

CULTURAL APPROPRIATENESS: THE MISSING LINK BETWEEN COMPUTER-ASSISTED LANGUAGE INSTRUCTION AND STUDENTS' PREPARATION FOR SUSTAINABLE DEVELOPMENT IN NIGERIAN SCHOOLS

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Abstract

High proficiency in the language of school instruction is key among the tools for attaining sustainable development through formal education. Agitation for potent means of making Nigerian students highly proficient in the English language is, therefore, widespread. Literature is replete with testimonies of impressive positive difference that the deployment of computer software makes in language teaching and learning in several countries. However, using computer software to teach English Language in Nigeria is, put mildly, not a common practice. Engagement of extant literature shows that most known computer software in the market and currently in use for language instruction were designed and developed in countries other than Nigeria, especially in climes where English is first language. This poses a question of cultural appropriateness of such software to the peculiarities of the second language situation of the Nigerian learner. This study thus advocates collaboration among teachers and researchers in the English language as a second language as well as other stakeholders in the teaching and learning of the language in Nigeria towards the production of a plethora of computer software for English Language learning that will be culturally appropriate without alienating the users from the benefits of much needed international intelligibility.

Keywords: Cultural Appropriateness, Computer-Assisted Language Instruction, Sustainable Development

Introduction

For any form of development to be rightly described as sustainable, it must satisfactorily meet present needs and adequately prepare the ground for future projections (Broman & Robert, 2017; Shah, Nawaz, Ahmad, & Arshad, 2020). It is imperative to admit unequivocally that no nation can fully achieve sustainable development while neglecting its indigenous science and technology interwoven with its indigenous language (Magni, 2017; Sultana, Muhammad & Zakaria, 2018). However, where a borrowed language is adopted as medium of formal education for some reasons, it is expedient that students' mastery of the language of instruction is ensured in order to make them sustainable development compliant.

Mastery of the English language has thus been made really mandatory for a typical Nigerian that desires optimal utilisation of available opportunities within and beyond the country in the areas of Western education, job opportunities, ascension to and functioning

in political offices, international connections, and so on. However, students' performance in the school subject (English Language) that is geared towards building Nigerian students' proficiency in the language has been a constant source of worry to all stakeholders in the education system, especially because of the ripple effect it has on students' mastery of other school subjects since it is the language of instruction from the fourth year of basic education. A lot of efforts have been made by researchers, teachers, policy makers, book publishers and others to stem the tide of perennial failure in the subject to minimal or no avail.

Theoretical as well as empirical studies have, however, proved that students' interest is always aroused when computer is employed in the teaching and learning of any school subject, English Language inclusive. Computer-assisted strategies of various modes have been used to improve students' disposition to and performance in the different aspects of English Language in many countries, with a few of them experienced in Nigeria. Though there is a plethora of computer software in the market all over the world for teaching English Language, it is obvious that there is paucity of such materials produced in Nigeria by Nigerians to cater for the cultural peculiarities of Nigerian learners of English Language.

The current study is thus focused on exploring issues relating to the cultural appropriateness of the computer software for English Language teaching and learning currently in the market to the cultural needs of the Nigerian learner. It looks into specific ways in which using materials that are culturally distant to Nigerian learners of the subject in their second language context can inhibit successful learning experience. It also considers the possibility of encouraging Nigerians who are highly proficient in the English language to produce culturally appropriate computer software that can engender positive disposition to the learning of the different aspects of English Language and ensure optimal performance in the subject.

Nigerian Students' Performance in English Language: A Testimony to the Need for Pedagogic Intervention

The importance of proficiency in the English language as the medium of instruction from the fourth year of elementary education in Nigeria has been emphasised by many authors. No student can perform better in any school subject than his/her communicative competence in the language of instruction. Therefore, no Nigerian student can master any learning content in any school subject beyond the capacity of his/her proficiency in the English language which is the medium of instruction (Rafiu & Nwalo, 2016; Ozowuba, 2018).

Beyond success in English Language and other school subjects, a typical Nigerian needs to be proficient in English to enjoy access to the inexhaustible knowledge available through foreign media as well as some English-medium programmes in the local media (Abdi, & Makiabadi, 2019). Proficiency in the English language is a major requirement for access to the global economy (Akintunde, & Danlami, 2015). Entry into juicy

occupations and career progress in same is afforded Nigerians who possess impressive communicative competence in English (Pinon & Haydon, 2010). Some Nigerian politicians exceedingly manipulate language to sway the citizenry to their sides and thereby enjoy the trust required for political success (Sharndama & Mgbemena, 2015; Kamalu & Iniworikabo, 2016). Since English is the major language of Nigerian politics, a politician's dexterity at manipulating English can guarantee access to the sentiments of many Nigerians, especially the teeming population outside the politician's ethno-linguistic community. A politician who has potential to contribute to the country's sustainable development may be deprived necessary platform as a result of far-reaching effects of limited English proficiency syndrome.

Mass failure in English Language has, however, become a constant experience in the Nigerian education sector for decades now (Ozowuba, 2018), indicating the students' general low proficiency in the language which the subject is meant to teach. This contributes significantly to the failure rate in other school subjects (Rafiu & Nwalo, 2016; Ozowuba, 2018). Understandably, students' scripts in other subjects are scored with less emphasis on linguistic correctness but the students' major challenge lies in the language deficit that prevents adequate comprehension of learning contents delivered in English. Their inability to meaningfully express their little understanding of learning contents also worsens the matter. It is not surprising that many Nigerian graduates have been described as unemployable, one of the fall-outs from academic failure resulting from language barrier.

The Prospects of Computer-Assisted Pedagogy

Theoretical as well as experimental studies have shown that students' performance improves significantly when computer-assisted strategies are employed in the teaching and learning of any subject (Olatunji, 2018), English Language inclusive. One of the reasons, as found by Olatunji (2011) from a survey is that students are excited at every opportunity to work with the computer and voluntarily stay longer on computer-mediated activities than most other engagements. Students learn easily with great fun when learning activities are computer-assisted or computer-mediated (Gunduz, 2005; Beare, 2011). Among others, Thomson (2011), Al-Qudah (2012), Fouz-González (2015), Gilakjani and Rahimy (2019) found computer-assisted instructional strategies helpful to students in mastering the phonological aspect. Patel, Torppa, Aro, Richardson and Lyytinen (2018) found them effective in the area of reading. Lan, Sung, Cheng, and Chang (2015), Evmenova, Regan, Boykin, Good, Hughes, MacVittie, Sacco, Ahn and Chirinos (2016), Zhu, Mark Shum, Brian Tse, & Liu (2016), Engeness and Morch (2016) found them useful in essay writing. The efficacy of computer-assisted instruction for essay writing is further proved by the significant effect observed by Ledbetter, Sohlberg, Fickas, Horney, and McIntosh (2019) on the expository essay writing of four undergraduates after six months of acquired brain injury (ABI). Computer-assisted language learning facilitates communicative competence in learners, which is the 21st century goal of language pedagogy rather than grammar, memorization and rote learning (Ikonta & Ugonna, 2015).

The era of scarcity of computer software is over. Computer software for teaching and learning have flooded local as well as international markets (Ekoko & Ekoko, 2005). Teachers as well as learners can easily buy them online or from physical shops. Furthermore, the period of parochial and generic computer feedback or error correction limited to certain preselected cases has been replaced by that of more innovative, faster, more individualized, context-specific and pragmatic software (Heift & Hegelheimer, 2017).

The Cultural Origins of Computer Software and the Challenges to Nigerian Users

There is general acute scarcity of made-in-Nigeria computer software for teaching and learning (Adikwu, Agunbiade & Abah, 2017) and English Language teaching is no exception. The reason for this is that the different types of available software for the teaching-learning of the different aspects of English Language are authored, developed and produced in developed countries where English is first language. This is not surprising as a result of various factors among which are the wide gap in technological advancement between such countries on one hand and Nigeria on the other, disparities in investments into education and research, national GDP differentials, and so on.

Many of the instructional contents of the software are consequently culturally inaccessible and incomprehensible to varying degrees to a typical Nigerian learner of the English language. Sonaiya (2002) and Aduwa-Ogiegbaen & Iyamu (2005), too, observed that most educational materials produced for global users are culturally inappropriate to the Nigerian classroom and this is a major setback to their effective application. According to Odo (2018), even L2 teachers of English Language have serious challenges as regards the readability and the understanding of instructional materials (textbooks) produced in L1 countries. It can be safely concluded that this will be true of computer packages from the same countries to a large extent.

English Language Learning Software for Nigerian Students: Between Novelty and Cultural Appropriateness

A critical examination of most, if not all, of the computer packages for English Language teaching and learning would reveal commendable novelty. This is why they are patronised in many countries of the world from online bookshops to traditional physical stores. The novelty notwithstanding, the factor of cultural appropriateness to the diverse countries' peculiarities may not be easy to cater for. Timothy, Oladunjoye and Agu (2016) have observed that e-learning facilities available in Nigeria are not well adapted to the needs of Nigerian learners as a result of cultural differences between the learning materials and the Nigerian users.

The English language is a component of, as well as a vehicle for the transmission of, the culture of the Anglo-Saxon race, no doubt. Therefore, understandably, no one can attain nativelike or near nativelike proficiency in the language without being versed in the culture of the native speakers. For example, a typical Nigerian would be comfortable saying, "dining and wining" because in his or her own culture, food comes before drinks. Whereas, the English man says, "wining and dining". Similarly, what sounds reasonable

to an average Nigerian is, "You can't eat your cake and have it" while a native speaker of the English language says, "You can't have your cake and eat it". This is applicable to quite a number of fixed English expressions.

In some of the contexts of cultural conflicts between the Nigerian's L1 (First Language or Mother Tongue) and English as L2, it will be reasonable to expect the L2 learner to strictly conform to the requirements and features of native speakers for international intelligibility. After all, a Briton or an American that studies Yoruba or any other Nigerian language would be required to conform to some standards in the target language in order to be understood by Nigerians. For example, the foreigner learning to speak Yoruba but mispronounces the initial heavy bilabial sound in "Gbongan" because such a sound does not exist in his/her L1 may not be easily understood by a Yoruba listener. So, a total disregard to the Standard British English is not being advocated but such materials that would give due regard to the cultural background of the typical Nigerian learner of the English language without flouting any fundamental rule of the target language.

A typical computer package from a country where English is first language would not deem it fit to call special attention to such "normal" day-to-day expressions as it would be presumed that the learners already know them. A package produced in Nigeria would, however, call the learner's attention to this "unexpected" twist. A special learning need would then have been taken care of. For example, a material that recognises the truism of the expression "As white as cotton wool" rather than rigidly expecting "As white as snow" would not violate any rule of language. Accepting the former without rigidly insisting on the latter would make a typical Yoruba student from southwestern Nigeria comfortable because he/she has never seen snow. Insisting that such a learner make snow the point of reference in this context would simply encourage rote learning rather than experiential mastery. Similarly, what a typical Nigerian can culturally relate with is the simile "as cunning as a tortoise" rather than the British "as cunning as a fox" because the Nigerian folklore is replete with innumerable stories depicting the tortoise rather than a fox as the symbol of cunning.

Taking cognizance of the observation that "the wider socio-cultural context of learning" is as crucial to learning outcomes as the employed teaching method and the students themselves (Tanaka, 2009, p. 107), it becomes clear that neglecting the socio-cultural requirements for an effective computer software for the teaching of English Language will significantly affect the learning outcomes negatively. Conversely, when adequate consideration is given cultural appropriateness, significant success can be expected from a novel pedagogic intervention.

"Cultural imposition" (Tanaka, 2009, p. 108) by the "Inner Circle", i.e. Western countries (Kachru, 1990) cannot but hinder maximum benefits from any computer software for English Language pedagogy, no matter the degree of novelty that goes into the design and development of such software. Thus, there are serious concerns about the negative educational impacts of this lack of cultural appropriateness on the educational

appropriateness of chosen strategies in non-Western contexts (Coleman, 1996; Brown-Jeffy & Cooper, 2011; Lan, Sung, Cheng & Chang, 2015). The wide geographical spread of scholarly opposition to cultural imposition in instructional contents and materials for English Language teaching-learning shows the global nature of the legitimate concern. Paletz and Peng (2008) found that while novelty had differing degrees of effect on Americans and Japanese, cultural appropriateness elicited the same degree of result from both nationalities, thereby establishing the universality of the need for cultural appropriateness. For example, the conventional computer software for teaching pronunciation in English lacks some resources required for success in second and foreign language contexts (Fouz-González, 2015). The instructional outcomes from the use of such software in a second language context may thus be expected to be negatively different from the outcomes in first language contexts.

It is noteworthy that the centrality of cultural appropriateness to the success of an intervention programme is not limited to the area of the use of computer for language pedagogy; all other spheres of human endeavours, medical fields inclusive, cannot achieve optimal success if the necessity of cultural appropriateness is ignored (Kreuter, Lukwago, Bucholtz, Clark & Sanders-Thompson, 2003; Barrera, Castro, Strycker & Toobert, 2013). Thus, Paletz and Peng's (2008) finding on the consistency of cultural appropriateness over novelty is highly instructive that the former should be given utmost importance. As computer software for teaching English Language that incorporates the cultural realities of Nigerian learners is made accessible in the country, the ease of mastery of learning contents will increase. Some of the specific benefits of culturally appropriate computer software for teaching English Language are looked into in the following paragraphs.

Benefits of Achieving Cultural Appropriateness of Computer Software for English Language Teaching and Learning in Nigeria

English Language learning becomes better situated in the learners' personal experience. A culturally appropriate computer package facilitates positive transfer of knowledge from the learners' sociocultural background to current learning contents. Learning, recall and reproduction of English Language learning materials become easy because of the increase in the quantity of contents to which the student can relate (Alatishe, Anuoluwapo, & Atayero, 2017). As the learners frequently encounter the referents of vocabulary items they come across in their English Language classes in their daily living, their memories of concepts are constantly refreshed.

English Language teaching will become more rewarding to teachers and learning more exciting to students (Beare, 2011). There is ample evidence to show that the excitement that language learners get from computer-assisted strategies is significant (Zhang, 2016; Tafazoli, Gómez Parra, & Huertas Abril, 2018). With minimum initial assistance from the teacher, students can continue to learn from the computer.

The failure rate in English Language examinations would be reduced. Judging by the instances of significant improvement recorded in experiments with computer-assisted

strategies for different aspects of English Language curricula, one can safely conclude that similar feats would be achieved if the same strategies are widely employed. A significant improvement in English Language examinations can then be reasonably expected as the software contents are relevant to the learners' cultural experience.

Teachers save ample time for other necessary activities (Allen, Jacovina & McNamara, 2016). Teachers' workloads become lighter when computer software is employed (Lavolette, Polio & Kahng, 2015). This is because the computer serves as assistant teacher when its contents are culturally accessible to the users.

Students are enabled to engage in independent studies (Zhang, 2016). Whether the teacher is physically present or not, meaningful and result-oriented learning continues. A lot of time will have been converted into profitable self-directed study. In addition to the benefit of converting potentially idle time into educationally profitable time, each student enjoys the benefit of keeping his/her mistakes secret since the computer will not announce such to anybody nearby. Also, the computer, unlike a human teacher, cannot run out of patience with the learner. It will keep on correcting the learner as many times as possible without scolding the learner or shouting him/her down. This benefit is brought within the students' reach only if the learning contents are accessible to them as a result of the absence of cultural barriers (Ariew & Frommer, 1987).

Challenges to Achievement of Culturally Appropriate Computer Software for English Language Teaching and Learning in Nigeria

There is paucity of English Language teachers with the required content knowledge, pedagogic competence and computer skills (Adedjoja & Abimbade, 2016; Dele-Ajayi, Ayodele, Alufa, Anderson, Strachan & Emembolu, 2019). Even most of the academic staff of Nigerian universities where the teachers are trained lack functional computer literacy skills (Aduwa-Ogiegbaen & Iyamu, 2005; Omotunde & Ajie, 2017). These are people that should contribute significantly to the design, development and use of computer software for English Language teaching and learning.

Prohibitive production costs occasioned by a battered economy, inimical foreign exchange rates, exorbitant interest rates on loans, poor electricity, etc. can discourage prospective investors into the production of computer software (Eze, & Obi, 2016; Amassoma, Keji, & Emma-Ebere, 2018). People venture into businesses primarily to make profit. Unfortunately, many local companies have been forced to fold up and international ones relocated as a result of unfavourable business climate in Nigeria.

Government's lack of political will to finance education reforms is another challenge. As noted by Akintunde, and Danlami (2015), the Nigerian government's failure to supply digital facilities to schools has become a constant factor. While the tendency to give up on the government after several years of advocacy and protests have failed to produce any significant positive result is natural, it will not be a bad idea to keep on emphasising this until the government rises up to its responsibility. After all, insistence on holding the

government accountable cannot stall alternative efforts in various other quarters of the society.

General financial constraints that would prevent parents from patronising such software if produced would be a terrible disincentive to prospective producers. Where over 70 percent of the population are poor and 35 percent wallow in abject poverty (Abiodun, Onafowora & Ayo-Adeyekun, 2019; Akinyemi, Magareth & Oluwafemi, 2019), schooling for the children is secondary, possession of books is tertiary (Ayeni & Afolabi, 2012) and procurement of sophisticated instructional materials is unaffordable luxury.

There is also the challenge of enforcing standards in the software to prevent poor quality that can promote internationally unintelligible varieties of English. Ministries of Education in Nigeria have been indicted for conducting inadequate evaluation of textbooks before recommending such for use in secondary schools. (Emenanjo, 2014). Many textbooks recommended to and used by secondary schools in Nigeria are thus grossly deficient (Amuseghan, 2007). Emenanjo (2014, p.11) pungently explains the cause thus:

My insider knowledge of what goes into their activities reveals that, sometimes, jobbery rather than quality of books determines the book selection exercises. Publishers, ministry officials, examination bodies and chief examiners end up not selecting the best books available in a given subject or area of emphasis.

If the same classes of personnel indicted by Emenanjo (2014) and other observers are involved in the selection of computer software for English Language teaching and learning, then the best software may not always be selected.

Recommendations

NERDC and other relevant government agencies should invest heavily in research activities promoting the design and development of English Language learning software that are culturally appropriate to the Nigerian learners without compromising international standards and intelligibility. The faculties and departments training English Language teachers should encourage pre-service teachers and in-service teachers to conduct research into provision of culturally appropriate English Language teaching and learning software in collaboration with computer engineering departments.

Researchers, teacher educators, software engineers and other stakeholders in computer software for English Language teaching-learning need to borrow the concept of “cultural tailoring” (Kreuter, Lukwago, Bucholtz, Clark & Sanders-Thompson, 2003). While teaching the English language with their computer programmes, they should always think of conceptualizing the learning concepts as Africans rather than presenting Eurocentric perspectives and experiences that the users of their products cannot relate to.

Companies located in Nigeria should be encouraged to, as part of their corporate social responsibilities, finance research and production of English Language teaching and

learning software that are culturally relevant to the various ethno-cultural entities in the country.

Government at various levels should provide incentives to companies and individuals that are involved in the production of such software in forms of tax exemption, subsidies on production cost, full sponsorship, and highly rewarding competitions among the producers.

REFERENCES

- Abiodun, T. F., Onafowora, O., & Ayo-Adeyekan, I. (2019). *Alarming rate of child poverty in northern Nigeria: implications for national security*. *American Research Journal of Humanities Social Science (ARJHSS)*, 2(1), 1-10
- Abdi, S., & Makiabadi, H. (2019). Learning English listening and speaking through BBC VOA Podcasts: An App Review. *Teaching English with Technology*, 19(2), 101-108.
- Adedoja, G. & Abimbade, O. (2016). Influence of mobile learning training on pre-service social studies teachers' technology and mobile phone self-efficacies. *Journal of Education and Practice*, 7(2), 74-79.
- Adikwu, M. U., Agunbiade, M. O., & Abah, J. M. U. (2017). Science and technology education initiatives in Nigeria: the case of STEP-B. In *Science Education: A Global Perspective* (pp. 145-173). Springer, Cham.
- Aduwa-Ogiegbaen, S. E., & Iyamu, E. O. S. (2005). Using information and communication technology in secondary schools in Nigeria: Problems and prospects. *Journal of educational technology & Society*, 8(1), 104-112.
- Akintunde, F. A., & Danlami, Y. (2015). The use of information and communication technology (ICT) in the teaching and learning of English Language in Nigeria. *Journal of Literature, Languages and Linguistics*, 15, 44-50.
- Akinyemi, A., Magareth, L., & Oluwafemi, E. (2019). Poverty and inequality in Nigeria: Implications for inclusive growth. *Nile Journal of Business and Economics*, 4(9), 30-51
- Alatishe, A. S., Anuoluwapo, D., & Atayero, A. A. (2017). Design and implementation of learning-aided software for children. Proceedings of EDULEARN14 Conference, 7th-9th July 2014, Barcelona, Spain. Retrieved on 5th August, 2019 from <http://eprints.covenantuniversity.edu.ng/9784/1/1407%20Edulearn%206296-6302%20copy.pdf>
- Allen, L. K., Jacovina, M. E., & McNamara, D. S. (2016). Computer-based writing instruction. *Grantee Submission*.

- Al-Qudah, F. Z. M. (2012). Improving English pronunciation through computer-assisted programs in Jordanian universities. *Journal of College Teaching & Learning (TLC)*, 9(3), 201-208.
- Amassoma, D., Keji, S., & Emma-Ebere, O. O. (2018). Looking inwards: is money supply the cause of rising inflation in Nigeria? *Journal of Economic and Social Development*, 5(1), 6-18.
- Amuseghan, S. A. (2007). ESL curriculum in secondary schools in Nigeria: Issues and challenges towards communicative competence. *Nebula*, 4(2), 319-333.
- Ariew, R. & Frommer, G. (1987). Interaction outside the classroom using community. *Interactive Language Teaching*. R. Rivers (Ed.). Cambridge: Cambridge University Press.
- Ayeni, A., & Afolabi, E. (2012). Teachers' instructional task performance and quality assurance of students' learning outcomes in Nigerian secondary schools. *International Journal of Research Studies in Educational Technology*, 1(1), 33-42.
- Barrera, M., Jr., Castro, F. G., Strycker, L. A., & Toobert, D. J. (2013). Cultural adaptations of behavioral health interventions: A progress report. *Journal of Consulting and Clinical Psychology*, 81(2), 196-205.
- Beare, K. 2001. FAQ CALL Questions. *English as 2nd Language Newsletter*. Retrieved January, 12, 2011.
- Broman, G. I., & Robèrt, K. H. (2017). A framework for strategic sustainable development. *Journal of Cleaner Production*, 140, 17-31.
- Brown-Jeffy, S. & Cooper, J. E. (2011). Toward a conceptual framework of culturally relevant pedagogy: an overview of the conceptual and theoretical literature. *Teacher Education Quarterly*, 38(1), 65-84.
- Coleman, H. (Ed.). (1996). *Society and the language classroom*. Cambridge: Cambridge University Press.
- Dele-Ajayi, O., Ayodele, V., Alufa, O., Anderson, E., Strachan, R., & Emembolu, I. (2019, April). Barriers and identified solutions to the integration of digital technologies in the classroom: A case study of teachers in Nigeria. In *2019 IEEE Global Engineering Education Conference (EDUCON)* (pp. 953-958). IEEE.
- Ekoko, P.O. & Ekoko, R.O. (2005). Assessing teachers' involvement in computer-based education and information overload: The health implications. *Nigeria Journal of Computer Literacy*, 6:1.
- Emenanjo, E. N. (2014). *How safe is the book today? The University Press Plc Annual Authors' Forum Monograph Series No.4*. Ibadan: University Press Plc.

- Engeness, I., & Mørch, A. (2016). Developing writing skills in English using content-specific computer-generated feedback with EssayCritic. *Nordic Journal of Digital Literacy*, 11(02), 118-135.
- Evmenova, A. S., Regan, K., Boykin, A., Good, K., Hughes, M., MacVittie, N., Sacco, D., Ahn, S. Y. & Chirinos, D. (2016). Emphasizing planning for essay writing with a computer-based graphic organizer. *Exceptional Children*, 82(2), 170-191.
- Eze, C. M., & Obi, K. (2016). Currency devaluation and fiscal adjustment in Nigeria. *Journal of Economics, Management and Trade*, 1-13.
- Fouz-González, J. (2015). Trends and directions in computer-assisted pronunciation training. In *Investigating English Pronunciation* (pp. 314-342). Palgrave Macmillan, London.
- Gilakjani, A. P., & Rahimy, R. (2019). Factors influencing Iranian teachers' use of computer assisted pronunciation teaching (CAPT). *Education and Information Technologies*, 24(2), 1715-1740.
- Gunduz, N. 2005. Computer Assisted Language Learning *Journal of Language and Linguistic Studies*, 1(2), 193-214.
- Heift, T., & Hegelheimer, V. (2017). Computer-assisted corrective feedback and language learning. Corrective Feedback in Second Language Teaching and Learning Research, Theory, Applications, Implications. Hossein Nassaji, Eva Kartchava (Eds.). (pp. 51-65). Routledge.
- Ikonta, N. R., & Ugonna, N. C. (2015). The effect of Rosetta Stone (computer-assisted language learning) software on English as second language students' proficiency in English language. *African Educational Research Journal*, 3(1), 69-79.
- Jones, C. & Fortescue, S. 1987. *Using computers in the language classroom*. London, Longman Publishers.
- Kamalu, I., & Iniworikabo, P. B. (2016). Metaphors in selected political speeches of Nigerian democratic presidents. *California Linguistic Notes*, 40(2), 71-84.
- Kreuter, M. W., Lukwago, S. N., Bucholtz, D. C., Clark, E. M., & Sanders-Thompson, V. (2003). Achieving cultural appropriateness in health promotion programs: targeted and tailored approaches. *Health Education & Behavior*, 30(2), 133-146.
- Lan, Y. J., Sung, Y. T., Cheng, C. C., & Chang, K. E. (2015). Computer-supported cooperative prewriting for enhancing young EFL learners' writing performance. *Language Learning & Technology*, 19(2), 134-155.
- Lavolette, E., Polio, C., & Kahng, J. (2015). The accuracy of computer-assisted feedback and students' responses to it. *Language, Learning & Technology*, 19(2), 50-68.

- Ledbetter, A. K., Sohlberg, M. M., Fickas, S. F., Horney, M. A., & McIntosh, K. (2019). Evaluation of a computer-based prompting intervention to improve essay writing in undergraduates with cognitive impairment after acquired brain injury. *Neuropsychological rehabilitation*, 29(8), 1226-1255.
- Magni, G. (2017). Indigenous knowledge and implications for the sustainable development agenda. *European Journal of Education*, 52(4), 437-447.
- Odo, D. M. (2018). A comparison of readability and understandability in second language acquisition textbooks for pre-service EFL teachers. *Journal of Asia TEFL*, 15(3), 750.
- Okebukola, P. (2000). Teachers advised to acquire computer education. The Guardian Newspaper, Thursday, August 14, 2000, p.36
- Olatunji, S.O. (2011). Effects of senior secondary school students' home video and cyber sub-cultures on their reading habits in a Southwestern Nigerian City. *International Journal of Basic Education (IJOBED)* 1(1), 146-154.
- Olatunji, S.O. (2018). Two computer-assisted language instructional strategies and senior secondary school students' attitude to and achievement in essay writing in Kwara State, Nigeria. Ph.D. Thesis, University of Ibadan.
- Omotunde, O. I., & Ajie, I. A. (2017). Information communication technology training needs of academic staff in universities in Ekiti State, Nigeria. *Library Philosophy and Practice*.
- Ozowuba, G. U. (2018). Relationship between English proficiency and academic achievement of Nigerian secondary school students.
- Padurean, A. & Margan, M. (2009). Foreign language teaching via ICT. *Revista de Informatica Sociala* 7(12), 97-101.
- Paletz, S. B., & Peng, K. (2008). Implicit theories of creativity across cultures: Novelty and appropriateness in two product domains. *Journal of Cross-Cultural Psychology*, 39(3), 286-302.
- Patel, P., Torppa, M., Aro, M., Richardson, U., & Lyytinen, H. (2018). GraphoLearn India: The effectiveness of a computer-assisted reading intervention in supporting struggling readers of English. *Frontiers in psychology*, 9, 1045.
- Pinon, R., & Haydon, J. (2010). English Language quantitative indicators: Cameroon, Nigeria, Rwanda, Bangladesh and Pakistan. *A custom report compiled by Euromonitor International for the British Council*.
- Rafiu, J., & Nwalo, K. I. N. (2016). Effect of English Language proficiency on students' performance in cataloguing and classification courses in polytechnic-based library

- schools in Nigeria. *International Journal of Library and Information Science*, 8(6), 54-61.
- Shah, S. I. H., Nawaz, R., Ahmad, S., & Arshad, M. (2020). Sustainability assessment of modern urban transport and its role in emission reduction of greenhouse gases: a case study of Lahore Metro Bus. *Kuwait Journal of Science*, 47(2), 61-75.
- Sharndama, E., & Mgbemena, J. (2015). The language of political discourse: A study of acceptance speeches of two presidential aspirants in Nigeria. *Research Journal of English Language and Literature*, 3(2), 19-37.
- Sonaiya, R. (2002). Autonomous language learning in Africa: A mismatch of cultural assumptions. *Language Culture and Curriculum*, 15(2), 106-116.
- Sultana, R., Muhammad, N., & Zakaria, A. K. M. (2018). Role of indigenous knowledge in sustainable development. *International Journal of Development Research*, 8(02), 18902-18906.
- Tafazoli, D., Gómez Parra, M., & Huertas Abril, C. A. (2018). A cross-cultural study on the attitudes of English Language students towards computer-assisted language learning. *Teaching English with Technology*, 18(2), 34-68.
- Tanaka, T. (2009). Communicative language teaching and its cultural appropriateness in Japan. *Doshisha studies in English*, 84, 107-123.
- Thomson, R. I. (2011). Computer assisted pronunciation training: Targeting second language vowel perception improves pronunciation. *Calico Journal*, 28(3), 744.
- Timothy, M., Oladunjoye, J. A., & Agu, E. O. (2016). Comparative study of e-learning experiences: A case study of Nigeria, South Africa and United States. *International Journal of Grid and Distributed Computing*, 9(10), 161-172.
- Zhang, X. W. (2016). The design and application of computer assisted language learning system in Business English Writing course. In *MATEC Web of Conferences* (Vol. 44, p. 02069). EDP Sciences.
- Zhu, Y., Mark Shum, S. K., Brian Tse, S. K., & Liu, J. J. (2016). Word-processor or pencil-and-paper? A comparison of students' writing in Chinese as a foreign language. *Computer Assisted Language Learning*, 29(3), 596-617.