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College Students' Interest in Online Learning: The Effects of Covid-19, Lockdown and Accessibility of Resources

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ABSTRACT
Students' right to education is threatened in this time of pandemic as the outbreak of COVID-19 was alarming and it has power Ghanaian Tertiary institutions to dispatch live online errands for all understudy online courses and graduate online courses so as to guarantee the normal exhibiting activity, with students remain at homes. The study sought to find out the effects of this pandemic, lockdown measures and accessibility of resources online on college students interest in online learning. The study sought to use descriptive research design with a quantitative approach and a survey strategy. The population of the study consists of all tertiary students at the tertiary institutions in Ghana. The study used snowball sampling technique because participants who got the chance to take part in the study were advice to recommend to other participants they know. The researcher used questionnaire to gather the data for studying the issue under investigation. The data was analyzed using descriptive statistics and hypothesis testing. The results of the study revealed that effects of this pandemic, lockdown measures, accessibility of resources online, and college students interest contributed 24% as factors to online learning. The study found that Covid-19 may cause educational discontinuation. There was no statistical significant mediating effect of students' interest between accessibility of resources and online learning.

KEYWORDS: Covid-19, lockdown, resources, student interest, learning, college student.

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I. INTRODUCTION

In December 2019, the marvel of all out pneumonia showed up in the South China fish plug in Wuhan (Huang et al. 2020; Gutiérrez-ocampo et al. 2020). The National Health Commission sent professionals to Wuhan to take a gander at (Wang, Cheng, Yue, & McAleer, 2020). A novel coronavirus (hereafter COVID-19 for CoronaVirus Disease 19) was seen in the Laboratory of Virology, Chinese Center for Disease Control and Prevention on 7 January 2020 (The State Council of The People's Republic of China 2020). The measure of patients with pneumonia defilement has taken off and has spread all through China, and unexpectedly traded all around. On 23 January 2020, all Channels in Wuhan were immediately shut (Yue et al. 2020). Thinking about the scene, government over the world started a development of crisis the management including social distancing (Zhang, Wang, & Yang, 2020) for instance, the lockdown of urban systems and closing down schools (McAleer 2020; Wang et al. 2020; Yue et al. 2020), keeping up a key decent ways from close demonstrating learning, and imprisonments on movement (Gonzalez et al. 2020).

Around 600 million school-going students are affected over the world because of the shutting down of schools (Goyal, 2020). Past China, with the spread of COVID-19 over the world, as of March 13, 61 nations in Africa, Asia, Europe, the Middle East, North America, and South America have uncovered or executed school and school terminations and the vast majority of colleges have realized constrained terminations (UNESCO, 2020). Since the pre-spring of 2020, overall colleges have been encountering an astounding monstrous advancement from standard in-class close direction to online education (Bao, 2020). Considering COVID-19 pandemic which has happened as expected into a few nations ensured about, there is a modification in setting concerning learning the world over. Most relationship around the globe are moving ceaselessly from the standard assessment hall near forefront learning. Bigger part of the students who are direct assessed particular

edifying institutions around the globe are moving their procedure for getting from physical assessment hall to digital learning education (Mulenga & Marbán, 2020).

Students' right to education is sabotaged now and again of emergency as a result of disastrous events like tremors, torrents, storms, war, diseases outbreak, and so forth (Zayapragassarazan, 2020). The location of COVID-19 was alarming and it has power Ghanaian Tertiary establishments to dispatch live online errands for all understudy online courses and graduate online courses so as to guarantee the normal exhibiting activity, with students remain at homes (Lei, 2020). Because of the regardless of what you look like at it of Coronavirus sickness (COVID-19) in Ghana, following the association's necessities of decided instructing and learning, most Ghanaian colleges utilized online getting ready to complete the semester (Bao, 2020).

The closures of the schools considering the outbreak of COVID-19 lead to an exceptional effect on education. During the lockdown, instructors were encouraged to train through web based learning stages (Abidah, Hidaayatullaah, Simamora, Fehabutar, & Mutakinati, 2020). Raju (2020) argued that there is a need to get a handle on inventive instructing for proceeding with education and to vanquish mental weight and anxieties during the lockdown. The outbreak of COVID-19 outcomes in the digital revolution in the higher education system through online lessons, video conference, digital open books, online evaluation, and coordinated effort at virtual conditions (Strielkowski, 2020; Kumar, 2020). It is a gigantic, dangerous shift to move all the flow courses online incredibly snappy. Exactly when everything is said in done, an outright online course requires a low down lesson plan design, demonstrating materials, for example, sound and video contents, also as improvement bolster social occasions.

Regardless, considering the sudden emergence of the COVID-19, most lecturers are opposing the difficulties of lacking electronic teaching experience, early orchestrating, or backing from educational technology teams. This progression in pedagogical approach, which has been tireless in customary classroom hall based learning conditions for a broad timeframe (Barr, 1995), is itself a delayed consequence of the epistemological and astute changes (Barr and Tagg, 1995). The progression from educating to learning as a central objective of education recognize that college students make and hold more undeniable commitment concerning their own learning and that the norm, address set up model based concerning a discredited behavioral paradigm, neglects to sensibly consider and strengthen the pedagogical processes related with information building (Shea, 2014). Much advancing research and financing have concentrated on building Internet-based storerooms that contain assortments of marvelous learning assets, once in a while called 'learning things' (Wiley, 2001).

Resources in such narratives are expectedly outlined utilizing metadata, truly information about information (LTSC, 2000; Weibel, 1995). Much like a library card list, metadata for learning assets normally contain basic information about the bit of resource. For example, the Learning Technology Standards Committee (LTSC, 2000) portrays a wide plan with more than 80 fragments to delineate resources. These comprise, subject area, resource type, rights management, and author information. These metadata records are needed to help clients comprising educators and learners in finding noteworthy resources. The National Science Digital Library (NSDL) is an example of such an educational digital repository. A broad assortment of science, technology, engineering, and mathematics (STEM) education content and associations offered by the U.S. National Science Foundation reinforced NSDL to students, teachers, and instructive policy-makers (Lagoze, 2002; Wattenberg, 1998; Zia, 2001).

Relative national activities made game plans for building enormous augmentation storerooms of learning resources exist in different nations, intertwining the Curriculum Online in the UK, the Canadian eduSource project, and the Australian Learning Federation (Recker et al., 2004). E-learning offers the likelihood to rapidly proceed with education while the world experience pandemic (Jorge & Neuhann, 2020). If online learning stays after the worlds' pandemic, E-learning may interface separations in common zones for openness to unprecedented information in tertiary education and decrease the need to teach theory based, near to classes where there are a set number of lecturers. E-learning could support the whole and nature of tertiary education in low and middle-income countries (LMICs) through mixed learning approaches wherein e-learning covers the theoretical and procedural training, and eye to eye training covers reasonable skills, for instance (Jorge & Neuhann, 2020).

This occasion made the teaching professionals consider elective methodology for educating during this lockdown. Moreover, hence it gets ready towards electronic learning or e-learning or internet learning. In the current situation learning has meandered into the digital world (Radha, Mahalakshmi, Saravanakumar, & Sathishkumar, 2020). In which teaching professionals and students are virtually connected. E-learning is quite simple to understand and implement. The use of a desktop, laptop, or smartphones and the internet forms a major component of this learning methodology. E-learning provides rapid growth and proved to be the best in all sectors, especially in education during this lockdown (Radha et al., 2020). Beginning late definite a $250 million fund to help 67 developing nations aside from India by Global Partnership for Education conform to moment and significant lot impedances to getting ready taking into account the pandemic (GPE 2020). Radha et

al. (2020) found that a ton of the alleviation and recovery packs articulated in the months following the nation over lockdown in Ghana have concentrated on economic recovery.

Regardless, the education zone has stayed missing from this exertion, reviewing for India's focal government's 250 billion dollar help gathering. As the measure of choices in online courses in higher education increases (Allen & Seaman, 2017), so does the need for research to see factors that anticipate a basic action in student fulfillment and learning (Alqurashi, 2019). Notwithstanding, several studies have been done on online learning from the start of covid-19 (Zayapragassarazan 2020; Mulenga & Marbán 2020; Rose 2020; Zhang et al. 2020; Bao 2020; Wang et al. 2020; Radha et al. 2020; Alvi & Gupta 2020; Bhaumik & Priyadarshini 2020), none has been done on college students' interest in online learning during the time of lockdown, covid-19 and accessibility of resources. The study seeks to identify college students' interest in online learning resources with covid-19, lockdown and accessibility of resources as a cause to the massive shift of face-to-face teaching and learning to online teaching and learning.

II. LITERATURE REVIEW

Zayapragassarazan (2020) found that the COVID-19 pandemic has disturbed the typical learning plan of the day-scientists. Due to COVID-19 lockdown over the globe, the dynamic hours the day-specialists that they would spend in their school for learning is being spent at home which infers they are relinquished their ordinary learning works out. These online engagement strategies at whatever point applied for educating, learning and assessment purposes will push students to unendingly remember themselves for the learning methodology and will similarly develop incredible assessment affinities in them without compromising their master viewpoints. All these require staff commitment, recognizing verification of fitting digital learning platforms, organizing of informative activities and proper masterminding and arranging of activities subject to the proposed learning experiences and foreseen learning results. These methods will help any propelled training institution to effectively beat the enlightening crisis that ascents every so often of situation like lockdown due to general prosperity emergencies or some other disaster for this issue.

Mulenga & Marbán (2020) found that mechanized learning in mathematics allows students to attempt to learn at the comfort of their homes. For whatever period of time that students have the significant propelled devices, access to web, moderate web costs and adequate deftly of intensity, they can have the alternative to obtain front seats in the mathematics virtual classroom. Results suggest that approaching educators acknowledge that digital learning will enable them to have a mathematics pedagogical move to a less formalized procedure for empowering that is connecting with and charming rather than intensive and standard. In the wake of the COVID-19 school end period, electronic learning in science education appears, apparently, to be the brief positive response.

In a correlation study done by Barbera et al. (2013) on students of higher education social sciences online course, learner satisfaction was positively and strongly correlated with social presence, direct instructions, learning content and course design. According to Cashion & Palmieri (2002), the high quality in online learning for VET students was characterized by its flexibility, content, technology access and communication. As per Hodges et al (2020), the design process and decisions regarding the type of online designs to be used are essential for effective online education, which is conspicuous by its absence in such sudden shifts from offline to online. Therefore, Bozkurt and Sharma (2020) opine that the current online learning scenario may be more appropriately termed as emergency remote teaching. There is already a stigma associated with online learning being inferior to face-to-face learning. Hodges et al (2020) fear that hurried shift to online education by so many institutions without truly exploring the online format will result in further accentuating this stigma. According to Vivolo (2016), there has been resistance to online learning even in the face of evidence that online learning works as effectively as traditional onsite learning. Miller (2014) found that online learning is here to stay and that learning to use it is a worthwhile investment for individuals and institutions. Moreover, in view of COVID-19 another such future calamities, there is an ensuing need for 'online learning', and therefore the new dimensions of this learning change need to be studied (Bhaumik & Priyadarshini, 2020).

Bhaumik & Priyadarshini (2020) revealed that school learners agreed that they may be "left out" if they were not able to cope with online learning. This realization that the future of learning lies in the direction of online learning has deep implications not just for the learners themselves but also for both face to face and distance learning/alternative remote learning systems. It is quite evident that conventional face to face schooling will never be the same again. Distance learning too has to accelerate its pace of technology adoption for all operations. Moreover, in the post-pandemic period, the 'silo effect' of face to face and distance learning systems would have to be reduced and perhaps eliminated, with technology playing the linking role. Greater flexibility and mobility of learners from one system to the other supported by online learning would ultimately lead to an enabling environment for lifelong learning.

Bhaumik & Priyadarshini (2020) suggested that pedagogy of online education for school going learners be further improved and strengthened. Increased internet connectivity, free Wi-Fi to students, and affordable digital devices would go a long way in ensuring access to online learning and overcoming the digital divide. Improving digital skills of both teachers and learners through awareness programs and capacity building initiatives would help in realizing true potential of online learning. Research and development into online teaching and learning methodology would help in improving the interactivity quotient of an online learning environment (OLE) in order to allay learner's fear of isolation. The importance of the role of the teacher and aspects of peer learning and interaction suggest that a blended approach, in which both face-to-face and online learning are used in the appropriate mix, may be a more suitable way forward in the future. However, a system for the complete shift to online as required in the current crisis may also be devised in order to confront such challenges in future.

Radha et al. (2020) revealed that E-learning seems to be the forthcoming trend. It has been extending widespread. The online technique for learning is generally fitting for everyone. Dependent upon their availability and comfort, various people choose to learn at a profitable time. This engages the students to get to revived content at whatever point they need it. Due to the wide plan of favorable circumstances, it accommodates students. The disclosures of the study reflect the impact of E-learning, students' eagerness for using E-learning resources, and their performance. Considering, this study showed that E-learning has gotten very standard among the students over the world particularly, the lockdown time span on account of the COVID-19 pandemic.

Bao (2020) considered COVID-19 and electronic teaching in higher training: A relevant study of Peking University and wraps up with five principles of high-influence educating practice to effectively pass on gigantic degree web based education, through the case examination of Peking University's web based education. In any case, the norm of legitimate significance. The sum, inconvenience, and length of teaching content should facilitate with the academic arrangement and web learning conduct characteristics of students. Second, the rule of convincing transport. As a result of students' characteristics of low obsession in electronic learning, it is fundamental to change the demonstrating speed to ensure the reasonable movement of instructing information. Third, the norm of satisfactory assistance. Workforce and urging colleagues need to give students fortunate analysis, remembering for the web video tutoring and email bearing after class. Fourth, the rule of first class support. It is imperative to get a couple of measures to improve the degree and significance of students' class participation. Last, the rule of crisis game-plan preparation. Considering the especially colossal size of online guidance, it is essential to make probability courses of action early for keeping an eye on likely issues, for instance, the traffic over-trouble issue of the web based education platform. In addition, since this electronic training "migration" is completed quickly during the scene of COVID-19, students' disquiet ought to be moderated in various habits to ensure that they can viably and enough partake in web learning.

Brown (2001) contemplated that practiced studies have more chance to commit to organize working than their more exceptional accomplices and that novice online studies require more important correspondence with and support from online instructors. Shea (2014) didn't find strong verification to help these theories in the current assessment nonetheless. While there were little complexities as to gender, the other section factors entered in the regression equation didn't through and through add to the conjecture for students' sense of learning system in these online courses. This may come with respect somewhat a stun, it has all the earmarks of being reasonable that a bit of these section may fill in as go-betweens for critical pointers of limit or need to participate in a learning system. For example, throughout the day business status may exhibit that the student is involved, or viably a person from various systems and thusly more opposed to see and feel some part of a learning system in an online course. On the other hand, extended great ways from grounds may reasonably be decoded as an extent of academic withdrawal and thusly associated with a hankering for enthusiasm for a learning system. Shea (2014) didn't find an indication of such relationship here. Students' reports of their teachers teaching proximity rehearses unquestionably more doubtlessly foreseen their sentiment of electronic learning system. Shea (2014) didn't find evidence that courses that are of longer term achieved a predominant sentiment of learning system. It appears from these results that instructor rehearses, as point by point by their online students, are a boundlessly improved marker of the headway of learning system in the online condition. It may be that system makes, not as the result of longer courses, anyway through the nature of ties made all through an entire program additional assessment is required around there.

Shea (2014) revealed that Chinese students' experiences of the online discussion board, they appeared to post more preservationist and less essential speculations than American students. Hofstede (2001) raised that Asians and Americans shifted widely in feelings and characteristics. Chinese culture has more grounded weakness avoidance. Along these lines, Chinese students will undoubtedly obey rules, give preservationist assesses and search for 'right' answers, while American students' responses are more inventive or even provocative every so often. This is apparently why some Chinese students thought some American students' answers didn't address the request genuinely, regardless, when educators thought their answers were satisfactory. We in like manner found that Chinese students regarded assembling concordance significantly and

jumped at the chance to state 'I agree' to 'I disagree' while commenting on other students' work. This finding echoes Hofstede's view (2001) that Chinese culture is outstandingly gathering and female and will by and large worth aggregate undertaking, agreeableness, love, compassion and emotionality. American culture is an unfathomable opposite. It is individualistic and masculine and will all in all value certainty, value, quality, un-equivocation and earnestness. To the extent Chinese students' attitudes to web learning, we perceived mixed opinions. Basic resource sharing and basic record keeping were two features of electronic finding that they cherished most. The discussion board is an essential piece of web acknowledging where affiliation and joint exertion happen. Most Chinese students appreciated the handiness of the discussion board and were not frightened of presenting requests and making some commotion on the discussion board. We acknowledge that discussion in the traditional classroom is more unconstrained while that in the online class incorporates all the all the more thinking and reexamining and, along these lines, licenses students to make a more idea about response (Tiene, 2000), which is in all probability better for Chinese students. In any case, some Chinese students in like manner felt that they expected to persistently worry over creation syntactic and spelling messes up when making on the discussion board. Two stresses over partition learning tended to by Chinese students were not getting snappy contribution from their mates and instructors and the nonattendance of eye to eye correspondence, which were resonated by most online students paying little brain to social establishment (Lewis et al., 1997; Tiene, 2000). We acknowledge that Chinese students are acclimated with believing instructors to be conclusive figures and may feel baffled not getting real evaluations from them. In like manner, Chinese students presumably won't realize that on online courses the activity of the educator is as facilitator rather than speaker and that learning will undoubtedly occur during joint efforts among students and through self-disclosure.

Recker et al. (2004) found that teachers imparted an excitement for instructor proposed learning resources and teacher made vault of benefits. Thusly, instructors had all the earmarks of being enthusiastic about resources that were educationally relevant to their current setting, rather than customary propelled resources. This handiness could be executed by an automated recommender structure (Resnick and Varian, 1997), a notable development in electronic exchange wherein the interests of entire systems are used to give concentrated on, altered recommendations of things or resources for individuals. In related work, Recker et al. (2004) have developed a model educational recommender structure, which can give such redid recommendations of web resources (Recker, Walker, and Lawless, 2003). Educators were wanting to interface advantages for the state place education standards. This finding underscores the creating hugeness of interfacing combination things to unequivocal K-12 educational standards in the United States. It suggests that metadata rules portray parts and controlled vocabularies that enable these linkages to be delineated in habits that are imperative to teachers. As to usage, disclosures suggests that teachers in the study will undoubtedly use learning resources that required practically no change, could without a very remarkable stretch be united into orchestrated instructional activities, and could be used to improve or breath life into a current instructional activity. As needs be, these educators supported resources whose granularity is more diminutive than a common class work out. This finding raises noteworthy issues as for the 'perfect' granularity of cutting edge learning resources. Granularity can be portrayed various ways, for example record size or semantic thickness as described by LTSC Learning Objects Metadata Working Group (LTSC, 2000). Usually, educational propelled libraries will stock resources of moving granularity, from 'enormous' (for example, full courses) to 'little' for example, a direct graphic. The revelations of this study suggest that the way a modernized vault inventories and shows resource granularity will largy influence customers' impression of structure utility. They in like manner recommend that advantages originators should center their efforts of making resources with tinier granularity, rather than enormous granularity resources, for instance, modules or even entire courses. Given this middle, instruments that help resource synthesis by instructors in like manner become significant. This is, clearly, the forte that the Instructional Architect is relied upon to fill. Finally, it is essential that best in class libraries and contraptions be anything besides hard to-use, save customers time, have clear worth, and fit into existing settings, while not adding bothers to teachers' currently clamoring lives and their generous outstanding job needing to be done (Swaim and Swaim, 1999). Else, they danger not being gotten by the majority of customers. For example, the educators referenced needed functionalities, for instance, secure zones for testing, assessing, and study corridor the administrators. This proposes rising gadgets must be helpfully fused with commonly used classroom and learning management systems and standards.

Alqurashi (2019) found that the lockdown amidst COVID-19 has made tremendous breaks in academic activities. The current assessment overviewed the learning status of student and postgraduate students during this pandemic. Yet a liberal degree of stuudents are using modernized stages for learning, countless them face gigantic troubles in online examination. Our assessment has proposed the going with recommendation to the organization, policymakers, and institutional experts: There should be made a uniform academic course of action for the universities and schools and besides start a genuine Education Continuity Plan (ECP) to continue with the learning system during this pandemic. The infrastructural workplaces should be benefitted to the preparation establishments which can control the mechanized learning process during future prosperity emergencies. There is a need to ensure palatable financing for the improvement of the guidance system and as

far as possible headway getting ready to the stakeholders of higher education institutions. Interventions should be begun through a concentrated on approach to manage make a positive space for concentrate among the students from the frail region of society. At this essential period, the open-source propelled learning and learning the officials system could be gotten by the institutional educators to coordinate web learning. Finally, the key multi-deferred strategies are sincerely expected to develop solid guidance system in the express that will ensure to develop the fitness for employability and the productivity of the energetic characters.

H1: There is a statistical significant mediating effect of students' interest between accessibility of resources and online learning.
H2: There is a statistical significant mediating effect of students' interest between lockdown and online learning.
H3: There is a statistical significant mediating effect of students' interest between covid-19 and online learning.
H4: There is a statistical significant effect of covid-19 on online learning.
H5: There is a statistical significant effect of covid-19 and students' learning.
H6: There is a statistical significant effect of lockdown on students' learning.
H7: There is a statistical significant effect of lockdown on online learning.
H8: There is a statistical significant effect of accessibility of resources on students' learning.
H9: there is a statistical significant effect of accessibility of resources on online learning.

III. METHODOLOGY

The study seeks to use descriptive research design because not much is known about the effect of Covid-19, lockdown and accessibility of resources on college students' interest in online learning resources. The study used survey strategy because the research describe the characteristics of all students at the tertiary institutions in Ghana used as a population in the study and data gathered using survey are easily analyzed. The study used questionnaire because of its possibility of generating large amount of data and also cheaper than other data collection methods. A quantitative research study was used by the researcher for the topic chosen for the study. Statistically, quantitative data will be analyzed to explain the results of the study. Hypothesis will be tested using the quantitative information.

The study used a survey with closed-ended questionnaire because the researcher want to collect quantitative data from participants based on research objectives. The analysis of the study is inferential statistics because the study will identify statistically significant differences between Covid-19, lockdown, accessibility of resources and college students' interest in online learning (McLeod, 2019). The population of the study consists of all students at the tertiary institutions in Ghana. The population of the study was too large that the researcher could not get the exact number for the population of the study. The study used non-probability sampling since the population was too large and cannot be sampled, a student will have a better chance of being selected due to their availability during the data collection. Non-probability sampling strategies consist of quota sampling, convenience sampling, and snowball sampling. The study used snowball sampling technique because participants who got the chance to take part in the study were advice to recommend to other participants they know.

Therefore, the population for the study was relatively homogeneous. Participants that were used for the study were tertiary students in Ghana. The researcher chose the tertiary students in Ghana because they are college students. Secondary data relating to the researcher's aim and objectives of the study was derived from online resources, journals, articles and conference proceedings through the university library. Items in the questionnaire was related to past studies of student's interest in online learning. The researcher used questionnaire to gather the data for studying the issue under investigation. Questionnaires are one of the most affordable ways to gather quantitative data. Especially self-administered questionnaires, where the researcher don't have to hire surveyors to perform face-to-face interviews. In this time of pandemic, the researcher used Google Forms as a means to collect responses from participants. After coding it in Google forms, the researcher shared the link to participants through email and WhatsApp.

Participants were asked to click on the link to locate them to the form. After filling it online, they were asked to click on submit. The researcher collected all the responses from his mail. The responses were downloaded in a form of spreadsheet which were used for coding in SPSS. Questionnaire in Google forms allowed for complete invisibility, which maximizes comfort for participants when answering. The researcher used Google forms for the study because is not face-to-face, thereby making it a more private communication. Respondents can take their time to complete the questionnaire at their own leisure. Five-point Likert-type scales were used ranging from 'Strongly Agree' to 'Strongly disagree'. During the analysis, they were coded in short words to represent the Likert. Example, strobly agree was coded as 'SA', agree was coded as 'A', slightly agree was coded as 'SLA', disagree was coded as 'D', and strongly disagree was coded as 'SD'. Items in the

questionnaire was adapted from (Kapasia et al., 2020) and (Alqurashi, 2019). The instrument for data collection was vetted by the researchers in the field of research methodology. This will be done to determine the face and content validity of the instruments.

However, all corrections and modifications that were made by the researchers were effected and research statements or items reconstructed based on the satisfactory comments of the researchers. This enable the researcher to develop instruments that yielded valid information. In conducting the study, participation in the study was voluntary and respondents were informed about their rights to decline participation at any time. The anonymity of the respondents were assured and the data that they provided were treated with the utmost confidentially. Appropriate citations and references were done in the study.

IV. DATA ANALYSIS

Data was collected within three weeks. Respondents were briefed about the study through Google forms before the questions in the questionnaire displayed to them. The data were analyzed using descriptive statistics and hypothesis testing. Statistical Product and Service Solutions (SPSS) version 22. SPSS was used to analyze data for each objectives and variables. Thus descriptive statistics was done using tical Product and Service Solutions (SPSS) version 22. For hypothesis testing, external tool like PROCESS was used to test for hypothesis. The level at which each independent variable and mediating variable affect the dependent variable using Rsquare was done with the help of PROCESS.

Reliability test of the items

The reliability test of the study is reliable such that the Cronbach's Alpha is .726 with a total number of thirty-four items as depicted in table 1.

Table 1: Reliability statistics

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.726	.788	34

Descriptive statistics for independent variables

The tables below describes the descriptive statistics of independent variables that are covid-19, lockdown, and accessibility of resources.

Table 2: Covid-19

Statistics

		covid1	covid2	covid3	covid4
N	Valid	834	834	834	834
	Missing	0	0	0	0
Mean		2.3765	2.0516	2.0108	2.2314
Std. Deviation		.86396	.61473	.84224	.71204
Skewness		-.136	.902	1.792	2.032
Std. Error of Skewness		.085	.085	.085	.085
Kurtosis		-.788	2.375	4.371	6.043
Std. Error of Kurtosis		.169	.169	.169	.169
Minimum		1.00	1.00	1.00	1.00
Maximum		4.00	4.00	5.00	5.00

Table 2 shows that, the mean ranges from 2.0108 to 2.3765, this shows the center of the distribution. The measure of dispersion (standard deviation) widely spread the distribution by .61473to .86396 representing the average distance a score is from the mean. The skewness is from -.136 to 2.032 which means the variable is sufficiently normal. The kurtosis of item covid1 is less than 0 which means that it has less outliers relative to normal distribution. Items covid2, covid3 and covid4 are greater than 2 and less than 7 which means that, it has relatively few outliers and scores are more clustered around the mean.

Table 3: Frequency distribution for covid-19

Items	**SA**		**A**		**SLA**		**D**		**SD**	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Covid1	153	18.3	274	32.9	347	41.6	60	7.2	0	0
Covid2	107	12.8	607	72.8	90	10.8	30	3.6	0	0

Covid3	171	20.5	573	68.7	30	3.6	30	3.6	30	3.6
Covid4	47	5.6	607	72.8	150	18.0	30	3.6	0	0

Table 3 shows the frequency distribution of the responses from respondents on the effect of covid-19 on students' interest in online learning. 18.3%, 32.9%, 41.6%, and 7.2% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that they attended online classes before the outbreak of COVID-19. The findings of the study revealed that respondents already attend online classes before the outbreak of COVID-19. 12.8%, 72.8%, 10.8%, and 3.6% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that Covid-19 may cause educational discontinuation. The findings of the study revealed that Covid-19 may cause educational discontinuation. 20.5%, 68.7%, 3.6%, 3.6%, and 3.6% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly agreed respectively that covid-19 been the cause to online learning at the various university has made it easy for respondents to access the online course materials. The findings of the study revealed that online learning at the various university has made it easy for tertiary students to access the online course materials. 5.6%, 72.8%, 18%, and 3.6% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that they have numerous interactions with the lecturers during online class because of covid-19. The findings of the study revealed that during this pandemic and online learning, it has pave way for numerous interactions between students and lecturers during online class. Without that it was hard to interact with lecturers on questions and lessons.

Table 4: Descriptive statistics for lockdown

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
lockdown1	834	1.00	5.00	2.0480	.94130	1.203	.085	1.748	.169
lockdown2	834	1.00	3.00	1.6882	.59906	.251	.085	-.629	.169
lockdown3	834	1.00	3.00	1.6882	.59906	.251	.085	-.629	.169
lockdown4	834	1.00	5.00	2.3645	.97581	.850	.085	.377	.169
lockdown5	834	1.00	3.00	2.3477	.74566	-.662	.085	-.925	.169
lockdown6	834	1.00	3.00	1.8153	.60566	.111	.085	-.444	.169
lockdown7	834	1.00	3.00	1.6679	.60510	.312	.085	-.654	.169
lockdown8	834	1.00	5.00	3.0120	1.63466	.212	.085	-1.677	.169
Valid N (listwise)	834								

Table 4 shows that, the mean ranges from 1.6679 to 3.0120, this shows the center of the distribution. The measure of dispersion (standard deviation) widely spread the distribution by .59906 to 1.63466 representing the average distance a score is from the mean. The skewness is from -.662 to 1.203 which means the variable is sufficiently normal. The kurtosis of items lockdown2, lockdown3, lockdown4, lockdown5, lockdown6, lockdown7, and lockdown8 are less than 0 which means that it has less outliers relative to normal distribution. Item lockdown1 is greater than 2 and less than 3 which means that, it has relatively few outliers and scores are more clustered around the mean.

Table 5: Frequency distribution for lockdown

Items	**SA**		**A**		**SLA**		**D**		**SD**	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Lockdown1	230	27.6	424	50.8	120	14.4	30	3.6	30	3.6
Lockdown2	320	38.4	454	54.4	60	7.2	0	0	0	0
Lockdown3	320	38.4	454	54.4	60	7.2	0	0	0	0
Lockdown4	120	14.4	440	52.8	154	18.5	90	10.8	0	0
Lockdown5	137	16.4	270	32.4	427	51.2	0	0	0	0
Lockdown6	244	29.3	500	60.0	90	10.8	0	0	0	0
Lockdown7	337	40.4	437	52.4	60	7.2	0	0	0	0
Lockdown8	167	20.0	300	36.0	30	3.6	30	3.6	307	36.8

Table 5 shows the frequency distribution of the responses from respondents on the effect of lockdown on students' interest in online learning. 27.6%, 50.8%, 14.4%, 3.6%, and 3.6% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that they studied online during the lockdown. The findings of the study revealed that students at the tertiary institutions studied online during

the lockdown. 38.4%, 54.4%, and 7.2% of the respondents strongly agreed, agreed, and slightly agreed respectively that they have had numerous interactions related to the course content with fellow students during the lockdown. The findings of the study revealed that college students interacted with their colleagues relating to course content. 38.4%, 54.4%, and 7.2% of the respondents strongly agreed, agreed, and slightly agreed respectively that with online learning they got lots of feedback from their classmates during the lockdown. The findings of the study revealed that college students got a lot of feedback from their colleagues especially during group activities.

14.4%, 52.8%, 18.5%, and 10.8% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that they communicated with their classmates about the course content through different electronic means, such as email, webex, zoom, slack, and WhatsApp. The findings of the study revealed that college students communicated with their classmates about the course content through different electronic means, such as email, webex, zoom, slack, and WhatsApp during the lockdown. 29.3%, 60.0%, and 10.8% of the respondents strongly agreed, agreed, and slightly agreed respectively that they shared their thoughts or ideas about the lectures with other students during this class. The findings of the study revealed that college students shared their thoughts or ideas about the lectures with other students during class. 40.4%, 52.4%, and 7.2% of the respondents strongly agreed, agreed, and slightly agreed respectively that they answered questions of their classmates through different electronic means, such as email, webex, zoom, slack, and WhatsApp during the lockdown. The findings of the study revealed that college students answered questions of their classmates through different electronic means, such as email, webex, zoom, slack, and WhatsApp during the lockdown. 20.0%, 36.0%, 3.6%, 3.6%, and 36.8% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that they comment on other students' thoughts and ideas. The findings of the study revealed that college students comment on other students' thoughts and ideas through online.

Table 6: Descriptive statistics for accessibility of resources

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
resource1	834	1.00	5.00	2.6823	1.24578	.682	.085	-.626	.169
resource2	834	1.00	4.00	2.0887	1.01692	.762	.085	-.484	.169
resource3	834	1.00	3.00	1.8873	.62309	.082	.085	-.470	.169
resource4	834	1.00	4.00	1.8921	.76091	.954	.085	1.220	.169
resource5	834	1.00	5.00	2.9508	1.53040	.081	.085	-1.537	.169
resource6	834	1.00	4.00	1.7194	.84041	.932	.085	.011	.169
resource7	834	1.00	4.00	1.8165	.92123	1.082	.085	.400	.169
resource8	834	1.00	5.00	2.2422	1.06740	.753	.085	-.063	.169
Valid N (listwise)	834								

Table 6 shows that, the mean ranges from 1.7194 to 3.0120, this shows the center of the distribution. The measure of dispersion (standard deviation) widely spread the distribution by .62309 to 1.53040 representing the average distance a score is from the mean. The skewness is from .081 to 1.082 which means the variable is sufficiently normal. The kurtosis of items resource1, resource2, resource3, resource5, resource6, resource7, and resource8 are less than 0 which means that it has less outliers relative to normal distribution. Item resource4 is greater than 2 and less than 3 which means that, it has relatively few outliers and scores are more clustered around the mean.

Table 7: Frequency distribution of accessibility of resource

Items	**SA**		**A**		**SLA**		**D**		**SD**	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Resource1	107	12.8	376	45.1	150	18.0	77	9.2	124	14.9
Resource2	260	31.2	377	45.2	60	7.2	137	16.4	0	0
Resource3	214	25.7	500	60.0	120	14.4	0	0	0	0
Resource4	244	29.3	483	57.9	60	7.2	90	10.8	0	0
Resource5	197	23.6	210	25.2	60	7.2	171	20.5	196	23.5
Resource6	414	49.6	270	32.4	120	14.4	30	3.6	0	0
Resource7	367	44.0	330	39.6	60	7.2	77	9.2	0	0
Resource8	218	26.1	346	41.5	150	18.0	90	10.8	30	3.6

Table 7 shows the frequency distribution of the responses from respondents on the effect of accessibility of resources on students' interest in online learning. 12.8%, 45.1%, 18.0%, 9.2%, and 14.9% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that lecturers regularly post some questions for students to discuss on their respective online learning platform. The findings of the study revealed that lecturers at the tertiary institutions regularly post some questions for students to discuss on their respective online learning platform. 31.2%, 45.2%, 7.2%, and 16.4% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that information about course, program, and other relevant information for students are posted on the school's online management platform. The findings of the study revealed that information about course, program, and other relevant information for students are posted on the school's online management platform.

25.7%, 60.0%, and 14.4% of the respondents strongly agreed, agreed, and slightly agreed respectively that reading materials, tutorials and other learning resources can be found on the school's learning management system. The findings of the study revealed that reading materials, tutorials and other learning resources can be found on the school's learning management system. 29.3%, 57.9%, 7.2%, and 10.8% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that assignment, group work and project work are posted on the school's online management system. The findings of the study revealed that assignment, group work and project work are posted on the school's online management system. 23.6%, 25.2%, 7.2%, 20.5% and 23.5% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly agreed respectively that it is easy to get additional learning resources online. The findings of the study revealed that college students find it easy to get additional learning resources online.

49.6%, 32.4%, 14.4%, and 3.6% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that they access information online when assignment is given. The findings of the study revealed that college students access information online when assignment is given. 44.0%, 39.6%, 7.2%, and 9.2% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that they access online resources at any time. The findings of the study revealed that college students access online resources at any time. 26.1%, 41.5%, 18.0%, 10.8%, and 3.6% strongly agreed, agreed, slightly agreed, disagreed, and strongly agreed respectively that there is guidelines on how to access library and educational resources on the schools' online management platform in a form of text and video. The findings of the study revealed that tertiary universities provide guidelines on how to access library and educational resources on their online management platform in a form of text and video.

Descriptive statistics for mediating variables

Table 8: *Descriptive statistics for student interest*

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
interest1	834	1.00	3.00	1.4317	.67949	1.284	.085	.295	.169
interest2	834	1.00	4.00	2.1247	.89753	.352	.085	-.708	.169
interest3	834	1.00	4.00	1.8681	.89650	.863	.085	-.004	.169
interest4	834	1.00	5.00	2.6942	1.07745	1.070	.085	.118	.169
interest5	834	1.00	5.00	2.5803	1.00247	1.129	.085	.271	.169
interest6	834	1.00	5.00	1.9808	1.03347	1.020	.085	.678	.169
interest7	834	1.00	4.00	2.3453	1.04780	.511	.085	-.967	.169
Valid N (listwise)	834								

Table 8 shows that, the mean ranges from 1.4317 to 2.6942, this shows the center of the distribution. The measure of dispersion (standard deviation) widely spread the distribution by .67949 to 1.07745 representing the average distance a score is from the mean. The skewness is from .352 to 1.284 which means the variable is sufficiently normal. The kurtosis of all the items interest1, interest2, interest3, interest4, interest5, interest6, and interest7 are less than 0 which means that it has less outliers relative to normal distribution.

Table 9: Frequency distribution for students' interest

Items	**SA**		**A**		**SLA**		**D**		**SD**	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Interest1	564	67.6	180	21.6	90	10.8	0	0	0	0
Interest 2	230	27.6	330	39.6	214	25.7	60	7.2	0	0
Interest 3	337	40.4	330	39.6	107	12.8	60	7.2	0	0

Interest 4	30	3.6	454	54.4	197	23.6	47	5.6	106	12.7
Interest 5	30	3.6	517	62.0	120	14.4	107	12.8	60	7.2
Interest 6	333	39.9	274	32.9	167	20.0	30	3.6	30	3.6
Interest 7	166	19.9	411	49.3	60	7.2	197	23.6	0	0

Table 9 shows the frequency distribution of the responses from respondents on the effect of students' interest in online learning. 67.6%, 21.6%, and 10.8% of the respondents strongly agreed, agreed, and slightly agreed respectively that they want to complete an online course with a good grade. The findings of the study revealed that college students have the zeal to complete an online course with a good grade. 27.6%, 39.6%, 25.7%, and 7.2% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that they like to complete all of the required assignment, group work and project work online. The findings of the study revealed that college students like to complete all of the required assignment, group work and project work online. 40.4%, 39.6%, 12.8%, and 7.2% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that they are willing to adapt their learning styles to meet course expectations online. The findings of the study revealed that college students are willing to adapt their learning styles to meet course expectations online.

3.6%, 54.4%, 23.6%, 5.6%, and 12.7% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that online course materials stimulate students' interest to take online courses. The findings of the study revealed that online course materials stimulate students' interest to take online courses. 3.6%, 62.0%, 14.4%, 12.8% and 7.2% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that they like online learning. The findings of the study revealed that college students like online learning. 39.9%, 32.9%, 20.0%, 3.6%, and 3.6% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that online learning should stay after restrictions on schools. The findings of the study revealed that college students wish that online learning should stay after restrictions on schools. 19.9%, 49.3%, 7.2%, and 23.6% of the respondents strongly agreed, agreed, slightly agreed, and disagreed respectively that they look forward to taking their courses and exams online. The findings of the study revealed that college students look forward to taking their courses and exams online.

Descriptive statistics for dependent variable

Table 10: Descriptive statistics for online learning

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
online1	834	1.00	5.00	2.2122	.90711	1.020	.085	1.488	.169
online2	834	1.00	5.00	2.5803	1.00247	1.129	.085	.271	.169
online3	834	1.00	5.00	2.4317	.94545	1.351	.085	1.651	.169
online4	834	1.00	5.00	2.6163	1.06861	.811	.085	-.306	.169
online5	834	1.00	5.00	2.7266	.99920	.785	.085	-.211	.169
online6	834	2.00	5.00	2.5635	.84808	1.321	.085	.664	.169
online7	834	2.00	5.00	2.6139	.88313	1.150	.085	.073	.169
Valid N (listwise)	834								

Table 10 shows that, the mean ranges from 2.2122 to 2.7266, this shows the center of the distribution. The measure of dispersion (standard deviation) widely spread the distribution by .84808 to 1.06861 representing the average distance a score is from the mean. The skewness is from .785 to 1.351 which means the variable is sufficiently normal. The kurtosis of items online2, online4, online5, online6, and online7 are less than 0 which means that it has less outliers relative to normal distribution. Items online1 and online3 are greater than 1 and less than 2 which means that, it has relatively few outliers and scores are more clustered around the mean.

Table 11: Frequency distribution of online learning

Items	**SA**		**A**		**SLA**		**D**		**SD**	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Online1	153	18.3	441	52.9	180	21.6	30	3.6	30	3.6
Online 2	30	3.6	517	62.0	120	14.4	107	12.8	60	7.2
Online 3	60	7.2	504	60.4	180	21.6	30	3.6	60	7.2
Online 4	60	7.2	457	54.8	120	14.4	137	16.4	60	7.2

Online 5	30	3.6	411	49.3	210	25.2	123	14.7	60	7.2
Online 6	0	0	531	63.7	166	19.9	107	12.8	30	3.6
Online 7	0	0	518	62.1	150	18.0	136	16.3	30	3.6

Table 11 shows the frequency distribution of the responses from respondents on online learning. 18.3%, 52.9%, 21.6%, 3.6%, and 3.6% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that online learning should be encouraged in tertiary institutions. The findings of the study revealed that college students want online learning to be encouraged at the tertiary institutions. 3.6%, 62.0%, 14.4%, 12.8% and 7.2% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that they are satisfied with their experience with online learning. The findings of the study revealed that college students are satisfied with their experience with online learning. 7.2%, 60.4%, 21.6%, 3.6%, and 7.2% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that online course materials helped them to understand class content better. The findings of the study revealed that online course materials helped college students to understand class content better.

7.2%, 54.8%, 14.4%, 16.4%, and 7.2% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that college students understand complex concepts with online learning. The findings of the study revealed that college students understand complex concepts with online learning. 3.6%, 49.3%, 25.2%, 14.7% and 7.2% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that they online learning gives more room for students to be engaged at any time. The findings of the study revealed that online learning gives more room for students to be engaged at any time.

63.7%, 19.9%, 12.8%, and 3.6% of the respondents agreed, slightly agreed, disagreed, and strongly disagreed respectively that online learning helps students to explore and search for more knowledge on a concept after a class. The findings of the study revealed that online learning helps students to explore and search for more knowledge on a concept after a class. 62.1%, 18.0%, 16.3%, and 3.6% of the respondents strongly agreed, agreed, slightly agreed, disagreed, and strongly disagreed respectively that online learning is manageable in terms of cost of data. The findings of the study revealed that online learning is manageable in terms of cost of data.

Hypothesis Testing

The effect of Covid-19

The illustration below describes the output of hypothesis test between a dependent variable (online learning), independent variable (covid-19) and a mediating variable (students' interest) which were represented by Y, X, and M with model 4 and a sample size of eight hundred and thirty-four.

```
***************** PROCESS Procedure for SPSS Version 3.5 *****************
Model  : 4
    Y  : online
    X  : covid-19
    M  : interest

Sample
Size:  834
```

The R Square of the model summary illustration below is .1150 which means the effect of covid-19 account for only 11.5% of the variation on students' interest in online learning. The significant value is .000 which is below .001 and .005 with a coefficient value of .2994 and a standardized coefficients of .3391. This indicates that there is a statistical significant effect of covid-19 on students' interest in online learning.

```
OUTCOME VARIABLE:
 interest

Model Summary
          R       R-sq        MSE          F        df1        df2
p
      .3391      .1150      .1746   108.0689     1.0000   832.0000
.0000
```

```
Model
              coeff         se          t          p       LLCI       ULCI
constant     1.4975      .0641    23.3664      .0000     1.3717     1.6232
covid-19      .2994      .0288    10.3956      .0000      .2429      .3559

Standardized coefficients
             coeff
covid-19     .3391
**************************************************************************
```

The R Square of the model summary illustration below is .1828 which means the mediating effect of students' interest between covid-19 and online learning account for only 18.3% of the variation on online learning. From the model, the significant value (p) is .000 which is below .001 and .005 with a coefficient value of .5004 and a standardized coefficients of .3703. This indicates that there is a statistical significant mediating effect of students' interest between covid-19 and online learning. Also, the significant value (p) for students' interest on online learning is .000 which is below .001 and .005 with a coefficient value of .1872 and a standardized coefficients of .1224. This indicates that there is a statistical significant effect of students' interest on online learning.

```
OUTCOME VARIABLE:
 online

Model Summary
          R       R-sq        MSE          F        df1        df2
p
      .4276      .1828      .3779    92.9705     2.0000   831.0000
.0000

Model
             coeff         se          t          p       LLCI       ULCI
constant     1.0486      .1213     8.6429      .0000      .8104     1.2867
covid-19      .5004      .0450    11.1101      .0000      .4120      .5888
interest      .1872      .0510     3.6708      .0003      .0871      .2873

Standardized coefficients
                coeff
covid-19         .3703
interest         .1224
```

The R Square of the model summary illustration below is .1696 which means the effect of covid-19 account for only 17% of the variation in online learning. The significant value is .000 which is below .001 and .005 with a coefficient value of .5564 and a standardized coefficients of .4118. This indicates that there is a statistical significant effect of covid-19 on online learning.

```
************************ TOTAL EFFECT MODEL ****************************

OUTCOME VARIABLE:
 online

Model Summary
          R       R-sq        MSE          F        df1        df2
p
      .4118      .1696      .3836   169.9183     1.0000   832.0000
.0000

Model
             coeff         se          t          p       LLCI       ULCI
constant     1.3289      .0950    13.9922      .0000     1.1425     1.5153
covid-19      .5564      .0427    13.0353      .0000      .4726
.6402
```

```
Standardized coefficients
           coeff
covid-19      .4118
```

The effect of the mediating variable (students' interest) between the independent variable (Covid-19) and the dependent variable (online learning) is .0561 with a confidence interval of the lower limit (.0280) and the upper limit (.0829) of the effect (0.0561).

```
************** TOTAL INDIRECT EFFECTS OF X ON Y **************
Indirect effect(s) of X on Y:
             Effect     BootSE   BootLLCI   BootULCI
interest      .0561      .0138      .0280      .0829
```

The effect of lockdown

The illustration below describes the output of hypothesis test between a dependent variable (online learning), independent variable (lockdown) and a mediating variable (students' interest) which were represented by Y, X, and M with model 4 and a sample size of eight hundred and thirty-four.

```
***************** PROCESS Procedure for SPSS Version 3.5 *****************
Model  : 4
    Y  : online
    X  : lockdown
    M  : interest

Sample
Size:  834
```

The R Square of the model summary illustration below is .0556 which means the effect of lockdown account for only 6% of the variation on students' interest in online learning. The significant value is .000 which is below .001 and .005 with a coefficient value of .2908 and a standardized coefficients of .2358. This indicates that there is a statistical significant effect of lockdown on students' interest in online learning.

```
OUTCOME VARIABLE:
 interest

Model Summary
          R       R-sq        MSE          F         df1         df2
p
      .2358      .0556      .1864    48.9803     1.0000   832.0000
.0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.5419      .0877    17.5878      .0000     1.3698     1.7140
lockdown      .2908      .0416     6.9986      .0000      .2092      .3724

Standardized coefficients
              coeff
lockdown      .2358

**************************************************************************
```

The R Square of the model summary illustration below is .0699 which means the mediating effect of students' interest between lockdown and online learning account for only 7% of the variation on online learning. From the model, the significant value (p) is .0061 which is above .005 with a coefficient value of .1787 and a standardized coefficients of .0947. This indicates that there is no statistical significant mediating effect of students' interest between lockdown and online learning. Also, the significant value (p) for students' interest on online learning is .000 which is below .001 and .005 with a coefficient value of .3452 and a standardized coefficients of .2256. This indicates that there is a statistical significant effect of students' interest on online learning.

```
OUTCOME VARIABLE:
 online

Model Summary
          R       R-sq        MSE          F        df1        df2
p
      .2644      .0699      .4301    31.2413     2.0000   831.0000
.0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.4227      .1560     9.1199      .0000     1.1165     1.7288
lockdown      .1787      .0650     2.7504      .0061      .0512      .3062
interest      .3452      .0527     6.5532      .0000      .2418      .4485

Standardized coefficients
              coeff
lockdown      .0947
interest      .2256

************************** TOTAL EFFECT MODEL ****************************
```

The R Square of the model summary illustration below is .0219 which means the effect of lockdown account for only 2.2% of the variation in online learning. The significant value is .000 which is below .001 and .005 with a coefficient value of .2790 and a standardized coefficients of .1479. This indicates that there is a statistical significant effect of lockdown on online learning.

```
OUTCOME VARIABLE:
 online

Model Summary
          R       R-sq        MSE          F        df1        df2
p
      .1479      .0219      .4518    18.6008     1.0000   832.0000
.0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.9548      .1365    14.3208      .0000     1.6869     2.2228
lockdown      .2790      .0647     4.3129      .0000      .1520      .4060

Standardized coefficients
              coeff
lockdown      .1479

************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************
```

The effect of the mediating variable (students' interest) between the independent variable (lockdown) and the dependent variable (online learning) is .1004 with a confidence interval of the lower limit (.0551) and the upper limit (.1506) of the effect (0.1004).

```
Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
interest      .1004      .0244      .0551      .1506
```

The effect of accessibility of resources

The illustration below describes the output of hypothesis test between a dependent variable (online learning), independent variable (accessibility of resource) and a mediating variable (students' interest) which were represented by Y, X, and M with model 4 and a sample size of eight hundred and thirty-four.

```
***************** PROCESS Procedure for SPSS Version 3.5 *****************
Model  : 4
    Y  : online
    X  : accessibility of resource
    M  : interest

Sample
Size:  834

************************************************************************
```

The R Square of the model summary illustration below is .1549 which means the effect of accessibility of resource account for only 15.5% of the variation on students' interest in online learning. The significant value is .000 which is below .001 and .005 with a coefficient value of .5780 and a standardized coefficients of .3935. This indicates that there is a statistical significant effect of accessibility of resource on students' interest in online learning.

```
OUTCOME VARIABLE:
 interest

Model Summary
          R       R-sq        MSE          F        df1        df2
p
      .3935      .1549      .1668   152.4600     1.0000   832.0000
.0000

Model
                    coeff     se          t          p       LLCI
ULCI
constant            .8979   .1021     8.7946      .0000      .6975
1.0983
access of resource  .5780   .0468    12.3475      .0000      .4862
.6699

Standardized coefficients
                           coeff
accessibility of resource    .3935

************************************************************************
```

The R Square of the model summary illustration below is .0617 which means the mediating effect of students' interest between accessibility of resource and online learning account for only 6.2% of the variation on online learning. From the model, the significant value (p) is .6502 which is above .005 with a coefficient value of .0373 and a standardized coefficients of .0166. This indicates that there is no statistical significant mediating effect of students' interest between accessibility of resource and online learning. Also, the significant value (p) for students' interest on online learning is .000 which is below .001 and .005 with a coefficient value of .3693 and a standardized coefficients of .2414. This indicates that there is a statistical significant effect of students' interest on online learning.

```
OUTCOME VARIABLE:
 online

Model Summary
          R       R-sq        MSE          F        df1        df2
p
      .2484      .0617      .4339    27.3208     2.0000   831.0000
.0000

Model
                        coeff     se       t        p       LLCI       ULCI
```

```
constant                1.6617    .1722    9.6510    .0000    1.3237    1.9997
access of resource       .0373    .0821     .4537    .6502    -.1240     .1985
interest                 .3693    .0559    6.6042    .0000     .2596     .4791

Standardized coefficients
                              coeff
accessibility of resource      .0166
interest                       .2414

************************** TOTAL EFFECT MODEL ****************************
```

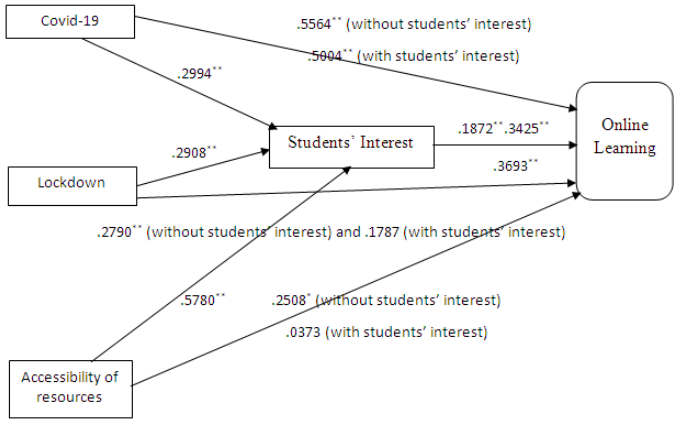
The R Square of the model summary illustration below is .0125 which means the effect of accessibility of resource account for only 1.3% of the variation in online learning. The significant value is .0012 which is below .005 with a coefficient value of .2508 and a standardized coefficients of .1116. This indicates that there is a statistical significant effect of accessibility of resource on online learning.

```
OUTCOME VARIABLE:
 online

Model Summary
          R       R-sq        MSE          F        df1        df2
p
      .1116      .0125      .4561    10.4890     1.0000   832.0000
.0012

Model
                         coeff       se        t        p       LLCI      ULCI
constant                1.9933     .1689    11.8047    .0000    1.6619
2.3248
access of resource       .2508     .0774     3.2387    .0012     .0988
.4027

Standardized coefficients
                              coeff
accessibility of resource      .1116
```

The effect of the mediating variable (students' interest) between the independent variable (accessibility of resource) and the dependent variable (online learning) is .2135 with a confidence interval of the lower limit (.1333) and the upper limit (.3042) of the effect (.2135).

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************
Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
interest     .2135      .0435      .1333      .3042
```

Summary of hypothesis testing



0.0561 CI (.0280, .0829) , .1004** CI (.0551, .1506) and .2135 CI (.1333, .3042)

Figure 1: *Summary of Hypothesis results*

Figure 1 above shows the significant effects of independent variables, mediating variable and dependent variable. There are two null hypothesis that is there is no statistical significant mediating effect of students' interest between accessibility of resources and online learning. Also, there is no statistical significant mediating effect of students' interest between lockdown and online learning. The rest of the hypothesis are statistically significant such that there is a statistical significant mediating effect of students' interest between covid-19 and online learning. In addition, there is a statistical significant effect of covid-19 on online learning. Moreover, there is a statistical significant effect of covid-19 and students' learning. With the independent variable (lockdown), there is a statistical significant effect of lockdown on students' learning. In addition, there is a statistical significant effect of lockdown on online learning. With the independent variable (accessibility of resources), there is a statistical significant effect of accessibility of resources on students' learning. In addition, there is a statistical significant effect of accessibility of resources on online learning.

V. DISCUSSION OF FINDINGS

College students already attend online classes before the outbreak of COVID-19 of which the findings of the study revealed that Covid-19 may cause educational discontinuation which is in contrary to that of Kapasia et al. (2020) who found that the initiation or conducting digital teaching by teachers using various digital platforms during this lockdown period due to COVID-19 indicates the continuation of the teaching-learning process in this critical situation. Online learning has made all tertiary institutions in Ghana to continue education as the findings of the study revealed that online learning at the various university has made it easy for tertiary students to access the online course materials. The study is similar to that of Radha et al. (2020) who found that since the classes and education institutions are stand to closed due to Corona, they have only depended on e-learning, most majority of the institutions, where the students have participated in this survey are have encouraged to learn through e-sources. Online learning helps students to interact well with their colleagues and lecturers as the findings of the study revealed that during this pandemic and online learning, it has pave way for numerous interactions between students and lecturers during online class. Without that it was hard to interact with lecturers on questions and lessons. The study is similar to that of Bhaumik & Priyadarshini (2020) who found that 59.5% agreed to 'getting ample opportunity' to interact with their teachers and peers in online learning while 17.6% disagreed and 23% were undecided. Online learning became popular during the lockdown as the study revealed that students at the tertiary institutions studied online during the lockdown which is similar to that of Kapasia et al. (2020) who found that in this lockdown period, 88 (37.9%) students were continuing their study through textbook reading and digital e-learning, while 71 (30.6%) students were studying through reading textbooks by own effort and not participated in e-learning. The online learning platforms helped students to learn with their colleagues as the study revealed that college students interacted with their colleagues relating to course content and college students got a lot of feedback from their colleagues especially during group activities. Moreover, the study revealed that college students communicated with their classmates about the course content through different electronic means, such as email, webex, zoom, slack, and WhatsApp during the lockdown which is similar to that of Kapasia et al. (2020) who found that most of the respondents (34.2%) used the Zoom app for attending online classes or e-lectures, followed by Google classroom (33.4%) and YouTube live (14.7%). It is also similar to that of Mulenga & Marbán (2020) who found that three quarters of students use social media platforms for communication. Furthermore, the study revealed that college students shared their thoughts or ideas about the lectures with other students during class. Also, the study revealed that college students answered questions of their classmates and comment on other students' thoughts and ideas through online through different electronic means, such as email, webex, zoom, slack, and WhatsApp during the lockdown. This is similar to findings of a study by Radha et al. (2020) who found that Among 175 respondents, around 38.29 percent of students are learning classes through Zoom. Nearly 25 percent of students are accessing learning materials through Google Classroom and 23.43 percent are learning through YouTube. Remaining students prefer Whatsapp (10.29%), Mail (2.86%) respectively. With online learning platforms at the various tertiary institutions, learning resources were provided for students as the study revealed that lecturers at the tertiary institutions regularly post some questions for students to discuss on their respective online learning platform and information about course, program, and other relevant information for students are posted on the school's online management platform. The study revealed that reading materials, tutorials and other learning resources can be found on the school's learning management system. Also, the study found that assignment, group work and project work are posted on the school's online management system. It is easy for students to access educational resources online as the study revealed that college students find it easy to get additional learning resources online which is similar to that of Kapasia et al. (2020) who found that the learners also followed many platforms for getting study materials during this lockdown period and college students access online resources at any time which is in contrary to that of Kapasia et al. (2020) who found that about two-thirds of students (66.8%) were not following the epathshala for study materials. The study also revealed that tertiary universities provide guidelines on how to access library and educational resources on their online management

platform in a form of text and video which has help college students have the zeal to complete an online course with a good grade. This is similar to findings of a study by Radha et al. (2020) who found that respondents are positive towards e-learning. the desire of college students to use online learning effectively has grown to the point that college students like to complete all of the required assignment, group work and project work online, college students are willing to adapt their learning styles to meet course expectations online and online course materials stimulate students' interest to take online courses. This is a factor to college students liking online learning and is similar to the findings of Radha et al. (2020) who found that around 82.29 percent of students reported their willingness to learn from e-sources. Students are optimistic that online learning should stay after restrictions on schools as college students want online learning to be encouraged at the tertiary institutions which is similar to findings of a study by Bhaumik & Priyadarshini (2020) who found that 45.9% of the learners wished to continue studying through online education whereas 35.1% showed a general unwillingness. 18.9% were undecided on this question. According to Daniel (2016), the key criterion for judging the value of flexibility in online learning is whether students become more engaged and perform better. The findings of the study revealed that college students look forward to taking their courses and exams online. This is similar to findings of a study by Radha et al. (2020) who found that around 73.14 percent of students are satisfied with web-based mock test participation. In terms of students' satisfaction with online learning, the study revealed that college students are satisfied with their experience with online learning which is similar to findings of a study by Radha et al. (2020) who found that respondents are expressed that e-learning is useful and more satisfactory. The understanding of online learning materials for students is key towards acquiring knowledge and understanding as the study revealed that online course materials helped college students to understand class content better, college students understand complex concepts with online learning and online learning gives more room for students to be engaged at any time. Online learning is beneficial to students as the study revealed that online learning helps students to explore and search for more knowledge on a concept after a class which is similar to findings of a study by Radha et al. (2020) who found that e-based learning improves their self-study skills. There is cost involved in online learning as the study revealed that online learning is manageable in terms of cost of data which is similar to findings of a study by Radha et al. (2020) who found that 5.14 percent of them were not willing to learn because of a lack of connectivity.

VI. CONCLUSION

Students' right to education is threatened in this time of pandemic as the outbreak of COVID-19 was alarming and it has power Ghanaian Tertiary institutions to dispatch live online errands for all understudy online courses and graduate online courses so as to guarantee the normal exhibiting activity, with students remain at homes (Lei, 2020). Because of the regardless of what you look like at it of Coronavirus sickness (COVID-19) in Ghana, following the association's necessities of decided instructing and learning, most Ghanaian colleges utilized online getting ready to complete the semester (Bao, 2020). During the lockdown, instructors were encouraged to train through web based learning stages platforms (Abidah, Hidaayatullaah, Simamora, Fehabutar, & Mutakinati, 2020). The study sought to find out the effects of this pandemic, lockdown measures and accessibility of resources online on college students interest in online learning. The results of the study revealed that effects of this pandemic, lockdown measures, accessibility of resources online, and college students interest contributed 24% as factors to online learning. While the remaining 76% will be contributed by other factors. There was no statistical significant mediating effect of students' interest between accessibility of resources and online learning. Also, there was no statistical significant mediating effect of students' interest between lockdown and online learning. There was a statistical significant mediating effect of students' interest between covid-19 and online learning. In addition, there was a statistical significant effect of covid-19 on online learning. Moreover, there was a statistical significant effect of covid-19 and students' learning. With the independent variable (lockdown), there was a statistical significant effect of lockdown on students' learning. In addition, there was a statistical significant effect of lockdown on online learning. With the independent variable (accessibility of resources), there was a statistical significant effect of accessibility of resources on students' learning. In addition, there was a statistical significant effect of accessibility of resources on online learning.

Future studies

Studies should look to the problems faced by students in accessing online class and its' effectiveness during this pandemic.

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Conflict of interest

The researchers have no conflict of interest in the study.

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