

STUDENTS' SATISFACTION TOWARDS THE USE OF E-RESOURCES AVAILABLE IN SELECTED SRI LANKAN UNIVERSITIES DURING COVID-19 PANDEMIC

H.M.B.P. Ranaweera

Department of Information Systems,
Rajarata University of Sri Lanka, Mihintale, Sri Lanka
buddhika@mgt.rjt.ac.lk

ABSTRACT

This study explored the factors influence on students' satisfaction towards the use of e-resources available in selected state universities in Sri Lanka. The rapid advancement of information and communication technology (ICT) has brought a revolutionary change in the information seeking behavior during COVID-19 pandemic by giving number of options to handle different information sources conveniently and effortlessly. Hence, e-resources have acquired a major portion of library collection in the universities. So, this study was conducted to identify the factors effecting students' satisfaction towards use of e-resources available in selected state universities during the pandemic time. Students who are studying in the Rajarata University of Sri Lanka, Waymba University of Sri Lanka and South Eastern University of Sri Lanka were the population. Self-administered questionnaire was used to collect the required data from 376 conveniently selected students. The collected data were analyzed using the software SPSS 25 version and undergone with several statistical techniques such as reliability test, descriptive analysis, independent t-test, ANOVA test, Correlation Coefficient and regression analysis. Results of the study confirmed that most of students have awareness about e-resources and mostly use e-book rather than online database and e-journal. Further, the findings revealed that Attitudes towards use of e-resources is the main predictor on students' satisfaction on e-resources. Last, study recommends effective guidance for increasing the students' satisfaction to use e-resources to enhance students' academic performance effectively.

Keywords: *Attitudes, e-resources, internet experience & skills, perceived ease of use, perceived usefulness, satisfaction*

1. Introduction

1.1 Background of the study

The COVID-19 pandemic has created a massive impact on schools as well as the education while online education fights with coronavirus to safeguard the students (He, Zhang, & Li, 2021; Rapanta, Botturi, Goodyear, Guardia, & Koole, 2020). Hence, people all over the world are adopting new technologies in order to fulfill their needs effectively. One of major benefits of information technology during the COVID-19 pandemic is the ability to get the desired information quickly via the internet. Internet has become an important prerequisite for higher learning that adopted by every higher education institutions . Internet and e-resources have been emerged to reinforce the education in spreading technological literacy and giving quick access to vast types of resources to students specially who are at home due to the close down the universities as to halt the spreading the COVID-19 virus. E-resources have become as the main tool for transferring knowledge and understanding of ideas and values to students who suffer from menace pandemic COVID-19. E-resources provide much more positive factors which make positive impact on cost effectiveness for the students . In twentieth century, the technology changes rapidly and influence all activities. It is most useful for information gathered, accessed, retrieved and used. In the academic libraries used e-resources for doing academic activities (Ayoo & Lubega, 2014).

University education plays in significant role in the social and technological development of a nation. The government tries to always give high quality education of the university students. Adenirah (2013) has defined e-resources as the resources in digital form which can access through online from e-library environment and can retrieve by form of CDs/DVDs. Electronic resources are “Material (data or programs) encoded for manipulation by the computerized device. The material may require the use of a peripheral directly connected to a computerized device (CD-ROM drive) or a connection to a computer network (internet) (Quadri, Adetimirin, & Idowu, 2014, p. 29 cited from Weitz, 2006). E-resources including in electronic formats such as CD-ROMs, databases, e-book, e-journal, online database, online public access catalogues and other computer based electronic network. E-resources are main resources, have all universities nowadays and it has significant role in the academic environment (Bankole, Ajiboye, & Otunla, 2015). Electronic resources are important tool for teaching and learning. Because e-learning provides easier and wider access to learning materials which increase academic performance of the students. Electronic

information resources were important part of libraries for users in learning, teaching and to do research well. E-resources are invaluable tools that complement the print –based resources in the traditional library . E-resources gained many advantages such as, access to information that might be restricted to the user due to any geographical location, access to more current information quickly. Such e-resources support for improving knowledge and developed collaborative learning. Furthermore, main features of e-resources are; do not want physical space, available in 24 hours a day, 7 days a week and easy to get information. The advantages of e-resources had promoted all university's library for providing more e-resources. E-resources are very important tool for academic activities for the university students (Madondo, Sithole, & Chisita, 2017). Use of e-resources which give many advantages for the students including speed access, easy to use, ability to search multiple files at a time and ability to access documents from outside the university premises (Gakibayo, Ikoja-Odongo, & Okello-Obura, 2013).

E-resources give many advantages and it is useful for the learning and teaching improvement. So that, universities have to invest a huge amount of money to make available the e-resources (Bhat, 2009). Some of educational institutions can not afford such investments even though use of e-resources is the best solution especially in the universities where the use of computers is more intensive the benefits of students and lecturers which allows learning and adopting these new technologies easier for them in critical time of COVID-19 (Manca & Meluzzi, 2020). However, e-resources are very useful for completing assignments, improve knowledge with getting information and using those materials easily as well as quickly. In fact, usage of e-resources is very important and useful for students in their learning activities and improve academic performance . The library users need to acquire skills for searching, accessing and retrieving of information using e-resources. Its supports for increasing the user's confidence level and use of library e-resources. The e-journals are becoming more acceptable resources specially students who do research. Though the students are aware on e-resources and its benefits, the usage and their satisfaction are not in a satisfactory level. Thus, purpose of this study was to identify the factors effecting students' satisfaction towards use of e-resources available in selected state universities during the pandemic time.

1.2. Research Gap

E-resources are being a major part of students' learning activities and their personal activities with the advancement of information technology. It's more useful for

students to keep learning and improve their knowledge by minimizing time wasting when lockdown, isolation, quarantine or travel restrictions exist as the consequences of COVID-19 pandemic which is emerged in 2019 (Patrinos & Shmis, 2020). The university libraries play a vital role for delivering their services effectively for the students. The use of electronic resources is increasingly become available with adoption of information technology. The university libraries subscribe many e-resources and gain many benefits for the students for doing their academic activities . Though the arrangements are pleasant to appear for target audience, students' feeling behind the theater is unforeseen. So that, it was done a pilot survey to reveal the real picture about students' feelings on e-resources available in selected state universities in Sri Lanka. Giving equal chance to selected universities, 45 students were interviewed and results are summarized as follows.

Table 1 : Results of Pilot Survey

Criteria		%
Use of Internet	Yes	100
	No	0
Frequency of usage of Internet	5-10 hours (week)	21
	10-15hours (week)	46
	15-20 hours (week)	20
	> 20 hours (week)	13
Awareness of library e-resources collection	Yes	46
	No	54
Use of e-book	Yes	40
	No	60
Use of online database	Yes	33
	No	67
Use of e-journal	Yes	47
	No	53
Use of library pass papers collection	Yes	66
	No	34

According to the summery of pilot survey, all 45 students are using internet in their day-to-day activities, and 46 percent students use internet at least 10-15 hours per week. Most of students (54 percent) have no any idea about e-resources collection. Further, 60 percent students do not use e-book for their academic purpose. In addition, more students do not use online database (67 percent). However, 43 percent students tend to use e-journal for research activities. Apart from them, it was reported that 66 percent students use pass paper collection remotely. Literature review witnessed more studies have been done in other countries by focusing on the topic of the present study

(Tlakula & Fombad, 2017; Madondo, Sithole & Chisita, 2017; Gakibayo, Ikoja-Odongo, & Okello-Obura, 2013; Saikia & Gohain, 2013). Merely few studies were found in the Sri Lankan context (Sivathaasan, 2013; Wijetunge, 2017; Hindagolla, 2021). Count arguments also are found. For instance, AlJasser et al. (2022) revealed that majority of students used e-resources and believe that provided e-resources are credible. Confirming above argument, Abdillahi (2020) also has pointed out that e-resources are popular among the postgraduate student during the difficult time of COVID-19. However, Hindagolla (2021) noted that less than 50 percent students who considered to his study are satisfied with available e-resources. With regard to the revealed facts above, it could be identified that the different ideas are there. Though the students use the e-resources, it has not reached to anticipated satisfactory level in Sri Lankan context. Taking all facts, it was developed the research problem as “what are the factors course to students’ satisfaction with the available e-resources in selected state universities in Sri Lanka during COVID-19 Pandemic?” Accordingly, it was motivated to uncover the factors course to students’ satisfactions towards the e-resources available in selected state universities in Sri Lanka.

2. Literature Evidences

2.1 Information Resources

Over the long period of time people have been able to record their ideas, memories and their knowledge in to form of a classifications such as organized and produced various type of information resources. All those materials were physically format including writing sources, database, technical reports and literature. In the traditional libraries, have those type of information resources (Gakibayo, Ikoja-Odongo, & Okello-Obura, 2013). Before introducing electronic information resources in the university library, it has printed materials such as journals, books, newspapers and non-printed materials such as audio-visual formats, audio-visual tools and others. All materials available in the library but most of students had some inconvenience. Some students had limited of time and students couldn’t use library anytime. Then students have limited access to use the traditional library for their academic activities. But electronic resources can use anytime without any constraints (Fyneman, Idiedo, & Ebhomeya, 2014).

2.2 Electronic Information Resources

Electronic information resources have gradually become an important resources in every university libraries. The emergence of electronic information resources have

massively transformed information handing and managing in academic environment in the university (Shuling, 2007). E-resources were the resources which include documents in electronic or e-format that can be accessed via internet in digital library (Sritharan, 2018). In universities, frequently used e-resources are e-journal, e-book, full-text databases, indexing and abstracting databases, reference databases (biographies, dictionaries, encyclopedias), numeric and statistical databases and audio/visual resources. These resources can be accessed through different technologies such as WWW, email and etc. (Singh & Nagah, 2014). The internet has provided a wider range of access to global information resources such as online database, e-journal, e-prints and other sources of digital information, these resources are not effectively used due to varying factors. The internet is very useful as a communication tool in the university library to enhance academic performance of the students through delivering electronic documents effectively (Fadhli & Johnson, 2006). According to Singh & Varma (2017) internet has a major part of using every institution of higher learning. The library provides quick and efficient services to the users without any delay. The internet and e-resources have emerged powerful education. Students and researchers can easily access library catalogues, bibliographic database and other academic resources. Nowadays all libraries in the university system engaged with technology and provide collection of e-resources.

A core competency for e-resources of libraries is the sole understanding of the various components of the life cycle of electronic resources to intermediate between e-resources users, to organize information more efficiency, effectively and to sustain the core values of acquiring, accessing, administrating, supporting and evaluation the resources (Joshua & King, 2020).

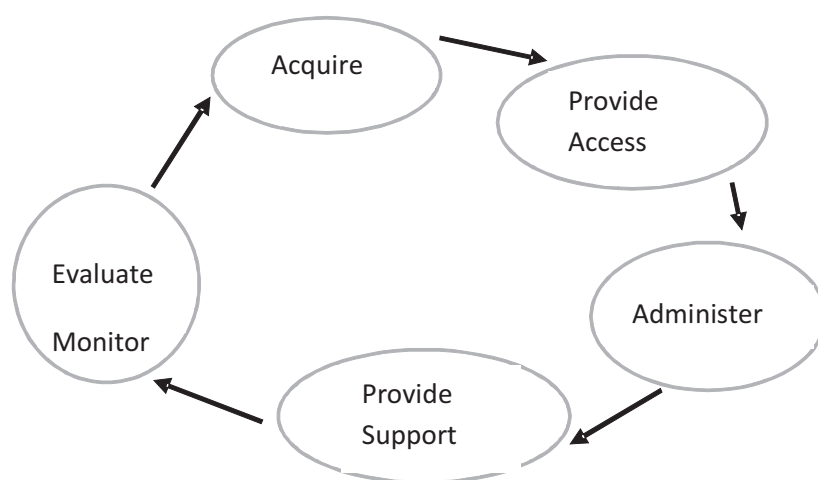


Figure 1: E-resources life cycle

Types of e-resources

E-book

Digital version of a conventional printed book is regarded as an e-book. It can be easy to access, downloadable and convenient to user for reading on a digital screen. Letchumanas & Tarmizi (2011) examined the rate of use electronic books among university students of Malaysian and it concluded that most of the students have similar reading behavior. Concluded effected factors are easy access, minimum of physical reference to library and number of different learning methods has impact university students to use electronic books. According to Gibson & Gibb (2011), the research concluded may be due to the fact that users of electronic book are able to find an appropriate topic and information in an e-book much easier and effective than printed book, as they like some benefits in electronic books, such as easy for searching, simple for use, saving ability and use of electronic link in order to display the relevant materials on the screen.

Electronic Journal

Researchers and academics have recognized capabilities of information technology as effective means to share results and to get some barriers by full transfer of intellectual property rights from the publisher, it is also a means of improving the slow turn-over of traditional publisher (Correia & Neto, 2002). According to Ellis & Oldman (2005) electronic Journal provides easy access to information that want and that are easy to distribute rather than printing papers. In the higher education, electronic journal become a major materials which is lower cost than the printed journals. Electronic journal has two type of forms. Such as journals that are published in print form available in digital forms and other one is electronic journal which do not necessarily want a publisher and which can be managed by an editor and the scholarly community. Both type of journal may have a significant impact for creating and distribute knowledge.

Online Database

Online database is the collection of various electronic resources, by publishers of various fields (Ani & Ahiauzu, 2008). The most effective and efficient way to provide access to electronic resources such as books and journals are the online database. In the university libraries, subscription is done on various online databases which can be accessed through the internet easily. The various database provides lots of scholarly articles in their fields of research and students should have the necessary skill for using them (Okello-Obura, 2010).

CD-ROM Database

According to Ani & Ahiauzu (2008), CD-ROM database allows users to access for appropriate database. It is more cost effective than online database because, it could be accessed without internet connection. CD-ROM database are more value print if the system was networked, as patrons at their terminals could access various information at anywhere, anytime without accessing university library. CD-ROM database is very important tool for understanding bibliographic details of potentially useful document and ensure easy access to various literature of research (Gakibayo, Ikoja-Odongo, & Okello-Obura, 2013).

2.3 Factors affect to satisfaction on e-resources

The factors effected and reason for selecting and satisfying with e-resources vary under the different situation. Availability, accessibility, convenience and ease of use, which are closely related factors to use various types of e-resources. An accessibility and frequency use of e-resources have strong relationship with students' satisfaction. Used different kind of e-resources of information resources lead good decision making beyond considering quality and accessibility. Students selected different type of e-resources due to familiarity, suitable format and different type of information availability (Fidel & Green, 2004). Vibert el. al, (2007) examined the time constraint as another factor which effect to determine the usefulness of online resources. The above study suggested student preferred e-resources that could be easy to accessed. Xie & Joo (2009) found seventeen factors related to selected appropriate e-resources. Mainly accessibility, easy to use, comprehensiveness, interactivity, useful results, task type, familiarity with source and many other factors influence selected e-resources. According to Lee, Paik & Joo (2012) asserted that there are many kind of strategic guiding to select appropriate information resources for their academic activities. The result is that different useful and trusty resources were frequently selected. Students in university, they are less likely to use those resources due to their lack of accessibility and familiarity. To increase accessibility and familiarity with e-resources, information literacy skills must be important for the students. Though there are several factors which course to students' satisfaction on e-resources available in selected state universities, few factors were selected for the study giving attention to importance of them.

2.3.1 Internet experience & skills

Information retrieval skills were important for students for retrieving information in the technology that most of the information needed for research and assignment can be retrieved from e-resources. The students' effort to complete their work with

electronic resources may be limited due to lack of skills. Therefore, knowledge and skills were compulsory to select accurate, relevant information stored in documents. Skills for acquisition is important factor to use of e-resources. Students who have good operational skills use electronic resources effectively. Operational skills consist of the ability of operating computers, internet connection and their basic applications and network such as internet, electronic mails and others. The level of computing and internet experience gained optimum use of electronic resources. Strategy for retrieval skills is also important to enhance student's use of e-resources and their satisfaction. It assists in improvement of ability to search. Student's improvement in search skills could speed up the whole information search process and equally contribute for better search (Ekenna & Iyabo, 2013). It was identified the need for students to acquire skills in searching, accessing, retrieving of information and ability of using internet effectively (Omeluzor, Akibu, & Akinwoye, 2016). It has positive relationship between information literacy and the use of electronic resources and a positive correlation between the level of the student's information literacy skills and the student's use of electronic resources which provided in the library (Tlakula & Fombad, 2017).

According to Madondo, Sithole & Chisita, (2017) use of information technology and electronic resources was more beneficially for the students in the university. It's influenced by student's ability to use internet and those resources. Students required information literacy skills and ability of using internet for utilizing e-resources. It is very important to the students in order to doing an academic activities more quickly and effectively. Information literacy skills gain more opportunities for students doing self-studying and used wide variety of information resources for explaining knowledge. University students should develop skills and competent for the use of different online resources. Knowledge and skills are compulsory to retrieve accurate, relevant information stored in documents. Skills acquisition is important factor to use of e-resources. If students have good operational skills, they use electronic resources effectively (Ekenna & Iyabo, 2013).

2.3.2 Perceived Ease of Use

According to the technology acceptance model (TAM), the perceived ease of use was defined as the degree to which the prospective user expects the target system to be free of effort. Student's satisfaction was higher when a system was perceived to be easier to use than others. As students perceived a system to have more relevant information to their activities, the more likely they evaluate a system effective and easy to use (Tyler & Hastings, 2011). E-resources can use easier and easy to learn any

things for useful to academic in the students without any inconvenience and also enhance students' satisfaction to use of e-resources by increasing students perceived ease of use (Omeluzor, Akibu, & Akinwoye, 2016). Electronic resources very effective tool for university students because student can access easier and use easier rather than printed books. Student can use internet and get information easier (Quadri, Adetimirin, & Idowu, 2014). Perceived ease of use of e-resources was combined with competence of deploying different ICT tools such as laptop and smartphone. Enhanced ownership of laptop and smartphone, increased usage of e-resources by accessing using those tools. Students can connected easier and get wide information for enhancing their knowledge (Mollet & Mwantimwa, 2019).

According to Adeoye Olanrewaju (2019) perceived ease of use explains the student's perception of the amount of effort need to use the e-resources or the extent to which a student's believes that using a particular technology will be effortless. The student strongly perceive e-resources for their academic activities. Mostly students perceive internet searches to be easier for their studies. Students can easier access and get information without any limitation (Yamson, Appiah, & Tsegah, 2018).

2.3.3 Perceived Usefulness

Tyler & Hastings (2011) described that Perceived usefulness was the degree to which a person believes that using a particular system would enhanced his or her job performance. Usefulness of a system may be affected by power of the information technology which it improved performance of the users. The level of student's satisfaction engaged with the information accessed by the availability of e-resources and they faced many challenges. The internet is most appropriate tool of access, there is a need to provide quality service to learning (Singh & Nagah, 2014). E-resources more effectively and also dissolve barriers and offer quick access to knowledge and information. Therefore improving quality of work to facilitate and support the process of creating, accessing and using information and knowledge for the students (Madhusudhan, 2010). The awareness and the quality information available are important factors impacting of the use of electronic resources (Sharma, Singh, & Sharma, 2011). The effectiveness of e-resources in universities will increase by effective way of maximum access and convenience in e-resources. Those e-resources were self-efficiency has a significant direct impact on perceived usefulness when predicting e-resources usage. Such as personal attributes of the students play an important role in the determination of e-resource utilization. Utilization of e-resources in the university library is influenced by the availability of alternative sources of

accessing resources effectively and enhance students' satisfaction toward usage of e-resources (Yebowaah & Plockey, 2017). E-resources was very effective and enhance quality of education. It was solve the problems faced by students during their academic activities. Students accessing e-resources and their options students can engaged with powerful education (Mirza & Mahmood, 2012).

Perceived usefulness was defined by the degree to which a person believes that using a particular system would enhance his or her job performance. Students tend to use of not to use an application to the extent they believe that it will help them to perform their job better (Adeoye & Olanrewaju, 2019). Perceived usefulness of e-resources encouraging their usage in teaching, learning and research. For instance perceived usefulness of e-resources was believed to improve learning performance and research tasks. E-resources were believed to enable students to improve not only their academic performance, but also enhance their general effectiveness and efficiency. Because of that, perceived usefulness is found to predict the usage of e-resources. Especially e-resources play a significant role in improving user's learning, teaching and research processes (Bana, Eze, & Esievo, 2019).

2.3.4 Attitude toward to use of E-Resources

According to Okafor (2014), attitude was represented feelings, bias, ideas and likeness of users about some specific topic. Student's attitudes of using e-resources refers as a student's feeling about e-resources. The utilized the growing range of information from electronic resources, student must acquire the skills and adequate infrastructure. The ability of finding and retrieving information effectively was transferable skill useful for the positive and successful use of e-resources for the students in university. Student's attitude have also affected students perception and hence rate of adoption with e-resources. Another factor was attitude toward using e-resources could be attributed to problem when accessing e-resources. For instance, in a situation where there was an inadequate technology to access e-resources or poor internet connection. Student's attitude for using e-resources for their academic purpose directly impact student's satisfaction and enhance students' performance. Accessibility and use of e-resources was faced with challenges. Repeated that power failure, poor internet connection and improper guidance on use of electronic resources were the factors that against accessing electronic resources (Omeluzor, Akibu, & Akinwoye, 2016). The libraries were used to improve the management and scholarly information to strengths and speed access to seek information. Students have an adequate facilities such as speed access, flexibility and convenience of accessing increase attitude of using e-resources for the students. Students in universities were

most important tool to find information effectively. They can also improve their academic performance (Egberongbe, 2011).

The ICT has brought a wide change in nature, boundaries and structure of information. It is generally many factors affecting attitude for use e-resources. Flexibility and can access quickly are main thing for enhance student attitude for using e-resources (Gakibayo, Ikoja-Odongo, & Okello-Obura, 2013). It has positive attitude of students towards use of e-resources. There was many factors responsible for student's use of e-resources such as the flexible nature of e-resources in-term of multiple access points and accuracy of information (Adeoye & Olanrewaju, 2019).

2.3.5. Students' satisfaction

Student satisfaction as mean as student's feeling of pleasure that result from comparing e-resources perceived performance or outcome to their expectation. Measuring the user satisfaction was one of the major methods of evaluating the effectiveness of library e-resources and services (Sritharan, 2018). Student satisfaction achieved the result of the perceived ease of use and perceived usefulness. Student satisfaction of an information system results, when a student find a system useful and easy to use the extent it offers important performance gains. Students who are mostly engaged with use of e-resources, the satisfaction was enhanced (Tyler & Hastings, 2011). According to Bulama, Daud & Mahmud (2017) student's involvement was important factor to achieving the usage of e-resources. Students have adequate infrastructure need to improve on the student's satisfaction on using of e-resources. The need for student's involvement for using the e-resources, at the same time also need to improve student satisfaction with the using available e-resources in the university library. It was very important for enhancing students' academic performance. Because of e-resources students educational goals.

The advantages increase student satisfaction on using of e-resources. The advantages of using e-resources including speed with which the students can make a search ability of the students to make complicated searches using a keywords, possibility of searching multiple information at one time, electronic resources can be printed and searches saved to be repeated at a later date and they were updated more often than printed tools. Most of students made use of electronic resources mostly for research, assignment, current awareness, get additional knowledge and information acquisition (Omeluzor, Akibu, & Akinwoye, 2016). Students derived a lot of benefits from using electronic resources can get wide range of information a rounding their subject matters and improve their knowledge (Egberongbe, 2011).

Use of e-resources effect a meaningful difference to be created in different contexts such as academic progress, variety of learning resources, flexibility while learning and learning effectiveness of the students (Biranvand & Khasseh, 2014). University libraries have a huge collection of e-resources and managing them according to student's satisfaction is also very important. An effective and efficiency library system can significantly contribute to the lecture, student's development in a wider perspective. Several factors influence student's satisfaction to use e-resources such as student's attitude, responsiveness, competence, usefulness and others. Librarians try to enhance student satisfaction to use e-resources adequately to increase academic performance. Student's satisfaction as a personal and emotional reaction to a library service or product. It's directly impact on student's satisfaction to use e-resources (Sivathaasan, 2013).

3. Hypotheses

Reviewing the substantial literature noted above, following hypotheses were proposed to be tested in this study.

H1 – *There is a positive relationship between internet experience and skills and students' satisfaction on e-resources available in selected state universities in Sri Lanka.*

H2 – *There is a positive relationship between perceived ease of use and students' satisfaction on e-resources available in selected state universities in Sri Lanka.*

H3 – *There is a positive relationship between perceived usefulness and students' satisfaction on e-resources available in selected state universities in Sri Lanka.*

H4 – *There is a positive relationship between attitude toward to use of e-Resources and students' satisfaction on e-resources available in selected state universities in Sri Lanka.*

4. Methodology

Research model used in the study was developed concerning the observations and evidences met through literature review. Deductive approach was applied to carry out the research. Student satisfaction was taken as the dependent variable and internet experience and skills, perceived ease of use, perceived usefulness and attitude of use e-resources were identified as independent variables.

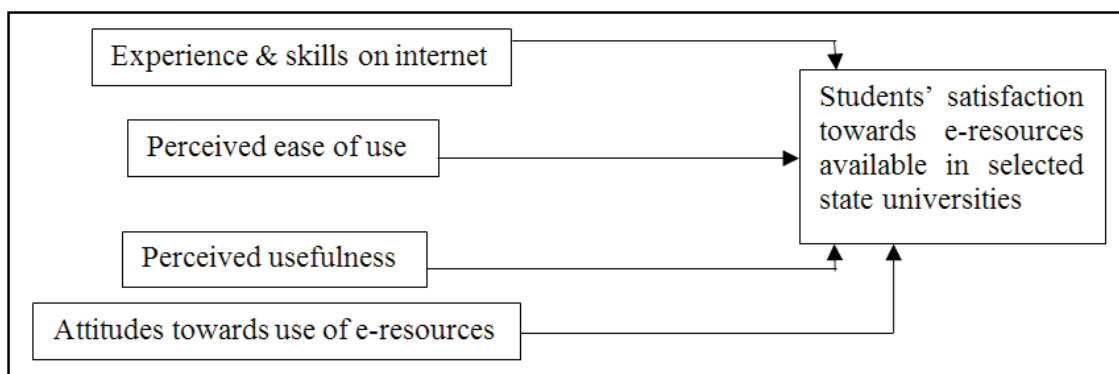


Figure 1: Research model

4.1 Population and sample

Population refers to the entire group of people, events, or things of interest that the researcher select to investigate (Sekaran & Bougie, 2010). As the population of this study researcher selected the three newly established universities in Sri Lanka. Students of Rajarata University of Sri Lanka, Wayamba University of Sri Lanka and South Eastern University of Sri Lanka are the target population.

Table 2 _Population

University	Population
Rajarata University of Sri Lanka	6814
Wayamba University of Sri Lanka	4749
South Eastern University of Sri Lanka	5650

Source: Official records of university students services as at August 2020

Sample is a subsection of the population. It encompasses some participants designated from it. Sampling is the selecting a sufficient number of element from the population (Sekaran & Bougie, 2010). In here Slovin's Formula is used to calculate the sample size (n) given the population size (N) and a margin of error (e). It is computed as $n = N / (1 + Ne^2)$. If a sample is taken from a population, a formula must be used to consider confidence levels and margins of error. Sample size selected as 376 out of 17213 students at 95 percent confident level. According to the Solving's Formula ($n = N / (1 + Ne^2)$), sample represent as 2.18% ($376 / 17213 * 100$) of students from each universities.

Table 3 _Sample

University	Population	Selected Sample (2.18%)
Rajarata University of Sri Lanka	6814	148
Wayamba University of Sri Lanka	4749	104
South Eastern University of Sri Lanka	5650	124
	17213	376

Having knowing the sample portion for each university, the convenient sampling technique was applied to distribute the online structured questionnaire while minimizing biasness among the representative undergraduates by concerning all points which might significant to the study. Students were asked to mark the university they study, Faculty they belong to (Management, Applied Science, Social Science & Technology) and Year they study (1st, 2nd, 3rd or 4th Year). All 376 completed questionnaire were fed to SPSS software for the analysis.

Study was undertaken based on quantitative research method. The main focus was to identify the factors affect on students' satisfaction towards the e-resources available in selected state universities in Sri Lanka as a remedial action taken against COVID-19. The quantitative methods supported in generating numerical data, which was statistically computed to meet study objectives applying descriptive statistics, inferential statistics and hypotheses were tested by correlation analysis (Amin, 2005). Multiple regression analysis was executed to recognize the importance of the predictors on dependent variable. Independent Sample T-Test was applied to check the influence of gender on the dependent variable. In addition, ANOVA test was executed to see the effects of university, faculty and year of students on the dependent variable. In addition, reliability was calculated to ensure the internal consistency of the measurement items of variables.

5. Analysis

Validity is the state or quality of being valid (Sekaran, 2006; Vogt, 2007). Validity helps to ensure the quality of the instrument. Face validity and content validity were guaranteed by two experts in the field. Internal consistency is checked by Cronbach's coefficient alpha (Sekaran, 2006). According to Shuttleworth (2015), reliability is the degree of consistency of a measure and a test will be reliable when it gives the same repeated result under the same conditions. Taherdoost (2016) says that there is no any constant value for internal consistency. However the minimum internal

consistency coefficient is 0.7. According to Straub, Boudereau and Gefen (2004) reliability should be equal or above 0.6 to proceed the analysis.

Table 4 _Reliability Analysis

Variables	Cronbach's alpha	KMO Value
Internet Experience and skills	0.778	0.749
Perceived Ease of Use	0.771	0.771
Perceived Usefulness	0.850	0.857
Attitudes towards use of e-resources	0.807	0.802
Student's Satisfaction	0.829	0.796

The Table 4 shows the reliability results of both dependent and independent variables. According to the values shown in table, all variables are ranged from 0.771-0.850 by fulfilling cut off level of the reliability. Hence, internally consistency of the variables was ensured to proceed further analysis. KMO values (all values are above 0.5) confirm the validity of the instrument.

Independent Sample T-Test

With derived values, female respondents have taken higher mean value (M=4.16) than male (M=4.01). Further, reveals that there is no significant difference between the two groups of male and female ($t=-1.94$, $p=0.38$). So it can be concluded that there is no significant effect of gender on student's satisfaction towards the e-resources.

ANOVA test

According to the values of ANOVA test, reveals that students' satisfaction is not significantly deviated according to university of the students. ($F=1.357$, $P=0.259$). The Faculty, students belong also is not a matter to vary the students' satisfaction on e-resources ($F=1.202$, $P=0.30$). as well as year they study also is not a significant factor to differ students' satisfaction for use of e-resources ($F=1.907$, $P=0.128$).

Correlation analysis

The correlation table illustrates correlation of each variable with other variables including dependent variable. Therefore, correlation matrix is advantageous to the researcher to identify the basic relationships with each variables.

Table 5_Correlation Analysis

		A	B	C	D	E
A	Pearson Correlation	1	.711	.629	.566	.557
	Sig. (1-tailed)		.000	.000	.000	.000
B	Pearson Correlation	.711	1	.760	.651	.708
	Sig. (1-tailed)	.000		.000	.000	.000
C	Pearson Correlation	.629	.760	1	.771	.723
	Sig. (1-tailed)	.000	.000		.000	.000
D	Pearson Correlation	.566	.651	.771	1	.766
	Sig. (1-tailed)	.000	.000	.000		.000
E	Pearson Correlation	.557	.708	.723	.766	1
	Sig. (1-tailed)	.000	.000	.000	.000	

A - Internet Experience and skills, **B** - Perceived Ease of Use, **C** - Perceived Usefulness,
D - Attitudes towards usage of e-resources, **E** - Student's Satisfaction, Sample size - 376

Statistical values appear in the above table show that all hypotheses developed in the study are supported. Accordingly, it can conclude that identified factors have positive relationships with students' satisfaction towards e-resources available in selected state universities.

Multiple Regression

Multiple regression analysis has been used to measure how significantly impact of independent variables (internet experience and skills, perceived ease of use, perceived usefulness, attitude towards use of e-resources) on the dependent variable (students' satisfaction).

Table 6_Values of the regression analysis

Model	B	Std. Error	Standardized Coefficients Beta	t	Significant value
Constant	.349	.163	.	2.137	.033
Internet experience and skills	-.013	.051	-.012	-.260	.795
Perceived ease of use	.326	.060	.311	5.418	.000
Perceived usefulness	.147	.067	.135	2.192	.029
Attitude towards use of e-resources	.478	.054	.467	8.856	.000
R Square – 0.664, F – 153.713, P – 0.000					

According to the above table, three variables out of four are significant while internet experience and skills is not significant ($p = 0.795$). The results revealed that perceived ease of use, perceived usefulness, attitude towards use of e-resources are statistically significant. Finally it can be concluded that perceived ease of use, perceived usefulness, attitude towards use of e-resources have a positive and significant impact on student's satisfaction meanwhile internet experience and skills does not significantly impact on student's satisfaction for e-resources available in selected state universities.

6. Discussion with findings

Researcher mainly focused the factors effecting students' satisfaction towards use of e-resources available in selected state universities in Sri Lanka under the COVID-19. When consider the sample, 376 students from Rajarata University of Sri Lanka, Wayamba University of Sri Lanka and South Eastern University of Sri Lanka were taken.

According to Cribb & Holt (2012) identified students need skills and experience to use internet and e-resources. It has positive relationship with student's satisfaction to use e-resources for enhancing their academic performance. According to Tlakula & Fombad (2017), said that students need to acquire skills in using internet effectively and internet experience positively affect students adopted to use of e-resources. Omeluzor, Akibu & Akinwoye (2016) study that internet experience significantly impact to the student's satisfaction to use of e-resources. And also said that students who have powerful internet experience always adopted with e-resources. Even so, finding of this study confirmed internet experience and skills have a positive relationship with students' satisfaction to use of e-resources by agreeing with above noted previous findings. However, regression results revealed that no impact on students' satisfaction for e-resources though students have internet experience and skills. Bana, Eze & Esiebo (2019) identified perceived usefulness, ease of use and attitude of using e-resources have been found to play significant role in predicting the enhance student satisfaction. Students accessed and used of e-resources as useful to enhance their academic performance by making teaching, learning and research more effective. Student's perceived usefulness and ease of use generally have a positive impact towards the student's satisfaction. Students' perceived usefulness and perceived ease of use of e-resources effect students' satisfaction. It has positive impact and enhance education performance of the students (Joshua & King, 2020). Mollel &

Mwantimwa (2019) found perceived usefulness of e-resources in accomplishing teaching, learning and research activities have been found to positively influence students' satisfaction. The results of this study too proved that perceived ease of use and perceived usefulness have strong positive, significantly impact on students' satisfaction to use of e-resources. Olatoye, Nekhwevha & Muchaonyerwa (2020) emphasized that there is a positive relationship between attitudes and perceptions of using e-resources. Several factors contribute to the attitudes and perception of undergraduate students to e-resources use such as interest, awareness, beliefs, acceptance and adoption of technology. According to Okafor (2014), Student's attitude has also affected students perception and hence rate of adoption with e-resources get varied. Student's attitude for using e-resources for their academic purpose directly impact student's satisfaction and enhance student's performance. According to result of this study students' attitudes to use of e-resources have positive, significant impact to students' satisfaction. AlJasser et al. (2022) revealed that majority of students used e-resources and believe that provided e-resources are credible. Confirming above argument, Abdillahi (2020) also has pointed out that e-resources are popular among the postgraduate student during the difficult time of COVID-19. So that these findings confirmed if students feel that available e-resources are easy to use, they are useful for learning and positive attitudes, make students satisfied with e-resources available in selected state universities.

7. Conclusion, recommendations and future research directions

Mainly researcher identified that all four independent variables which are internet experience and skills, perceived ease of use, perceived usefulness and attitude towards use of e-resources positively correlate with students' satisfactions on e-resources available in selected state universities during corona virus exists. Regression analysis was applied to find the degree of impact from each predictor towards the dependent variable. With the results, it can conclude that most influencing factor is the attitudes towards the use of e-resources. Perceived easiness was the second largest predictor while perceives usefulness become the third significant predictor on students' satisfaction on e-resources. Internet experience and skills was not significantly make influence on the dependent variable.

Apart to main conclusion, it can be mentioned that there is no significant effect of gender on students' satisfaction towards the e-resources as well as the students' satisfaction is not significantly deviated according to type of university, faculty and the year which they study. Finally, all concerned predictors of this study

explain 67 percent of students' satisfactions on e-resources available in selected state universities in Sri Lanka during the pandemic time.

Consequently, main contribution of this study is the drawing attention towards the identified factors which are important when use e-resources by the students. So that, content creators of e-resources should think of easiness and usefulness of the e-materials which are going to present to students while building up positive attitudes towards the e-resources.

7.1 Recommendations

The findings of the study provide clear insight into aspect of students' satisfaction towards use of e-resources and what factors effecting. And also on the basis of the findings researcher provides some helpful recommendation for the university, students as well as teachers. Therefore some effective actions can be taken to enhance students' satisfaction to use of e-resources for their academic activities.

- * The university library can organize webinar to uplift the students' attitude on e-resources by explaining the vital importance of e-resources as the students' attitude is the main predictor according to the study findings.
- * Arrange the IT facilities with the help of computer center and ensure the easiness to access and use remotely.
- * Libraries should increase awareness campaigns concerning the availability of e-resources in the libraries and motivate the students to enhance the use of e-resources for their academic work easily and importance of usefulness compared to printed materials specially during COVID-19 pandemic.
- * The libraries should ensure continuity of the e-mode services (7x24 hours) and updated e-resources.
- * Teachers can arrange assignments to complete using e-resources specially referring university libraries.

7.2 Suggestions for future research

Research was limited to the three universities and 376 students as a sample size and consider only four variables. Accordingly, findings of the present study do not provide an overall picture of the students' satisfaction on e-resources in Sri Lankan university system. Hence, future studies can consider all of the universities in Sri Lanka. Other important factors such as quality of e-resource, facilities to students to use e-resources can be considered to have a clear idea on students' feeling on e-resources available in selected state universities in Sri Lanka.

References:

- Abdillahi, U.A. (2020). Use of Electronic Resources by Postgraduate Students during Covid-19 Pandemic: Case of Masinde Muliro University of Science and Technology, In Kenya. *World Journal of Innovative Research* 9(5), 62-66.
- Adenirah, P. (2013). Usage of Electronic Resources by Undergratuates at the Redeemer's University, Nigeria. *International Journal of Library & Information Science*, 5(10), 319-324.
- Adeoye, A. A., & Olanrewaju, A. O. (2019). Use of Technology Acceptance Model (TAM) to evaluate library electronic information resources use by undergraduate students of Lead City University, Ibadan, Nigeria. *Library Philosophy and Practice (e-journal)*, 2471, 1-24.
- Alhassan, J.A. (2015). The Utilisation of Electronic Resources by University Students in Niger State, Nigeria. *Journal of Applied Information Science and Technology*, 8(1), 1-8.
- AlJasser, R., Alolyet, L., Alsuhaibani, D., Albalawi, S., Manzar, Md. D., & Albougami, A. (2022). Perception of E-Resources on the Learning Process among Students in the College of Health Sciences in King Saud University, Saudi Arabia, during the (COVID-19) Outbreak. *Healthcare*, 10(1), 1-40.
- Amin, M.E. (2005). *Social Science Research: Conception, Methodology and Analysis*. Makerere University Press, Kampala.
- Ani, O. K., & Ahiauzu, B. (2008). Towards effective development of electronic resources in Nigerian University libraries. *Library Management*, 29(6/7), 504-514.
- Ayoo, P. O., & Lubega, J. T. (2014). A Framework for E-learning Resources Sharing (FeLRS). *International Journal of Information and Education Technology*, 4(1), 112-119.
- Bana, D., Eze, M. E., & Esievo, L. O. (2019). A comparative study of the use of electronic resources by LIS and computer science students in two Nigerian Universities. *Library Hi Tech News*, 36(9), 6-10.
- Bankole, O. M., Ajiboye, B. O., & Otunla, A. O. (2015). Use of Electronic Information Resources by Undergratuade Students of Federal University of Agriculture. *International Journal of Digital Library Services*, 5(4), 1-14.
- Bhat, I., & Mudhol, M. V. (2014). Use of e-resources by faculty members & students of Sher-E-Kashmir Institute of Medical Science (SKIMS). *DESIDOC Journal of Library & Information Technology*, 34(1), 28-34.

- Bhat, M. (2009). Increasing the discovery and use of e-resources in university libraries. 7th International CALIBER-2009, Pondicherry University, Puducherry, February 25-27, INFLIBNET Centre, Ahmedabad, 532-543.
- Biranvand, A., & Khasseh, A. A. (2014). E-book Reading and its Impact on Academic Status of Students at Payame Noor University, Iran. *Library Philosophy and Practice*, 1170, 1-12.
- Bulama, U. B., Daud, S. M., & Mahmud, R. (2017). Relationship between Students Satisfaction with the availability of e-resources and Infrastructure, Staff Commitment and Students Involvement in using the E-resources in Colleges. *International Journal of Academic Research in Business and Social Science*, 7(Special issue), 4th International Conference on Educational Research and Practice
- Correia, A. M., & Neto, M. D. (2002). The role of eprint archives in the access to, and dissemination of, scientific grey literature: LIZA- A case study by the National Library of Portugal. *Journal of Information Science*, 28(3), 231-241.
- Cribb, G., & Holt, I. (2012). Student Engagement and Library Use: An Examination of Attitudes Towards Use of Libraries and Information amongst Undergraduate Students at a Turkish University Library. *Research Collection Library*, 16.
- Egberongbe, H. S. (2011). The Use and Impact of Electronic Resources at the University of Lagos. *Library Philosophy and Practice*, 472
- Ekenna, M.-M., & Iyabo, M. (2013). Information Retrieval Skills and Use of Library Electronic Resources by University Undergraduates in Nigeria. *Information and Knowledge Management*, 3(9), 6-15.
- Ellis, D., & Oldman, H. (2005). The English literature researcher in the age of internet. *Journal of Information Science*, 31(1), 29-36.
- Fadhli, S. A., & Johnson, L. M. (2006). Electronic Documents Delivery in Academic and Research Organizations in the Gulf States: a case study in Kuwait. *Information Development*, 22(1), 32-37.
- Fidel, R., & Green, M. (2004). The many faces of accessibility: engineers' perception of information resources. *Information Processing and Management*, 40(3), 563-581.
- Fyneman, B., Idiedo, V. O., & Ebhomeya, L. (2014). Use of electronic resources by undergraduates in two selected universities in the Niger Delta Region of Nigeria. *Journal of Information and Knowledge Management*, 5(2). 170-186.

- Gakibayo, A., Ikoja-Odongo, J. R., & Okello-Obura, C. (2013). Electronic Information Utilisation by student in Mbarara University Library. *Library philosophy and practices*, 869, 1-26.
- Gibson, C., & Gibb, F. (2011). An evaluation of second generation e-book readers. *The Electronic Library*, 29(3), 303-319.
- Gowda, V., & Shivalingaiah, D. (2009). Attitude of research scholars towards usage of electronic information resources: A survey of University Libraries in Karnataka. *Annals of Library and Information Studies*, 56, 184-191.
- He, W., Zhang, Z. J., & Li, W. (2021). Information technology solutions, challenges, and suggestions for tackling the COVID-19 pandemic. *International journal of information management*, 57, 102287.
- Hindagolla, B. M. M. C. B. (2021). Exploring Undergraduates' Satisfaction with Library Resources and Services: A Case Study of the Science Library, University of Peradeniya, Sri Lanka. *Journal of the University Librarians Association of Sri Lanka*, 24(2), 1-26.
- Joshua, D., & King, L. (2020). The Utilization of e-resources at Modibbo adama University of Technology (MAUTech), Yola, Adamawa State, Nigeria. *International Journal of Knowledge content Development & Technology*, 10(1), 47-70.
- Lee, J. Y., Paik, W., & Joo, S. (2012). Information resources selection of undergraduate students in academic search tasks. *Information Research*, 17(1). 511.
- Letchumanan, M., & Tarmizi, R. M. (2011). E-book utilization among mathematics students of University Putra Malaysia (UPM). *Library Hi Tech*, 29(1), 109-121.
- Madhusudhan, M. (2010). Use of electronic resources by research scholars of Kurukshetra University. *The Electronic Library*, 28(4). 492-506.
- Madondo, T., Sithole, N., & Chisita, C. T. (2017). Use of Electronic Information Resources by Undergratuade Students in the Faculty of Management & Administration at Africa University, Mutare, Zimbabwe. *Asian Research Journal of Arts & Social Science*, 2(2), 1-12.
- Manca, F. & Meluzzi, F. (2020). Strengthening online learning when schools are closed: The role of families and teachers in supporting students during the COVID-19 crisis. *Tackling Coronavirus (COVID-19): Contributing to a global effort*.

- Mirza, M. S., & Mahmood, K. (2012). Electronic resources and services in Pakistani University libraries: A survey of users' satisfaction. *The International & Library Review*, 44(3), 123-131.
- Mollet, M. M., & Mwantimwa, K. (2019). User's acceptance of e-resources usage at the Institute of Finance Management, Tanzania. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 15(4), 5-21.
- Okafor, V. N. (2014). Attitude of Undergraduate Students towards the Academic Use of Electronic Information Resources in Two Federal Universities in South- East Nigeria. Nigeria Library Association, Enugu State Chapter.
- Okello-Obura, C. (2010). Assessment of the problem LIS postgraduate students face in accessing e-resources in Makerere University, Uganda. *Collecting Building*, 29(3), 98-105.
- Olatoye, O. I., Nekhwewha, F., & Muchaonyerwa, N. (2020). Determinants of Undergraduate Student's Attitude and Perception towards the Use of Electronic Information Resources (EIRs) among Undergraduate Students in Selected Universities in Eastern Cape, South Africa. *Open Access Library Journal*, 7(2), 1-18.
- Omeluzor, S. U., Akibu, A. A., & Akinwoye, O. A. (2016). Students' Perception, Use and Challenges of Electronic Information Resources in Federal University of Petroleum Resources Effurun Library in Nigeria . *Library Philosophy and Practice*, 1428.
- Patrinos, H. A. & Shmis, T. (2020). Can technology help mitigate the impact of COVID-19 on education systems in Europe and Central Asia? World Bank Blogs, Published on Eurasian Perspectives. Available: <https://blogs.worldbank.org/europeandcentralasia/can-technology-help-mitigate-impact-covid-19-education-systems-europe-and>
- Quadri, G. O., Adetimirin, A. E., & Idowu, O. A. (2014). A study of availability and utilization of library electronic resources by undergraduate students in private universities in Ogun State, Nigeria. *International Journal of Library and Information Science*, 6(3), 28-34.
- Rapanta, C., Botturi, L., Goodyear, P., Guardia, L. & Koole, M. (2020). Online University Teaching During and After the Covid-19 Crisis: Refocusing Teacher Presence and Learning Activity. *Postdigital Science and Education*, 2, 923–945.

- Sahin, Y. G., Balta, S., & Ercan, T. (2010). The use of internet resources by University Students during their course projects elicitation: A case study. *The Turkish Online Journal of Education Technology*, 9(2), 234-244.
- Saikia, M., & Gohain, A. (2013). User and User's Satisfaction in Library resources and services: A case study in Tezpur University (India). *International Journal of Library & Information Science*, 5(6), 167-175.
- Sekaran, U. (2006). *Research methods for business A Skill-Building Approach* (4th Edition), Wiley India Pvt. Limited
- Sekaran, U., & Bougie, R. (2010). *Research methods for business*. India: John Wiley and Sons.
- Sharma, C., Singh, L., & Sharma, R. (2011). Usage and acceptability of e-resources in National Dairy Research Institute (NDRI) and National Bureau of Animal Genetic Resources (NBAGR), India. *The Electronic Library*, 29(6), 803-816.
- Shuling, W. (2007). Investigation and analysis of current use of electronic resources in university libraries. *Library Management*, 26(1/2), 72-88.
- Singh, G., & Nagah, P. K. (2014). User Oriented Approach towards E-Resources: A Case Study of IIT ROPAR. *Journal of Library & Information Science*, 4(1), 104-120.
- Singh, K., & Varma, A. K. (2017). Use of E-resources by the students and researchers: with special reference to faculty of Arts, B.H.U, Varanasi. "Knowledge Librarian" An International Peer Reviewed Bilingual E-Journal of Library & Information Science, 4(4), 35-47.
- Sivathaasan, N. (2013). Impact of Library collection on user satisfaction: A case study. *European Journal of Business and Management*, 5(13), 141-146.
- Sritharan, T. (2018). Evaluation of Usage and User Satisfaction on Electronic Information Resources and Services: A study at Postgraduate Institute of Medicine Library, University of Colombo. *Journal of the University Librarians Association of Sri Lanka*, 21(2), 73-88.
- Straub, D., Boudreau, M., and Gefen, D. (2004). Validation Guidelines for IS Positivist Research. *Communications of the Association for Information Systems*, 3(1), 1-67.
- Taherdoost, H. (2016). Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research. *International Journal of Academic Research in Management*, 5(3), 28-36.

- Tlakula, P., & Fombad, M. C. (2017). The use of electronic resources by undergraduate students at the University of Venda, South Africa. *The Electronic Library*, 35(4), 861-881.
- Tyler, K., & Hastings, N. B. (2011). Factors Influencing Virtual Patron Satisfaction with Online Library Resources and Services. *The Journal of Educators Online*, 8(2), 1-34.
- Vibert, N., Rouet, J., Ros, C., Ramond, M., & Deshoullieres, B. (2007). The use of online electronic information resources in scientific research: the case of neuroscience. *Library & Information Science Research*, 29(4), 508-532.
- Vogt, W.P. (2007). *Quantitative Research Methods for Professionals*. Pearson Publishers
- Weitz, J. (2006). Cataloguing electronic resources: OCLC-MARC coding guidelines. OLAC Catalogers Network, Available from: <https://www.oclc.org/support/services/worldcat/documentation/cataloging/electronicresources.en.html>
- Wijetunge, P. (2017). Usage of electronic resources by librarians of Sri Lankan Universities. *Annals of Library and Information Studies*, 64(1), 21-27.
- Xie, I., & Joo, S. (2009). Selection of information sources: types of tasks, accessibility and familiarity of sources. *Proceedings of the American Society for Information Science and Technology*, 46(1), 1-18.
- Yamson, G. C., Appiah, A. B., & Tsegah, M. (2018). Electronic vs. Print Resources: A Survey of perception, Usage and Preference among Central University Undergraduate Students. *European Scientific Journal*, 14(7), 291-304.
- Yebowaah, F. A., & Plockey, F. D. (2017). Awareness and use of Electronic Resources in University Libraries: A Case Study of University for Development Studies Library. *Library Philosophy and Practice*, 1562, 1-32.