOURNAL OF EDUCATIONAL PHILOSOPHY (NJEP)

Nigerian Journal of Educational Philosophy (NJEP) is published two times a year, April and October by Philosophers of Education Association of Nigeria (PEAN). Although, NJEP provides an outlet for the discussion of most substantive issues in educational theory and practice, it draws specifically upon philosophical insights and welcomes articles presented within a philosophical frame of reference.

Editorial Policy Guidelines for contributions: Submission of Articles

- Manuscripts: The style of reference is mainly the TURABIAN method.
- Articles should not exceed 5000 words/15 pages (including abstract of not more than 250 words), typed on A4 paper with double line spacing using Times New Roman, Font size 12. Since Articles should be sent anonymously to consulting editors for assessment/peer review, the author's name, GSM's number(s), qualification, post and address should be typed on a separate detachable page.
- Quotations: Quotations that are 40 words and above should be properly indented with ½ inch margin to the left and right respectively.
- Articles submitted to any other body/Journal for publication or already published should NOT be sent to the Editor.
- On submission, three copies of the manuscript with the evidence of payment of vetting fee (N5000) should be sent to the Editor. This is only applicable to April version of the Journal.
- On the receipt of vetting article from the Editor, soft copy of the final manuscript after the necessary corrections should be submitted to the Editor with the publication fee.
- Information on the Journal volume where the article will appear will be communicated to the author(s) immediately the article is accepted for publication.
- Note that NO vetting fee is charged on article presented in the conference by the conference attendee or conference Edition of the NJEP Journal published in October every year (conference edition is published in October).
- Also, note that April edition of NJEP will attract vetting fee of N5000.
- Plagiarism: The author should ensure that he/she avoid high percentage level of plagiarism (preferable not more than 20%)
- NJEP Journal from 2022 will have both print and online editions (www.peanpapers.com)

All correspondence should be directed to:

Editor

Prof. S. D. Osaat

Department of Educational Foundations

University of Port Harcourt, P.M.B 5323, Port Harcourt, Rivers State, Nigeria.

Sunday.osaat@uniport.edu.ng

osaatsundan@gmail.com

+234 803 673 1057

+234 703 440 6894

EDITORIAL BOARD

Editor:

Prof. Sunday D. Osaat

Faculty of Education, University of Port Harcourt, Port Harcourt, Nigeria

Associate Editors:

Prof. Chris J. A. Onwuka

Institute of Education, University of Nigerian, Nsukka.

Prof. Abeke Adesanya

Adekunle Ajasin University Akwoba, Ondo State, Nigeria

Prof. A. Owan Enoh

Faculty of Education, Cross River University of Technology Calabar, Nigeria.

Prof. A.A. Bagudo

Institute of Education and Extension Services, Usman Dan Fodio University, Sokoto, Sokoto State, Nigeria.

Prof. Kolu Babarrinde

Faculty of Education, University of Ibadan, Nigeria.

Consulting Editors:

Prof. D.E. Denton

University of Kentucky, U.S.A.

Prof. Philip Rothman

Antioch College, U.S.A

Prof. J. Nelson Omatseye

Faculty of Education, University of Benin, Benin city, Nigeria

Prof. Joseph D. Okoh

Faculty of Education, University of Port Harcourt.

Prof. Orona Orokah

Faculty of Education, Delta State University of Abraka, Nigeria

Prof. Oluremi Ayodele-Bamisaye

Faculty of Education, University of Ibadan.

INFORMATION, COMMUNICATION AND TECHNOLOGY FOR FUNCTIONAL EDUCATION IN SCHOOLS YESTERDAY, TODAY AND TOMORROW

BY

ABUBAKAR YAHAYA

Department of Educational Foundations and Management Federal
University of Education, Kontagora, Niger State
+2348135565587yahayaabubakar25@gmail.com

&

MANASSEH K. SALEMGA

Faculty Of Education Department Of Educational Foundations Philosophy Of Education Unit
Nasarawa State University, Keffi +2347034761517salemgakefas@gmail.com

&

MAIGONA TIMOTHY DODO

Faculty Of Education Department Of Educational Foundations Philosophy
Of Education Unit Nasarawa State University, Keffi
+2348065975618dodotimothy686@gmail.com

&

NYAM ANNA LEVI

Faculty Of Education Department Of Educational Foundations Philosophy Of Education Unit,
Nasarawa State University, Keffi
+234806838346nyamannalevi@gmail.com

&

FRIDAY A. AGAH

Faculty Of Education Department Of Educational Foundations Philosophy Of
Education Unit, Nasarawa State University, Keffi
+2348058809358audufridayagahaudu@gmail.com

Abstract

This paper is a study of ICT for functional education in schools yesterday, today and tomorrow. The study shows that ICTs can make lots of impacts in the educational practice in schools. ICT has become a strong agent for change among many educational practices. It is evident from the study that the efficient use of ICT in schools will greatly enhance the desired growth both in the education and every aspect of students and educators. The use of ICT in education lends itself to more student-centered learning settings; it enhances

continuing and distance learning education. ICT enhances teaching, research and effective and efficient school administration. Indeed, with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop that's, (yesterday today and tomorrow). The paper suggests that ICT helps in developing of schools and also students' developments as well as a way of socio-economic development of the entire Nigeria as a nation.

Keywords: Role of ICT, Functional Education, Schools Students and Educators.

Introduction

Etymologically, the phrase Information and Communication Technology (ICT) has been used by academic researchers since the 1980s, and its abbreviation ICT became popular after it was used in a report to the UK government by Dennis Stevenson in 1999 and in the revised National

Curriculum for England, Wales and Northern Ireland in 2000. However in 2012, the Royal Society recommended that ICT should no longer be used in British schools "as it has attracted too many negative connotations", and with effect from 2014, the National Curriculum began using computing, which reflects the addition of computer programming into the curriculum.

Variations of the phrase have spread worldwide, with the United Nations creating a "United Nations, Information and Communication Technologies Task Force" and an Internal "Office of Information and Communications Technology¹.

ICT is an acronym that stands for Information and Communication Technology. It is a composite term, which embodies three important concepts: information, communication and technology. Womboh² submits that to understand the term ICT, one must understand all the three concepts.

He then defines information as scientifically processed data which aids decision making. For Babu, Singh and Sachdeva³, information means data that has been put into a meaningful and useful context and communicated to a potential user who uses it to make decisions. Womboh⁴ also defines communication as the transfer or exchange of information from person to person or from one place to another, while he describes Technology as use of scientific knowledge to create tools for enabling human being to subdue environmental hazards and obstructions to comfort. The computer, telephone, cell phone, GSM handsets, television, radio, etc are given as examples of products of communication technology. Coming to the definition of ICT, Watteville and Gilbert in Womboh have defined it in the following terms: The acquisition, analysis, manipulation, storage and distribution of information; and the design and provision of equipment and software for these purpose. Elsewhere, ICT is also defined as the various technologies that enhance the creation, storage, processing, communication and dissemination of information. ICTs also

refer to the different infrastructures used in these processes their application and the numerous services these infrastructures render.

The element of ICTs includes communication media e.g. radio, television, information machine (e.g. computers) and telecommunications and equipment (e.g. satellite, fibred optic cables, phones, and facsimile machine). Telecommunications infrastructures in particular have turned out to be the driving forces of ICTs because they have the ability to link all various ICT elements together irrespective of locations and to provide a converging platform for them all.

The role of Information and Communication Technologies (ICTs) in the 21st century education system has been described as vital to keeping abreast with rapidly changing technologies. The development of information and communication technology into the Nigerian education system has come to stay; its importance has been translated into huge potentials in terms of positive, outcomes, although investments in ICTs in Nigerian's education system have not yielded much when compared to similar investments made in communication Atureta⁵.

The field of education has certainly been affected by the penetrating influence of ICT worldwide. ICT has made impact on the quality and quantity of teaching, learning and research in the institution using it Kwacha, 2007. According to Ololube, Ubogu and Ossai 2007⁶, The introduction of ICT usage, integration and diffusion has initiated a new age in educational methodologies, thus has radically changed traditional method of information delivery and usage patterns in the domain as well as offering contemporary learning experience for both instructors and learners. ICT has the potential to accelerate, enrich and deepen skills, motivate and engage students in learning; helps to relate school experiences to work places, helps to create economic viability for tomorrow's workers, contribute to radical changes in school, strengthens teaching, and provides opportunities for connection between the school and the world (Davis & Tearle; Lemke & Coughlin; cited by Yusuf. Adomi & Kpangban⁷ described Information and communication technology (ICT) as electronic technologies used for information storage and retrieval. According to the Online Oxford Dictionary⁸, Information and communications technology or information and communication technology, usually abbreviated as ICT, is often used as an extended synonym for information technology (IT), but is usually a more general term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage- and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information. In other words, ICT consists of IT as well as telecommunication, broadcast media, all types of audio and video processing and transmission and network based control and monitoring functions. ICT as described by Scott⁹, encompasses a range of applications, communications and technologies which aid information retrieval and research communication and administration. These include online databases, library services and

online services and fax machine. It has become a global phenomenon of great importance and concerns in all aspects of human endeavor, spanning across education, governance, business, labour, market, shares, productivity, trade, agriculture, commerce and others. The expression was first' used in 1997 in a report by Dennis Stevenson¹⁰ to the UK government and promoted by the new National Curriculum documents for the UK in 2000.

The Role of ICT Enhancing Education in Nigeria

ICT is one of the driving forces of globalization by fueling the rapid transformation of remote and isolated information units into global inter-connected super highways, it is a transforming mechanism that can influence the way we live by converting our societies into truly knowledge based, therefore ICT impact so much in enhancing education in Nigeria today, Considering the importance of ICT in national development as well as education in particular. Below are some of the vital roles ICT can play in enhancing learning and teaching in our educational institutions:

- 1. Access to information:** Student who uses computer in the classroom has access to more information to propel his/her learning. He can research a topic the teacher talks about in the classroom, using the internet. Many textbooks come with computer CDs to supplement classroom learning. Educational software programs, as well as online-based games, promote learning as well. All of these resources become quickly accessible with a computer in the classroom.
- 2. Improved Technology Skills:** Students who have access to computers in the classroom will build their computer skills, which are invaluable in a technologically sophisticated society. By the time computer use becomes mandatory at the higher school, college and universities levels, students will be well-versed in using basic word processing programs, doing computer-based research and typing. Building these skills at a younger age by way of classroom computers can pay dividends as they advance through middle school, high school and perhaps beyond. Students also learn to work with the computer programs, such as word processors and Web browsers.
- 3. Learning enhancement:** Students might explore the Internet to find illustrations related to subjects they are studying. Science students might browse scientific magazines or websites. Students also use computers to perform research for their assignments.

Interaction in classroom has always enhanced the learning process, as interactivity bring students a more thorough understanding of course material, these 'extras' are limited and not always possible for many subjects, however, with the power of a computer, online extras are easily accessible. Computers allow students and teachers access to additional tools.

4. Educators or Teachers: computers are versatile tools that can relate to many aspects of life, from communication research to problem solving, teachers can use the Internet to connect and interact with students via social networking sites and class blogs, share resources, expertise and advice. Computer technology offers flexibility in when and where tasks are carried out. Gains in computer technology, improves literacy skills, confidence and enthusiasm. Easier planning and preparation of lessons and designing materials. Access to up-to-date pupil and school data, anytime and anywhere.

5. Individualization of instruction: It's providing opportunities for individual to receive instruction, the learner, through the application of ICT can receive instruction alone anywhere and time that are comfortable and convenient for him/her. The internet is good tool to do this (Ayodele, Oluwole, and Loto¹¹).

6. Instructional materials: The materials provide enrichment of teaching materials to teachers. The application of ICT to teaching helps the teacher with rich materials to use in classroom thus guaranteeing higher quality standards in schools. Technopadia.

How can ICT be Integrated into Teaching and Learning

To promote ICT and integration in teaching and learning. Is it worth investing so much money? What advantages do ICT have in education? Many researchers have given their view points about the advantages and how ICT can be integrated in curriculum.

Allen¹² believed that the basic skills of the future are the use of powerful technologies. The traditional textbook can no longer fulfill the need in the rapid changing and the information explosion world. He asserted that the traditional teacher-centered approach makes classroom no, longer an effective system to prepare students for the realities which they face in the near future., Pam¹³, stated that technology works best as a supporting tool-making complex processes or creative experience either possible or easier to accomplish task. He thought that technology can offer new ways to provide meaningful, real-life context for learning, it also allows students to collaborate with peers and experts across the country and around the World.

Rose described ICT as good as, or even better than, traditional method of teaching and learning as it being limitless of time and space. Poole pointed out that suitably integrated computer use can contribute to successful results in the classroom as to: support teaching and learning, support children's socialization, enable children with disabilities to integrate and enables a teacher to duplicate excellence.

According to Ogunlus, and Bajaliste¹⁴, integration of ICT in teaching requires understanding at a deeper level to facilitate the development of strategies and process to identify opportunities, solve problems and evaluate solution. They believe that these higher-level objectives require not only technical, knowledge and skills, but the ability to choose an effective strategy for a problem. Poole shared his view that the technology is only a tool to both teacher and student. The effectiveness of the tool depends entirely on the skills they

bring to the learning process. Poole¹⁵ believed that the teachers' task is thus to nurture the student's willingness to learn. New technologies contribute to the ways of learning knowledge, skills and attitudes, but still dependent on pre-requisite knowledge and type of learning activity. New technologies spur spontaneous interest more than traditional approaches of learning. Students using new technologies concentrate more than those in traditional settings. Moreover, the above outlined points are balanced by further genuine observations: Benefits of ICT for students are greatly dependent on the technological skills of the teachers and their attitudes towards technology. Skill and attitude in turn are largely dependent on the staff training in this area, UNESCO.

ICT in Teaching and Learning Process in Education Today

- Information and Communication Technology have made a tremendous impact in all aspects of human activities including education. Apart from reducing the world to a global village, it has made the most tremendous impact in education. It revolutionized education by making all vital. information available to the learners. This is why Gates noted that the most fundamental difference between today and the future is that information will be created, stored, and transmitted in digital formats. With ICT the learners can access information from different parts of the world and will no longer depend solely on the teacher for information. In fact, learners who have access to ICT facilities such as internet and use these facilities in their learning can be said to be more versatile than their teachers who have no access to these ICT facilities. For teachers to be relevant in this new information and technology age, teacher education or training must adopt ICT programmer in their training. The incorporation of ICT into teacher education curriculum does not only position the teacher to be more effective and efficient but also, to remain relevant in the new world ruled by information and communication technologies. The importance of ICT to enhancing education in developing countries and our national development in general and educational advancement in particular cannot be over emphasized. The prospects and accuracy of speed to each of these administrative tasks, along with the convenience of storing large quantities of information on a compact disk is prevailing condition in school administration and management in Nigeria is indeed encouraging. A benefit of Information and communication Technology to students has invaded every aspect of our lives, including the school. Many educators incorporate technology into the classroom any way they can, and classrooms often include a computer for students to share. Students who learn in a classroom with computer access again a number of educational advantages. From expanding their world views to engaging in projects with their peers, students with computer access stay well connected with the following benefits chijioke; carpenter¹⁶, as listed below:

- As a matter of policy, all countries should be equipped with minimum specific numbers of computer in an ICT laboratory and be put into effective use for both teachers and students
- Management of each school should take an active role in organizing awareness through media, workshop and seminar to create awareness of ICT
- There should be study tour and film trip so as to assist educational administration on how ICT can support education administration and how it can impact learning process.
- Management of the institutions should collaborate with private sectors and NGO to find ICT in all levels of education
- ICT should be combined with more traditional technologies such as books and radio and be more extensively applied to the training of teachers.
- Create ICT awareness and ensure universal access in promoting diffusion into all sectors of the school
- Create an enabling environment and facilitate private sectors investment in the ICT.

Challenges of ICT to Educational Sectors Today

The major challenges identified in ICT teaching practices are;

- i. Interrupted electricity supply or no supply at all
- ii. Poor funding from government, federal, state and local government
- iii. Lack of monitoring and evaluation
- iv. Phobia of technology on the part of teachers resulting in the poor utilization of existing facilities
- v. ICT policy on education not accompanied by a detailed implementation plan or commitment from governments to implement the policies.
- vi. Shortage of ICT professionals and lack of educators with ICT skills.

- vii. ICT equipment equipping schools and colleges with IC equipment is very expensive due to hardware and software purchase as well as the recurrent costs associated with maintenance and support.
- viii. Managements attitudes: the attitudes of various management in and outside institutions towards the development of ICT related facilities such as the internet and procurement of computers is rather slow in some instances, and in others there are no aids or support by the government at all, Albirini cited in Otuka¹⁷.

Merits of Using ICT in Enhancing Education, Today and Tomorrow

Information Communication Technology (ICT) has a revolutionary impact on educational methodology globally. The challenges for school system throughout the world are that of providing an effective education for all students in schools which will prepare them for inclusive participation in the work place, social environment, and political sphere.

Countless millions of students are dropping out of school due to the seeming irrelevancy of education to their lives. To Ainscow¹⁸ and Miles, the major focus in any educational institution is to ensure, that good norms and values are impacted to students at all levels for the development of the society and humanity.

Information Communication Technology (ICT) has introduced a new era in traditional methods of teaching and offering new teaching and learning experience to both teachers and students. Hence the Nigerian educational environment should take advantage of this capability to provide easy access to information, since technologies enable the visualization of educational materials in innovative and realistic manner. However, in our nation today, it is obvious that this revolution in the education is not widespread, therefore, there is the need to strengthen it, improve it to reach a large percentage of the required educational system. The history of utilization of media in human communication started as far as the Stone Age where the surface of rocks and stone served as the medium of communicating visual information.

This later developed to the use of the blackboard, chalkboard and later printed materials which were combined with verbal communication. These were effective then because the teachers were the only source of knowledge and information. As new technologies were developed in the era of entertainment and information dissemination, there were distraction in the classroom as students became restless so much that educators were challenged to do research in media disseminating information as presented by Shabari, Okebukola and Obanya, cited in Otuka¹⁹. They remark that the outcome of research to make learning interesting brought about technologies in the classroom.

There is no gain saying that ICT has had great impact on every facet of human existence in our world today. Education as a field of Endeavour has certainly influenced information and communication technology. The application of ICT in education enhancing

developing countries has made significant impact on the quality and quantity of teaching-learning and research in the traditional educational institution. According to Kurache as cited in Otuka²⁰, institutions that encourage their teachers and learning to use ICT are more efficient and productive. ICT enhances teaching and learning as it involved the usage of a variety of tools to enhance and facilitate teacher's pedagogical activities through its dynamics interaction, flexible and engaging content. To this end, Mohammed and Ekpunobi cited in Otuka²¹ states that the following uses of ICT in teaching include;

1. Improved teachers handling of large classroom
2. Developed teacher's interest and confidence in his or her work
3. Sustained life-long learning
4. Promotes teacher's capabilities to carry out meaningful research
5. Promote effective and meaningful research
6. Promote effective and efficient education administration
7. Teachers studying by distance or long vacation programmers have access to information from lecturers or internet and other sources.

Suggestions

There should be awareness campaign at all levels as teachers' interest in ICT is low. Education Resource Centre's in the states should be provided with ICT facilities that will be accessible to all teachers within the zone for practices.

ICT should not be restricted to a single course but should permeate all courses in the teachers training programmers".

Government should ensure that costs of connectivity, equipment maintenance and support are affordable for individual, institutions to ensure that there is provision to cover the cost centrally. Teachers' trainees at all levels and their trainers should be directed to possess computers by the institutions authorities. (Loans could be arranged for them through the banks) Funding, government at all levels should make ICT a matter of priority, provides the specifically needed for the training of teachers in computer education who shall in turn be equipped with ICT knowledge and skills to teach students computer or ICT basic.

Conclusion

The National Policy on Education (FRN)²² as revised in 1988 and 2014, re-emphasized the need for the integration of ICT in the Nigerian educational system. This is an acceptance of the need to go beyond computer to the level of ICT also the need for infrastructure. Three major objectives, among others were emphasized in the Nigerian National policy for Information Technology (FRN)²³, These are to empower youths with ICT skills to prepare them for good impact in the society.

References:

1. Adekunle, R. (2023). *Applications of Artificial Intelligence (AI) Technologies in Teaching and Learning Process in Nigeria*. International Journal of Innovation, Creativity and Change Volume 15, Issue 3.
2. Malik, G.,
2. Tayal, D. K., and Vij, S. (2019). “*An Analysis of the Role of Artificial Intelligence in Education and Teaching*.” In *Recent Findings in Intelligent Computing Techniques* 407– 17.
3. Romero-Rodriguez, C. V. (2019). *Educational Data Mining And Learning Analytics: An Updated Survey*. Wiley Interdisciplinary Reviews. *Data Mining and Knowledge Discovery*, 10(3).
4. Guo, Y. and Xiao, Y. (2021). “*Artificial Intelligence in Education*.” In 4th International Conference on Modern Management, Education Technology and Social Science (MMETSS) Atlantis Press.
5. Zhang, B. and Li, Y. J. (2021). *Artificial Intelligence In Intelligent Tutoring Robots: A Systematic Review And Design Guidelines*. *Applied Sciences* (Basel, Switzerland), 9(10).
6. Adekunle, R. (2023). *Applications of Artificial Intelligence (AI) Technologies in Teaching and Learning Process in Nigeria*. International Journal of Innovation, Creativity and Change Volume 15, Issue 3.
7. Kristanto, A. and Mariono, A. (2020). “*The Development of Instructional Materials E-Learning Based on Blended Learning*”. *International Education Studies*, 7, 11–19.
8. Ahmad, M. B. (2019). *A Survey of Pedagogical Affordances of Augmented and Virtual Realities Technologies in IoT-Based Classroom*. In *IEEE 5th International Congress on Information Science and Technology (CiSt)* (pp. 334–341).
9. Subrahmanyam, V. V. and Swathi, K. (2018). *Artificial Intelligence And Its Implications In Education* In *International Conference On Improving Access To Higher Education For Underserved Communities In Uncovered Regions* (pp. 1–11).
10. Guilherme, A. (2019). *AI And Education : The Importance Of Teacher And Student Relations*. *AI & Society*, 34(1), 47- 54.10.
11. Sharma, U., Tomar, P., Bhardwaj, H., & Sakalle, A. (2021). *Artificial Intelligence And Its Implications In Education*. In *Impact Of AI Technologies On Teaching, Learning, And Research In Higher Education* (Pp. 222–235).

12. Alam, A. (2021). *Should Robots Replace Teachers? Mobilization Of AI And Learning Analytics In Education*. 2021 International Conference on Advances in Computing, Communication, and Control (ICAC3). Presented at the 2021 International Conference on Advances in Computing, Communication, and Control (ICAC3), Mumbai, India.
13. Huda, M., Elkoubaiti, J.A. and Mrabet, P.S. (2020). *Big Data Emerging Technology: Insights into Innovative Environment for Online Learning Resources*. International Journal of Emerging Technologies in Learning (iJET), 13(01), 23.
14. Sharma, U., Tomar, P., Bhardwaj, H., & Sakalle, A. (2021). *Artificial intelligence and its implications in education*. In *Impact of AITechnologies on Teaching, Learning, and Research in Higher Education* (pp. 222–235).
15. Huda, M., Elkoubaiti, J.A. and Mrabet, P.S. (2020). *Big Data Emerging Technology: Insights into Innovative Environment For Online Learning Resources*. International Journal of Emerging Technologies in Learning (iJET), 13(01), 23.
16. Perrotta, C. and Selwyn, N. (2020). *Deep Learning Goes To School: Toward A Relational Understanding Of AI In Education*. *Learning, Media and Technology*, 45(3), 251–269.
17. Chen, X.H. and Kim, D. L. (2022). *Two Decades of Artificial Intelligence in Education*. *Educational Technology & Society*, 25(1), 28–47.
18. Romero, C. and Ventura, S. M. (2020). *AI Thinking for Cloud Education Platform With Personalized Learning*. Proceedings of the 51st Hawaii International Conference on System Sciences. Presented at the Hawaii International Conference on System Sciences.
19. Goksel, N., & Bozkurt, A. (2019). *Artificial Intelligence In Education: Current Insights And Future Perspectives*. In Handbook of Research on Learning in the Age of Trans humanism (pp. 224–236).
20. Pokrivcakova, S. (2019). *Preparing Teachers For The Application Of AI-Powered Technologies In Foreign Language Education*. *Journal of Language and Cultural Education*, 7(3), 135–153.
21. Koh, J. H. (2019). “*TPACK Design Scaffolds For Supporting Teacher Pedagogical Change*”. *Educational Technology Research and Development*, 3, 577–595.
22. Kumar, V. and Sharma, D. (2022). *Creating Collaborative And Convenient Learning Environment Using Cloud-Based MoodleLMS: An Instructor And Administrator Perspective*. *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*, 1, 36–40.

23. Ibid