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# AN EVOCATIVE APPRAISAL OF THE AWARENESS, ATTITUDE AND UTILISATION OF OPEN EDUCATIONAL RESOURCES AT KUMASI TECHNICAL UNIVERSITY

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## ABSTRACT

*Open Educational Resources (OERs) are part of a growing, global movement in open practice in Higher Education; current and potential use of OERs have significant implications for the student in Higher Education. While investment in OERs has been* considerable *through the Consortium of Academic and Research Libraries in Ghana (CARLIGH), there has not been an evaluation to develop a full understanding of how these Open Educational Resources are perceived and patronized by academic staff and students. The study, therefore, evaluated the awareness, attitude and usage of OERs by students and staff at the Kumasi Technical University. Questionnaires were administered to lecturers (n = 50) and students (n = 300) sampled for the study. The findings indicated that the majority of academic staff (83.9%) and students (91.5%) were not familiar with the term OER in Kumasi Technical University; hence, they hardly used the resources. The academic staff who knew about the OERs used them for their research activities. Students who are also supposed to be direct beneficiaries never used the OERs at all. The study, therefore, proposed that much effort should be injected into promulgating the OER in the institution.*

**Keywords:** Open Educational Resources, CARLIGH, Kumasi Technical University, Higher Education, Open and Distance Education

## INTRODUCTION

There is a ubiquitous progression of open content for newcomers as observed by Essel (2010) and, Essel and Osei-Poku (2011) in that, higher education institutions globally are creating their courses and other educational resources openly available

to students, instructors, and other interested parties via websites and online repositories (Essel 2010; Essel & Osei-Poku 2011). The web 2.0 has been the driving force facilitating 'openness' by providing lecturers and students with easy access to teaching and learning materials through the availability of Open Educational resources (Marcus-Quinn & Diggins, 2013). Open Educational Resources (OERs) is a term coined at a forum on Open Courseware organized under the courtesy of UNESCO in 2002. Open Educational Resource, refer to

> *teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redeployment by others with no or limited restrictions.* (UNESCO, Promotes new initiative for free educational resources on the Internet, 2002).

The goal behind the UNESCO's declaration was to effectively endorse OERs through various state governments and open licensing of Educational resources. There are other definitions that support the UNESCO 2002 declaration of OERs. The 2012 OER Paris Declaration states that OER are

> *learning, teaching and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. Open licensing is built within the existing framework of intellectual property rights as defined by relevant international conventions and respects the authorship of the work*

Besides, other organizations such as The William and Flora Hewlett Foundation, OECD (Organization for Economic Co-operation and Development), The Cape Town Open Education Declaration, Wikipedia (Open Educational Resources) and OER Commons highlight different combinations of the key ideas which identifies common elements and some differences across the definitions (Creative Commons, 2015) in table 1.

**Table 1: Similarities and differences in the definition of OER**

| | Open copy right license required | Right of access, adaptation and republication | Non-discriminatory (i.e., rights given to everyone, everywhere) | Does not limit use or form (this does not include non-commercial limitations) |
|---|---|---|---|---|
| Hewlett Foundation | * | * | * | * |
| OECD | | * | | |
| UNESCO | * | * | * | * |
| Cape Town Declaration | * | * | * | |

| Wikipedia | * | * | * | * |
|---|---|---|---|---|
| OER Commons | | * | * | * |

Source: creative commons

OERs have a budding benefit of plummeting the cost of increasing quality education. There is a lot of calls about OER recently where some educators perceive them as an absolute transfiguration of integrating and using learning materials in our education system, while others perceive OER from a more logical standpoint (Butcher & Moore, 2015). However, globally, OER currently plays a pivotal role in the educational ecosystem in attaining one of the prime sustainable development goals (education for all through distance learning). Again, all indication points to the fact that OERs have gained grounds, therefore, intensifying its definition to encompass the direct opportunities for knowledge transfer and sharing of best practices in education (The William and Flora Hewlett Foundation, 2010).

Butcher (2015) opines that OER has emerged as perception with great sustenance to educational change. While the educational value of OER resides in the use of resources as a fundamental process of communication of curriculum in didactic courses, its transformative influence exists in the luxury with which such resources, when digitized, can be shared through the Internet or the Web.

The Internet or the Web and other digital technologies have become interactive media for the development and dissemination of digitized teaching and learning resources (Yuan, MacNeill, & Kraan, 2008) among Higher Education institutions in Ghana for barely a decade now. OER has and is still gaining cumulative attention for its encouraging and advance elevation of learning and teaching within higher institutions (Hylen, 2006). The rapid expansion of Open Educational Resources (OER) brings new opportunities, challenging ways of teaching, learning and practices in higher institutions (D'Antoni, 2009). Most top higher education institutions in Ghana are making good use of the opportunity that OER presents in their current educational delivery system.

Kumasi Technical University (KsTU), as a higher degree awarding institution, assumes the role of training and developing highly competent human resource for socio-economic welfare. Graduates of higher education institutions are expected to be well exposed and intrinsically motivated citizens, who can think critically, analyze problems of society and discover solutions to the problems of society (Peter and Nadia, 2010). Achieving the goal of developing critical thinkers and problem-solvers in higher education mean students and lecturers must have access to free and open resources which enable quality and effective teaching and learning.

Kumasi Technical University Library has subscribed to more than thirty-nine (39) electronic resources (journals) that are freely and openly available for students and

lecturers to access. The library also adds to its collection scientific publications, *lecture* notes and technical reports obtained from lecturers and administrative staffs to augment the content of the OER repository. Moreover, there are hotspots Wi-Fi connectivity on campus to grant low-latency-and-jitter-free internet access (Essel, Osei-Poku, Tachie-Menson & Opoku-Asare, 2015) of OER to students and lecturers as a measure to avoiding physical visits to the Electronic Resource Centre (ERC). Though such facilities exist in the KsTU community, an observation of the OER repository analytics dashboard indicates minimal visits by Students and lecturers to the repository; and, neither do they visit the ERC regularly. The statistical data collected from the dashboard evident that an average of 5% users (including students and lecturers) visited the OER repository every month and 7% visited the ERC every month, and this is very alarming for the institute. These facts bring the possibility that students and lecturers in KsTU may not be fully aware of the OER repository and perhaps are not using the resources.

Therefore, the study sought to establish the students' and Lecturers' awareness of the availability of Open Educational Resources at Kumasi Technical University; ascertain students and lecturers' perception and attitude towards Open Educational Resources, and measure the extent of usage of Open Educational Resources by students and lecturers in Kumasi Technical University. The following research questions also drove the study:

1. What is the level of awareness of students and lecturers on Open Educational Resources available at Kumasi Technical University?
2. What are the attitudes and utilization of open educational resources by students and lecturers?

## MATERIALS AND METHODS

The study employed the descriptive research method. Students ($n = 300$) and lecturers ($n = 50$) from the 6 Faculties of Kumasi Technical University constitute the total sample size ($n = 350$) for the study. Purposive, convenience and simple random sampling techniques were adopted for the sampling of both students and lecturers. A questionnaire was used to assess (1) demographic information, (2) awareness of OER and where to locate OER and (3) usage of OER by students and academic staff (4) an analysis of students and academic staff attitudes and perception of open content. The questionnaire used a 5-point Likert Scale where 1 indicated ''Strongly Disagree'' and 5 represented ''Strongly Agree''. The questionnaire also used some open-ended questions to solicit the view and opinions of students and academic staff. The questionnaire was administered or delivered by hand to the respondents. A total of 301 (86%) questionnaires were obtained from a total of 350 that were distributed. Twenty-nine (29) questionnaire out of 50 distributed to lecturers was

retrieved whiles 272 questionnaires were retrieved from the students out of the 300 distributed. However, open-ended items in the questionnaire were treated qualitatively.

Data were analyzed using descriptive statistic (Mode) with graphics and percentages. The level of significance was assumed at $p = 0.05$ with a Confident Interval of 95% for all the test ran for the study. Uni-variate and bi-variant comparisons were used to analyze respondents' awareness, usage and perceptions of OER. Data were presented mainly as mode Likert response.

## RESULTS AND DISCUSSIONS

### 1. Demography of Respondents

From table 1, the data on gender revealed that, out of the 29 questionnaires retrieved from the lecturers, 25 (86.2%) were from male s and 4(13.8%) were from females. The data obtained indicate that the participation of female lecturers in the study was marginalized as most of the female did not return their responses. With students, 129(47.4%) respondents were males, while 143(52.6%) were females. The distribution for students also indicates that enrolment for female students in the institution may be more as compared with that of males. This may be attributable to the penetrating awareness creation and promotion of girl child education in the country.

**Table 2: Demographic Information of respondents**

| Age Range | Lecturers | | Students | |
|---|---|---|---|---|
| | Frequency | (%) | Frequency | (%) |
| 17-25 | - | - | 205 | 75.4 |
| 26-30 | - | - | 52 | 19.1 |
| 31-35 | 11 | 37.9 | 7 | 2.6 |
| 36-40 | 6 | 20.7 | 3 | 1.1 |
| 41-45 | 4 | 13.8 | 5 | 1.8 |
| 46 and above | 8 | 27.6 | - | - |
| **Total** | **29** | **100** | **272** | **100** |

Source: Fieldwork 2019

The data in table 2 evident that the modal class for age is 31 – 35 years for lecturers (37.9%) while that of students (75.4%) is 17 – 25 years. The frequencies of the data presented imply that the majority of the lecturers (58.7%) are within the age bracket

of 31 to 40. Implicatively, majority of the lecturers have at least 20 years to be in Academia to impart knowledge to students. Majority of the students (94.5%) are also within the age bracket of 17 to 30 years which signifies the youthfulness of the students' population in the school. However, there are too few matured students (5.5%) who were within age 31 to 45 pursuing active academic responsibilities.

## 2. Cognizance of Open Educational Resources among Lecturers and students at KsTU

### a. Familiarity with the term Open Educational Resources

The was the need to establish whether student and lecturers are aware of the terminology OERs. The statistics show that 16 (53.5%) of the lecturers were new to the term OER while 13 (46.5%) have heard of OER. On the part of students, 233 (85.5%) of the students were not aware of OER as against 39 (14.5%) student who was fully aware of OER. However, none of the lecturers and students who were aware of OER could mention an OER repository. In a similar study by Rolfe (2012), 18% out of 50 responses (academic staff members) had heard of the term Open Educational Resource (OER). From her study, despite the lack of awareness among the majority of respondents, the term OER was self-explanatory to them. Reed (2012) in his research, also recorded 32% (19 out of 59) of respondents being aware of Open Content Movement (OCM) which was describes as Open Educational Resource (OER).

### b. The magnitude of awareness of OERs

Respondents were inquired of their awareness of the open educational resource repository at KsTU. The majority (64.3%) of the lecturers acknowledged the awareness of OER repository at KsTU and have seen the facility, however, only a few had a clear-cut knowledge of the functions of the OER repository. Most of the students (77.9%) are not aware of the existence of the open educational resource repository on KsTU campus (Figure 1).
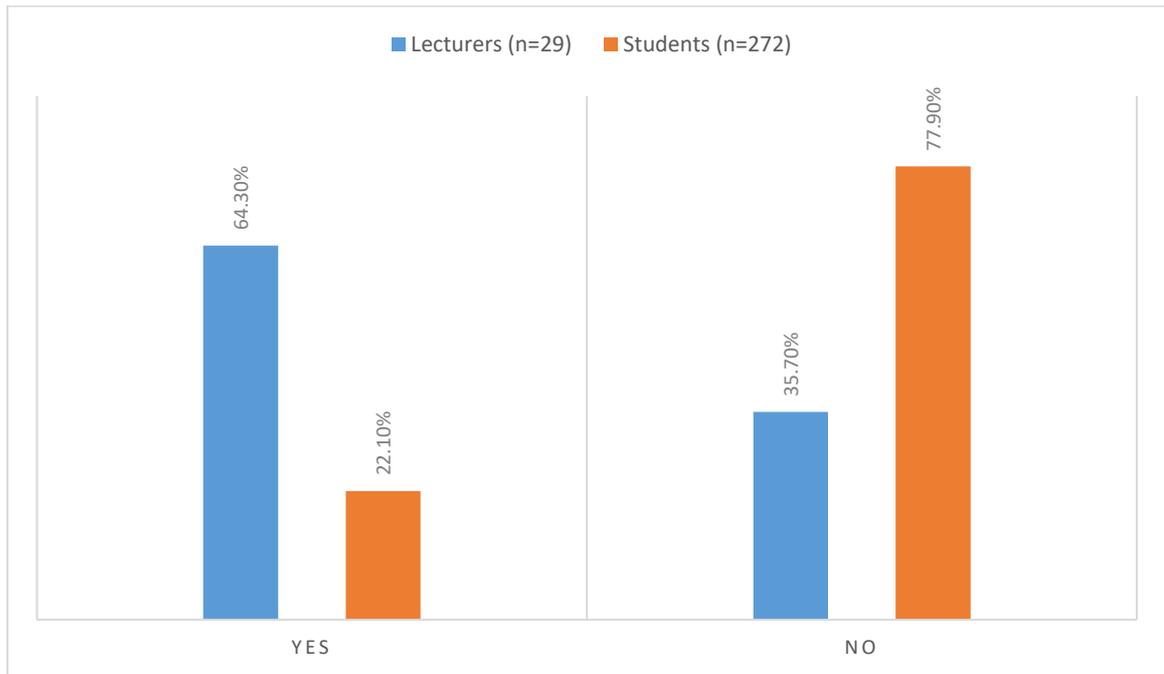
Figure 1: Respondents Knowledge of Open Educational Resource
Source: Fieldwork 2019

The data evident the feasibility of information literacy breach with regards to the responsiveness of open education resources among lecturers and student populace. The results in figure 1 show the fact that 78 of the respondents out of the total 301 (both lecturers and students) are not aware of the open educational resources at KsTU. Perhaps, this finding also confirms that the library authorities responsible for promoting and creating awareness of the OER facility at KsTU have not executed their task as anticipated. Respondents who are aware of the open educational resource repository indicated avenues where they got their information. The lecturers who are aware of this facility at KsTU reported that they became aware through colleague lecturers, personal inquiry, official notices and seminars organized by the library. The minority of the students who were aware also indicated sources such as via their lecturers, personal investigations, colleagues as well as seminars by the library.

### c. *Reliability of ICT facility and Internet Connectivity*

On the reliability of ICT facility (internet connectivity), the response rate ($n = 29$) indicate 18 lecturers (62.1%) responded they have a reliable ICT facility while 10 lecturers (34.5%) responded otherwise. Besides, 1 (3.4%) lecturer did not know of the reliability status of the ICT facility in KsTU. On the part of students ($n=272$), 242 (89.0%) gave a constructive response on the reliability of ICT facility whereas 19

students (7.0%) responded KsTU does not have a reliable ICT facility. Furthermore, 9 students (3.3%) responded not knowing about reliability standing of KsTU ICT facility. The data presented are illustrated in Figure 2. The results on reliability indicate that respondents (both lecturers and students) acknowledge the consistency of ICT facilities and internet connectivity at KsTU. The respondents' acknowledgement of the ICT facility demonstrates the effort management has injected towards the satisfaction of members regarding the provision of ICT facility on campus.
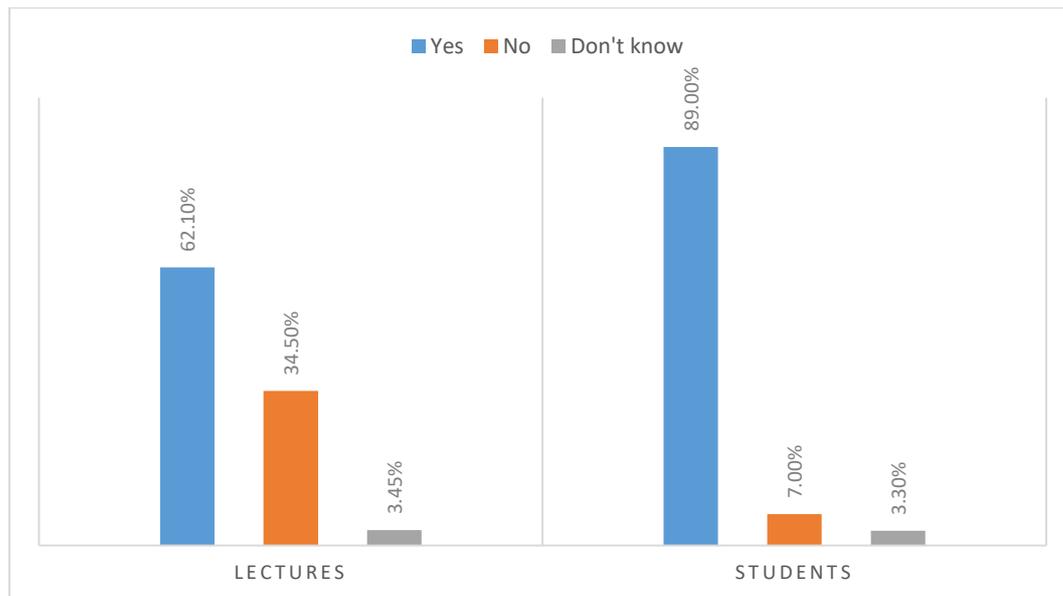


Figure 2: Reliability of ICT facility at KsTU
Source: Fieldwork 2017

### d. *Accessing electronic OERs on KsTU campus*

Respondents were asked whether they know a place on campus where they could access open educational resources.  Majority of lecturers (53.6%) knew where to access OER on campus; however, 46.4% of the lecturers did not know where to access the open educational resource on campus. Responses from students (*n=272*) indicated that minority of students (22.2%) know where to access the open educational resources on campus whiles the majority of students (78.8%) do not know where to have access to the subscribed the open educational resources at KsTU (Figure 3).
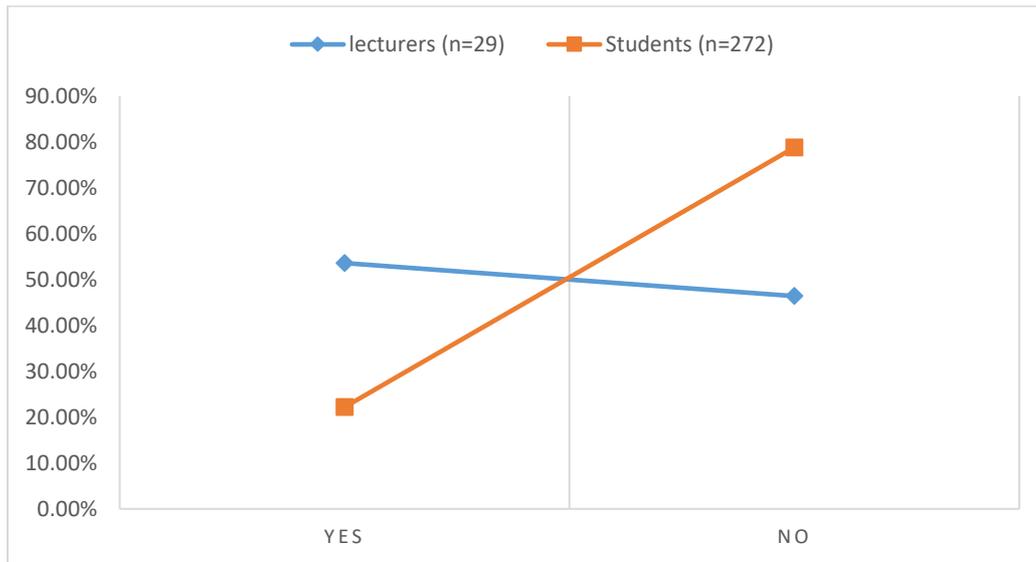
Figure 3: Access to Open Educational Resource
Source: Fieldwork 2019

The results evidence that less than half of the respondents (both lecturers and students) do not know where they could have access to OERs subscribed by the management of the institution. The results also imply that, perhaps, not much effort has been injected into the profile-raising of OER on campus by the KsTU library; hence, this may have resulted in the absence of knowledge of students and lecturers on OERs.

3. **Utilization and attitude of Open Educational Resources by Lecturers and Students**

*a.  Use of Open Educational Resource repository*
Lecturers and students who were aware of the OER repository at KsTU asked whether they utilized the resources. Table 2 shows the response retrieved from the respondents (*n=78*).

**Table 3: Use of Open Educational Resource**

| OER Usage | | Lecturers | Students |
|---|---|---|---|
| | | Frequency (%) | Frequency (%) |
| | Yes | 15 (51.7) | 54 (19.9) |
| | No | 3 (10.3) | 6 (2.2) |
| | **Total** | **18 (62.0)** | **60 (22.1)** |
| Missing | System | 11(38.0) | 212 (77.9) |

Source: Fieldwork 2019

Out of the 18 lecturers who were aware of this facility, 15 of them used the OER repository at KsTU while 3 never used it. Besides, out of the 18 lecturers who were aware and used the repository only 5 of them referred their students to the repository. Out 60 students who were aware of the OERs, only 54 (19.9) of them used resources. It was, however, inferred that the low rate of patronage of the open educational resource repository by students could emanate from lecturers not referring students to use this electronic facility for their enquiry, learning or assignments.
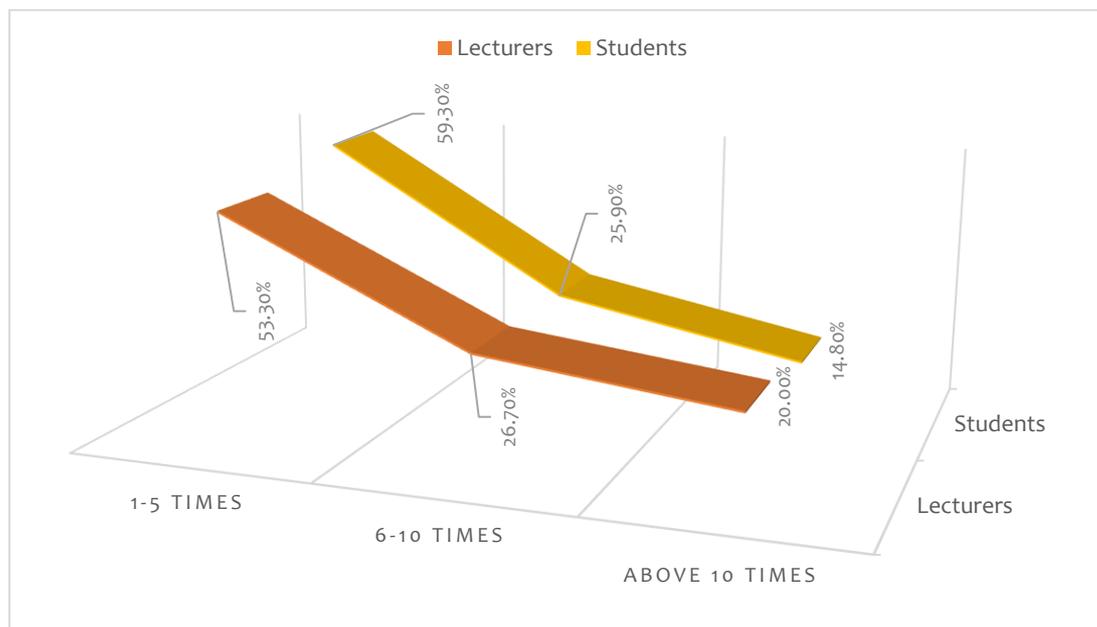


Figure 4: frequency of usage of open educational resource
Source: Fieldwork 2019

Respondents who use the open educational resource were asked the number of times they frequented the repository in a week. As shown in figure 4, 8 lecturers (53.3%) used OER 1 to 5 times in a week whiles, 4 (26.7%) used the OER repository 6 to 10 times in a week. Additionally, 3 lecturers (20.0%) use the repository more than 10 times in a week. With students who use the open educational resources, 59.3% of them admitted they used the repository between 1 to 5 time per week, 25.9% use the repository between 6 to 10 times in a week whiles 14.8% use the repository more than ten times.

From the data, it is realized that the frequency with which respondents use the repository is not very encouraging as limited respondents habitually visited the repository in fewer times in a week. The inability of respondents to frequently use the OER repository could also emanate from the unawareness of the respondent about the OER repository at KsTU.

### b. *Factors Encouraging Use of Open educational resource at KsTU*

Users were requested to indicate the factors that encouraged them to use the open educational resources at KsTU (figure 5). For the discussion, strongly agree and agree indicators were treated as "agree", and Strongly disagree and disagree were also treated as "disagree". Vis-à-vis lecturers (*n = 18*), 11 (78.5%) agreed open educational resources give them the best alternative to accessing educational materials whiles 3 (21.4%) remained nonaligned. Again, 8 (57.1%) lecturers agreed that the use of open educational resources is convenient to their academic duties whiles 4 (28.6 %) stayed neutral, and 2 (14.3%) disagreed to this statement. Furthermore, 13 (71.4%) of the lecturers who use the OER strongly agreed and agreed that it is easy to use this facility whiles 4 (21.4%) disagreed and 1 (7.1%) stayed neutral. Also, 6 (43.0%) lecturers agreed that they enjoy limitless access to OER, 5 (35.7%) were neutral whiles 3 (21.3%) disagreed. On ICT skills, 12 (64.3%) agreed that OER does not require high ICT skills for its usage, 4 (21.4%) disagreed, and 3 (14.3%) remained neutral.
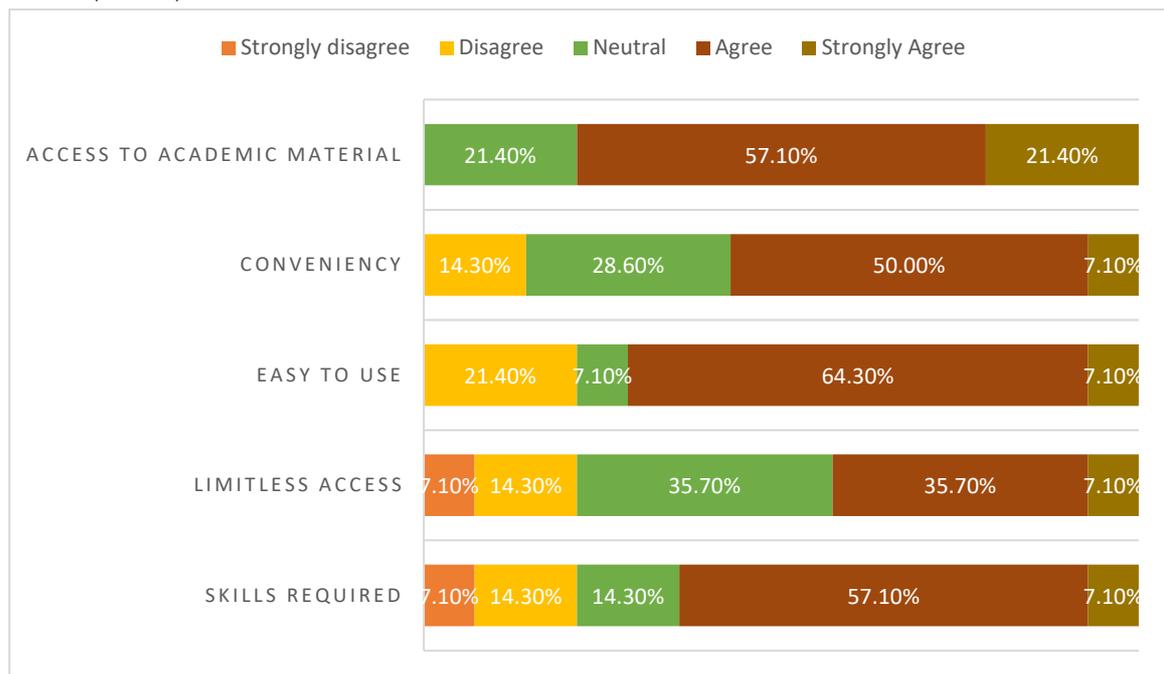


Figure 5: Advantages of open educational resources to the lecturers (n=18)
Source: Fieldwork 2019

Students of KsTU who use the open education resource also indicated the factors that drive them to use open resources. As depicted in figure 6, 39 (64.8%) students agree that OER gives them access to academic materials for their academic pursuit, 17 (27.8%) of the students stayed neutral whiles 4 (7.4%) disagreed. The majority (53.7%) of the students who use this electronic facility agreed that the use of the open

educational resource is convenient whiles 10 (18.5%) disagreed. On easy usage of OER, 61.1% of the students agreed that it is easy to use the facility, 25.9% neither agreed nor disagreed whiles 12.9% of the students disagreed. Furthermore, 21 (39.6%) students strongly agreed and agreed that OER has limitless access to academic materials, 12 (22.6%) disagreed and strongly disagreed whiles 20 (37.7%) neither agreed nor disagreed. Also, 42.6% of students strongly agreed and agreed that the use of open educational resources does not require high ICT skills, 27.8% were neutral whiles 29.6% disagreed and strongly disagreed.
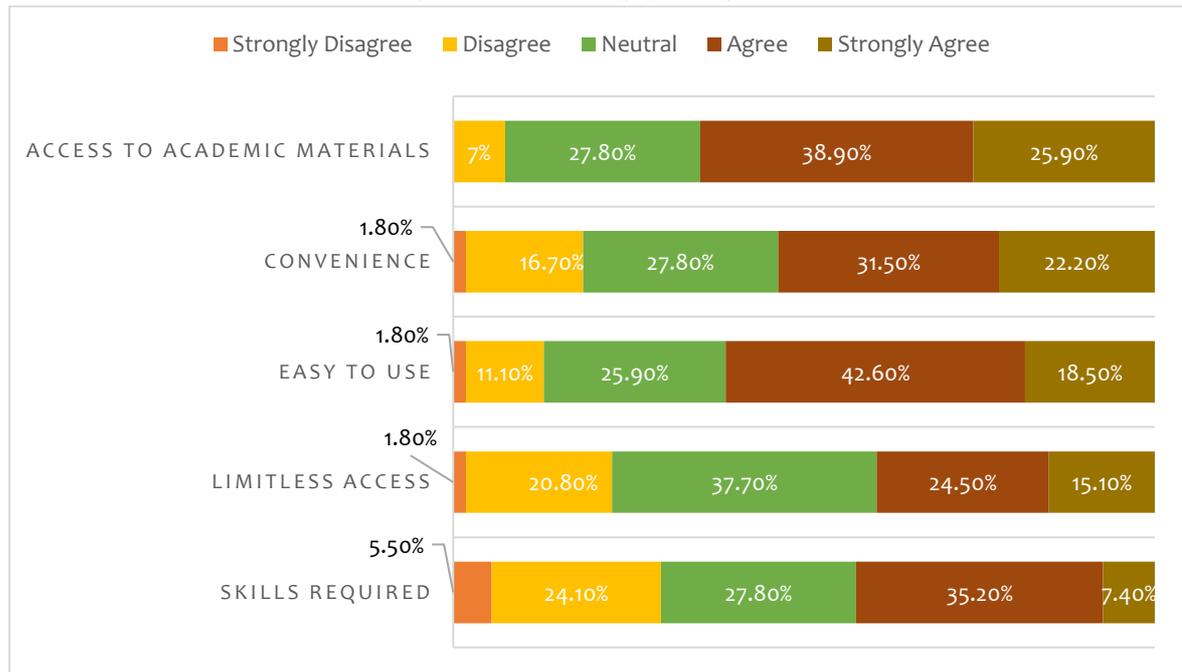


Figure 6: Advantages of open educational resource to students
Source: Fieldwork 2019

The open educational resource comes with its formats and features which differentiate it from the traditional educational resources. These features could be an advantage or a challenge to users. From the responses, respondents patronize the OERs at KsTU because of its ease of use; besides, it does not require high ICT skills to use the resource. Use of open educational resources to support learning and teaching require simple technical know-how (Essel and Osei-Poku 2011); and with systematic training, it would be easier for students and lecturers to use the resources thereby reaping the benefits of widening access to academic research information or educational materials.

### c. Challenges students (n = 60) face with the use of OERs at KsTU

Students indicated challenges they face with the using the open educational resource facility at KsTU campus. As illustrated in Figure 7, the biggest challenge inhibiting

the use of OER was low-latency and jitter-free Internet access as indicated by students (92.6%) who are aware and use the OERs. However, the least challenging issue to the use of the OERs as reported by the students (31.5%) was the proximity to the OER facility. It is an undeniable fact that unstable or poor internet connectivity remains the most significant challenge confronting higher education institutions in Ghana (Essel 2010), and it has repercussions on learning and teaching in the 21st century.
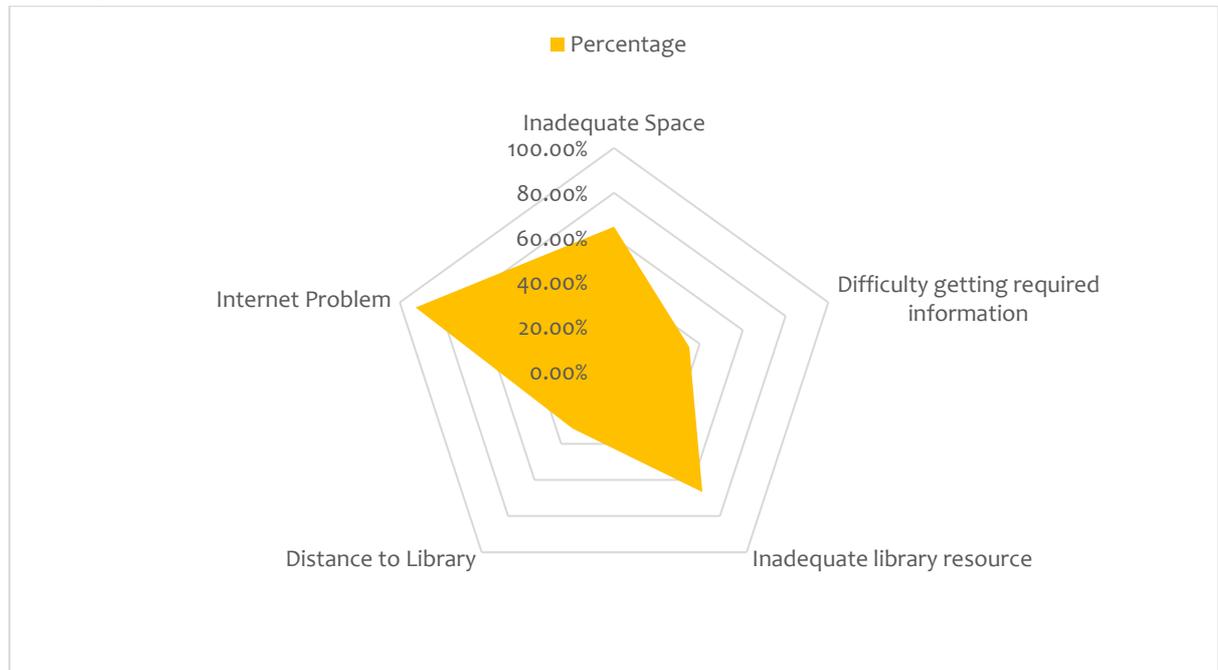


Figure 7: Challenges with using Open Educational Resource
Source: Fieldwork 2019

### d. Factors that daunt Lecturers from the use of OERs at KsTU

Non-users of the open educational resource facility at Kumasi Polytechnic indicated factors that discourage them from using the facility. There was an indication that there was no frequent training for lecturers on how to use the OER. Some lecturers contributed their non-usage to poor or slow internet connectivity. The reason of the OER not capturing a relevant field of some lecturers was disclosed. Another factor that inhibits some lecturers from using the open educational resources is power fluctuation and lack of comfort with the use of the library.

### 4. Evaluating the prospects of Open Educational Resource in KsTU

### a. Subscription to Open Educational Resource

Respondents (Lecturers and students) were asked if the management of Kumasi Technical University should continue the subscription of the open educational resources. As shown in Table 4.5, out of the lecturers (n = 26) who responded, 96.2%

indicated management should continue subscribing to the resources whiles, 3.8% responded negatively. Concerning students (n = 237), the majority (92.0%) rooted for the continuation of subscription to OER by management while a minority (8.0%) are of the view that management should terminate the subscription.

**Table 1  Continuation of Subscription to OER (n = 301)**

| Subscription to OER | | LECTURERS Frequency (%) | STUDENTS Frequency (%) |
|---|---|---|---|
| | Yes | 25(86.2) | 218(80.1) |
| | No | 1(3.4) | 19(7.0) |
| | Total | 26(89.6) | 237(87.1) |
| Missing System | | 3(10.3) | 35(12.9) |
| Total | | 29 | 272 |

Source: Fieldwork 2019

### b.  Suggestions to increase usage of OERs at KsTU

Majority of students and lecturers have the perception that OERs will play a vital role in 21st-century learning and teaching in higher education, while the print materials will be of less importance (Bone & McNichol 2014). the respondents were requested to give suggestions to management and the library officials to encourage active and efficient use of open educational resources by students at KsTU. Some suggestions made by lecturers are:

"*Awareness creation and effective publicity on availability of the open educational resources should be beefed-up possibly at the departmental level.*"

"*The open educational resources should not be confined only in the library building also for easy patronage the OER should be made accessible in various offices.*"

"*Seminars and training sessions should be organized frequently to lecturers and students.*"

"*Lecturers at the departments should be encouraged to forward any relevant journal to the library. This means that students and lecturers should be made to have 24/7 access to the resources and technologies available.*"

Suggestions made by students to enhance the patronage of open educational resources at KsTU are presented in Table 4.6 below

**Table 2 Suggestions to increase usage of OER by students (n = 169)**

| Suggestion to enhance the use of OER | Frequency (%) |
|---|---|
| All students should be provided with internet access on campus | 7 (2.6) |
| Students should be allowed to access the library every week | 4 (1.5) |
| Advancement of library resources, and creating awareness to all students. | 84(30.9) |
| Improving internet connections | 53 (19.5) |
| Organization of frequent seminars to educate the students on how to access the library resources | 21 (7.7) |
| **Total** | **169** |

Source: Fieldwork 2019

From table 5, it is realized that unaware of the availability of OERs on KsTU plays a significant role in the non-use of the electronic resources by students. Students respondents indicated the most definite preference to the need of qualified and experienced technical assistant or IT personnel to help with the use of open educational resources in their institution supporting the findings of Rolfe (2012). However, it is the fundamental role of users (students and lecturers) to take the step to sustain OER in the long term, though management of institutions is responsible for providing support and resources to help the use of OER effectively (Atkins, Brown and Hammond 2007).

## CONCLUSION

The majority of the students and Lecturers were not aware of OERs while few were making extensive use of a wide range of resources. More than half of students expect OERs to play an increasingly important role in their learning experience in the future. However, some students viewed OERs very much as supplementary resources, useful for particular tasks and in certain circumstances. The study identifies a need for more awareness and encouragement for students and lecturers about the role OERs will play in the 21st-century learning and teaching, as well as more practical support in their discovery and use.

## RECOMMENDATIONS

The study makes the following recommendations for enhancing the patronage of OER at Kumasi Technical University:

- Academic tutors need to integrate the use of OERs within their courses and recommend students to OERs in module, programme literature and other support material. Using OERs will encourage the students in to use OERs effectively.

- The Library officials should provide support for lecturers and teaching assistants in lifting the cognizance and making the best use of OERs by taking advantage of the views expressed by students to influence policy; to corroborate sustained research activity in lecturer and student attitudes.

- Students can make greater use of a diverse range of learning materials from the OERs by actively seeking support from academic and professional staff in accessing and using OERs, and to share OERs with peers and tutors.

- Student unions need to introduce and provide support to all students, from the pre-entry stage, on the need and importance of OERs. This idea will give them the urge to access appropriate resources; particularly when they lead by example in producing and using OERs.

- Policymakers at KsTU have to review institutional policies to safeguard that the use of OERs is reinvigorated and reinforced in a diversity of ways. The use of OERs as pre-course materials to assist the changeover of students into Higher Education and assist progression between levels of study. Additionally, taking benefit of OERs to support alumni should be made a lifetime programme.

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