POLYSCHOLARS JOURNAL OF ADVANCE RESEARCH AND PUBLICATION
A Peer-Reviewed Journal
ISSN No (Online): XXXX-XXXX
www.polyscholarsjournal.com

Effectiveness of Online Instructional Approaches in Teaching and Learning at One Zimbabwean University in the Covid-19 Era

Beatrice Bondai Maupa[1] & Cleophas Peter Chidakwa[2]

[1]Senior Lecturers at the University of Zimbabwe. The first author is a former Chairperson of the Department of Educational Foundations
[2]Former Chairperson of the Department of Educational Administration and Leadership

Abstract: As occurred in many countries across the globe, Zimbabwe's higher education sector was caught unprepared by the emergence of Covid-19 and the subsequent series of lockdowns from 2020 to 2021. To mitigate the effects of the pandemic, the Minister of Higher and Tertiary Education, Science and Technology Education requested all Higher and Tertiary Institutions to introduce on-line (e-learning) instructional systems during the series of lockdowns. This was at a time when most lecturers and students lacked expertise in using ICT for instructional learning purposes and in most instances, there were not even conversant with virtual teaching and learning approaches. In response to the Minister's directive, the lecturers in the institutions were forced to adopt a multitude of virtual approaches to reach out to their students so that they continued to learn with minimum disruptions. This quantitative descriptive study, analyses the perceptions of students at one university in Zimbabwe from its Faculty of Education on the effectiveness of on-line approaches that were used by lecturers to reach out to students when delivering lectures during the Covid-19 induced lockdowns. Findings from the study indicate that lecturers used blended e-learning approaches that ranged from a combination of Emails, WhatsApp, Face to Face, and ELMS. The main ICT gadgets that were used included smart phones and laptops. The majority of students surveyed indicated that these virtual approaches were effective in delivering the teaching and learning materials. The study concludes that when appropriately used e-learning methodologies can easily complement and eventually replace face to face tuition. The study recommends that both the students and lecturers be thoroughly trained in using e-learning methodologies and that all the ICT resources needed to conduct e-learning be timeously availed.

Keywords: Online Teaching, Online Teaching Instruction, Teaching and Learning, Online Teaching Covid-19 Era

Recived:05-09-2025|Accepted:02-10-2025|Published:15-10-2025

How to Cite: Maupa, b. b., & Chidakwa, C. P. (2025). Effectiveness of Online Instructional Approaches in Teaching and Learning at One Zimbabwean University in the Covid-19 Era. *Polyscholars Journal of Advance Research and Publication. 1* (1), 6-13

INTRODUCTION

The Government of Zimbabwe's proclamation of shutdowns to mitigate Covid-19 in March 2020 necessitated that learning institutions adopt new ways of conducting teaching and learning. This was in an attempt to ensure that students were not unduly disrupted and disadvantaged in their learning endeavours. When the pronouncement to completely lockdown was made, a number of universities in Zimbabwe were caught unawares and were forced to quickly adopt various online instructional approaches. This was at a time, when the majority of higher and tertiary institutions, lecturers and students were not very proficient in using online approaches. Many institutions relied mostly on using face to face tuition and distance education. This study is an attempt at evaluating the effectiveness of on-line teaching and learning approaches that were used by these institutions during the first Covid-19 lockdown.

Statement of the problem

The Zimbabwe government's response to the advent of Covid-19 brought with it a myriad of socio-economic challenges. The Covid-19 induced shutdowns resulted in many educational institutions shutting down without any of them putting in place strategies on how their clientele were going to continue receiving tuition for the various programmes that they had enrolled and been admitted into. To cover this gap, a number of these institutions were forced to adopt on-line instructional and learning methods. This was at a time when most of these institutions were ill prepared for the rigour in terms of ICT e-learning infrastructure and technical expertise of both instructors and learners that these methods demanded. This study sought to investigate the perceptions of students in one faculty at a university in Zimbabwe on the effectiveness of the online learning approaches that it had adopted.

Objectives

The study was guided by the following objectives:

- To establish the e-learning approaches which were used by lecturers at the university during the Covid-19 lockdown.
- To establish the perceptions of students on the effectiveness of the e-learning approaches that were used.
- To solicit the views of students on how to enhance the effectiveness of the e-learning approaches.

Research Questions

The research study sought to find solutions to the following research questions:

- What were the e-learning approaches that were used by the university lecturers during the Covid-19 lockdown?
- What perceptions did the students have on the effectiveness of the approaches that were used by their lecturers to conduct lectures?
- What suggestions did the students make to enhance the effectiveness of the approaches that were used to conduct lectures during the Covid-19 lockdown?

Justification

The study is relevant in that it seeks to shed more light on cost-effective learner friendly virtual learning approaches that can be used by teachers and lecturers in institutions of learning in developing countries such as Zimbabwe. The study is also considered relevant to lecturers and teachers through evaluating the effectiveness of the various virtual approaches and also on how these can be enhanced.

LITERATURE REVIEW

Literature reviewed for this study focuses on what e-learning is, and identifying the various virtual learning approaches. The study argues that e-learning can be both effective and enjoyable/satisfying if both the instructor and the learner have the necessary ICT infrastructure and expertise. The study was informed by the E-Learning Implementation Factors Analysis and Effectiveness Model. The model is an adaptation of the systems theory and the work of Charles Spearman's and Louis Thurston's Factor Analysis (Blackstone 2017),

What is E-Learning?

Oye, Sallez & Iahad (2012) posit that a single definition of eLearning has not yet been found. However, they argue that e-learning refers to delivery of learning content via internet, intranet and extranet, satellite broadcast, audio-video tape, interactive TV and CD-ROM. E-Learning is an educational experience in which the learner is at a distance from the tutor or instructor and the learner uses some form of technology (usually a computer) to access the learning material and to interact with the tutor. Thus e-learning is a form of distance education conducted through ICT technology. Other terms for e-learning include internet learning, distributed learning, networked learning, tele learning, and telematics. Holmes (2020) argues that as technology is advancing at a fast pace, including the evolution of learning, which is constantly adapting to market demands, so is e-learning. She goes onto identify these forms of e-learning; fixed e-learning, adaptive e-learning, asynchronous e-learning, interactive e-learning, individual e-learning and collaborative e-learning.

The e-learning approaches

Fixed e-learning is the earlier form of e-learning that involved passing down of information to learners using ICT technology. Adaptive e-learning is designed to suit the learning pace of the learner. The learner needs to possess skills, abilities and competences that enable him/her to access the learning content at the best time that is convenient to him/her. In asynchronous e-learning, learners in different locations study independently, at their own time according to their own

timetable. If asynchronous learning is done in an appealing way, it may include learner generated knowledge. Interactive e-learning is flexible and permits the lecturers, and learners to communicate freely. Interactive e-learning allows participants to interact, experiment with and make changes to the learning material as they deem fit. Individual e-learning is when the learner decides to work on his/her own without any communication from other learners in his/her cohort. Lastly, collaborative e-learning is when learners work together while sharing information and ideas on the learning content.

It ought to be noted that each of the above methodologies has its own merits and demerits. To overcome the demerits associated with any methodology, it may be necessary for lecturers and learners to be flexible and be able to blend the different forms of e-learning so that the demerits of one approach could be counteracted by the merits of the other approach. However, this demands flexibility, knowledge and expertise in e-learning methodology whose attributes, at the time when e-learning was introduced in most learning institutions was lacking in both lecturers and students.

The conceptual framework

Fig. 1 illustrates the E-learning Implementation Factors Analysis and Effectiveness Model. In the figure, the inputs for effective e-learning are; availability of uninterrupted electricity to power the ICT gadgets being used as media for the e-learning process and uninterrupted internet connectivity, appropriate ICT gadgets, reliable data supply, time and training in e-learning methodologies. These stated inputs must be readily available for effective e-learning to take place.

INPUTS		PROCESSES		OUTPUTS
-Electricity -Internet connectivity -ICT gadgets -Data, -Time -ICT training	Implementation ↔ Formative Feedback	-Sharing, -Participating -Experimenting with e-learning materials during learning	Implementation ↔ Formative Feedback	-Effective e-learning programme -Learner mastery of the subject matter -Learner success in subject examinations -Satisfied lecturers and learners

The E-learning Implementation Factors Analysis and Effectiveness Model Source: Own

The process of implementing e-learning is based on both lecturers and learners successfully applying and utilizing the ICT knowledge, skills and competencies acquired during e-learning training. The learners must be able to participate by sharing, and experimenting with the e-learning content and materials that are uploaded on the e-learning platform. The students must possess skills and knowledge to download the learning materials and to work on the instructional materials carefully guided by the participatory learning activities. During the process, the students must assimilate, understand, and be able to apply the learned content to appropriate situations. The outputs as shown in the figure are an effective e-learning programme that results in learners mastering the learned content as shown by them successfully passing the examinations on the learned content. This results in both satisfied learners and lecturers.

The INPUTS, PROCESSES and OUTPUTS boxes are joined by double pointed arrows. The arrows pointing to the right represent the implementation process. The arrows that are shown pointing to the left represent the feedback process that should prevail between the inputs, processes and outputs. Implementation and feedback become reiterative with implementation informing feedback to remedy implementation. Effective implementation of e-learning in educational institutions thus becomes possible by incorporating the formative feedback within the implementation process.

METHODOLOGY

The study was a descriptive survey of fifty-one (51) learners from one faculty at one university in Zimbabwe. According to McCombes (2019) descriptive research accurately and systematically describes a situation or phenomena by answering the following type of

Corresponding Author: Cleophas Peter Chidakwa

questions: what, where, when and how. Kosie & Lew-Williams (2022) also opine that descriptive surveys seek to ascertain respondents' perceptions or experiences on a specified subject matter by documenting, describing and analysing the conditions under which the phenomena of interest occurred.

The respondents for this study were selected using the convenience sampling technique. According to Etikan & Bala (2017) and Wolf, Joye, Smith & Yang-chih Fu (2022), the convenience or judgemental sampling technique is a non-probability random sampling method which is based on the judgement of the researcher(s) as to who will provide the best information that best answers to the objectives of the study. The researcher(s) focused on those respondents who had just written the end of semester examinations for the courses that they had received tuition through e-learning. These respondents were thought to be in possession of the information required and were willing to share it. All the respondents were given a choice to respond to the questionnaire or not. Those who positively responded to the researchers' request were given the survey questionnaire and those who declined were allowed to go. Permission was first sought from the university faculty authorities to conduct the study in their institution.

The questionnaire was in four parts. The first part required respondents to state the e-learning methods that were used by their lecturers to deliver lecture course content materials to them. In the second part, the respondents were asked to respond to Likert Scale items on the experiences and challenges that they had experienced with the e-learning methods that were used. The third part required the learners to rank their perceptions on the effectiveness of the e-learning approaches that had been used by the lecturers. The fourth and last part was an open-ended response item that required the respondents to give suggestions on how the e-learning approaches used by their lecturers could be enhanced. Data collected for sections one to three (1-3) were analysed quantitatively, using percentage frequencies. For the last section, content analysis was employed. The responses were grouped into suitable themes on how to enhance the effectiveness of the e-learning approaches.

Presentation of Findings, Analysis, Interpretation and Discussion

Profile of Respondents

A total of fifty-one (51) candidates who had just written their end of semester examinations following the administration of online learning were surveyed. All those surveyed were conveniently sampled soon after they had written the examinations. The majority (71) percent were female. It appears that most females are now enrolling for university education as opposed to their male counterparts. This observation gives credence to Zimbabwe's efforts of mainstreaming gender in education. In addition, this observation could be attributed to the prevailing economic environment in Zimbabwe. Males who are the majority of breadwinners in the country may be failing to appreciate the value and the opportunity cost of investing their hard-earned incomes on acquiring education. They would rather be opting to spend most of their time pursuing profitable activities that enhance the livelihoods of their families. The majority of those surveyed were aged thirty-one (31) years and above. Most students in faculties of education are mature and may have worked for several years after the completion of their pre-service teacher training qualifications before they choose to enrol for their degree programmes. The respondents were spread across several departments within the faculty of education and were all studying for their undergraduate degrees.

E-learning Approaches Used to Conduct Lectures during the Covid-19 Lockdown

Table 1 presents data on the responses that were obtained on the e-learning instructional methods that were used by lecturers in the faculty during the first Covid-19 lockdown era. The approaches ranged from using Face to Face, WhatsApp, Emails and the Electronic Learning Media Systems (ELMS). The ELMSs include such learning platforms like Google Class and Moodle. Some universities were able to adopt and adapt these learning platforms like the University of Zimbabwe's Electronic Learning Media System (UZ-ELMS). As shown in the table, the very few learners (10, 6 and 2) percent received their lecture materials through a single approach. It would appear that the lecturers preferred to blend the approaches depending on their skills, and those of their learners and the ICT appliances at the disposal of both. From the table, none of the lecturers used Facebook, Twitter and Zoom. According to the above table, twenty-

nine (29) percent of the respondents received their lecture materials from a combination of Face to Face, WhatsApp and Emails. An equal number of respondents fourteen (14) percent, indicated that they had received their lecture materials through Face to Face + WhatsApp, Face to Face + Emails and Face to Face + WhatsApp + ELMS respectively. WhatsApp appears to be a favorite media that was used to send and receive lecture materials from lecturers to students. This could be attributed to the fact that it is a very flexible and common mode of communication which is easily available on most smartphones. One can send and receive text, audio, photos and video materials on the platform. Creating a WhatsApp account is relatively easy. Once one has downloaded it on their smartphone, one can easily access the account without the hassle of having to login, a requirement with communication platforms like the ELMS, Zoom, Facebook and Twitter. Finally, data for using WhatsApp appears relatively less expensive than that required for other platforms. These merits could have maybe influenced the popularity that led to its use as a mode for sending and receiving learning materials during the Covid-19 lockdown.

Table 1: E-learning Approaches Used to Conduct Lectures During the Covid-19 Lockdown

Approach	Actual Figures	Percentages
Face to face + WhatsApp + Emails	15	29
Face to face + WhatsApp	7	14
Face to face + Emails	7	14
Face to face + WhatsApp + Emails + ELMS	7	14
WhatsApp + Emails	5	10
WhatsApp only	5	10
Emails only	3	6
Face to face only	1	2
ELMS only	-	-
Zoom	-	-
Facebook	-	-
Twitter	-	-

Experiences Faced by Learners with e-learning Approaches

To access lecture materials that have been dispatched online, an internet connection, data and an appropriate information communication technology (ICT) gadget is required by both students and lecturers. The ICT gadgets could be in the form of a desktop computer, a laptop or a smartphone. Furthermore, both lecturers and learners need to possess relevant knowledge, skills and competencies on how to operate these gadgets.

Table 2 presents the experiences that the respondents had with the e-learning approaches. In analyzing data on the Likert scale, the five (5) point scale of Strongly Agree (SA), Agree (A), Not Sure (NS), Disagree (D) and Strongly Disagree (SD) was compressed into a three (3) point scale of Agree (A), Not Sure (NS) and Disagree (D).

Table 2: Experiences That the Respondents Had with the E-learning Approaches

		A%	NS%	D%
i	I had enough data bundles for all the e-learning sessions	23.5	3.9	68.6
ii	Internet connection was readily available whenever we had e-learning sessions	24.0	6.0	70.0
iii	The times that were scheduled for all our lecture sessions was very convenient to me	72.5	2.0	25.5
iv	I received my data bundles for e-learning from our university on time	29.4	2.0	68.7
v	I had the necessary gadget with which to receive the lecture materials	73.4	2.0	24.5
vi	I was able to operate the ICT gadget with ease to help me receive my lecture materials	88.0	4.0	8.0

(N=51)

From table 2 above, the first challenge that was experienced by the learners was availability of adequate data during the e-learning sessions. Learning institutions were

obliged to provide material support to learners enrolled on their programmes to enable them to continue with their learning that had been disrupted by the lockdown due to Covid-19. University institutions that had relied mostly on Face to Face tuition as a delivery mode for all their programmes were the hardest hit as they could not continue operating as they had done before and during the lockdown. To mitigate the situation created by the lockdown, some of the universities like the University of Zimbabwe and Midlands State University, quickly developed and introduced electronic learning management systems to enable their clients to access learning materials and tuition during lockdowns. When the institutions introduced e-learning, both lecturers and students were given some form of training on how to use the online systems. In addition, some institutions promised to distribute enough data to their students to enable them to access the online materials and tuition. Learners were requested to supply the institutions with their mobile numbers so that the promised data would be uploaded on these numbers. The assumption made was that all learners had mobile smartphones. However, from the data collected, only less than a quarter (23.5%) of the respondents indicated that they had enough data for all the e-learning sessions scheduled by their lecturers. This scenario could be attributed to any of these: It is most likely that when the institutions distributed the data onto the learners' mobile phones, some of the learners were not aware that it was the promised data and spent all of it on other purposes. Secondly, some of the learners were not aware of the intended purpose of the data and from whom it was. The learners ended up using the data for other purposes, leaving very little or nothing for the scheduled e-learning sessions. It is most likely that when the data was distributed, some of the lecturers had not even created the learners' inventory of phone numbers or even prepared the learning materials to upload on the e-learning platforms. As such, when the learners tried to access the learning materials on their smartphones, laptops or desktops, they could not find them. When the lecturers eventually got to upload the materials, the learners had used up their data allocation and were left with no data with which to access the learning materials. It is also possible that some of the learners lacked the knowledge, skills and competencies to access the learning materials from their smartphones, and thus they missed on the opportunity to access the learning materials.

According to the respondents, the second challenges that were experienced by the learners had to do with availability of internet connectivity during the times that the e-learning sessions were scheduled to begin and end. In Zimbabwe, internet connection is largely accessed through the mobile smartphone, and other telecommunications lines. However, the more privileged have managed to install wireless modems in their homes that provide them with a WiFi internet connection. The major internet providers in the country are Telone, Netone, Econet and Telecel. These providers have erected boosters around the country to allow their subscribers in different parts of the country to access their services. Whilst almost all parts of the country are said to have some network coverage, it must be observed that the exposure is not even. There are parts of the country where it is difficult to get network coverage let alone internet connectivity. It is not surprising to hear people from some parts of the country claiming that they can only access some network coverage on the top of a particular mountain, anthill, tree or some such spot. Some parts of the country do not even have any network coverage. Universities enrol learners from all over the country. Some of these learners may be coming from such areas that have very little or no network and internet coverage. When most of the universities were forced to migrate to on-line teaching, their basic assumption could have been that all their learners would have unlimited access to mobile networks that would guarantee them uninterrupted internet connectivity and that they all had the needed ICT gadgets to access learning materials online.

Zimbabwe also faces a critical shortage of electricity as manifested through constant power cuts due to scheduled and erratic load shedding initiatives in different parts of the country. University learners who reside in these different areas may not experience the power cuts at the same time. This poses problems especially when the scheduled e-learning session is at a time when the area in which the learner is domiciled is experiencing load shedding. Additionally, learners may face difficulties in getting their mobile smartphones and laptops fully charged for the times when the scheduled e-learning sessions occur.

Corresponding Author: Cleophas Peter Chidakwa

On the positive side, however, a few twenty-nine-point four (29.4) percent of those surveyed agreed that they had received data bundles from their universities in time for the online learning sessions. This proves that universities actually sent out data to their students as support for e-learning sessions. Secondly, seventy-three-point-four (73.4) percent confirmed that they had the appropriate ICT gadgets with which to receive the e-learning materials from their lecturers. Lastly, eighty-eight (88) percent of the surveyed respondents confirmed that they were able to operate the ICT gadgets effectively for them to access the e-learning materials uploaded thereon. From these observations, it can be deduced that university learners were in a position to receive online learning materials and to participate in e-learning during the Covid-19 induced lockdown.

Effectiveness of e-learning approaches

Table 3 presents the perceptions of surveyed respondents on the effectiveness of the e-learning approaches that were used by university lecturers to deliver lectures during the Covid-19 lockdown. Data from table 3 indicate that the majority of those who responded to the survey were agreed that the e-learning approaches used by lecturers were effective.

Table 3: Perceptions of learners on the Effectiveness of eLearning approaches

		A%	NS%	D%
i.	The approaches that were used allowed all learners to discuss on the lecture topics	54	12	34
ii.	The approaches allowed for groups to make presentations	82.3	13.7	0
iii.	I learnt a lot from the course/module	87.8	2.0	6.1
iv.	I am glad I opted to take this course/module	93.7	2.1	4.2
v.	The lecturer was well prepared for this course/module	86.0	10.0	4.0
vi.	The lecturer was sensitive to every learner's level of understanding	81.6	10.2	8.1
vii.	The lecturer tried to give all the learners an opportunity to participate and contribute something during the e-learning session	86.3	7.8	0
viii.	The lecturer was readily available to answer and clarify learners' queries	76.5	17.6	5.9
ix.	The e-learning approaches that were used were effective	64.0	14.0	22.0

Ninety-three point-seven (93.7) percent of the respondents expressed no reservations on taking the modules that were delivered through e-learning. Eighty-seven-point eight (87.8) percent of the respondents acknowledged that they learned a lot from the modules. This phenomenon could possibly be attributed to the reason that the lecturers had more time to thoroughly prepare for the e-learning lectures through researching and putting the materials together during the lockdown. The lockdown virtually left everyone with nothing to do outside the home. This could have allowed the lecturers more time for researching and to reflect on the teaching materials. Furthermore, eighty-two-point-three (82.3) percent of the respondents indicated that the e-learning approaches allowed for groups to make presentations on the taught topics. Lecturers were sensitive to individual learners' needs and allowed learners to make some contributions on what was being taught as part of the learning process as attested to by eighty-one-point six (81.6) percent and eighty-six-point three (86.3) percent of the respondents respectively. Thus, on the whole the e-learning approaches used by university lecturers during the Covid-19 lockdown were rated as effective by the majority of those who responded to the survey.

Suggestions on Improving the E-Learning Approaches

The last question that respondents were asked to respond to was an open-ended one that required them to give suggestions on how to improve on the online instructional approaches that were used by their lecturers during the Covid-19 lockdown. The responses from the learners were organized into themes. Fifty-five (55) percent of the respondents raised the issue of the university distributing data for use by learners during on-line lessons. Eighty-nine (89.6) percent of the respondents recommended more workshops on e-learning to be conducted regularly with the students. Perhaps this request arose from the observation that most of the students were not yet familiar with the e-learning approaches and they lacked the confidence to effectively navigate through them and they felt and indeed expressed the need to be regularly staff

developed on using the e-learning approaches until they gained mastery in their use. Finally, seventy-three-point four (73.4) percent of the respondents also suggested that the lecturers store their learning materials in audio/video animated formats to make them more interesting and highly interactive.

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

It emerged that university lecturers used mostly the blended e-learning approaches to conduct and send lecture materials to the enrolled students during the first Covid-19 lockdown that was proclaimed in 2021. The most common of these was Face to face + WhatsApp + Emails. The major challenges that have been cited by the respondents is that of the lack of adequate data bundles with which to access the e-learning materials from the e-learning portals and internet connectivity caused largely by poor connectivity in some parts of the country and electricity load shedding. Lastly, most of the respondents perceived the e-learning sessions that were conducted during the first Covid-19 lockdown as quite effective. The study concludes that for effective e-learning in a developing country such as Zimbabwe, lecturers and students need initial training to equip them with skills to handle a virtual learning experience. Simple ICT gadgets like the smart phone with the WhatsApp application and the laptop can be used to effectively handle the e-learning sessions provided both the lecturer and the learner have received the necessary training on how to use these. To conclude, the study recommends that further research be conducted to come up with a cost-effective e-learning model that can be used by learning institutions in developing countries that builds on findings from this study.

REFERENCES

1. Blacksmith N. (2017). *Thurstone, L.L.* downloaded on 14072022 at: https://www.researchgate.net/profile/Nikki-Blacksmith/publication/316981670_Thurstone_LL/links/5a7d10460f7e9b9da8d70ae8/Thurstone-LL.pdf?origin=publication_detail
2. Etikan I, & Bala K. (2017*). Sampling and sampling methods.* In *Biom Biostat Int Journal.* 2017;5(6):215?217. DOI: 10.15406/bbij.2017.05.00149 retrieved at https://medcraveonline.com/BBIJ/sampling-and-sampling-methods.html on 27112022
3. Wolf, C. Joye, S. & Yang-chih Fu (2017) (Eds.) *The SAGE Handbook of Survey Methodology. In Public Opinion Quarterly*, Volume 81, Issue 1, Pages 201–204, https://doi.org/10.1093/poq/nfw058 Thousand Oaks, CA: Sage Publications Ltd retrieved from https://academic.oup.com/poq/article/81/1/201/2964483 on 17102022
4. Gadekar, S. Balki, S.P., Nagrale S.N. (2022). *A Study on Recruitment and Selection Process*. In *International Journal of Research Publication and Reviews,* Vol 3, no 4, pp 855-857, retrieved from, on 24082022 at: https://ijrpr.com/uploads/V3ISSUE4/IJRPR3391.pdf
5. Oye. ND., Salleh, M., & Iahad NA. (2012). *E-Learning Methodologies and Tools.* In *International Journal of Advanced Computer Science and Applications (IJACSA).* Vol. 3, No. 2 pgs 48-52. Downloaded on 14072022 at https://www.researchgate.net/publication/275605011_E-Learning_Methodologies_and_Tools/fulltext/57a7adbe08ae3f4529391396/E-Learning-Methodologies-and-Tools.pdf?origin=publication_detail
6. Kosie, J.E. & Lew-Williams, C. (2022). Open Science Considerations for Descriptive Research in Developmental Science. Retrieved on 14072022 at:
7. file:///C:/Users/User/Downloads/Kosie_LewWilliams_OpenDescriptiveResearch.pdf
8. McCombes, S (2019). Descriptive Research Design: Definition, Methods & Examples. Retrieved on 15082022 at: https://www.scribbr.com/methodology/descriptive-research/
9. Mousumi, S. (2020). *Theories of Intelligence.* The People's University retrieved on 17062022 at: https://egyankosh.ac.in/bitstream/123456789/65121/3/Unit-4.pdf