INFLUENCE OF INFORMATION LITERACY ON UTILIZATION OF ELECTRONIC RESOURCES BY BACHELOR OF EDUCATION TEACHER TRAINEES, UNIVERSITY OF NAIROBI, KENYA

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DECLARATION

This thesis is my original work and has not been submitted for a degree in any other University

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I dedicate this work to my dear wife, Eunice Wanja for her love and unswerving support, my children Wambui, Kanori and Gatheca for their kind words of encouragement, and to my grandchildren, Eunice Wanja and John Njoroge who always played around me while I did the research work.

May this work be a source of inspiration to my children and grand-children.

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ABSTRACT

Utilization of electronic resources is a reading culture that benefits bachelor of education teacher trainees by directly exposing them to up-to-date and diverse subject content in motivating multimedia presentations. To utilize e-resources efficiently bachelor of education teacher trainees require literacy on information need recognition, online searching, information evaluation and citation and referencing techniques. However, there have been complaints from library staff and lecturers that bachelor of education teacher trainees hardly utilize e-resources. This raises concern because the teacher trainees are not linked directly to enormous and current subject content and this may lower their performance in the subject. The present study examined the relationship between information literacy (IL) and utilization of e-resources by bachelor of education teacher trainees of the University of Nairobi. The objectives of the study sought to: establish the relationship between bachelor of education teacher trainees' ability to recognize information needs and utilization of e-resources; determine the relationship between bachelor of education teacher trainees' information searching ability and utilization of e- resources; examine the relationship between bachelor of education teacher trainees' information evaluating ability and utilization of e-resources; examine bachelor of education teacher trainees' referencing ability and utilization of e-resources and assess the relationship between collaborative information literacy efforts and utilization of e-resources. The study adopted descriptive survey research design and data were collected using questionnaires, interview guides and document analysis guides. The independent variable for the study was information literacy while the dependent variable was utilization of e-resources. Stratified random sampling was used to draw a sample of 370 Bachelor of education teacher trainees. Purposeful sampling method was used to obtain 30 staff. Education communication experts from the University of Nairobi who also served as supervisors of the study were consulted for expert guidance on the construction of valid data collection instruments. The instruments were piloted to ensure reliability of data collected. Questionnaires and interview guides were administered to undergraduate students at the School of Economics of the University of Nairobi, and the results were compared with those drawn from the School of Education. Data were analyzed using descriptive and inferential statistical techniques. The findings confirmed the following statistically significant association between independent and dependent variables: improving bachelor of education teacher trainees' information needs recognition increases utilization of e-resources; improving bachelor of education teacher trainees' searching ability increases utilization of e-resources, improving bachelor of education teacher trainees' evaluating ability increases utilization of e-resources and improving collaborative information literacy effort increases utilization of e-resources. The study recommends improvement of the following practices: bachelor of education teacher trainees' searching ability, bachelor of education teacher trainees' evaluating ability and campus – wide collaborative information literacy among staff from different departments. The study recommends that a clause be included in the University of Nairobi's mission statement emphasizing collaborative institution-wide information literacy to promote utilization of e-resources by bachelor of education teacher trainees. Further research is recommended comparing the influence of information literacy on utilization of e-resources by undergraduates in different colleges of the University of Nairobi.

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ABBREVIATIONS AND ACRONYMS

ACRL	Association of College and Research Libraries
ACS	American Chemical Society
ALA	Americal Library Association
AMAMS	American Medical Association Manual of Style
BEDTTs	Bachelor of Education Teacher Trainees
BEDECE	Bachelor of Education in Early Childhood Education
BEDPE & SPORTS	Bachelor of Education in Physical Education and Sports (Option)
BS	British Standard
CD-ROM	Compact Disk Read Only Memory
CMS	Chicago Manual of Style
COMP LAB	Computer Laboratory
CARLIGH	Consortium of Academic and Research Libraries
COTUL	Consortium of Tanzania University Libraries
DAG	Document Analysis Guide
DOI	Digital Object Identifier
DVD	Digital Versatile Disk
CSES	Council of Science Editors Style
ERIC	Education Resource Information Centre
EBSS	Education and Behavioral Sciences Section
HRS	Harvard Referencing System
IEES	Institute of Electrical and Electronics Style

IL	Information Literacy
ILA	Information Literate Abilities
ILFHE	Information Literacy Framework for Higher Education
INASP	International Network for the Availability of Scientific Publication
ILSTE	Information Literacy Standards for Teacher Education
ISLs	Information Skills Librarians
KLA	Kenya Library and Information Services Consortium
KLISC	Kenya Library and Information Services Consortium
KSC	Kenya Science Campus
MHRA	Modern Humanities Research Association
MLA	Modern Language Association
OPAC	Online Public Access Catalogue
OA	Open Access Resources
SoE	School of Education
SUA	Sokoine University of Agriculture
UDL	Universal Design for Learning
UoN	University of Nairobi
UoNDR	University of Nairobi Digital Repository
UONLS	University of Nairobi Library System
UoNLSP	University of Nairobi Library Services Portal
VS	Vancouver Style

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Utilization of electronic resources for teaching is an information culture that benefits Bachelor of Education Teacher Trainees (BEDTTs) by stimulating the learning experiences of accessing current and vast subject content. Teachers play an important role in the national development of a country by teaching students who later take up positions in different sectors of the economy. A quality education system that embraces use of Information Communication Technologies (ICTs) in teaching and learning processes boosts the development of a country. Haridasan and Khan (2009) defined e-resources as resources which store information electronically and access is through electronic systems like computers, lap-tops and mobile phones. Abdullahi (2013) agreed that e-resources utilized in the school system include e-journals, e-books, online databases, CD-ROM databases and other resources like e-games that make learning fun. Shittu, Kareem, Obielodan and Fakomogbon (2017) argued that researchers take more interest in examining how achelor of education teacher trainees are prepared to utilize e-resources for teaching and learning. Yusuf and Balogan (2011) argued that e-resources have not only transformed pedagogical practice but have also changed the way that students learn. Abdullahi and Tijani (2013) affirmed that e-resources are not only used to deliver instruction but also teacher education process itself. E-resources have reshaped the responsibilities of teachers, librarians and professionals supporting bachelor of education teacher trainees in learning and research processes.

Khan (2016) asserted that utilization of e-resources improves communication, teaching and research and provides updated information. This means that e-resources are easily updated. While contributing to the debate on e-resources, Harridasan and Khan (2009) observed that utilizing e-resources enhance knowledge creation, completion of assignments, compilation of references and collection of data. In the same vein, Shittu, Kareem, Obielodan and Fakomogbon (2017) asserted that e-resources inject innovation in teaching and learning in addition to speeding up the discovery and creation of new enquiries in education.` Additionally, Khan (2016) averred that e-resources can be accessed remotely. This means that geographical barriers such as distance and time have been overcome. Bachelor of education teacher trainees can access e-resources in the library or at home to prepare class notes, complete assignments or set interactive physical education (PE) exercises.

Universities in various parts of the world have re placed print with e-resources because of the advantanges that are offered by the versatile information sources. Dadzie (2005) asserted that university libraries in the United Kingdom have embraced e-resources. For instance, the London Metropolitan University Libraries (2010) subscribe to various e-resources to be utilized by the university community. The Oregon State University Library (2017) in the US advised students to search the online databases subscribed to by the library to complete academic and research tasks. University communities in Asian countries also utilize e-resources. The University of Tsinghua in China (2017) alerted current students and staff that the library's e-resources and services are accessible remotely to advance teaching, learning and research. Similarly, university libraries in

Australia provide e-resources services to the users. For instance, the University of New South Wales Library (2018) subscribe to a wide range of e-resources that are utilized by current staff and students of the institution.

Universities in African countries have also started to subscribe to e-resources. Tlakula and Fombad (2017) asserted that well established universities in South Africa like Stellenbosch and Capetown have embraced e-resources while others like the University of Venda lag behind in utilization of the e-resources. Ankrah and Atuase (2016) posit that academic libraries in Ghana access e-resources through the Consortium of Academic and Research Libraries (CARLIGH). According to Nkebuwal (2016) university libraries in Tanzania avail e-resources to the university community through the Consortium of Tanzania University Libraries (COTUL). Similarly, Gakibyo, Ikoja-Ondongo and Okello-Obura (2013) affirmed that Mbarara University of Science and Technology in Uganda avails e-resources to students and staff. In the same vein, the Kenya Library Association (KLA) (2017) affirmed that the Kenya Library and Information Services Consortium was formed in 2003 by university libraries and research institutions in Kenya to avail e-resources to users through subscription at affordable rates. The University of Nairobi is a member of the consortium.

Schugar, Smith and Schugar (2013) posit that e-books are interactive and enhance students' learning outcomes. The resources are usually prepared to involve several senses in order to accommodate learners with varying learning styles as well as those with different learning disabilities. In the same vein, Inyega and Inyega (2017) affirmed that ICTs have much to offer to students who have difficulties in reading. Okello-Obura and

Magara (2008) agreed that the advantages of e-resources include ease of use, speed, linking to digital resources outside the library and access to multiple files. It is important to ensure that bachelor of education teacher trainees are trained to be conversant with utilizing e-resources to accompolish academic tasks successfully while at university. Lukhele (2013) observed that a teachers' reading culture directly or indirectly influences students reading habits. In the same vein, Johnson and Buck (2014) argued that it is important to understand utilization of e-books habits of bachelor of education teacher trainees, because teachers' reading culture influences the information culture of students.

Similarly, Olaniran, Duma and Nzima (2017) asserted that the quality of educational resources available to bachelor of education teacher trainees shapes the competence of such teachers in utilizing the resources with the students. The literature review advocates for the need for education faculties and colleges to prepare and equip bachelor of education teacher trainees with the ablity to utlize e-resources efficiently. The bachelor of education teacher trainees who utilize e-resources transfer the reading culture to students after joining their teaching career. It is important to explore the needs of bachelor of education teacher trainees in order to understand why the teacher trainees require current, accurate and reliable information. Umnnakwe and Eze (2015) asserted that the information needs of teachers revolve around school curriculum, managerial skills, use of Information Communication Technologies (ICTs) and knowledge of suitable methods of teaching students with special abilities. Ahmad *et al* (2013) emphasized that familiarity with e-books predicts whether the teacher utilizes the resources in class. Mishrah and

Koehler (2006) observed that digital technology allows teachers to make multimedia presentations of subject content more entertaining and interactive.

In the same vein, Chen and Jang (2013) argued that teachers use e-books to teach complex concepts or to increase student motivation to learn because the resources are interactive. Similarly, Bhatt and Rana (2011) and Okiki (2012) concurred that e-resources promote teaching, learning and research hence the need for the bachelor of education teacher trainees to embrace the reading culture of utilizing the resources. Olaniran *et al* (2017), Ahmed *et a*l (2013) and Chen and Jang (2013) emphasize the importance of bachelor of education teacher trainees' learning and acquiring skills in utilizing e-resources to be proficient in integrating the sources in class after joining the teaching career. The current study was interested in establishing whether bachelor of education teacher trainees of the University of Nairobi (UoN) have been prepared adequately to utilize e-resources when preparing class notes or completing assignments.

To utilize e-resources effectively bachelor of education teacher trainees require literate abilities in recognizing information needs, carrying out online searching, critically evaluating and referencing e-resources. One of the acknowledged information cultures, is ethical utilization of e-resources in teaching, learning and research processes. Information Literacy (IL) empowers bachelor of education teacher trainees with integrated literacy abilities which enhance life long learning. The present study was interested in establishing whether the bachelor of education teacher trainees have been trained and equipped with the ability to recognize when they need information, search, evaluate and

utilize e-resources ethically by referencing the sources that have been consulted to accomplish academic tasks. Ukachi (2015) noted a positive correlation between undergraduates' information literacy and utilization of e-resources. This meant that improved undergraduates' information literacy led to increased utilization of e-resources.

Mardhusudhan (2010) confirmed that information literacy is necessary for one to utilize e-resources effectively and added that librarians impart information literate abilities through inducting users on the use of the sources of information. Hadimani and Rajgoli (2010) noted that information literacy combines various elements of library, media, computer and network literacy. This means that professionals including librarians and both science and art lecturers, who induct bachelor of education teacher trainees to e-resources should be conversant with various elements of other literacies related to information literacy (Hadimani and Rajgoli, 2010). Angello (2010) affirmed that researchers and academic staff with wide knowledge and competencies utilize e-resources than those with low information literate abilities. Furthermore, academic staff transfer the reading habit to bachelor of education teacher trainees by utilizing e-resources in class or integrating utilization of the sources in class.

Stockham and Collins (2014) observed that education librarians conduct information literacy training to bachelor of education teacher trainees because teachers have capacity to impact the skills to students. Kovalik *et al* (2010) agreed that information literacy pedagogy is vital because not only does it empower bachelor of education teacher trainees with information literate abilities but also enables teachers to transfer the skills to

students. The American Library Associations' Education and Behavioral Sciences Section (EBSS) (2011) agreed that the Information Literacy Standards for Teacher Education guide in developing information literacy for bachelor of education teacher trainees. The Association of College and Research Libraries (ACRL) (2015) define information literacy as the set of integrated abilities and utilization of information ethically to create knowledge and participate in scholarly communities.

Information literacy empowers undergraduates with the abilities of recognizing information need, searching, evaluating and using information ethically by citing and referencing sources consulted in course of completing academic tasks. Daugherty and Russo (2010) reported that information literacy is important for life learning because it positively impacts student's academic and non-academic life. In the same vein, Baro and Zukomefea (2012) asserted that information literacy programmes empower learners with abilities to locate, critically evaluate and organise information for academic purposes. However, Freeman and Lynd; Oakleaf and Owen (2010) observed the need to improve the information literate abilities of first year students because their computer proficiencies do not match with their knowledge of research.

Universities in America and the United Kingdom have introduced information literacy into undergraduate programmes in order to produce information literate graduates. The London Metropolitan University Libraries' information literacy mission statement (2010), commits the library to provide resources in an environment that encourages ethical use of information. The West Virginia University (WVU) (2013) observed that

West Virginia University libraries offer research instruction across many disciplines in order to impart skills and knowledge to students, enabling them to identify, locate and critically evaluate information derived from print and electronic resources.

The University of Groningen (2015) information literacy syllabus for undergraduate students outlines the following steps: understanding the research topic, developing research questions, familiarity with scholarly publications including e-resources, searching and evaluating information, processing/using information and avoiding plagiarism. Duke and Ward (2009) analyzed Johnson and O'English's review of literature on information literacy and teacher education and found that since 2000, information literacy standards for students and teachers have been adopted in countries such as the USA, Canada and Australia. This implies that the more developed countries have empowered undergraduates with information need recognizing, searching, evaluating, and referencing abilities which boost utilization of e-resources. Futhermore, the universities have laid down strong collaborative information literacy efforts among staff from different departments that are committed to promoting utilization of e-resources by undergraduate students.

Universities in Africa, Latin America and Asia are implementing and researching on information literacy programmes and their role in promoting utilization of e-resources. The various information literacy programmes that are being implemented in universities in Africa include: library orientation, library drop-in sessions, stand-alone information literacy, embedded information literacy, one-shot information literacy session, library

workshops and online information literacy tutorials. The present study is interested in establishing whether the bachelor of education teacher trainees become conversant with the information literate abilities after pursuing the programmes. Furthemore, information literacy empowers the teacher trainees to utilize e-resources efficiently and effectively. The components of information literacy which the bachelor of education teacher trainees should be conversant with include: information need recognizing, searching techniques, evaluation criteria and citation and referencing techniques. Additionally, collaborative information literacy effort among staff from various departments of a university act as a catalyst in promoting utilization of e-resources by the teacher trainees.

Information need is the driving force that compels bachelor of education teacher trainees to seek information from the e-resources after recognizing an information gap. Information need recognition is the ability to quckily identify when an information gap arises which requires to be filled immediately with relevant information. The information need indicators include identifying purpose for which information is needed, formulating good questions to clarify the need, knowing the sources of information to be sought and planning how to acquire the information to satisfy the need. A bachelor of education teacher trainee who is conversant with information need indicators is said to be information literate. Information literate bachelor of education teacher trainees recognize knowledge gaps and address the problem. The information literate bachelor of education teacher trainees differentiates simple questions from complex questions and predict possible sources of information including different types of e-resources that are likely to yield the right answers (Oregon State University, 2017). Furthermore, the information

literate bachelor of education teacher trainees has the ability to distinguish the information needed and where such information is found (Engeldinger, 2009). Moreover, the information literate bachelor of education teacher trainees articulate the kind of information needed in order to solve a problem. The need could be to complete an assignment, or prepare class notes or update reference sources. Umnnakwe and Eze (2015) elucidated on the information needed by teachers to include: the school curriculum, managerial skills, use of ICTs and appropriate methods of teaching students with special abilities.

Information literate bachelor of education teacher trainees find information easily and quickly, choose the right research tools and formulate successful search strategies. The information literate teacher trainees are also conversant with different online basic and advanced searching techniques such as keyword, phrase, truncation, wildcard, proximity, field search and Boolean operator search (ACRL, 2015). Lwoga (2014) asserted that keyword searching is the use of a concept or word specified by the user in an online database. To get relevant search results the learner narrows the search by adding keywords from the title. Boolean operators on the other hand are words (*AND, OR* or *NOT*) used to combine (*AND*) or exclude (*NOT*) keywords in a search to broaden or narrow a search (Alliant Libraries, 2017). Aina (2014) states that e-resources offer precise information and allow multiple uses of keywords for searching. This means that information literate bachelor of education teacher trainees retrieves information faster from e-resources than from print resources and downloads and store the information in storage devices that are easily accessible.

Bachelor of education teacher trainees ought to be conversant with the evaluation criteria to enable them to determine the credibility of the information conveyed by the documents. The information literate teacher trainees evaluate e-resources using currency, accuracy, authority, objectivity, coverage, relevance and quality criteria (Oregon State University, 2017). While guiding the academic community on utilization of online resources, the University of Georgetown (2017) asserted that information sources should be evaluated for accuracy by confirming whether the sources are listed, in order to facilitate easy verification of the facts. Similarly, the University of Alaska at Fairbanks (2017) confirmed that users evaluating e-resources under the currency criteria, should consider whether or not the timeliness of the information will affect its usefulness.

Bachelor of education teacher trainees ought to be proficient in citing and referencing documents in order to participate in scholarly conversations efficiently. Information literate bachelor of education teacher trainees are aware that information has value and is affected by legal issues. The teacher trainees are conversant with intellectual property issues and observe copyright law and avoid plagiarizing other people's work (ACRL, 2015). The information literate teacher trainees also take heed of Neville's (2010) advice that referencing confirms the extent of the student's reading, facilitates the marking of assignments and exonerates one from plagiarizing other people's works. The information literate bachelor of education teacher trainees incorporates information from other sources into their work by proper paraphrasing. The teacher trainees cite and provide references of all e-resources consulted, observing acknowledged documenting styles such as: The American Psychological Association, Modern Language Association, Harvard

Referencing System, Numeric System and Chicago Manual of Style (Oregon State University, 2017).

Collaborative information literacy efforts emanating from a team comprising members from different departments and profession promote utilization of e-resources by bachelor of education teacher trainees. Wang (2010) worked collaboratively in a team of information literacy integration practice in a fourth year university in New Zealand. The collaborative team was comprised of librarians, student learning advisers, learning developers and ICT experts. Librarians enriched the team with searching and evaluating skills while lecturers brought expertise on what is expected of students in degree programmes. Student learning advisors enriched the team with summarizing and writing skills, learning developers brought expertise in curricular development whereas ICT staff developed online tutorials. Similarly, Purcell and Barrell's (2014) research outcome on integration of information literacy teaching within undergraduate education at the University of Worcester revealed that collaboration between librarians and faculty is important for strengthening the consistency of support for students.

Davis (2013) affirmed that it is beneficial for the faculty, the instructional designer, and the librarian to cooperate right from the inception of an information literacy course to the end. This is because it enhances the learning experience of the students and the teaching experience for librarians. The present study supports collaboration between faculty, ICT staff and librarians as the practice is in vogue in universities that recognize the importance of students acquiring information literacy. Cote and Juskiewicz (2014)

observed a case where a librarian was charged with the task of creating and teaching a writing course, in collaboration with a professor in the technical communication department. The instructors conducted concept mapping exercises using both writing and information literacy competencies to plan for the course. Several of the course's competencies were successfully modelled along the Oregon's State University Library's undergraduate information literacy competencies. Tlakula and Fombad (2017) affirmed the case of the train-the-trainer approach adopted by the University of Pretoria. The University trains a few students in information literacy, who then train colleagues registered for information literacy programmes.

The Association of College and Research Libraries (ACRL) Instruction Section (2011) argued that since libraries aim at integrating and sustaining information literacy programmes, collaborating with the faculty/school offering the courses becomes inevitable. Further, Wilkes, Godwin and Gurney (2015) affirmed that librarians have realized that the best method to teach information literacy is to embed relevant skills within specific units of study. Various information literacy collaboration teams comprising lecturers, administrators, information technologists, learning support and librarians have been formed in academic institutions across the globe.

Despite the many benefits that accrue from utilizing e-resources, Omosekejimi, Eghworo and Ogo (2015) revealed that many students do not access the resources due, in part, to the inadequacy of the resources, lack of awareness and lack of the requisite skills to exploit e-resources. Tlakula and Fombad (2017) revealed that the undergraduates of

Venda University hardly utilize e-resources due to low awareness and lack of training on access and use of the resources. The outcome of research carried out by Sithole, Chisita and Jagero (2015) on undergraduate students at the Africa University, Zimbabwe, confirmed that there is low utilization of e-resources. Likewise, a study by Nyamboga (2014) on information science undergraduates at the Mount Kenya University in Kigali observed that the students face challenges of accessing e-resources. Amunga (2011) suggested the need to bridge any existing gaps in the access and use of e-resources by academics in Kenyan universities. The present study concurred with these sentiments and felt the need to examine the relationship between information literacy and utilization of e-resources by bachelor of education teacher trainees of the University of Nairobi.

1.2 Statement of the problem

The University of Nairobi (UoN) spends colossal money annually to subscribe to over 1,198,348 e-books and over 186,562 e-journals. The UoN also has an institutional repository that captures, preserves and provides access to digital resources created by staff and students of the university. To date the digital repository has over 1,221,045 resources comprising: e-UoN archives, e-policies, e-speeches, e-lecture notes, e-seminar proceedings, e-thesis and e-journal articles (https://erepository.uonbi.ac.ke, 2018). The high quality, peer-reviewed e-resources are accessible to all bachelor of education teacher trainees anywhere, anytime (24 hours a day) from the UoN library services portal (UoNLSP) via remote access. The UoN Library System (UoNLS) and the School of Education (SoE) have installed information communication technologies (ICTs)

comprising networked computers and Wi-Fi, in order to facilitate bachelor of education teacher trainees to access and utilize e-resources.

Furthermore, bachelor of education teacher trainees are taught information skills during the first year, second semester of their course, as part of developing their information literacy which is useful in assisting undergraduates to utilize e-resources for sustained academic work. The bachelor of education teacher trainees are expected to access and utilize a wide range of e-resources to prepare class notes, write articles for seminar presentations or to compile reference lists of documents consulted in course of completing assignments. However, library staff and lecturers have noted with a lot of concern that bachelor of education teacher trainees of the University of Nairobi do not utilize e-resources. This situation is worrisome because the teacher trainees are not linked directly to current and vast amounts of subject content that lead to improved subject performance. This might lead to bachelor of education teacher trainees scoring lower grades than undergraduates pursuing other programmes at the University of Nairobi who utilize e-resources.

The fears were partly confirmed during the fifth, UoN Library Open Day in October 2015 when 500 students from Kenya Science Campus were unable to search, evaluate and reference e-resources on the library website. To establish the relationship between information literacy and and utilization of e-resources, it became necessary to carry out a study on the bachelor of education teacher trainees of the School of Education. The study sought to establish whether bachelor of education teacher trainees utilize e-resources.

1.3 Purpose of the study

The purpose of the study was to establish the influence of information literacy on utilization of electronic resources by bachelor of education teacher trainees of the University of Nairobi.

1.4 Objectives of the study

The objectives of the study sought to:

i. Establish the relationship between bachelor of education teacher trainees' ability to recognize information needs and utilization of e-resources.

ii. Determine the relationship between bachelor of education teacher trainees' information searching ability and utilization of e- resources.

iii. Examine the relationship between bachelor of education teacher trainees' information evaluating ability and utilization of e-resources.

iv. Establish the relationship between bachelor of education teacher trainees' citation and referencing ability and utilization of e-resources.

v. Determine the relationship between collaborative information literacy efforts among university staff and utilization of e-resources by bachelor of education teacher trainees.

1.5 Research questions

The study sought to address the following research questions:

i. To what extent does information need recognizing ability relate to utilization of e-resources by bachelor of education teacher trainees?

ii. To what extent does information searching ability relate to utilization of e-resources by bachelor of education teacher trainees?

iii. To what extent does information evaluating ability relate to utilization of e-resources by bachelor of education teacher trainees?

iv. How does citation and referencing ability relate to utilization of e-resources by bachelor of education teacher trainees?

v. How does collaborative information literacy effort among staff from different departments of the university relate to utilization of e-resources by bachelor of education teacher trainees?

1.6 Significance of the study

It is expected that the findings would improve the quality of the information literacy courses offered to bachelor of education teacher trainees at the University of Nairobi. The findings would also contribute to the existing literature on information literacy and utilization of e-resources. Moreover, the findings would be beneficial to the University of Nairobi's Library system and the management of the School of Education, by revealing knowledge gaps in bachelor of education teacher trainees' information literacy skills on e-resources. Through this study librarians, curriculum developers, lecturers and other stakeholders would be enlightened on the benefits of bachelor of education teacher trainees utilizing e-resources in teaching, learning and research processes.

1.7 Limitations of the study

The study had some limitations. The first limitation was that students pursuing bachelor of education in agricultural extension which in offered at the College of Agriculture and

Veterinary Sciences of University of Nairobi were not included in the study though the course content is similar to the one undertaken by bachelor of education teacher trainees. Another limitation was that the study was carried out at the University of Nairobi implying that the findings of the study cannot be generalized beyond the university to other public universities in Kenya.

1.8 Delimitations of the study

The study was delimited to bachelor of education teacher trainees of the School of Education (SoE) University of Nairobi, library staff from Kenya Science and Kikuyu campus libraries, information skills librarians who teach bachelor of education teacher trainees, lecturers and administrators from the School of Education.

1.9 Assumptions of the study

The study assumed that bachelor of education teacher trainees have equal access to e-resources anywhere, anytime irrespective of gender or level of education. Another assumption was that all bachelor of education teacher trainees attended the information skills course offered to first years during the second semester. Another assumption was that respondents would understand and answer questions appropriately. The study also assumed that respondents would be cooperative by giving honest and accurate information which would form the basis of the study.

1.10 Operational definition of significant terms

Bachelor of education teacher trainees: Refer to students enrolled in the School of Education at the University of Nairobi pursuing courses in education that will enable them to teach in high schools or serve in the education sector.

Bibliographic data: Refers to details included in a reference or citation that help to distinguish one document from the other. These details include: author, title, publisher/producer/creator, year of publication and place of publication and ISBN/ISNN.

Citation ability: refers to the act of giving credit to authors any time the author's ideas have been incorporated into the researcher's work in the in-text section of the document.

Collaborative information literacy effort: Refer to the support emanating from a team of members from different departments and professions whose goal is to empower the bachelor of education teacher trainees with information literate abilities which enhance utilization of e-resources. A typical information literacy collaborative team is comprised of student learning advisors, librarians, administrators, curriculum developers, ICT staff and policy makers.

Digital object indentifier (DOI): Refer to the alphaneumeric string that uniquely identifies an intellectual content and provide link to its location in the internet. The publisher assigns a doi when the article is published and made available electronically. The doi is the last element that appear in the references of all electronic documents consulted by a user.

Electronic resources: These are information materials that require computer access through personal computer, laptop or hand-held devices such as the smart phone or palmtop tablets.

Embedded information literacy: Refers to entrenching the information literacy syllabus into the course content of a specific course like B.Ed Early Childhood Education, where all aspects taught are part of the grade.

Evaluating ability: Criteria for assessing the quality, currency, objectivity, coverage and accuracy of sources of information and the creators' expertise and credibility.

Influence: The power to affect how something develops or works without direct force.

Information literacy: Ability to identify information need, search, evaluate, critically access and utilize information ethically in communities of learners, without plagiarizing other peoples' work.

Information literacy abilities: The norms which information literate persons execute when a need for information arises, the search for the information needed and availing it at the right time to satisfy the need.

Information need: The driving force that compels bachelor of education teacher trainees to seek information from the e-resources after recognizing an information gap. The information sought revolves around curriculum development, managerial skills and use of Information Communication Technologies in class.

Information searching ability: The techniques for locating, sorting and retrieving information from e-resources through the formulation of various searching techniques like Boolean operator, wildcard, truncation, keyword and phrase searching techniques.

Information skills librarian: Refers to a professional librarian with at least a master's degree in information sciences, responsible for developing instructional materials, and

teaches information skills face-to- face in class or online information literacy and sets and reviews the syllabus.

Library staff: Refers to various cadres of staff working in the library. The highest qualifications held by such staff ranges from certificate to Doctor of Philosophy in Library and Information Science. Library staff train the bachelor of education teacher trainees on access to e-resources as well as other sources of information.

Reference: Is a citation that uniquely identifies the source of ideas, facts, or research findings that the researcher has consulted.

Referencing ability: The practice of using conventional techniques of acknowledging other people's work referred to while undertaking research by compiling a reference list which is appended at the end of the research work.

Referencing software: These are computer programs that hold bibliographic data, and which organize and manages the data into various styles in word processed documents. Zotero, Refworks, Endnaotes and Mendeley are examples of referencing softwares.

University of Nairobi: The oldest university in Kenya that offer higher education to Kenyan and international students who qualify to join the institution after completing the Kenya Certficate of Secondary Examination or its equivalent.

Utilization of e-resources: Actively engaging e-resources like e-books, ejournals or institutional digital resources like e-thesis and e-conference proceedings to produce stimulating interactive learning experiences for the learners.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter starts with the concept of information literacy and utilization e-resources followed by information needs recognition and utilization of e-resources. The chapter also discusses searching techniques and utilization of e-resources, information evaluating ability and utilization of e-resources, citation and referencing styles and utilization of e-resources and collaborative information literacy efforts and utilization of e-resources. Then follows a summary of literature reviewed and information gap and concludes with theoretical and conceptual frameworks.

2.2 The concept of information literacy

The proliferation of information in various formats in the 20th century gave an impetus to the birth of the concept of information literacy. Daugherty and Russo (2011) warned that the multiplicity of internet-based information and the common belief that anything available through Google is authentic, poses challenges to the information skills librarian. The present study is of the view that the librarian has the obligation to empower bachelor of education teacher trainees with information literacy abilities that boost utilization of e-resources. Koneru (2010) agreed that Information literacy is concerned with the process of locating, interpreting, evaluating, and utilizing information. The Association of College and Research Libraries (2015) define information literacy as the set of integrated

abilities of discovering and utilizing information in the generation of new knowledge and participation in scholarly communities through seminar presentations.

The ACRL's (2015) Information Literacy Framework for Higher Education (ILFHE) which is made up of six frames is relevant to the present study. Bachelor of education teacher trainees who are conversant with the framework are information literate and utilize e-resources efficiently. The first frame, 'authority, is constructed and contextual' emphasize that individuals seeking information should assess the expertise and credibility of the sources. The bachelor of education teacher trainees achieves this goal by using research tools and indicators of authority such as current subject bibliographies and peer-review processes. The frame stresses the need for teacher trainees to seek credibility of the author using the authority criteria to determine the qualifications and experience of the author to eliminate dubious publications. The second frame, "information creation, is a process" stresses the importance of learners to pay attention to evolving creation processes. Bachelor of education teacher trainees are supposed to be consumers as well as producers of information hence the need to internalize the peer-review process of information products/publications that are of high quality ACRL (2015).

The third frame states that 'information has value including being a means to achieve quality education'. Bachelor of education teacher trainees aspiring to be information literate should understand the intellectual property laws by distinguishing copyright, fair use, open access and plagiarism issues and acknowledge new ideas picked from other authors through proper citation and referencing. The need for bachelor of education

teacher trainees to be conversant with documentation styles and how to communicate research findings effectively to varying audiences while avoiding plagiarism is emphasized (ACRL, 2015). The fourth frame, 'research as inquiry', cautions information users of the need to seek multiple perspectives when gathering and assessing information. The importance of bachelor of education teacher trainees embracing ethical and legal guidelines when collecting and using information is stressed (ACRL, 2015).

The fifth frame, 'scholarship as conversation', emphasize that learners should participate in discussions on thematic areas of interest. The need for bachelor of education teacher trainees to be conversant with how to cite e-resources when producing their scholarly articles is emphasized. Scholarly conversations could be in form of guided discussions on emerging topics that are not clearly understood. The conversation could be in form of seminar presentation. Utilizing accurate and credible e-resources boosts bachelor of education teacher trainees' participation in seminar presentations (ACRL, 2015). The sixth framework, 'Searching as strategic exploration', emphasizes that bachelor of education teacher trainees should be familiar with formulating searches that yield the right information efficiently and effectively to satisfy the academic needs of the learners. The sixth frame also advocates for continuous searching requiring the bachelor of education teacher trainees to evaluate a range of e-resources in order to extract quality information. Information Literacy which is informed by ACRL's (2015) ILFHE, empowers the bachelor of education teacher trainees with the ability to access and utilize e-resources in learning, teaching and research processes.

Lwoga (2014) affirmed the necessity for undergraduates to acquire IL abilities to control course-related activities in addition to developing lifelong skills. Fister (2013) observed that employers stress the need for graduates who can think, communicate and solve problems. This stresses why it is necessary to empower bachelor of education teacher trainees with information need recognizing, searching, evaluating and referencing skills that are covered during the information literacy course. Duke and Ward (2009) confirmed that education faculties are aware that IL is important in shaping students' lives. The literature review stresses the need for all undergraduates, including bachelor of education teacher trainees, to acquire information literate abilities, which are vital not only in academic circles but also in research activities. The present study supports the importance of bachelor of education teacher trainees aquiring information literate abilities in order to cope with their academic life. Furthermore, information literate bachelor of education teacher trainees have the capacity to impart the skills to their students throughout their teaching career. The information literate bachelor of education teacher trainees utilize all e-resources recommended by academic staff and information skills librarians. Ukachi (2015) observed a positive correlation between the information literacy abilities of undergraduates and utilization of e-resources. Ukachi agreed that there are benefits accruing to undergraduates who utilize e-resources and thus the need to examine the types of e-resources available in the market that can be utilized by the teacher trainees.

2.3 Utilization of e-resources

Thanuskodi (2012) stresses that e-resources include: e-journals, image collections, the Internet and web technology. There are various types of e-resources in the market which

academic institutions subscribe to so that students can utilize the resources to advance academic activities. One type of e-resources is the e-book. According to Armstrong and Lonsdale (2011) an e-book is any content that resembles that of a book which is made available electronically to readers for reference. Post University (2017) affirmed that e-books can be electronic copies of print books or published only electronically. Libraries provide access to e-resources through the internet, CD- ROM and other technologies. Haridasan and Khan (2009) agreed that e-resources store information electronically and access to the information is via electronic systems and networks. Information technology facilitates the accessibility of e-resources to advance learning and research activities of university students (Manoj Kumar, Gauri, and Bimal, 2011).

Kenchakkanavar (2014) confirmed that e-books are popular because they are portable and have the capability of incorporating the content of several books, onto a hand held device known as an e-book reader. Various e-book readers include: Adobe PDF, Microsoft reader, Kindle, iPad, EPUB and MobiPocket reader. Roy and Kumar (2017) confirmed that users also read e-books using mobile phones fitted with e-book reader software. Furthermore, an e-book can be transferred from a library catalogue to a user's e-book reader on loan, for a certain period of time. Sabouri (2010) revealed that e-resources help students to overcome the restrictions imposed by distance providing access to vast amounts of information, from all over the world. Deng (2010) agreed that e-resources include: e-books, e-journals, e-databases, e-reference sources, digital institutional repositories, e-archives, e-newspaper, and e-conference papers. The UoN (2018) avails core textbooks online through the ekitabu platform available from the

library services portal (https://uon.ekitabu.com). The ekitabu database avail many core textbooks written by Kenyans and published locally which are relevant to bachelor of education teacher trainees pursuing science or social science subjects including chemistry, biology, mathematics, literature, Kiswahili, education, Psychology and economics to mention but a few.

Another type of e-resource is the e-journal. The University of Westminster (2017), defines e-journals as on-line journals, published regularly, at varying intervals either fortnightly, weekly or quarterly. Academic peer-reviewed e-journal articles provide current, relevant and useful information for student to utilize to complete assignments or research projects. Roy and Kumar (2017) agreed that open access articles are another type of on-line journals on the web which can be viewed and downloaded free of charge. The other type of e-resources is e-reference materials. E-reference materials refer to dictionaries, encyclopedias and general reference materials on different subjects, and which are made available electronically for students to utilize. Various vendors and publishers offer e-reference materials through their databases and websites. For instance, the UoN Library subscribes to the Oxford Advanced Learners Dictionary and Encyclopedia Britannica online.

E-databases is another type of e-resources. According to the University of Westminster (2017), e-databases are collections of high quality information which students use for assignments and research. E-databases are not uniform, some are discipline specific like PsycArticles for Psychology, some are multi-disciplinary like Science Direct, and some

are aggregators. Aggregators like EbscoHost get content from many publishers. Some publishers like Taylor & Francis own platforms. The open access (OA) resources can be utilized by bachelor of education teacher trainees in class or elsewhere. The United Nations Educational, Scientific and Cultural Orgnization (UNESCO, 2015) defines open access resources as, knowledge resources made available in the public domain without the hindrance of subscription fee or access charges.

Suber (2012) define open access resources as digital, online, free of charge and free of most copyright and licensing restrictions. Digital repositories of universities, research institutions and governmental organizations are another type of e-resources utilized by students. While discussing the development of an institutional repository (IR) at the UoN, Otando (2011) observed that the benefits of IR include enhancing scholarly communication, improving the visibility of the researcher and the institution and preserving institutional intellectual output. The UoN digital repository captures, organizes, preserves, and disseminates the intellectual output of the University community. Communities (Items) in the repository include: e-book chapters, e-journal articles, e-conferences/workshops/proceedings, e-thesis and e-policies/report (https://erepository.uonbi.ac.ke, 2017).

Compact Disk Read Only Memory (CD ROM) is another type of e-resources which many academic libraries avail to students. CD ROM refers to pre-pressed optical compact disc that contains a lot of data such as back issues of a monograph series or a journal, accessed using a computer. The bachelor of education teacher trainees benefit immensely

from utilizing e-resources. Egberongbe (2011) for instance, confirmed that the use of e-resources increases productivity of work, learning, teaching and research. Owolabi, Oluwafemi, Okocha and Ogundare (2016) observed some of the benefits derived by undergraduates from utilizing e-resources to include: speedy access to an enlarged range of current and relevant information with ease. Kenchakkanavar (2014) summarized the importance of utilizing e-resources by highlighting the characteristics of e-resources as: access to e-resources by anyone, from anywhere, at any time. Additional characteristics include ease of searching the text and lastly, the electronic format can be in any media.

Bature (2009) observed that e-resources empower university libraries with the ability to influence learning, teaching and research activities in universities. This study supports the case for the utilization of e-resources by undergraduates because the information sources are effective for preparation of class notes and carrying out assignments. Ankrah and Atuase (2016) concur that e-resources link the university community to information from a wide range of sources globally. This implies that current information captured in e-resources in America or Japan is accessed by Kenyans through modern ICTs, thereby overcoming the barriers imposed by geographical distance. E-resources are convenient because the academic community can access information from libraries, computer laboratories, internet cafes and residences, at any time, provided there is internet and remote access license (Dadzie, 2005).

Mardhusudhan (2010) confirmed that information literate abilities are necessary for one to utilize e-resources effectively. Mishra and Mishra (2010) advocated for the intergration of information literacy into the curriculum and emphasized the vital role of the librarian in the teaching/learning environment. Gross and Latham (2013) warned that student's feedback should guide how information skills librarians design motivating information literacy sessions. Wang and Cook (2017) agreed with the integration of information literacy instruction in learning/teaching environments by asserting that information skills librarian, as educators, should be involved in academic classroom teaching and curriculum design. Kovalik, Jensen, Schloman and Tipton (2010) observed that librarians have for a long time emphasized the need for information literacy at all stages of education. The literature review in the current study indicates that universities in developed countries have embedded/integrated information literacy into the undergraduate curriculum and librarians design the curriculum and teach the course.

According to EBSS (2011), the purposes of the Information Literacy Standards for Teacher Education (ILSTE) are to guide teacher education faculty and instruction librarians in designing information literacy for teacher education students. ACRL (2015) developed the Information Literacy Framework for Higher Education (ILFHE), which education faculties use to inform the curriculum developed for the bachelor of education teacher trainees. The framework emphasizes that undergraduates should be empowered with abilities in information needs recognition, searching, evaluating, referencing and utilizing e-resources and communicating ethically. Jarson (2010) agreed that the content of integrated information literacy curriculum should involve actors from various

faculties. The US is cited as an example where librarians advance the information literacy agenda by teaching credit information literacy courses, participate in first-year experience courses (FYECs), implement embedded librarian initiatives, design collaborative assignments and propose campus-wide information literacy action plans.

An investigation of the undergraduate programmes at the South-Eastern Louisiana University (2010) revealed that course LS102: Introduction to Information Research is offered to undergraduates. The topics covered include: the concept of information literacy, research process, organization of knowledge, library catalogue basics, evaluating library materials, government documents, electronic databases, evaluating periodicals, writing citations, searching websites, evaluating websites and observing information ethics (copyright and plagiarism). The course is co-taught by a professor and access librarian, and runs for one semester. Findings revealed that librarians are involved in designing and teaching LS 102 which is an information literacy course. The findings corroborate with the outcome of research carried out by Floyd, Colvin and Bodur (2008) which revealed significant changes in information literacy among bachelor of education teacher trainees when faculty teams up with librarians in teaching information literacy.

Earp's (2009) study revealed that information literacy programmes developed and conducted with the faculty are successful in imparting information literacy abilities to bachelor of education teacher trainees. Academic library users have diverse ages, backgrounds and abilities. The onus is on the Information Skills Librarian (ISL) to devise meaningful learning environments and suitable information literacy programmes, with

the aim of making the university community independent users of e-resources (ACRL Instruction Section, 2011). Baro and Zukomefea (2012) asserted that information literacy programmes empower learners with abilities to locate, critically evaluate and organise information for academic purposes. The present study is of the view that bachelor of education teacher trainees who have been taught information skills through sound information literacy programmes utilize e-resources. It is necessary to highlight the components of information literacy which enhance utilization of e-resources by bachelor of education teacher trainees. These components include: information need recognition, searching techniques, evaluation criteria and citation and referencing techniques and collaborative information literacy effort from university staff from various departments.

2.4 Information need recognizing ability and utilization of e-resources

Information needs recognition by bachelor of education teacher trainees is necessary for accessing e-resources for learning. The bachelor of education teacher trainees require information in order to complete assignments, construct lesson plans, generate knowledge or participate in scholarly communities. Information need indicators include identifying purpose for which information is needed, formulating good questions to clarify the need, knowing the sources of information sought and planning how to acquire the information to satisfy the need. Ekenna and Iyabo (2013) observed that undergraduates should be capable of recognizing the information needed for learning and research and locate the information from e-resources expeditiously in order to address the gap. Hadimani and Rajgoli (2010) asserted that in all learning situations, it is very important to recognize information needs and be able to find that information. Mishra and Mishra (2010)

observed that information literacy is the skill in knowing what information is needed, and how to identify that information. Four of the Six Information Literacy Standards for Teacher Education Students emphasize the importance of the role of bachelor of education teacher trainees' in recognizing their information needs because it gives the direction which the information search should take (EBSS, 2011).

One of Oregon State University Libraries' Undergraduate Information Literacy Competencies (2017) states that a successful undergraduate student recognizes when information is needed. Successful learners recognize when there is a gap in knowledge and start looking for relevant information to fill the gap; thus they articulate the information needs and the aspirations of their intended audiences (Oregon State University Libraries, 2017). Igun and Odafe's (2016) research on undergraduate students revealed that the students have the ability to recognize, access and evaluate needed information. Information literate students have the ability to recognize their information needs, when faced with a knowledge gap. Such students formulate good research questions and identify possible sources of information from various types of e-resources. The students then locate relevant e-resources, search and evaluate the information before using the information to complete assignments. The bachelor of education teacher trainees who are conversant with recognizing information needs, usually end up utilizing e-resources. Such learners look for the correct information from the right e-resources to enrich their teaching and learning experiences.

Toyo's (2017) research on undergraduates noted that 119 (97.6%) of the students were able to identify information needed and this made it possible for a majority of the students to utilize e-resources in the learning and research processes. However, many undergraduates experience the challenge of determining their information needs, which is prerequisite to filling the gap in knowledge. Ekenna and Iyabo's (2013) research on undergraduates in Nigeria revealed that the students' information need recognition and retrieval skills was just above average (3.17/5). The findings were worrying because it suggested that students retrieve irrelevant information in the absence of adequate knowledge of the right information to look for. Such students, who have challenges in recognizing the right information needed in order to accomplish an academic task, end up selecting the wrong e-resources and, consequently, effective utilization of e-resources is not realized.

2.5 Searching techniques and utilization of e-resources

To search is to meticulously look for relevant information in order to satisfy an information need. Medical Library Africa (2017) asserted that searching techniques refer to the use of search terms to look for information from different information sources. The search tools include: e-databases, search engines, portals and Online Public Access Catalogues (OPACs). The use of search techniques empowers information searchers with the ability to broaden or narrow the search in order to realize relevant search results. To access e-resources, bachelor of education teacher trainee should have the ability to navigate the e-databases first before applying the high-order cognitive skills (Bloom, Engelhart, Frost, Hill and Krathwohl, 1956) of evaluating and integrating quality information into academic work. The bachelor of education teacher trainees need

instruction on how to construct successful search techniques. Porter (2011) agreed that information access and retrieval can be an uphill task not only for in-coming students but also for other individuals who are not conversant with how to access and retrieve information from e-resources.

The various search techniques which bachelor of education teacher trainees should be conversant with include: Keyword, Boolean Logic operators, phrase, wildcard and truncation searching techniques. Lwoga (2014) asserted that keyword searching is the use of a concept or word, specified by the user, in an online database or search engine. Starret (1994) observed that keyword search is the basic search but argued that one gets too many hits that render the results unhelpful. For instance, a search on Cholera requires one to narrow the search by adding search words picked from the title. A good example is adding Kenya to the keyword Cholera to get Cholera, Kenya which narrows the search and yields less and more relevant search results because the topic focuses on one geographical area known as Kenya.

Porter (2011) describes Boolean Language as a system relying on Boolean operators to retrieve relevant articles. Boolean Logic is named after Gorge Boole who was a British mathematician. Boolean operators are words (AND, OR, or NOT) used as conjunctions to combine or exclude keywords in a search resulting in more relevant documents and helps to retrieve information quickly (Alliant Libraries, 2017). Use of AND operator narrows the search, for instance, Mosquito AND Malaria search retrieves documents that discuss both mosquito and malaria. Use of OR operator broadens the search. For instance,

Mosquito OR Malaria increases the number of documents retrieved that discusses either Malaria or mosquito. The operator NOT widens the search and yields better results. Mosquito NOT Malaria retrieves document that discuss parasites called mosquito but excludes malaria. Porter's (2011) study revealed that undergraduates use natural language but expended little time in developing search terms to increase precision of the search.

Phrase searching on the other hand, instructs search tools to search only the words that occur side by side within the quotes, for instance "Learning and teaching" or "early childhood education" or "lesson plan". The search retrieves only articles with the phrases appearing within the quote but omits articles with separate words such as lesson, and plan because they are not relevant. The technique narrows the search so as to yield relevant results. Wildcard is another searching technique which refers to symbols used when searching for information, especially where the one searching the information is not sure of the spelling of the word due to variations in American and English words. According to EbscoHOST (2017), wildcard is commonly represented by a question mark (?) Wildcard is used to replace an unknown letter in a word, where the user is not sure of the spelling, for instance labo?r or labour; endeavour or endeavo?r. The search retrieves all articles containing literature on labor or labour or endeavor and endeavour, respectively.

Truncation searching denotes the use of an asterisk * to broaden the search. Medical Library Africa (2017) asserted that the use of truncation at the root of a word, instructs the search tool to search all word variations, for instance, Child*or Compu* yields articles on child, children and childhood and computer and computing, respectively.

Students with low searching skills encounter difficulties of utilizing e-resources. Oparah and Faloye (2015) observed that effective utilization of e-resources in academic institutions is impeded by poor information retrieval skills, poor information literacy and evaluation skills, among other factors. Omosekejimi, et al (2015) avered that many students do not utilize the e-resources available in universities due to lack of awareness or lack of skills to navigate the resources.

Adeniran's (2013) research affirmed similar barriers in the use of e-journals by undergraduate students at Redeemer University, Nigeria. The finding revealed that students were not aware of the availability of e-resources and had poor searching abilities. Nyamboga (2014), confirmed that undergraduate information science students face challenges in accessing e-resources due to lack of searching skills. Tlakula and Fombad (2017) revealed that undergraduate students at the University of Venda, South Africa under utilize e-resources due to lack of awareness and low training in the use of e-resources. However, Toyo (2017) revealed that information science students utilize e-resources satisfactorily because they are well versed with searching skills. Bachelor of education teacher trainees who are conversant with searching techniques utilize e-resources with ease. The literature cited above confirms that undergraduate students with low proficiency in searching techniques such as wildcard, truncation, keyword and phrase searching techniques experience challenges when utilizing e-resources.

2.6 Information evaluating ability and utilization of e-resources

There is need to instruct bachelor of education teacher trainees how to evaluate all sources of information including books, journal articles, e-books, e-journals, blogs, videos, sound recordings and web pages in order to assess the credibility of the information. Georgetown University Library (2017) warned that information appearing on the internet is not always peer-reviewed for quality and accuracy. The bachelor of education teacher trainees are supposed to be proficient in evaluating e-resources transmitted through the internet. The critical criteria which bachelor of education teacher trainees should be conversant with includes: authority, accuracy, objectivity, currency and coverage. The University of Alaska at Fairbanks (2017) elaborated on the authority criteria for evaluating information sources. The evaluator should establish clearly the author/creator/producer of the intellectual work to confirm the credibility of the work. This can be achieved by examining the credentials of the author, education, professional affiliations and experience. If it is a web site, the evaluator checks whether the server name (www.uonbi) and the domain name (.ac) give an indication that the site is sponsored by educational (.edu) or governmental (.gov) or (.go) organization. Academic and governmental websites present credible information because their staff are professionals and highly educated.

When evaluating information sources such as e-books using the objectivity criteria, Post University (2017) argued that the evaluator should verify whether the information presented is propaganda, opinion or fact. The evaluator who could be a bachelor of education teacher trainees should only select factual information to integrate into

academic work. Moreover, the evaluator should establish whether the topics are treated with fairness and objectively. Futhermore, the evaluator should confirm whether the author accommodates the perspectives of others in the text. Further, the user should establish whether the language used is neutral and whether the writer backups statements with specific evidence. The University of Alaska (2017) affirmed that users evaluating information sources under the currency criteria should consider whether or not the timeliness of the information will affect its usefulness. The University also confirmed that there should be an indication of the date when the information or material was published/produced/created. Further, the information found on the website should be up-to-date and, therefore, have evidence on the "last updated" statement at the end of the web document.

Georgetown University (2017) acknowledged that all information sources should be evaluated for accuracy of information. The evaluator of the e-resource who could be a bachelor of education teacher trainee in need of information to prepare a lesson plan should confirm whether the sources for factual information are listed to facilitate easy verification of the information. The evaluator should also establish whether the information could be verified from other sources. Furthermore, the evaluator should confirm whether the information is free from grammatical, spelling or typographical errors and has been reviewed. In elucidating on the coverage criteria, the University of Alaska at Fairbanks (2017) concurred that one should decide whether the information source covers all the relevant topics purported to be covered. Also, one should compare how coverage from one source compares with coverage from other sources.

The evaluator scrutinizing the information source such as an e-database should confirm that the information source does not leave questions unanswered. The evaluator should ask the "five W's and H": who, what, when, where, why and how when evaluating e-resources using the coverage criteria. The evaluator looks for the answers of the following questions from the document or reliable bibliographic tools; Who is the author/publisher?, What is the subject/topic covered?, When was the document published/created? Where was the document published?... However, undergraduates rarely evaluate e-resources. Curie's (2010) study confirmed that undergraduate students are not using the evaluation criteria to judge the quality of information to use to advance academic work.

Kodani (2012) affirmed that undergraduate students of the University of Hawaii indicated the need to be taught how to evaluate e-resources. The EBSS (2011) Standard Three stress the importance of evaluating e-resources in order to use only high quality information. Baro, Eze and Nkanu (2013) argue that utilization of e-resources is impeded by students,' staff's and researchers' lack of skills and ability to search, retrieve and evaluate information. Similarly, Wijetunge's (2015) study on the use of information resources by undergraduates in Sri Lanka observed that the students do not use reliable criteria to evaluate web-based resources and some students do not use e-resources at all.

A study carried out in Norway by Nierenberg (2017) where undergraduates rated their information source evaluating abilities before they were taught 'Evaluating Sources Course', confirmed that 42 percent of respondents rated themselves good or very good. In

the follow-up survey after completing the course, the number rating themselves: Good or Very Good increased to 64 percent. This higher rating conducted after the students had completed the course, indicated an improvement in information source evaluating ability. Walraven, Brand-Gruwel, and Boshuizen's (2009) study on students' abilities on evaluating internet sources affirmed that students do not always use the evaluation criteria even though they are aware of it. The reluctance to use the evaluation criteria confirmed that the sudents are not information literate. Head and Eisenberg (2009) revealed that students' use Wikipedia for background information before turning to more reliable sources later in the research process. This demonstrates that the students are not only information illiterate but also impede utilization of e-resources. In the same vein, Ogutu, Odundo and Mwanda (2017) observed that 18 (58%) of students at UoN experience difficulties in identifying credible internet sources to use due to poor evaluating abilities.

2.7 Citation and referencing ability and utilization of e-resources

Mugenda and Mugenda (2012) asserted that a reference is a citation that uniquely identifies the source of ideas, facts, or research findings that the researcher has used. References give credit to authors of documents used by the researcher and guide readers to the original sources. Referencing has evolved with the history of writing and a few highlights will suffice to confirm this fact. Grafton (1997) argues that referencing can be traced back to Roman jurists who made short references to the legal treatises they had consulted. Eisenstein (1983) confirmed that the invention of the printing press, in the fifteenth century, encouraged authors to write and this brought in the need for the writers

to protect their works against plagiarism. Neville (2010) observed that the Statute of Anne, passed into law on 10th April 1710, was the first Copyright Act in the world, and it established copyright of the writings of an author. The development of printing standardized annotations into printed footnotes. These developments influenced the growth of referencing styles, from the nineteenth century, onwards.

Neville (2010) affirmed that the growth of universities in the western world in the nineteenth century boosted mass examination of students' knowledge through essays and examinations. Citing and analysing an author's works became a standard way for students to demonstrate their scholarly engagement with a text. A range of referencing styles developed in the twentieth century and by the twenty first century, the proliferation of referencing styles continued to grow to over 2000 referencing styles. The University of Michgan Library (2017) observed that referencing softwares emerged in the twenty-first century to help in organizing citations and creating reference lists. Neville (2010) observed that referencing displays one's reading, facilitates marking of assignments and helps the writer to avoid plagarising others' works unintentionally.

Since bachelor of education teacher trainees borrow other peoples' ideas in the course of writing projects, there is need for the learners to be instructed on how to acknowledge the ideas of authors that have been integrated into the works created by bachelor of education teacher trainees. There are over 2000 referencing styles and each style has two parts: citation and reference list. Citation appears in the in-text section of the work such as the literature review section while the reference list is found at the end of an intellectual

creation. A few of popular referencing styles include: American Psychological Association (APA), Modern Language Association (MLA), Harvard Referencing Style HRS), Chicago Manual of Style (CMS), Modern Humanities Research Association (MHRS), Council of Science Editors Style (CSES), Institute of Electrical and Electronics Style (IEES), Vancouver Style (VS), British Standards (BS), American Medical Association Manual of Style (AMAMS) and Numeric Referencing Style (NRS). Kargbo (2010) agreed that citing references is essential in academia because it gives credit where it is due and adds authority to a statement. Properly written references are important because of linking readers to relevant sources. Review of literature indicated that undergraduates experience challenges when citing and compiling reference lists.

Kargbo (2010) revealed that undergraduates in a certain university in Sierra Leone lacked the skills necessary to write in-text citations and reference lists. Sentleng and King (2012) affirmed that undergraduates of a higher education institution in South Africa do not know how to reference internet sources. Lee (2013) revealed that students have inadequate skills in citing e-resources. While elucidating on the menace of plagiarism and the vital role that academic staff play in deterring it at the University of Nairobi, Obachi (2014) agreed that plagiarism can occur if the writer (student) has poor citation and referencing abilities. Anafo and Filson (2014) affirmed that undergraduates of Ashesi University College had difficulties in identifying citations to journal articles and recognizing when to cite a source. Similarly, research carried out by Nierenberg and Fjeldbu (2015) revealed that undergraduates in Norway require more instructions in referencing to know when citing is required. Likewise, Kimani (2014) found that in-

coming students of Catholic University of East Africa lacked searching and referencing abilities. A few of the referencing styles that bachelor of education teacher trainees ought to be familiar with include: American Pscychological Association Style, Modern Language Association Style, Chicago Manual of Style and Harvard Referencing System.

The American Pscychological Association (2010) style is one of the referencing styles used by authors to acknowledge other peoples' ideas incorporated into one's own work. It is widely used in the social sciences and allied fields including education and business. To cite other authors' works the American Pscychological Association uses author – date citation style where the last name of the author and the date of publication of the document in parenthesis, are inserted in the text. The bibliographic details given in the in-text citation lead the reader to the source of information in the reference list that should appear on a separate page at the end of document. The reference list is prepared using the hanging indent method where all lines after the first one are indented (APA, 2010). Below is an example of the recommended format of a journal article entry in a reference list prepared in American Pscychological Association style:

Inyega, H., and Inyega, J. (2017). Psycotherapy, (II) literacy, information communication and technologies: Building bridges to litera

cy excellence. *Journal of Education and Human Development,* 6, pp. 128-138 doi10.15640/jehd.v6n2a14

The Chicago Manual of Style (2010) is another referencing system which uses two documentation methods namely; the notes and bibliography style (mostly used by those in humanities including history, literature and the arts) and the author – date style. An example will suffice:

Google. "Google Privacy Policy." Accessed July 19, 2010.
http://www.google.com/intl/en/privacypolicy.html and

Google. 2009 "Google Privacy Policy." Last modified March 11.
http://www.google.com/intl/en/privacypolicy.html   respectively.

In the former documentation, the author appears first followed by the title both in the reference list and in- text citation area area while in the later, author appears first followed by year of publication in the reference list and in- text citation area (University of Chicago, 2010).

Modern Language Association (2016) is another referencing style widely used by English and other language departments to reference documents consulted by writers. Modern Language Association is a name - title referencing style and uses an author's name in citing a reference. One provides only the page number like the following example shows, that is, 'Magny develops this argument (67-69)' (MLA, 2016). Below are two references prepared using Modern Language Association referencing style:

O'Connor, John. "Global Warming and the Future." *Jane Murphy Blog*, 14 January 2010. Web. 13 April 2010 http://www.ucd.ie/library/endnote and

Odundo, P. and Samson Gunga. "Effects of the application of instructional methods on learner achievement in business studies in secondary schools in Kenya. *International Journal of Educational Research"*, 1, pp. 1-22, 2013.

The study was interested in establishing whether bachelor of education teacher trainees are conversant with Modern Language Association referencing style because many

students major in Linguistics/Literature. Sponsors of linguistics/literature conferences sometimes stress that papers to be presented should be in Modern Language Association style hence the need for teacher trainees to be familiar with the style.

Another documentation style that bachelor of education teacher trainees ought to be taught is the Harvard Referencing System. It uses author-date approach to reference documents consulted by an author. Below is an example of an online journal referenced using Harvard Referencing System:

Ramalho, R., Helffrich, G., Schmidt, D. & Vance, D. (2010) Tracers of uplift and subsidence in the Cape Verde archipelago. *Journal of the Geological Society*. [Online] 167 (3), 519-538. Available from: doi:10.1144/0016-76492009-056 [Accessed: 14ᵗʰJune 2010].

Referencing is crucial because readers get bibliographic details that help in tracing the article describing the full research in detail. Readers get detailed information only if in-text citation and the reference list are done correctly hence the need for bachelor of education teacher trainees to learn referencing styles early in their academic career.

Numerical Referencing Style is another style which Neville (2010) confirmed there are two types of Numerical Referencing Style; Consecutive Number Referencing or Running Notes Style and Recurrent Number Referencing Style. The Running notes referencing style uses a different number for each note or reference in the text each time it is cited. One source may have several numbers attached to it. The numbers are linked with citations at the bottom of the pages (footnotes) or at the end of the assignment with the heading Endnotes or Notes. Neville (2010) noted that the Recurrent Number Referencing

Style uses a bracketed number in the text which links with list of references at the end of the text. The main difference with the running notes referencing style is that the same number can be repeated if a source is mentioned more than once in the same assignment. For instance Ogutu, Odundo and Mwanda (2017) [1] the Internet and computers have enabled students to learn and practice historical research skills. In the same vein, Inyega and Inyega 2017[2] argue that ICTs have much to offer to students who have difficulties in reading……… Every time the document appears for the second or subsequent times in the discussion in the text, only the number assigned to each document appear to denote the name of the author. For instance, [1] and [2] agree that ICTs play a vital role in education. However, [3] has a different opinion…

Referencing documents consulted in course of writing papers or completing assignments have been made easier through the introduction of referencing soft ware programmes. Referencing software programmes are tools that help scholars and researchers to store, organize and manage references of the documents consulted in the course of writing assignments, research papers, thesis and other documents. Examples of referencing software programmes include: Zotero, Mendeley, Papers, EndNotes, Bluebook and RefWorks. There are many benefits accruing to users (students, academic and administrative staff and researchers) as a result of using referencing software programmes. According to Meredith (2013) the advantages of using referencing software include efficiency and ease of corrections of footnotes. Ease of location of citations and insertion into citations are additional advantages. One universal feature shared by

referencing software programme is the ability to work with each other. Additionally, students use more than one referencing software throughout the course.

Students experience challenges when referencing e-resources. Neville (2010) asserted that the absence of authorship detail, dates, page numbers on some websites, plus the length of some website addresses cause challenges to students. To counter the challenges, Neville (2010) advocates the following principles of referencing e-resources, which should be observed by authors/producers of e-resources. First, the citation should link with the full reference that appears at the end of the document. Second, users should be directed closely to the online information being cited and referenced. Third, indicate only websites addresses that work. Finally, print out copies of online resources consulted for citation purposes and show your lecturer because websites disappear abruptly. When referencing documents consulted according to Modern Language Association or any other referencing style, consult the respective style's guide produced by the publisher. The references of all documents consulted irrespective of format appear in the reference list that appears at the end of the publication/intellectual output.

2.8 Collaborative information literacy and utilization of e-resources

Successful information literacy programmes require collaboration among librarians, administrators, students and faculty (Sullivan and Porter, 2016). Duke and Ward's (2009) meta-synthesis of Johnson and O'English review of information literacy and teacher education literature affirmed that bachelor of education teacher trainees were rarely exposed to collaborative teaching models where the future teachers are supposed to team

up with school librarians. In the same vein, ACRL Instruction Section (2011) argued that since libraries aim at integrating and sustaining information literacy programmes, collaborating with the faculty/school offering the courses becomes inevitable. Purcell and Barrell's (2014) research outcome on integration of information literacy teaching among undergraduates at the University of Worcester revealed that collaboration between librarians and faculty is important for strengthening consistency of support for students.

Davis (2013) affirmed that it is beneficial for the faculty, the instructional designer, and the librarian to cooperate right from the inception of an information literacy course to the end. This is because it enhances the learning experience of the students and the teaching experience for librarians. Oakleaf (2014) argued that librarians should work with the faculty in using the ILFHE to conduct information literacy programmes for students. The present study supports collaboration between faculty and librarians as the practice is vogue in universities that recognize the importance of information literacy. Cote and Juskiewicz (2014) confirmed that the Chemical Literature class where team-teaching is practiced between the librarian and the chemistry professor was developed to comply with the accreditation requirements of the American Chemical Society (ACS). The ACS (2008) rules stipulate that chemistry departments should show evidence that their students are information literate in order to be accredited by American Chemical Society. The undergraduates should be able to use chemical abstracts and other online resources.

Cote and Juskiewicz (2014) observed a case where a librarian was charged to create and teach a writing course, in collaboration with a professor in the technical communication

department. The instructors conducted concept mapping exercises using both writing and information literacy competencies. Several of the course's competencies were successfully modelled along the Oregon's State University Library's undergraduate information literacy competencies. Khan and Bhatti (2012) observed that librarians collaborate with lecturers in teaching information literacy in Pakistan. Findings indicated that lecturers and librarians teach students information literacy on utilizing e-resources.

Collaborating with the faculty to integrate information literacy in the curriculum sometimes is an arduous process. Gunselman (2012) confirmed that lecturers do not recognize librarians as instructors like themselves and this impedes utilization of e-resources. Professors underrate librarians and classify them as persons who simply tell students how the library works. In the same vein, Pritchard (2010) affirmed that professors often refused information literacy to be incorporated into faculty courses.

2.9 Bachelor of Education programmes at the University of Nairobi

The School of Education, University of Nairobi offers the following programmes for teachers trainees: Bachelor of Education in Arts (BE.d Arts), Bachelor of Education in Science (BE.d Science), Bachelor of Education in Early Childhood Education (BE.d ECE), Bachelor of Education in Physical Education and Sports BE.d PE & Sports) , and Bachelor of Education in Information Communication Technology (BE.d ICT). BE.d Arts and BE.d ECE are offered in Kikuyu Campus, BE.d Science and BE.d ICT are offered in Kenya Science Campus while BE.d PE & Sports is offered in both campuses.

2.9.1 Bachelor of Education Arts (BE.d Arts)

The BE.d (Arts) programme, runs for four years and prepares teachers for secondary schools. By the end of the programme, bachelor of education teacher trainees acquire knowledge relevant to primary and secondary school teaching. The bachelor of education teacher trainees are also expected to acquire skills and other competencies that facilitate effective teaching and learning as well as design and carry out research in education related field. Additonally, bachelor of education teacher trainees are expected to develop competencies that will enhance productivity in the education sector. After successfully completing second year, the bachelor of education teacher trainees select major and minor teaching subjects from the following subject combinations: Business Studies and Mathematics, Business Studies and Geography, Business Studies and History/Government, Business Studies and Religious Education, Business Studies and Physical Education, Geography and History/Government, Geography and Religious Studies, Kiswahili and History/Government, Kiswahili and Geography, Kiswahili and Religious Studies, Physical Education and Kiswahili, Physical Education and Religious Studies, Physical Education and Mathematics, Physical Education and Geography, Mathematics and Business Studies, Mathematics and Geography and Religious Education and History/Government (UoN, 2017).

2.9.2 Bachelor of Education in Early Childhood Education (BEd.ECE)

The course is offered by the Department of Education Communication and Technology, University of Nairobi and is designed to train early childhood educators. Those trained contribute towards the child's holistic development. The child is an important human

resource that will propel the Kenyan Government in its realization of the National Goals of Education and Vision 2030 (UoN, 2017). Some of the course units pursued by bachelor of education teacher trainees enrolled in the ECE programme include: General psychology of education, Child development, Food and nutrition, Embedded Communication skills (Reading, Academic Writing and Information skills), Health and safety for pre-school, Child rights and welfare, Classroom pedagogy, Language development, Music for pre-school, Science for pre-school, Religion and pre-school, Social studies for pre-school, Children with special needs, Art and Craft for pre-school, Mathematics for pre-school, Literature for pre-school, Physical Education for pre-school, Methods of teaching science, Methods of teaching music, Methods of teaching Mathematics, Methods of teaching Language, Methods of teaching art and craft, Methods of teaching social science, Methods of teaching physical education, guidance and counseling, Drug and early childhood education, Computer literacy, Technology and early childhood education, Child advocacy, Research project and HIV/AIDs in the Kenyan context (UoN, 2017).

2.8.3 Bachelor of Education Physical Education and Sports

Physical education develops the physical, social and psychological growth of a human being which enhances human performance (UoN, 2017). One of the objectives of the course is to equip bachelor of education teacher trainees with skills to plan and manage leisure, recreation and sports activities. Some of the units covered by the bachelor of education teacher trainees include: Foundations of Physical Education (PE) and Sports, Functional human anatomy, Sports injury and first aid, Functional human physiology,

Nutrition and sports performance, Gymnastics and dance, Basketball, Volleyball, Netball, Computer application in PE and sports, Drug and substance abuse in sports, Rugby, Hockey, Soccer, Sociology of sports, Physiology of exercise, Sports psychology, Sports and the Law, Life-saving in swimming, Research methods, Handball, Traditional and creative games (UoN, 2017).

2.9.4 Bachelor of Education (Science)

The teacher trainees pursuing B.Ed. Science programme, register for education units (Compulsory) and two other science subjects. The science subjects to choose from include Physics, Chemistry, Biology and Mathematics. The possible subject combinations available for bachelor of education teacher trainees pursuing B.Ed. (Science) include: Mathematics and Physics, Chemistry and Mathematics and Biology and Chemistry. The teacher trainees enrolled in B.Ed.(Science) may select PE and Sports and combine it with one of the science subjects taught in KSC. The combinations that are available include: PE and Sports and Chemistry, PE and Sports and Mathematics and PE and Sports and Biology.The degree title awarded to the teacher trainees is BEd Science (PE and Sports and one of the science subjects) (UoN, 2017).

2.9.5 Bachelor of Education (ICT)

The School of Education, also offers a B.Ed (ICT) programme, at the Kenya Science Campus. The teacher trainees register for Education units which are compulsory. Besides pursuing ICT units as a major, the learners also select a minor in either Mathematics or Physics. B.Ed. (ICT) graduates provide a pool of trained personnel to teach related

courses and also serve as systems administrators in schools and the education sector in general. The prevailing arrangement is tandem with the government's programme of networking schools with ICT infrastructure to support e-learning and utilization of e-resources by learners. A few of the units covered by the bachelor of education teacher trainees pursuing the course include: Computer organization, Introduction to database systems, Computer architecture, Information systems analysis and design, Operating systems, Internet technologies and applications, Human computer interface, Management information systems, Data communication and network, Distributed systems, ICT and society, Wireless and mobile technologies and Research methodology (UoN, 2017).

2.10 Information literacy for bachelor of education at the University of Nairobi

The University of Nairobi is one of the universities in Kenya that offer information literacy programmes to all undergrduates. Some of the information literacy courses offered to bachelor of education teacher trainees include; information skills, library orientation and library workshops on e-resources.

Kingori (2013) asserted that the University of Nairobi Library runs a 4-hour information skills course for first years. The information skills course is a sub-unit of Communications Skills Course (CCS001) which is a common undergraduate course targeting all first year undergraduates. The communication skills course was started in 1987 and comprises of Reading, Writing and Information Skills. The course is designed to provide knowledge and skills to form a foundation for university education. Information skills lectures are delivered to large first year classes of over 200 teacher

trainees in Kenya Science campus and over 650 in Kikuyu campus by information skills librarians drawn from KSC and Kikuyu Libraries. It is a stand-alone course and the topics covered include; overview of information literacy, UoN library services, types of information resources including online resources, access to information resources (Online Public Access Catalogue) and citation and referencing techniques. The course is offered to first year bachelor of education teacher trainees during the second semester. The course is not offered at any other level of undergraduate programme.

Kingori (2013) affirmed that the University of Nairobi Library conducts an orientation programme for freshers joining the university. The library orientation is conducted during the first week when first year students are admitted to the University. The teacher trainees pursuing B.Ed. (Arts), B.Ed PE and Sports option, and B.Ed. ECE are introduced to the resources, services and facilities offered by the College of Education and External Studies Library at Kikuyu. Teacher trainees undertaking B.Ed (Science) and B.Ed. (ICT) programmes are introduced to the Kenya Science Campus Library resources and services. The teacher trainees spend three hours in the library where they are introduced to library services and facilities offered to users including the OPAC, e-resources, archival services, binding services and photocopying services. The orientation ends with the teacher trainees touring the libraries' stack area, Africana, short loan/reserve, e-resources laboratory and circulation sections.

Kenya Science Campus and College of Education and External studies libraries also conduct library workshops to train bachelor of education teacher trainees on access and

utilization of various e-resources available from the UoN Library services portal. Kabugu (2013) confirmed that the UoN Library adopted training of the academic community on accessing e-resources as a performance contract target to enable the users to utilize e-resources efficiently. Bachelor of education teacher trainees are taught how to use the OPAC to locate the print resources appearing in the reading lists given to the teacher trainees. They are also taught how to navigate e-books, e-journals, open access resources and the UoN digital resources. The libraries adopt various training strategies including, one-on-one training sessions, and small or large group training sessions. Ankrah and Atuase (2016) asserted that training boosts the searching skills and confidence of students which boost utilization of e-resources.

A prerequisite to accessing e-resources efficiently and effectively is knowledge of using computers. The study believes that bachelor of education teacher trainees should acquire computer literacy skills such as logging in to computers, knowledge of various packages like Microsoft Word, Access and Excel, sending and receiving emails, downloading and printing articles and attaching documents. Computer literacy, though part and parcel of information literacy, is not covered in the information skills syllabus for bachelor of education teacher trainees. The present study concurs with Ankrah and Atuase (2016) sentiments affirming that computer literacy is essential since e-resources are accessed through the use of computers.

2.11 Summary of literature reviewed and establishment of gap

Al, Soydal and Tonta (2010) found that there is low use of e-books among undergraduate students but ability to recognize information needs and referencing e-journals were not addressed. Curie (2010) affirmed that undergraduate students did not use evaluation criteria when searching online resources. Similarly, Kimani (2014) revealed that freshers, at the Catholic University of East Africa lacked searching and referencing abilities. The ability to identify information needs and evaluating ability were not addressed in the undergraduate syllbus. Porter (2011) confirmed that undergraduate students use natural languages only because the course structure did not address information need recognition and referencing ability. The literature review indicates a gap in information literacy literature in recognizing information needs, searching techniques, evaluating abilities and collaborative information literacy effort among University of Nairobi staff drawn from various professions and disciplines.

2.12 Theoretical framework

Managing the University of Nairobi's bachelor of education programme requires system approach to ensure that the teacher trainees have the necessary skills to help them complete academic programmes successfully and pay back to the society by teaching students or working in any other sector of the economy. The present study was guided by the Systems Theory. Saleemi (2000) asserted that the systems approach was developed during the late 1950s. According to Salim many pioneers such as E. Trist, A. Rice, F. Kast, J. Rosenweig, R. Johnson, R. Khan, Daniel Katz and Kenneth Boulding have contributed a lot to the development of the system approach. Systems are of two types

closed and open system. A closed system does not interact with the environment while an open system interacts with the environment. Systems approach hold that an organization is an open system consisting of many interrelated and interdependent parts or subsystems.

Every system is a part of suprasystem (environment). Another feature is that an organization draws input (information) from its environment. The inputs are transformed into output which is returned to the environment ready to be absorbed into another system as input and the cycle continues. What goes into the system is the input which undergoes some transformation. What causes the change is called the process while what comes out is the output which passes to the environment.

Saleemi (2000) averred that business and information system are open system. The present study views the education system as an open system that communicates with its environment. A vital input into the bachelor of education is information literacy components that include information needs recognition, searching techniques, evaluation criteria, citation and referencing styles and collaborative information literacy effort from university staff. The need for bachelor of education teacher trainees to acquire information literacy abilities of information need recognition, searching, evaluating, retrieving, citing and referencing e-resources appropriately by avoiding plagiarism cannot be overemphasized. Anarki and Babalhavaeji (2013) opined that libraries should organize training programmes on searching e-resources. In the same vein, Bamidele, Omeluzor and Amadi (2013) alluded that since usage of e-journals has increased, it is imperative for library users to attain high level of expertise to benefit from utilizing the resources.

The process aspect involves bachelor of education teacher trainees internalizing the information literacy skills through frequent hands-on exercises of navigating/accessing e-resources. The bachelor of education teacher trainees become experts in accessing and navigating e-resources effectively and efficiently (consulting the right sources and spending minimum time to retrieve the right information respectifully).

Utilization of e-resources by the bachelor of education teacher trainees is the output component which puts the teacher trainees in a better position to perform well academically. The teacher trainees, for instance integrate the information extracted from e-resources into their assignments by appropriately giving credit to authors whose work has been referred to thus avoiding pragiarism. The quality papers or journal articles written by the teacher trainees (output i.e evidence of utilization of information) is released to the environment and is readily absorbed as input by the other systems (environment) engaged in solving societal problems related to education and national development of Kenya.

2.13 Conceptual framework

The conceptual framework shows the relationship among independent variable (IV), dependent variable (DV) and intervening variable (ITV). Information literacy is the independent variable that influences utilization of e-resources. Utilization of e-resources by bachelor of education teacher trainees in teaching and learning processes is the dependent variable (DV). The information literacy variables which the bachelor of education teacher trainees acquire (input component) include information needs

recognition, searching techniques, evaluation criteria and citation and referencing techniques. Motivation of bachelor of education teacher trainees during training on e-resources (process component) is the moderating variable which also influences utilization of e-resources. Motivated bachelor of education teacher trainees willingly participate in e-resources training sessions. This leads to utilization of e-resources by bachelor of education teacher trainees. The methods of instruction used in the delivery of information literacy skills are the intervening variable that interfere with delivery of information skills. If the methods of instuction are teacher-centred and does not actively involve the teacher trainees, this hampers utilization of e-resources because the teacher trainees are not actively in the learning process. If the teaching methods on the other hand, are student-centred and interactive this boosts utilization of e-resources by the teacher trainees. The hands–on practicals expose the teacher trainees to a wide range of e-resources and boosts utilization of the resources.

Campus-wide collaborative information literacy efforts from library staff, lecturers, information skills librarians, administrators and other professionals in form of providing adequate computers, recruitment of enough staff and installing reliable internet in key points provide bachelor of education teacher trainees the ICT infrastructure needed to access e-resources. Furthermore, improvement of ICT infrastructure makes the bachelor of education teacher trainees to realize that embracing e-resources is an institution – wide goal which they must all achieve. Expertise in utilizing e-resources is vital because employers consider the life – long skills of utilizing the resources as one of the higher order thinking skills which graduates should bring on board and thus increases the chance of being employed.

Information literate bachelor of education teacher trainees end up utilizing e-resources which is the output. The teacher trainees utilize e-books, e-journals, University of Nairobi digital resources and open access resources to: complete assignments, generate new knowledge (publish journal articles), promote professional work like preparing lesson notes or participate in scholarly conversations through seminar presentations.

INPUT   **PROCESS**   **OUTPUT**

| Information Literacy components

• Information need recognition

• Searching techniques

• Evaluation criteria

• Citation and referencing techniques

• Campus-wide collaborative information literacy effort | Training sessions on e-resources involving

Frequent Hands-on experience on navigating e-resources

Instructional methods adopted during e-resources training workshops | Efficient utilization of e-resources by bachelor of education teacher trainees by integrating quality information from E-books, E-journals, Institutional digital resources, CD-ROM databases and E-thesis.

Information literate teacher trainees' publications (output) such as journal articles are of high standard are released to the research and academic world (environment) |

INDEPENDENT   INTERVENING   DEPENDENT

VARIABLE   VARIABLE   VARIABLE

Figure 2.1 Information literacy and utilization of e-resources

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses research design, target population and sampling procedure and sample size. Then follows validity and reliability of research instruments, data collection techniques, data analysis procedures and ethical considerations.

3.2 Research design

Kothari (2014) referred to research design as the arrangement of conditions for collecting and analysing data. Research design enables researchers to be efficient in yielding maximum information. Research design, according to Orodho (2009) is a programme to guide researchers to interpret observed facts. According to Mugenda and Mugenda (2012), research design is a plan setting out the outline of the work to be carried out in a study. According to Best and Khan, (2011), descriptive survey research design analyzes the relationships between variables that have not been manipulated. The researcher considered survey research design suitable for present study because the variables such as bachelor of education teacher trainees' information literacy level and rate of utilizing e-resources were investigated without any manipulations. According to Koul (2009) descriptive studies yield the following three types of information; information of what exists with respect to variables or conditions in a situation, information of what we want by identifying standards of norms with which to compare, and information of how to achieve goals by exploring possible ways on the basis of the experience of others.

This study sought to establish the relationship between the information literacy abilities of bachelor of education teacher trainees and utilization of e-resources. The study specifically examined bachelor of education teacher trainees' conversance with information needs recognition, searching abilities, evaluation criteria, referencing abilities as well as collaborative information literacy efforts among staff. The study examined the relationship between information literacy and utilization of e-resources by bachelor of education teacher trainees from the School of Education, University of Nairobi. The study examined the variables as is without manipulating the variables hence making research design suitable for this study.

3.3 Target population

Target population is part of the general population for which research data are needed to help analyze the phenomena (Sarantakos, 2013). Walliman (2011) noted that target population is a concept used to describe the total number of cases which is the subject of study. According to Mugenda and Mugenda (2012) target population is the particular entity of people, objects or units to which the investigator may generalize the findings. The target population for this study was composed of bachelor of education teacher trainees and staff from Kenya Science and Kikuyu Campus. The target population comprised of 3082 bachelor of education teacher trainees from second to fourth year of study enrolled in the 2016/2017 academic year, 10 library staff at Kenya Science Campus (KSC) library and CEES library in Kikuyu Campus, 66 lecturers from the SoE who teach different subjects, two information skills librarians and four administrators from the School of Education. The entire target population was 3164. The study chose to research

on teacher trainees because teachers have the capacity to transfer e-resources reading culture to all students in secondary schools and tertiary institutions in Kenya.

The population distribution is presented in Table 3.1.

Table 3. 1: Population of School of Education staff and students in 2016/2017

Course	Year 2	Year 3	Year 4	Total
B.Ed Arts	619	629	719	1967
B.Ed (ECE)	74	61	73	208
B.E.D (Science)	233	173	236	642
B.E D (ICT)	28	26	37	91
BED (P.E & Sports) option	55	45	74	174
TOTAL	1009	934	1139	3082
UoN Staff respondents				
Library staff				10
Information skills librarians				2
Lecturers				66
Administrators				4
Grand Total				**3164**

Table 3.1 indicates that B.Ed. (Arts) has the highest number of bachelor of education teacher trainees, followed by B.Ed (Science). This can be attributed to the earlier establishment of the School of Education whose focus was primarily on training B.Ed. (Arts) students. The other courses such as B.Ed. (ICT), B.Ed. (ECE), B.Ed. (Science) B.Ed. (P.E& Sports option) were introduced later, hence the admission of a lesser number of students in comparision to those taking B.Ed. (Arts) course.

3.4 Sampling procedures and sample size

This study used both probability and non-probability sampling procedures. Stratified random sampling procedure was used to ensure that each student had an equal chance to participate in the study. Best and Kahn (2011) asserted that it is advisable to sub-divide the population into smaller homogenous groups in order to get more accurate representation. McBurney and White (2010) observed that in order to improve the validity of a study, researchers obtain samples from subgroups through stratified random sampling. Sample size refers to the number of participants chosen from the whole population to participate in a study (Ngoako, 2011). Various scholars have recommended the optimum sample size. Mugenda and Mugenda (2009) recommended a sample size which is 10 percent of the accessible population, for descriptive studies.

Best and Kahn (2011) recommended larger sample sizes in order to reduce the magnitude of sampling error and increase the representativeness of the population. Furthermore, survey studies should have larger samples than experimental studies because the returns from surveys are from volunteers. Gupta (2012) argued that there is no hard and fast rule on sample size selection. However, researchers should settle for an optimum sample size which is not too small nor too large, provided that it is well selected in order to represent the characteristics of the population. Guided by Mugenda and Mugenda (2009) recommendation of sampling a minimum of 10 percent, the study adapted a sample size of 12 percent of the total population of 3082 bachelor of education teacher trainees in order to arrive at a sample size of 370.

The study also took heed to Best and Khan (2011) advise of taking large samples to reduce the magnitude of sampling error. Purposive sampling was used to select three librarians from KSC Library and three librarians from CEES Library Kikuyu, two Information skills lecturers who teach bachelor of education teacher trainees information skills course in Kenya Science and School of Education Kikuyu campuses, 20 lecturers who teach bachelor of education teacher trainees in different subjects and two administrators from the School of Education. The total sample size was 400. The sample for the study was as presented in Table 3.2

Table 3. 2: Allocation of sample size to different strata

Year of study	Population (N)	Sample Size (n)(0.12*N)
2nd Year	1009	121
3rd Year	934	112
4th Year	1139	137
Sub-total	**3082**	**370**
Staff Respondents		
Library staff	10	6
Information skills librarians	2	2
Lecturers	66	20
Administrators	4	2
Total	**3164**	**400**

NB: Size (n) (0.12*N), the n stand for sample and 0.12*N means 12 percent of target population

Table 3.2 indicates that the strata with the highest population of bachelor of education teacher trainees (N=1139) has the largest sample size (137). Further the table indicates that the strata with the lowest number of bachelor of education teacher trainees (934) has the least sample size (112). The strategy was to maintain the representativeness of the population in order to yield better results. The study also involved 6 library staff out of ten making 60 percent representation. This is within mugenda and mugenda (2009) who recommended a sample size of 10 and above. For the Information skills, the study used census to pick all of them because there are only two staff in the entire college of education and external studies who teach information skills courses. The study sampled (2) 50 percent of the administators one from Kikuyu campus and the other from Kenya science. Two were considered adequate to give in-depth information on the information literacy level of bachelor of education teacher trainees and the various e-resources utilized by the teacher trainees.

The study sought to allocate sample size across the different courses pursued by the bachelor of education teacher trainees by year of study. The courses include, B.Ed. ECE, B.Ed. PE & Sports option, B.Ed. Arts, B.Ed. Science and B.Ed. ICT. Table 3.3 shows the allocation of sample size to different courses.

Table 3. 3: Allocation of sample size to different courses by year of study

Course	Year 2 (n)	Year 3 (n)	Year 4 (n)	Total (n)
B.Ed Arts	619 (69)	629 (70)	719 (84)	223
B.Ed (ECE)	74 (9)	61 (9)	73 (9)	26
B.Ed (Science)	233 (29)	173 (20)	236 (28)	77
B.Ed (ICT)	28 (5)	26 (6)	37 (7)	18
B.Ed (PE & SPORTS)	55 (7)	45 (7)	74 (11)	25
TOTAL	**1009**	**934**	**1139**	**370**

Table 3.3 indicates that B.Ed Arts course from second to fourth year has the largest samples (69), (70) and (84).

Table 3.3 also indicates that B.Ed ICT has the lowest samples for second to fourth year bachelor of education teacher trainees.

3.5 Research instruments

Data collection instruments for this study were questionnaires, interview guides and document analysis guide. Koul (2009) defines a questionnaire as a device consisting of a series of questions dealing with psychological, social and educational topics given to an individual or group of individuals with the object of obtaining data with regard to some problems under investigation. The study, developed five sets of questionnaires namely; questionnaire for bachelor of education teacher trainees, questionnaire for information skills librarians, questionnaire for library staff, questionnaire for lecturers and questionnaire for administrators.

3.5.1 Questionnaire for bachelor of education teacher trainees

The questionnaire for bachelor of education teacher trainees was divided into seven sections namely section A to G. Section A was on demographic information which collected data on gender, age, course pursued and lastly, year of study. Section B collected data on bachelor of education teacher trainees' information needs recognition and purposes that drive them to utilize e-resources. Section C collected data on various searching techniques which bachelor of education teacher trainees should be familiar with including keyword searching, Boolean operator, truncation, wildcard and phrase searching techniques. Section D collected data on evaluation criteria under authority, currency, accuracy, objectivity and coverage of information. Section E collected data on bachelor of education teacher trainees' referencing abilities. Section F collected data on collaborative information literacy efforts from members picked across the university who promote utilization of e-resources by bachelor of education teacher trainees. The collaborators included bachelor of education teacher trainees themselves, lecturers, information skills librarians, library staff and administrators. Section G was on utilization of e-resources. Data on various e-resources utilized by bachelor of education teacher trainees was collected.

3.5.2 Questionnaire for information skills librarians

The questionnaire for information skills librarians was divided into seven sections. Section A collected data on gender, age, highest qualification in information science and the campus where the information skills librarians teaches information skills. Section B collected data on information skills librarians' views on bachelor of education teacher trainees' conversance with information needs recognition indicators that include

identifying purpose for which information is needed, formulating good questions to clarify the need, knowing the sources of information sought and planning how to acquire the information to satisfy the need. Section C collected data on the information skills librarians' views on bachelor of education teacher trainees' conversance with online searching techniques that include keyword, Boolean operator, truncation, wildcard and phrase searching techniques.

Section D collected data on information skills librarians' views on bachelor of education teacher trainees' conversance with evaluating information for quality by eliminating propaganda and dubious information. Section E collected data on information skills librarians' views on bachelor of education teacher trainees' conversance with citing and referencing styles that include American Psychological Association, Modern Language Association, Numeric System, Chicago Manual of Style and Harvard Referencing Style. Section F collected data on information skills collaborators from various departments/units and professions who promote utilization of e-resources by bachelor of education teacher trainees. Data was collected from lecturers, information skills librarians, administrators and library staff. Section G collected data on information skills librarians' views on whether bachelor of education teacher trainees utilize e-resources.

3.5.3 Questionnaire for library staff

The questionnaire for library staff was divided into sections A to G. Section A collected demographic data on gender, age, highest academic qualification in information science discipline, current work station and designation. Section B collected data on the library staffs' views on bachelor of education teacher trainees' conversance with information needs recognition indicators that include identifying purpose for which information is

needed, formulating good questions to clarify the need, knowing the sources of information sought and planning how to acquire the information to satisfy the need. Section C collected data on library staffs' views on bachelor of education teacher trainees' conversance with online searching techniques such as Boolean operator, wildcard, truncation, keyword and phrase searching techniques. Section D collected data on library staffs' views on bachelor of education teacher trainees' conversance with the evaluation criteria for quality that include coverage, currency, accuracy, authority and objectivity. Section E collected data on the library staffs' views on bachelor of education teacher trainees' conversance with citation and referencing styles such as American Psychological Association, Modern Language Association, Numeric System, Chicago Manual of Syle and Harvard Referencing Style. Section F collected data on collaborative information literacy efforts undertaken by other partners like lecturers, information skills librarians, administrators and library staff in promoting utilization of e-resources by bachelor of education teacher trainees. Data on the adequacy of computers, reliable internet, frequency of opening computer labs and adequacy of staff to train users on e-resources were also collected. Section G collected data on library staffs' views on whether bachelor of education teacher trainees utilize e-resources.

3.5.4 Questionnaire for lecturers

The questionnaire for lecturers was had section A to G. Section A collected demographic data with regard to gender, age, qualifications and the subject the lecturer teach bachelor of education teacher trainees. Section B collected data on the lecturers' views on bachelor of education teacher trainees' conversance with information needs recognition indicators that include identifying purpose for which information is needed, formulating good

questions to clarify the need, knowing the sources of information sought and planning how to acquire the information to satisfy the need. Section C collected data on lecturers' views on bachelor of education teacher trainees' conversance with information searching such as Boolean operator, wildcard, truncation, keyword and phrase searching techniques. Section D collected data on lecturers' views on bachelor of education teacher trainees' conversance with evaluation criteria that ensure bachelor of education teacher trainees integrate quality information into their academic works. The evaluation criteria include currency, objectivity, accuracy, coverage and authority. Section E collected data on lecturers' conversance with referencing styles like American Psychological Association, Modern Language Association, Numeric System, Chicago Manual of Style and Harvard Referencing Style. Section F collected data on collaborative information literacy efforts among information skills librarians, library staff and lecturers which promote utilization of e-resources by bachelor of education teacher trainees. Section G collected data on lecturers' role in promoting utilization of e-resources among bachelor of education teacher trainees by referring them to specific e-resources. Data on the frequency of e-resources utilization among the bachelor of education teacher trainees was also collected in this section.

3.5.5 Questionnaire for School of Education administrators

The questionnaire for administrators from the School of Education had two sections namely sections A and B. Section A collected demographic data pertaining to gender, age, academic qualification, and designation of the administrators. Section B was on collaborative information literacy efforts from university staff belonging to different departments/units aimed at promoting utilization of e-resources by bachelor of education

teacher trainees. Data on ICTs that are availed to bachelor of education teacher trainees that enhance utilization of e-resources by bachelor of education teacher trainees were collected. Specifically, data on functional computers set aside in the computer labs (COMP LAB) for bachelor of education teacher trainees' use and reliability of the internet were collected. Data on whether the librarian is invited to attend School of Education academic meetings where institution-wide issues like Information Literacy Curriculum and institutional digital resources are discussed were collected.

3.5.6 Interview guide

The study also interviewed 12 bachelor of education teacher trainees, two information skills librarians and four library staff where the respondents were asked open–ended questions using an interview guide. According to Mugenda and Mugenda (2012) an interview guide is a tool used by the one collecting data to guide an open-ended interview. Three sets of interview guides were used to capture data from library staff, bachelor of education teacher trainees and information skills librarians. The interview guides elicited in-depth information on information need recognition, searching techniques, evaluation of information, referencing styles and collaborative information literacy efforts that promote utilization of e-resources by the teacher trainees.

The study collected data from bachelor of education teacher trainees using an interview guide which was divided into sections A to G. The interview guide was used to collect data in the following areas: demographic information, information needs recognition, searching techniques, evaluation criteria, referencing styles and collaborative information literacy efforts among staff from different departments that promote utilization of e-resources by bachelor of education teacher trainees.

The study collected data from information skills librarians' views on teacher trainees' conversance with information needs recognition, searching techniques, evaluation criteria and referencing styles using an interview guide. The interview guide was divided into seven sections. The interview guide collected data from the information skills librarians on the following areas: demographic information, information needs recognition, searching techniques, evaluation criteria, referencing styles as well as collaborative information literacy efforts among staff and utilization of e-resources.

The study also collected data from library staffs' views on bachelor of education teacher trainees' conversance with information needs recognition, searching techniques, evaluation criteria and referencing styles using an interview guide which was divided into sections A to G. The interview guide collected data on demographic information, information needs recognition, searching techniques, evaluation criteria, referencing styles, collaborative information literacy efforts among university staff and utilization of e-resources.

3.5.7 Document analysis guide

A document analysis guide (DAG) collected information on bachelor of education teacher trainees' conversance with information needs recognition, searching techniques, evaluation criteria, referencing styles collaborative information literacy efforts among staff and utilization of e-resources. Relevant information was collected from both primary and secondary sources of information. The following documents were analyzed for data relevant to the study: policy documents, circulars, memos, attendance lists of those trained on e-resources, library staff performance contract targets on training library users on e-resources, e-resources lab attendance register, UoN library services portal

http://uonlibrary.uonbi.ac.ke, and UoN digital repository website
http://erepository.uonbi.ac.ke

3.6 Validity of research instruments

Best and Khan (2011) define validity as that quality of data-gathering instrument that measure what it is supposed to measure. The researcher defined the objectives of the study as well as the operational definition of terms. Senior educational communication specialists from the University of Nairobi who also served as supervisers of the study provided expert guidance on the construction of questionnaire, interview guide and document analysis guide with the aim of formulating instruments that helped to collect valid data. The study developed the research instruments and submitted the draft to the supervisors to assess the content validity of the instruments. Content validity included assessing the clarity of printing and appropriateness of language used in the research instruments to ensure that the instruments measured what they were supposed to measure.

3.7 Reliability of research instruments

Reliability concerns the degree to which a measuring procedure gives similar results over repeated trials (Orodho, 2009). Reliability of instruments was achieved through piloting (Orodho, 2009; Sarantakos, 2013). Twenty (20) questionnaires were distributed to undergraduate students from School of Economics. Six respondents from the School were also interviewed on their ability to recognize information need, searching techniques, evaluation criteria and referencing ability using an interview guide. Relevant data concerning how information literacy influences utilization of e-resources by undergraduates from the School of Economics was collected using a document analysis

guide. The results from the pilot study were compared with the results from the current study to determine the reliability of the research instruments. Reliability of questionnaires, interview guide and document analysis guide was operationalized as internal consistency, and was calculated using Cronbach Alpha's coefficient of reliability (Cronbach, 1951), the cut-off point being 0.70. As to how large the coefficient should be, Nunnally (1978) suggests a value of no less than 0.70. The reliability test for questionnaire, interview guide and document analysis guide yielded 0.92 on Cronbach's coefficient alpha, which was an indication that the instruments were highly reliable.

3.8 Data collection techniques

A research permit was obtained from the National Commission for Science, Technology and Innovation (NACOSTI), permitting the study to be carried out at the University of Nairobi. Permission to carry out the research was also sought from the Nairobi County Director of Education as well as from the University of Nairobi. Data were collected from respondents using questionnaires first followed by interviews using interview guides while document analysis was done last. Self-administered questionnaires were distributed to 370 bachelor of education teacher trainees and 30 staff. The present study sought permission from lecturers to use part of their lessons to administer questionnaires to respondents. Where the staff respondents were busy, appointments were made prior to the administration of the questionnaire. Eighteen respondents were also interviewed to triangulate data collected through questionnaires. Twelve bachelor of education teacher trainees, two information skills librarian and four library staff were interviewed. The study recorded the interviews after seeking informed consent from the interviewees; this strategy allowed the interviewer to establish a rapport with the interviewer without

distracting the respondents by taking notes. The recordings were then transcribed to allow analysis to take place. Analysis was conducted immediately to make the necessary corrections and improve the interview guide for subsequent interviews. Collecting data through interviews was carried to authenticate data collected through questionnaires. Interviews also provided the study the opportunity to collect information which could not be collected through questionnaire or document analysis by probing respondents on specific issues.

Data from documents and other sources relevant to the study on the influence of information literacy utilization of e-resources by bachelor of education teacher trainees were also collected using a document analysis guide. Sources of information that were scrutinized included: library performance contract targets on training users on e-resources, e-resources training attendance lists, e-resources available from the library website http://uonlibrary.uonbi.ac.ke and UoN digital repository resources available from institutional repository website http://erepository.uonbi.ac.ke.

3.9 Data analysis procedures

Bryman (2012) define data analysis as the application of statistical techniques to the data that had been collected. The data is reduced so that the researcher can make sense of it. According to Kothari (2014), academic writing mainly requires the use of tables, figures and graphs to present data. Kothari, asserts that tables, figures and graphs should be integrated and used appropriately to make comparisons and show trends in presenting detailed information of a statistical nature. Data analysis techniques for the study included descriptive and inferential statistics. Descriptive statistics included measures of central tendency (mean, mode and median) and of dispersion/variability (range, standard

deviation and Coefficient of Variation). For inferential statistical techniques, a chi squire was used to establish the influence of information literacy on utilization of electronic resources by bachelor of education teacher trainees. The degree of relationship was measured by use of chi square because the data were nominal in nature.

3.10 Ethical considerations

These refer to ethical issues that every researcher must observe while conducting research. Privacy and confidentiality of information pertaining to participants was guaranteed by observing the principle of confidentiality (Koul, 2009). The respondents were informed that it was their right to decide whether to participate or not participate in the study and this ensured that the study conformed to the principle of informed consent (Best & Khan, 2011). Furthermore, each respondent signed the informed consent form without any duress. Respondents were not coerced to participate in the study. They were informed that participating was voluntary and their withdrawal from the study would not affect the relationship with the study, nor the University administration. The respondents were also reminded not to write their names or registration numbers on the questionnaire and therefore the principle of anonymity was adhered to. The names of the respondents were not disclosed anywhere throughout the study. The principle of data integrity was observed by using data collected from the field. Jwan and Ong'ondo (2011) observed that lack of data integrity is one of the serious ethical breaches committed by some researchers, who choose to publish falsified data.

The data was kept safely in a computer file and a back-up saved in a flask disk. The researcher will use the data later to examine whether there were other correlations between the variables.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND

DISCUSSIONS

4.1 Introduction

This chapter begins with response rate and demographic characteristics, followed by information needs recognition and utilization of e-resources. The chapter also discusses the relationhip between bachelor of education teacher trainees' searching, evaluating and referencing abilities and utilization of e-resources. The chapter ends with discussing utilization of various types of e-resources by bachelor of education teacher trainees. The analysis of data was anchored on the five objectives which were to: establish the relationship between bachelor of education teacher trainees' ability to recognize information needs and utilization of e-resources, determine the relationship between bachelor of education teacher trainees' information searching ability and utilization of e-resources, examine the relationship between bachelor of education teacher trainees' information evaluating ability and utilization of e-resources, establish the relationship between bachelor of education teacher trainees' citation and referencing ability and utilization of e-resources and to determine the relationship between collaborative information literacy efforts among staff and utilization of e-resources by bachelor of education teacher trainees.

4.2 Questionnaire response rate

Questionnaires were administered to respondents who included; administrators, lecturers, library staff, information skills librarians and bachelor of education teacher trainees and

were counted in order to note the return rate. Table 4.1 indicates the questionnaires that were returned. Two (100%) questionnaires administered to administrators were returned, six (100%) questionnaires administered to library staff were returned and 370 (100%) questionnaires administered to bachelor of education teacher trainees were returned while 2 (100%) questionnares administered to information skills librarians were returned. However, out of the 20 questionnaires administered to lecturers, 19(95%) were returned. Out of 400 questionnaires administered to the respondents, 399 were returned making a response rate of 99 percent. The response rate was good and this implied that adequate data for the study was collected. One questionnaire was not returned because the respondent was unwilling to fill it out. The high response rate was possible because of administering the questionnaires personally and having excellent rapport with all participants. The findings on questionnaires return rate are presented in Table 4.1

Table 4. 1: Questionnaire return rate

Respondents Category	Population	Sample	Questionnaire return rate					Percent response rate
			Male M	%	Female F	%	Total	
Bachelor of education teacher trainees	3082	370	207	56	163	44	370	100%
Library staff	10	6	2	33	4	67	6	100%
Information skills								100%
Librarians	2	2	2	100	0	0	2	95%
Lecturers	66	20	12	63	7	37	19	100%
Administrators	4	2	2	100	0	0	2	99%
TOTAL	**3164**	**400**	**225**	**75**	**174**	**25**	**399**	

The study also conducted 18 interviews distributed as follows: 12 bachelor of education teacher trainees, two administrators from the School of Education, two information skills librarians and four library staff. All respondents appeared for the interviews. The demographic characteristics of the respondents was as follows: 207 (56%) male and 163 (44%) female bachelor of education teacher trainees, 12 (63%) male and 7 (37%) lecturers, 2 (100%) male information skills librarians, 2 (100%) administrators, 2 (33%) male and 4 (67%) female library staff.

4.3 Demographic characteristics

The respondents' demographic data such as gender and age were collected to establish relationship with bachelor of education teacher trainees' utilization of e-resources.

4.3.1 Gender of Respondents

The study sought to establish whether utilization of e-resources by bachelor of education teacher trainees was influenced by gender. The findings revealed that 142 (79%) male and 106 (73%) bachelor of education teacher trainees utilize e-resources implying that utilization of e-resources did not vary by gender because majority male and female bachelor of education teacher trainees utilized e-resources. The findings are similar to the outcomes of a study carried out by Yusuf and Balogun (2011) on pre-service teachers (PSTs) in a Nigerian university, which established that there is no statistically significant difference between male and female pre-service teachers' competencies and attitude towards the use of ICTs. A chi square test established the relationship between the gender of the bachelor of education teacher trainees and utilization of e-resources.

The findings were as presented in Table 4.2.

Table 4.2: Teacher trainees' gender and utilization of e-resources

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.730[a]	1	.188
Continuity Correction [b]	1.400	1	.237
Likelihood Ratio	1.722	1	.189
Fisher's Exact Test			
Linear-by-Linear Association	1.724	1	.189
N of Valid Cases	324		

The findings indicated that there is no statistically significant association between bachelor of education teacher trainees' gender and utilization of e-resources ($p>0.05$). This implied that utilization of e-resources by bachelor of education teacher trainees is not influenced by gender because majority male 142 (79%) and female 106 (73%) bachelor of education teacher trainees utilizes e-resources.

4.3.2 Bachelor of education teacher trainees age and utilization of e-resources

The study sought to establish the relationship between bachelor of education teacher trainees' age and utilization of e-resources. The findings are presented in Figure 4.1.
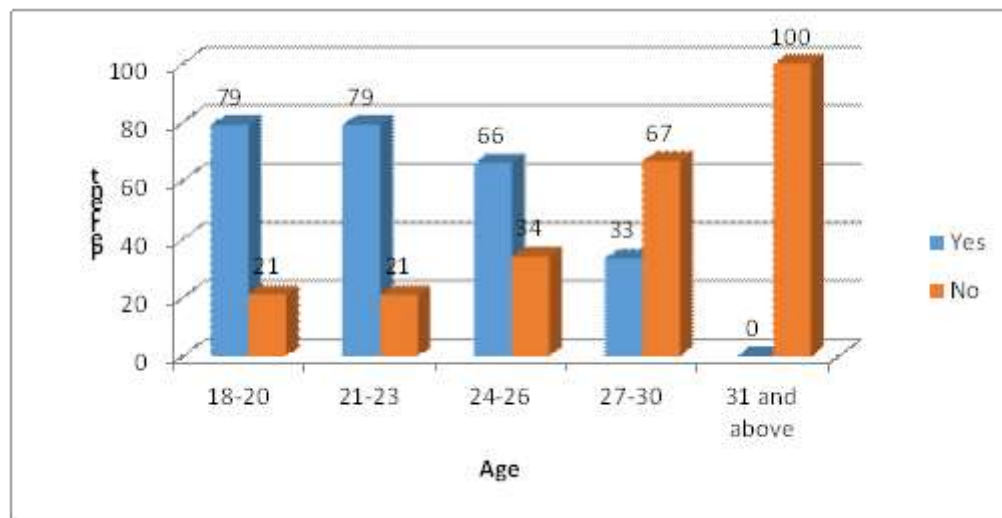
Figure 4.1: Teacher trainees' age and utilization of e-resources

The findings indicated that 30 (79%) bachelor of education teacher trainees in the age bracket 18-20 years utilized e-resources whereas 8(21%) did not. Furthermore, the findings affirmed that 181 (79%) bachelor of education teacher trainees in the age bracket 21-23 years utilized e-resources, while 48 (21%) did not. Moreover, findings revealed that 33 (66%) bachelor of education teacher trainees in the age bracket 24-26 years utilized e-resources whereas 17(34%) bachelor of education teacher trainees did not. The findings affirmed that 285 (79%) bachelor of education teacher trainees utilized e-resources. The findings are contrary to research outcomes of a study by Garba and Alademerin (2014) which observed that pr-service teachers in universities and educational colleges in Nigeria do not utilize e-resources in their learning processes.

The findings of the current study concur with the outcomes of research carried out by Nkebukwa (2016) on the use of e-resources by undergraduates in Tanzania which revealed that 68 percent of the students who utilized the resources were of the age bracket 18-28 years. However, the pattern of utilizing e-resources changed as the age of pre-service teachers increased, where the number of those who did not utilize e-resources was greater than the number that did. For instance, findings indicated that 1 (33%) pre-service teachers of age 27-30 years utilize e-resources while 2 (67%) did not. The situation raises concern because the teaching and learning experiences of pre-service teachers who do not utilize e-resources can be affected adversely because they are not exposed to up-to-date and vast subject content. This may lead to low academic performance in the subject.

4.4 Teacher trainees' information need recognition and utilization of e-resources
The study sought to establish the relationship between bachelor of education teacher trainees' ability to recognize information needs and utilization of e-resources. The

bachelor of education teacher trainees were asked to indicate their level of conversance with information needs recognition. The findings are presented in Table 4.3.

Table 4.3: Teacher trainee's conversance with information needs recognition

Information need recognition	Excellent		Good		Average		Poor	
	F	%	F	%	F	%	F	%
Identifying purpose for which information is needed	81	22	143	48	79	22	29	8
Formulating questions to clarify the information need	69	19	179	49	93	26	23	6
Knowing where needed information is available	85	23	160	44	81	22	37	10
Planning acquisition of information	83	23	138	38	115	32	23	6

The findings indicated that 81 (22%) of bachelor of education teacher trainees rated conversance with skills in identifying the purpose for which the information is needed as excellent, while 143 (48%) of bachelor of education teacher trainees rated the skills as good. The findings revealed that 224 (70%) of bachelor of education teacher trainees rated conversance with identifying the purpose for which information is needed as good. Findings confirmed that 79 (22%) bachelor of education teacher trainees rated conversance with the skills as average, and 29 (8%) bachelor of education teacher trainees rated conversance with the skills of identifying the purposes as poor.

To triangualate the data, the bachelor of education teacher trainees were interviewed on the purposes of utilizing e-resources. A third year female bachelor of education teacher trainees taking the Mathematics/PE combination said:

"To acquire knowledge on a topic to be presented in a seminar. E-databases have peer- reviewed articles with details of the research methodology adopted by the researcher, summary of findings and the main recommendations of the study".

A fourth year female bachelor of education teacher trainees taking the Kiswahili/History combination said:

> *"To consult e-resources to prepare class notes during teaching practice because the resources have up-to-date information besides being interactive and user-friendly".*

A second year male bachelor of education teacher trainees taking the ICT/Mathematics combination responded thus:

> *"To get up to date information which is suitable for a book chapter I'm writing. I use e-resources to extract information on the topic of research because the resources have current and accurate information devoid of rumours and propaganda."*

However, a third year male bachelor of education teacher trainees taking the Biology/Chemistry combination said:

> *"I do not use e-resources because I'm not familiar with the resources. We did not cover e-resources during the information skills classes. We covered sources of information and purposes of a library catalogue."*

These verbatim findings affirmed that the teacher trainees have been trained on the purposes that drive bachelor of education teacher trainees to consult e-resources. Further findings revealed that 69 (19%) bachelor of education teacher trainees rated conversance with formulation of questions to clarify the information needs as excellent while 179 (49%) bachelor of education teacher trainees rated conversance with formulation of relevant questions to clarify the information needs as good. This implied that the bachelor of education teacher trainees utilize e-resources to prepare interactive and motivating class exercises. More still, 93 (26%) bachelor of education teacher trainees rated conversance with formulation of questions to clarify information need as average whereas 23 (6%) bachelor of education teacher trainees rated conversance with formulation of questions to clarify the information needs as poor. The findings indicating that 23 (6%) bachelor of education teacher trainees were unable to formulate questions to

articulate the information needs is of concern because it means that such achelor of education teacher trainees can not formulate good questions that can guide search for the right information to satisfy the teacher trainee's need. The implication is that such teadher trainees may give up formulating good research questions and fail to utilize e-resources.

Furthermore, findings revealed that 85 (23%) bachelor of education teacher trainees rated conversance with knowing the right source of information as excellent while 160 (44%) bachelor of education teacher trainees rated conversance with knowing where needed information is available as good. The implication was that at least 245 (67%) bachelor of education teacher trainees know various types of e-resources including specific subject databases. Such bachelor of education teacher trainees are not stranded when looking for information. Additionally, 81 (22%) the teacher trainees rated conversance with the right source of information as average whereas 37 (10%) teacher trainees rated conversance with where needed information is available as poor. The findings revealed that 37 (10%) teacher trainees have challenges in knowing the right source of the information needed implying that the teacher trainees do not utilize e-resources efficiently.

 Moreover, the findings confirmed that 83 (23%) bachelor of education teacher trainees rated conversance with planning acquisition of information as excellent while 138 (38%) bachelor of education teacher trainees rated conversance with the skills as good. A good plan to acquire information is a prerequisite to the actual search which boosts utilization of e-resources. Findings indicated that there were 115 (32%) bachelor of education teacher trainees who rated conversance with planning acquisition of information as average whereas 23 (6%) bachelor of education teacher trainees rated conversance with planning acquisition of information as poor. The findings revealed that 23 (6%) bachelor

of education teacher trainees encounter challenges in planning acquisition of information hence hampering utilization of e-resources. The findings confirmed that the teacher trainees' conversance with information need recognition is good. A cross tabulation was done on the teacher trainees' information need recognition and courses undertaken by the teacher trainees to establish whether there are variations on their information need recognition This is summarized in table 4.4

Table 4.4 Rating teacher trainee's information need recognition by course

	Information need recognition				**Total**
		Not conversant at all	Not so conversant	Conversant	Very conversant	
B. Ed (Arts)	Count	19	54	94	50	217
	% within course	8.8%	24.9%	43.3%	23.0%	100%
	% within rate of conversance in identifying purpose for which information is needed	65.5%	68.4%	55.0%	61.7%	60.3%
B. Ed (Sci)	Count	4	16	25	16	61
	% within course	6.6%	26.2%	41.0%	26.2%	100%
	% within rate of conversance in identifying purpose for which information is needed	13.8%	20.3%	14.6%	19.8%	16.9%
B. Ed (P.E &Sports)	Count	3	6	19	3	31
	% within course	9.7%	19.4%	61.3%	9.7%	100%
	% within rate of conversance in identifying purpose for which information is needed	10.3%	7.6%	11.1%	3.7%	8.6%
B. Ed (Early child education)	Count	2	3	6	3	14
	% within course	14.3%	21.4%	42.9%	21.4%	100%
	% within rate of conversance in identifying purpose for which information is needed	6.9%	3.8%	3.5%	3.7%	3.9%
B. Ed ICT	Count	1	0	27	9	37
	% within course	2.7%	0.0%	73.0%	24.3%	100%
	% within rate of conversance in identifying purpose for which information is needed	3.4%	0.0%	15.8%	11.1%	10.3%
Total	Count	29	79	171	81	360
	% within course	8.1%	21.9%	47.5%	22.5%	100%
	% within rate of conversance in identifying purpose for which information is needed	100%	100%	100%	100%	100%

Table 4.4 shows that B.Ed ICT teacher trainees are most conversant with information needs recognition compared to other teacher trainees. This was attested by 36 (97%) of the teacher trainees undertaking BED ICT who said that they are conversant/very conversant with information need. They are followed by B. Ed (P.E and Sports Option), B. Ed (Science), B.Ed (Arts) and B.Ed Early Childhood Education respectively at 22 (70%), 41 (67%), 144 (66%) and 9 (64%) in that order. This implies that B.Ed ICT teacher trainees are more conversant with information need recognition compared to others. This can be attributed to the course that they take which is related to ICT.

The study sought to explore staff's views on bachelor of education teacher trainees (BEDTT's) information needs recognition and utilization of e-resources. The indicators of information need recognition include purpose for which information is needed, formulation of good research questions, knowing a wide range of e-resources and planning the acquisition of information. The findings are presented in Table 4.5.

Table 4.5: Staff's views on teacher trainees' information need recognition

Staff's views on Bachelor of education teacher trainees' conversance with information needs recognition	Lecturers		Information skills librarians (ISLs)		Library staff	
	F	%	F	%	F	%
Excellent in information needs recognition	6	32	2	100	0	0
Good in information needs recognition	11	58	0	0	3	50
Average in information needs recognition	2	10	0	0	3	50
Poor in information needs recognition	0	0	0	0	0	0

The findings indicated that 2 (100%) information skills librarians rated bachelor of education teacher trainees' conversance with information needs recognition as excellent.

Further findings revealed that 6 (32%) lecturers rated bachelor of education teacher trainees' conversance with information needs recognition as excellent, 11 (58%) lecturers rated bachelor of education teacher trainees' conversance with information needs recognition as good whereas 2 (10%) lecturers rated bachelor of education teacher trainees' conversance with information needs recognition as average. Further findings confirmed that 3 (50%) library staff rated bachelor of education teacher trainees' conversance with information needs recognition as good whereas 3 (50%) library staff rated bachelor of education teacher trainees' conversance with the information needs as average. This implied that 2 (100%) of information skills librarians, 17 (90%) of lecturers and 3 (50%) of library staff rated bachelor of education teacher trainees' information needs recognition as good and promote utilization of e-resources.

On the contrary, more findings affirmed that 2 (10%) lecturers and 3 (50%) library staff rated Bachelor of education teacher trainees' conversance with information needs recognition as average. This implied that 2 (10%) of lecturers and 3 (50%) of library staff rated bachelor of education teacher trainees' as not being conversant with information needs recognition and find it challenging to utilize e-resources.

To triangulate the findings a library staff was asked her views on bachelor of education teacher trainees conversance with identification of the purposes for which information is needed. She replied:

> *"Yes, the teacher trainees are able to identify the purpose for which information is needed and remain focused to fulfill the purpose. If the purpose is to create new knowledge, the information sought should be credible, accurate and from peer-reviewed e-resources".*

When a male library staff was asked the same question, the reply was:

> *"Yes, they know that the purpose acts like the reference point*
> *to all efforts of searching information. The sudents are encouraged*
> *to use peer-reviewed sources like e-resources if the purpose*
> *is to promote professional development like utilizing e-resources*
> *to deliver instruction".*

The verbatim findings affirmed that 2 (100%) of library staff interviewed on BEDTT's conversance with the purposes for which information is sought replied that the teacher trainees are conversant. This skill boosts bachelor of education teacher trainees' proficiency in utilizing e-resources. For the purpose of triangulating the findings on bachelor of education teacher trainees' conversance with formulating specific questions based on the topic of research, library staff were interviewed. One library staff replied:

> *"Yes, the bachelor of education teacher trainees know how to*
> *narrow the question very often so that the information they*
> *get is specicific and manageable".*

Another library staff said:

> *"Yes, the teacher trainee limit information needed often*
> *by breaking the question/topic into pertinent parts to be*
> *searched separately and keep on improving the search".*

The verbatim findings affirmed that bachelor of education teacher trainees have the skills of formulating questions to clarify information needed. This means that they are able to formulate good questions which help them to search relevant information to complete their academic tasks.

Efforts at triangulating the findings through document analysis confirmed that e-resources training sessions were conducted by library staff to empower bachelor of education teacher trainees with information literate abilities of utilizing e-resources.

A chi square test was run to establish whether there was a relationship between bachelor of education teacher trainees' information needs recognizing ability and utilization of e-resources. The findings are presented in Table 4.6.

Table 4.6: Teacher trainees' information need recognition and e-resource

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	59.903[a]	30	.001
Likelihood Ratio	57.767	30	.002
N of Valid Cases	353		

The findings revealed that there was a statistically significant association between information needs recognition and utilization of e-resources (p<0.05). The implication was that if the bachelor of education teacher trainees' information needs recognizing ability was improved, then utilization of the e-resources would also increase. The findings on bachelor of education teacher trainees' information needs recognizing ability, corresponds with the findings of Hadimani and Rajgoli (2010); Mishra and Mishra (2010) which revealed that in all learning situations, it is very important to recognize the need for information, to satisfy information gaps and enhance the ability to locate that information. The findings also correspond with the outcomes of research carried out by Toyo (2017), which indicated that 119 (97.6%) undergraduates were able to identify the information needed to perform academic tasks. This made it possible for the students to utilize e-resources in learning and research processes. The second ACRL (2015) information literacy framework for higher education emphasizes that information creation is vital and learners should have the ability to match information needs with the

right source of information. The framework supports present study's findings which revealed that there is a statistically significant association between bachelors of education teacher trainees' information needs recogntion and utilization of e-resources.

Bachelor of education teacher trainees' ability to identify information needs, guides in the formulation of questions to clarify the information needed. For instance, the need may be to get relevant information to enable the bachelor of education teacher trainees to an assignment on 'Evaluation criteria for e-resources'. The bachelor of education teacher trainees' curiosity is aroused to consult relevant e-resources to access current, accurate, reliable and credible information. Utilization of e-resources is achieved when bachelor of education teacher trainees interact with e-journals and e-books to get information to complete the assignmenst. The findings concur with those of EBSS (2011), OSUL (2017) and Igun and Odafe (2016) which revealed that information literate undergraduates recognize when there is need for information. The information need could be to prepare class notes, prepare an examination or revise for an examination. Furthermore, information literate bachelor of education teacher trainees are conversant with the process of locating information from relevant resources. The process involves recognizing the information needed to fill a knowledge gap, formulating good questions to clarify the information needed, knowing a wide range of e-resources to consult and planning the acquisition of the information.

The findings concur with Umnnakwe and Eze's (2015) findings which revealed that the information sought by teachers includes information on school curriculum, use of ICTs and how to teach students with special abilities.

4.5 Teacher trainees' searching ability and utilization of e-resources

The study sought to determine the relationship between bachelor of education teacher trainees' searching ability and utilization of e-resources. The bachelor of education teacher trainees were asked to rate conversance with specific searching techniques. The findings are presented in Figure 4.2
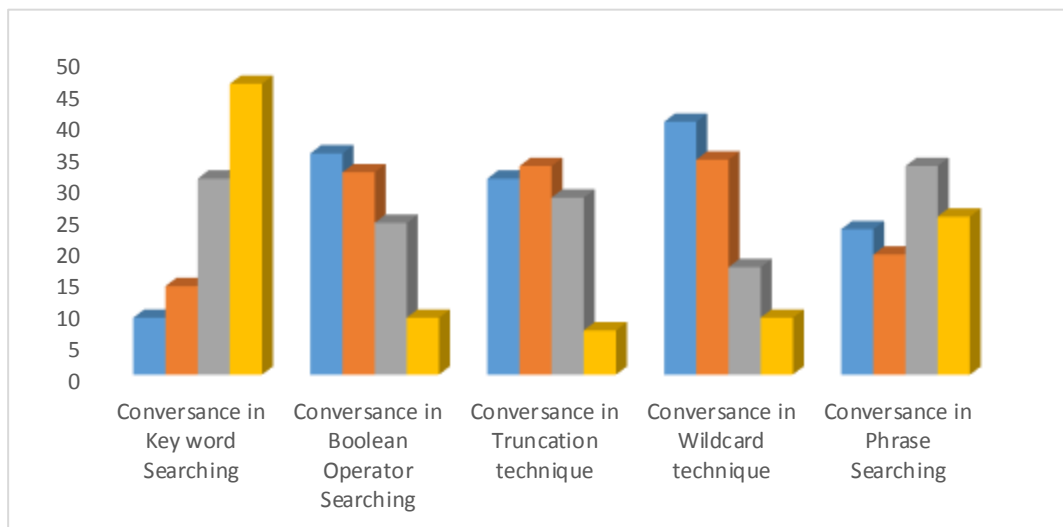
Figure 4.2: Bachelor of education teachers' conversance with searching techniques

The findings confirmed that 167 (46%) bachelor of education teacher trainees rated conversance with keyword searching techniques, as excellent, while 113 (31%) bachelor of education teacher trainees rated conversance with keyword searching, as good. Further findings indicated that 51 (14%) bachelor of education teacher trainees rated conversance with keyword searching, as average, whereas 32 (9%) bachelor of education teacher trainees rated conversance with keyword searching as poor. More still, the findings revealed that 32 (9%) bachelor of education teacher trainees rated conversance with Boolean operator searching technique, as excellent, whereas 87 (24%) bachelor of

education teacher trainees rated conversance with Boolean operator searching, as good. Additionally, 117 (34%) bachelor of education teacher trainees rated conversance with Boolean operator searching as average, while 127 (35%) bachelor of education teacher trainees rated conversance with Boolean operator searching as poor.

Moreover, the findings indicated that 25 (7%) bachelor of education teacher trainees rated conversance with truncation searching technique, as excellent, 102 (28%) bachelor of education teacher trainees rated conversance with truncation searching technique, as good, 120 (33%) bachelor of education teacher trainees rated conversance with truncation searching technique, as average, whereas 113 (31%) bachelor of education teacher trainees rated conversance with truncation searching technique as poor. Similarly, the findings affirmed that 32 (9%) bachelor of education teacher trainees rated conversance with wildcard searching technique, as excellent, whereas 62 (17%) bachelor of education teacher trainees rated conversance with wildcard searching technique, as good, 124 (34%) bachelor of education teacher trainees rated conversance with wildcard searching technique, as average, while 146 (40%) bachelor of education teacher trainees rated conversance with wildcard searching technique, as poor. Additionally, the findings revealed that 91 (25%) bachelor of education teacher trainees rated conversance with phrase searching, as excellent, 120 (33%) bachelor of education teacher trainees rated conversance with phrase searching, as good, 69 (19%) bachelor of education teacher trainees rated conversance with phrase searching technique as average, whereas 84 (23%) bachelor of education teacher trainees rated conversance with phrase searching technique as poor. The study sought to establish whether there were variations in the ability of

searching information across the courses undertaken by bachelor of education teacher trainees. The responses are as presented in table 4.7

Table 4.7 Bachelor of education teacher trainee's information searching ability

		rate of conversance in key word searching				Total
		not conversant at all	not so conversant	Conversant	ver conversant	
B.Ed (Arts)	Count	21	35	63	98	217
	% within course	9.7%	16.1%	29.0%	45.2%	100.0%
	% within rate of conversance in key word searching	63.6%	67.3%	57.8%	58.3%	59.9%
B.Ed (Science)	Count	6	9	16	30	61
	% within course	9.8%	14.8%	26.2%	49.2%	100.0%
	% within rate of conversance in key word searching	18.2%	17.3%	14.7%	17.9%	16.9%
B.Ed (PE&Sports)	Count	2	7	11	10	30
	% within course	6.7%	23.3%	36.7%	33.3%	100.0%
	% within rate of conversance in key word searching	6.1%	13.5%	10.1%	6.0%	8.3%
B.Ed (Early Child Education)	Count	2	0	5	7	14
	% within course	14.3%	0.0%	35.7%	50.0%	100.0%
	% within rate of conversance in key word searching	6.1%	0.0%	4.6%	4.2%	3.9%
B. Ed ICT	Count	2	1	14	23	40
	% within course	5.0%	2.5%	35.0%	57.5%	100.0%
	% within rate of conversance in key word searching	6.1%	1.9%	12.8%	13.7%	11.0%
Total	Total	33	52	109	168	362
	% within course	9.1%	14.4%	30.1%	46.4%	100.0%
	% within rate of conversance in key word searching	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4.7 presents the cross tabulation between the bachelor of education courses and teacher trainees' information searching ability. The findings indicated that B.Ed (ICT)

bachelor of education teacher trainees tops other teacher trainees on ability to search information. Findings indicated that 37 (92%) teacher trainees said that they are conversant/very conversant with information searching techinques. They are followed by B.Ed Early Childhood Education students at 12 (85%), then B.Ed Science at 46 (75%), B.Ed (Arts) at 161 (74%) and lastly, B.Ed (PE and Sports at 21 (70%). The results also concurs with those of information need recognition where B.Ed (ICT) teacher trainees were rated as best compared to others.

A large number of bachelor of education teacher trainees rated themselves to have poor searching techniques for Boolean operator 127 (35%), truncation 120 (33%) and wildcard 146 (40%). This situation is worrisome because bachelor of education teacher trainees lack the necessary superior range of searching techniques (Boolean operator, truncation and wildcard) that could enable them to search specific information from specific sources exhaustively and utilize the resources efficiently. The findings concur with those of the research carried out by Adeniran (2013) which revealed that undergraduates of Redeemer University underutilized e-resources due to poor searching skills. The findings also concur with Mwantimwa (2017) findings which confirmed low use of e-resources in Mzumbe University Library. Mwantimwa confirmed that low searching skills emanate from lack of an information literacy training programme on accessing the library's e-resources affirming that information literacy boosts utilization of e-resources

The study sought to establish whether Bachelor of education teacher trainees experience challenges of applying searching techniques when searching information.

Findings are presented in Figure 4.3.
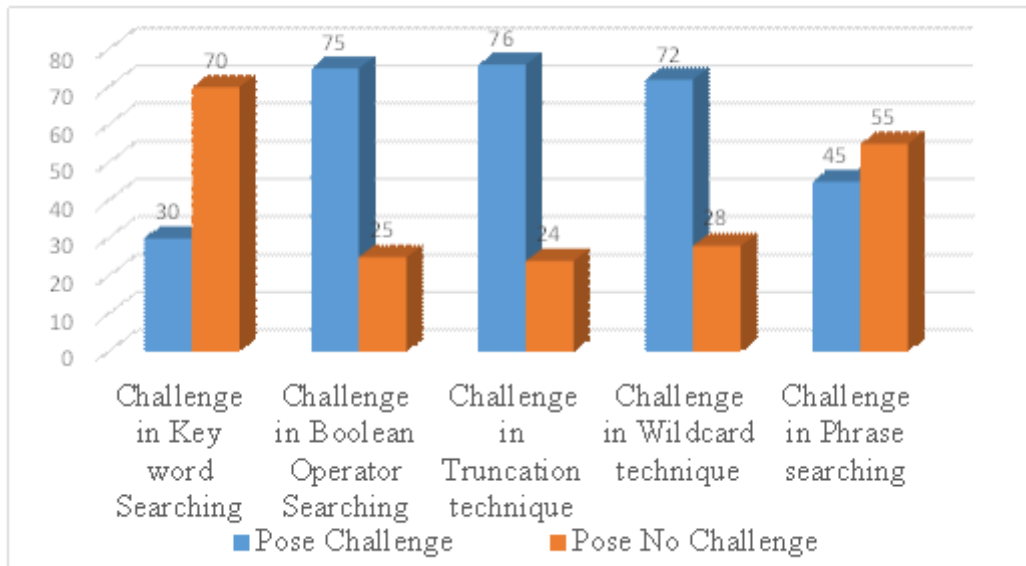
Figure 4.3: Teacher trainees' challenges of searching techniques

The findings revealed that 277 (76%) bachelor of education teacher trainees experience challenges when searching information using the truncation technique while 273 (75%) bachelor of education teacher trainees experience challenges when using the Boolean operator technique. The findings further indicated that 262 (72%) bachelor of education teacher trainees experience challenge when using the wildcard searching techniques to retrieve information from e-resources. The challenges posed to bachelor of education teacher trainees when using the truncation, Boolean operator and wildcard techniques impede utilization of e-resources. The findings conform to those by Bashorun (2011); Ekenna and Iyabo (2013); Nyamboga (2014) and Omosekejimi, Eghworo, and Ogo (2015) on lack of searching abilities among undergraduates in Rwandese and Nigerian universities which hinders utilization of e-resources.

Other findings indicated that 255 (70%) bachelor of education teacher trainees did not encounter challenges in the use of keyword searching technique and this corroborates with findings which indicated that 280 (77%) bachelor of education teacher trainees are conversant with keyword searching techniques. Similarily 200 (55%) bachelor of education teacher trainees do not encounter challenges when using phrase searching technique which also corroborates findings that indicated that 211 (78%) bachelor of education teacher trainees are conversant with key word searching technique. The bachelor of education teacher trainees use keyword and phrase searching techniques to search information from e-resources such as e-books, e-journals and institutional digital resources.

To triangulate the findings, bachelor of education teacher trainees were asked to highlight conversance with various searching techniques. A second year male bachelor of education teacher trainee taking ICT/Mathematics combination said:

> *"I'm conversant with phrase searching technique because it is not complicated. The information skills librarian gave us a handout explaining details of searching information using phrase searching technique".*

A third year female bachelor of education teacher trainee taking Early Childhood Education combination said that:

> *"I'm conversant with phrase searching technique and I often use the library's e- resources. I use phrase searching technique to search the Google search engine for the information I need to complete all my assignments".*

A fourth year female bachelor of education teacher trainees taking Kiswahili/Christian Religious Education combination said that:

> *"I'm not familiar with any searching technique because I did not attend information skills lessons in first year. I intended to catch up in other information skills lessons at different levels which did not materialize".*

The verbatim findings confirmed that bachelor of education teacher trainees were not conversant with a wide range of online searching techniques. Rather, the bachelor of education teacher trainees were conversant with only keyword and phrase searching techniques. This implied that Bachelor of education teacher trainees experience challenges when searching information. The findings are similar to the findings of a study conducted by Tlakula and Fombad (2017) which revealed that undergraduate students of the University of Venda, South Africa lack awareness of the availability of e-resources and receive low training in the use of e-resources. The findings also concur with those by Onasanya, Shehu, Oduwaiye and Shehu (2010) which revealed that teachers at all levels in Nigeria lack the skills and knowledge to utilize computer software.

The study sought to examine whether bachelor of education teacher trainees are exposed to guided hands-on-experience with e-resources. The bachelor of education teacher trainees were asked whether they had practical searching of e-databases in the library. The findings revealed that 197 (54%) bachelor of education teacher trainees have never had a hands-on experience with searching e-databases. Further findings confirmed that 167 (46%) bachelor of education teacher trainees had practical experience of searching e-databases. Hands-on-experience allows bachelor of education teacher trainees to acquire the skills of searching information using different techniques. For instance, searching e-database for articles on the topic 'labor' using wildcard technique is achieved by adding the symbol? (Question mark) after o for the words labo?r or labo?ur to capture all articles written on the topic labor or labour which has different spelling (American spelling vs United Kingdom spelling). Allowing bachelor of education teacher trainees to search e-database using computers improves efficiency and effectiveness of utilizing e-resources.

The sixth frame of ACRL (2015) ILFHE defines searching as strategic exploration. The frame stipulates that learners should develop skills of matching information need with the right source. Information searching affects and is affected by cognitive, affective and social dimensions of the searcher. If bachelor of education teacher trainees acquire the current and relevant information sought easily and quickly this translates to completing assignment in time and improves academic performance of the teacher trainees.

On relationship between bachelor of education teacher trainees' searching ability and utilization of e-resources the findings are as summarised in table 4.8

Table 4.8: Teacher trainees' searching ability and utilization of e-resources

	Value	**Df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	65.954[a]	40	.023
Likelihood Ratio	76.031	40	.004
N of Valid Cases	350		

The findings revealed that there was a statistical significant association between bachelor of education teacher trainees searching ability and utilization of e-resources ($p<0.05$). This means that improving bachelor of education teacher trainees' conversance with searching techniques increases utilization of e-resources.

The bachelor of education teacher trainees who are conversant with searching skills utilize e-databases with confidence. A study by Toyo (2017) affirmed that undergraduates taking information science programme confidently utilized e-resources due to conversance with a wide range of searching skills. A chi-square test was run to establish if there was a relationship between bachelor of education teacher trainees' searching

ability and utilization of e-resources. The findings revealed that there was a statistical significant association between bachelor of education teacher trainees searching ability and utilization of e-resources (p<0.05).

4.6 Teacher trainees' evaluating ability and utilization of e-resources

The study sought to examine the relationship between bachelor of education teacher trainees' evaluating ability and utilization of e-resources. The bachelor of education teacher trainees were asked to rate conversance with the evaluation criteria. The findings are presented in Figure 4.4
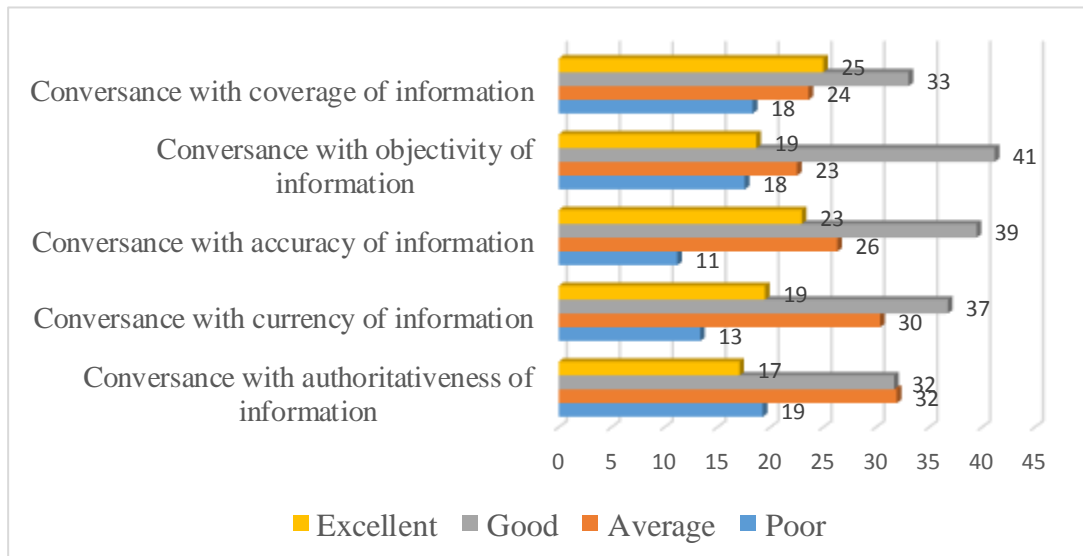
Figure 4.4: Bachelor of education teachers' conversance with evaluation criteria

The findings indicated that 92 (25%) bachelor of education teacher trainees rated conversance with coverage criteria as excellent, whereas 122 (33%) bachelor of education teacher trainees rated their conversance with coverage criteria as good. further findings affirmed that 88 (24%) bachelor of education teacher trainees rated conversance with coverage criteria as average, while 66 (18%) bachelor of education teacher trainees

rated their conversance with coverage criteria as poor. Coverage criteria entails confirming whether all relevant topics are actually included in the e-database being evaluated. Further findings revealed that 70 (19%) bachelor of education teacher trainees rated conversance with objectivity criteria as excellent, while 151 (41%) bachelor of education teacher trainees rated conversance with objectivity as good in evaluating e-resources. Furthermore, findings indicated that 85 (23%) bachelor of education teacher trainees rated conversance with objectivity criteria as average, whereas 66 (18%) bachelor of education teacher trainees rated conversance with objectivity as poor in evaluating e-resources. The objectivity criteria involve confirming whether different viewpoints are included in an article or confirming whether the author uses unbiased/neutral language throughout the article.

Furthermore, the findings confirmed that 85 (23%) bachelor of education teacher trainees rated conversance with accuracy criteria, as excellent in evaluating e-resources, while 144 (39%) bachelor of education teacher trainees rated conversance with accuracy criteria, as good in evaluating e-resources before utilizing the resources. However, 96 (26%) bachelor of education teacher trainees rated conversance with accuracy as average in evaluating e-resources, whereas 40 (11%) bachelor of education teacher trainees rated conversance with accuracy as poor in evaluating e-resources. While applying the accuracy criteria bachelor of education teacher trainees confirm whether the sources for factual information are listed to facilitate easy verification of the information retrieved from a document. The bachelor of education teacher trainees should also establish whether the information could be obtained from other sources.

Further findings indicated that 70 (19%) bachelor of education teacher trainees rated conversance with currency criteria as excellent in evaluating e-resources, whereas 136 (37%) bachelor of education teacher trainees rated conversance with currency criteria as good when evaluating e-resources. However, 111 (30%) bachelor of education teacher trainees rated conversance with currency criteria as average in evaluating e-resources, while 48 (13%) bachelor of education teacher trainees rated conversance with currency criteria as poor in evaluating e-resources. Bachelor of education teacher trainees who apply currency criteria consider whether or not the timeliness of the information will affect its usefulness. The teacher trainees also confirm the date when the information or material was published or created.

Additionally, findings revealed that 62 (17%) bachelor of education teacher trainees rated conversance with authority criteria as excellent in evaluating e-resources while 118 (32%) bachelor of education teacher trainees rated conversance with authority criteria as good in evaluating e-resources. Moreover, the findings confirmed that 118 (32%) bachelor of education teacher trainees rated conversance with authority criteria, as average in evaluating e-resources, whereas 70 (19%) bachelor of education teacher trainees rated conversance with authority criteria as poor in evaluating e-resources. Bachelor of education teacher trainees who are conversant with the authority criteria examine the credentials of the author as well as academic qualifications, professional affiliations and experience to confirm the credibility of the information. The findings affirmed that 203 (58%), 210 (60%), 217 (62%) and 196 (56%) bachelor of education teacher trainees rated conversance in using coverage, objectivity, accuracy, and currency evaluation criteria as good in evaluating e-resources, respectively. However, the findings

indicated that only 118 (32%) bachelor of education teacher trainees rated conversance with authority criteria, as good, affirming that the number of bachelor of education teacher trainees who are conversant with authority criteria is lower, compared to coverage, objectivity, accuracy and currency criteria, respectively. On whether there are variations on the teacher trainees' evaluating ability a cross tabulation between the courses pursued by the bachelor of education teacher trainees and the evaluation criteria was carried out. The findings were summarized in table 4.9

Table 4.9: Teacher trainees' evaluation ability across courses

		Rate of conversance with evaluation criteria				Total
		not conversant at all	not so conversant	Conversant	very conversant	
B.Ed (Arts)	Count	44	72	62	37	215
	% within course	20.5%	33.5%	28.8%	17.2%	100%
	% within rate in conversance in authoritativeness	62.9%	62.1%	54.9%	59.7%	59.6%
B.Ed (Science)	Count	15	12	23	11	61
	% within course	24.6%	19.7%	37.7%	18.0%	100%
	% within rate in conversance in authoritativeness	21.4%	10.3%	20.4%	17.7%	16.9%
B.Ed (P.E &sports)	Count	5	11	11	4	31
	% within course	16.1%	35.5%	35.5%	12.9%	100%
	% within rate in conversance in authoritativeness	7.1%	9.5%	9.7%	6.5%	8.6%
B.Ed (Early Child Education)	Count	2	10	1	1	14
	% within course	14.3%	71.4%	7.1%	7.1%	100%
	% within rate in conversance in authoritativeness	2.9%	8.6%	.9%	1.6%	3.9%
B.Ed (ICT)	Count	4	11	16	9	40
	% within course	10.0%	27.5%	40.0%	22.5%	100%
	% within rate in conversance in authoritativeness	5.7%	9.5%	14.2%	14.5%	11.1%
Total	Count	70	116	113	62	361
	% within course	19.4%	32.1%	31.3%	17.2%	100%
	% within rate in conversance in authoritativeness	100%	100%	100%	100%	100%

The findings in table 4.9 indicated that B.Ed ICT teacher trainees are more conversant/very conversant with evaluating e-resources as attested by 25 (62%) of teacher trainees. They were followed by B.Ed (Science) teacher trainees at 34 (55%), B.Ed (PE&sports) at 15(47%), B.Ed (Arts) teacher trainees at 99 (45%) and lastly B.Ed (Early Childhood Education teacher trainees at 2 (14%).

The study sought to examine the evaluation criteria that pose challenges to the bachelor of education teacher trainees thus impeding utilization of e-resources. The bachelor of education teacher trainees were asked to indicate which evaluation criteria pose challenges. The findings are presented in Figure 4.5.
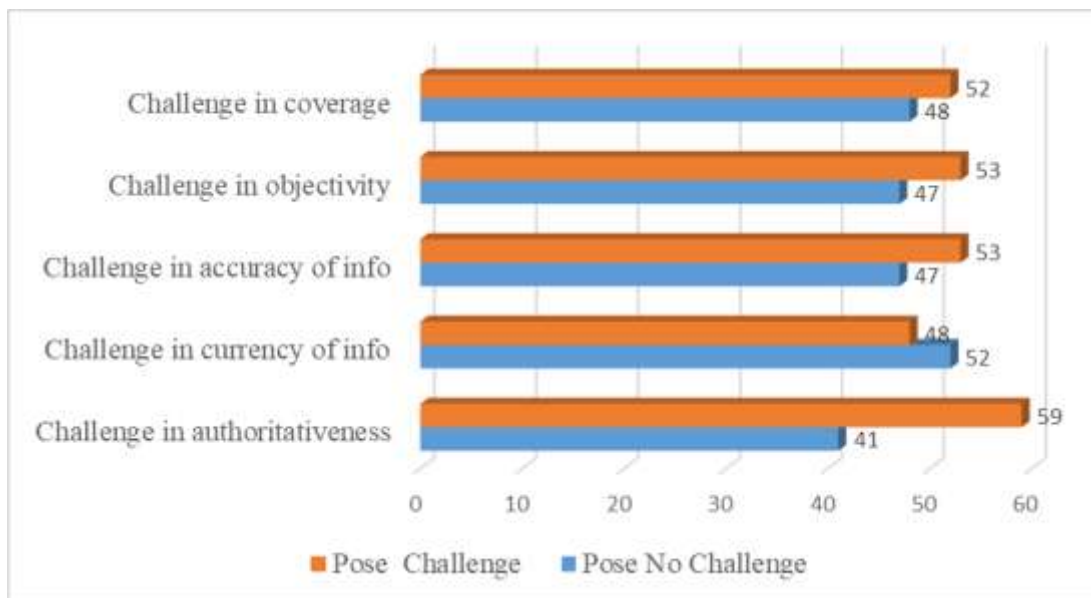
Figure 4.5: Evaluation criteria posing challenges to teacher trainees

The findings indicated that coverage criteria pose challenges to 182 (52%) bachelor of education teacher trainees, objectivity criteria pose challenges to 186 (53%) bachelor of education teacher trainees whereas accuracy criteria pose challenges to 186 (53%) bachelor of education teacher trainees, when evaluating e-resources. Furthermore, the

finding indicated that the authority criteria poses challenges to 207 (59%) bachelor of education teacher trainees, whereas the currency criteria pose challenges to only 166 (48%) teacher trainees. The currency does not pose challenge to 182 (52%) bachelor of education teacher trainees who utilize e-resources implying that the teacher trainees are mos conversant with currency criteria than the other criteria The findings indicated that more than half 50% bachelor of education teacher trainees experience challenges in using coverage, accuracy, authority and objectivity criteria and this hinder utilization of e-resources.

The findings concurred with those of Ogutu, Odundo and Mwanda (2017) which revealed that majority of students at the University of Nairobi have trouble choosing which internet sources to utilize. The findings further concurred with those of Wijetunge's (2015) study, which observed that students in Sri Lanka do not use reliable criteria to evaluate web-based resources. On the other hand, the findings are contrary to the study by Hadimani and Rajgoli (2010) which established that the evaluation criteria does not pose challenges to undergraduates because 91.1% had the ability to evaluate information from web-based resources using the authority, appropriateness and currency criteria.

The study sought to establish the evaluation criteria that pose challenges to bachelor of education teacher trainees when utilizing e-resources by year of study. Bachelor of education teachers from year one to year four were asked whether the evaluation criteria pose challenge or not when interacting with different e-resources in search of relevant information to complete their academic tasks like preparing micro-teaching notes, completing assignments, or researching on a topic to present in a scholarly community.

The findings are presented in Table 4.10.

Table 4.10: Evaluation criteria posing challenge to teacher trainees by year

	Authority criteria		Currency Criteria		Accuracy criteria		Objectivity criteria		Coverage criteria	
	pose No Challenge	Pose Challenge	Pose No Challenge	Pose Challenge	Pose No Challenge	Pose Challenge	Pose No Challenge	Pose Challenge	Pose No Challenge	Pose Challenge
2nd	46.2%	53.8%	51.5%	48.5%	69.2%	30.8%	56.9%	43.1%	67.7%	32.3%
	162	188	180	170	242	108	199	151	237	113
3rd	45.9%	54.1%	55.0%	45.0%	45.0%	54.4%	45.0%	55.0%	47.1%	52.9%
	161	189	193	157	157	190	157	193	165	185
4th	32.0%	68.0%	50.0%	50.0%	36.2%	63.8%	39.8%	60.2%	36.8%	63.2%
	112	238	175	175	127	223	139	211	129	221

According to the findings, 180 (51.5%) second year bachelor of education teacher trainees indicated that the currency criteria poses no challenge while 242 (69.2) bachelor of education teacher trainees indicated that the accuracy criteria poses no challenge. Furthermore, 199 (56.9%) bachelor of education teacher trainees revealed that the objectivity criterion poses no challenge while 237 (67.7%) bachelor of education teacher trainees revealed that the coverage criterion poses no challenge. However, the findings indicated that 188 (53.8%) second year bachelor of education teacher trainees experience challenges posed by the authority criteria. Conversely, 189 (54%) third year bachelor of education teacher trainees face challenges of using the authority criteria, whereas 190 (54.4%) third year bachelor of education teacher trainees face the challenge of using the accuracy criteria. Further findings indicated that 193 (55%) third year bachelor of education teacher trainees face the challenge of using the objectivity criteria while 185 (52%) bachelor of education teacher trainees face the challenge of using the coverage criteria when evaluating e-resources. Further findings indicated that 193 (55%) third year

bachelor of education teacher trainees face no challenge when using the currency criteria to evaluate the currency of information retrieved.

The findings also indicated that 238 (68%) fourth year bachelor of education teacher trainees encounter challenges when using the authority criteria to evaluate credible e-resources while 223 (63.8%) fourth year bachelor of education teacher trainees encounter challenges when using the accuracy criteria. Further findings indicated that 211 (60.2%) bachelor of education teacher trainees encounter challenges when using the objectivity criteria, 221 (63.2%) fourth year bachelor of education teacher trainees encounter challenges when using the coverage criteria. Moreover, findings revealed that 175 (50%) bachelor of education teacher trainees encounter challenges when using the currency criteria to evaluate e-resources. The findings indicated that coverage, accuracy, objectivity, currency and authority criteria pose challenge to fourth year bachelor of education teacher trainees when evaluating e-resources. These findings may read peculiar because it is expected that fourth years having been at the university for longer period of time would have less challenge when evaluating e-resources, compared to second and third years. The results also indicate that second years are more conversant with the evaluation criteria than the third and fourth year bachelor of education teacher trainees because only the authority evaluation criteria poses challenges to the second years.

For the purpose of triangulating the findings, bachelor of education teacher trainees were asked to highlight conversance with evaluation criteria. A second year female bachelor of education teacher trainee taking English/Linguistics combination had this to say:

*"I'm not familiar with the evaluation criteria for assessing sources
for credibility. The topic was not covered during the information skills class and
I was unlucky to have missed a library workshop in second year where the
facilitator tackled the topic".*

A second year female bachelor of education teacher trainee taking Biology/Chemistry combination replied:

*"I'm not conversant with any". We didn't cover evaluation of information in
the information skills class. Efforts of requesting my colleagues to explain
the evaluation criteria were not fruitful because none was familiar with the topic".*

A fourth year bachelor of education teacher trainee taking Mathematics/Business stated:

*"I and members of my study group don't know how to evaluate
information resources. We were not instructed on the topic by
library staff yet evaluation of information is complicated".*

The verbatim findings confirmed that bachelor of education teacher trainees are not conversant with the evaluation criteria. This situation is worrisome because it impedes utilization of e-resources. Furthermore, bachelor of education teacher trainees may be integrating propaganda and unreliable information into their academic works because they do not know how to look for credible sources using the authority criteria.

A chi square test was run to establish whether there was a relationship between evaluating ability and utilization of e-resources. The findings are presented in Table 4.11

Table 4.11: Teacher trainees' evaluating abilities and utilization of e-resources

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	64.954[a]	45	.027
Likelihood Ratio	73.031	45	.005
N of Valid Cases	350		

The findings indicated that there is a statistically significant association between bachelor of education teacher trainees' information evaluation abilities and utilization of e-resources ($p<0.05$). This implies that if bachelor of education teacher trainees' evaluating

ability is improved this would increase utilization of e-resources. However, the findings revealed that bachelor of education teacher trainees have inadequate evaluating abilities and experience challenges in choosing accurate and credible e-resources. The findings are similar with those of Curie's (2010) study which revealed that undergraduate students fail to apply the evaluation criteria to advance academic work. The findings also concur with those by Walraven, Brand-Gruwel, and Boshuizen (2009) which revealed that students do not always use the evaluation criteria to select suitable e-resources to utilize.

4.7 Teacher trainees' referencing ability and utilization of e-resources

The study sought to establish the relationship between bachelor of education teacher trainees' referencing ability and utilization of e-resources. The bachelor of education teacher trainees were asked to indicate the referencing styles that pose challenges. The findings were presented in Figure 4.6.
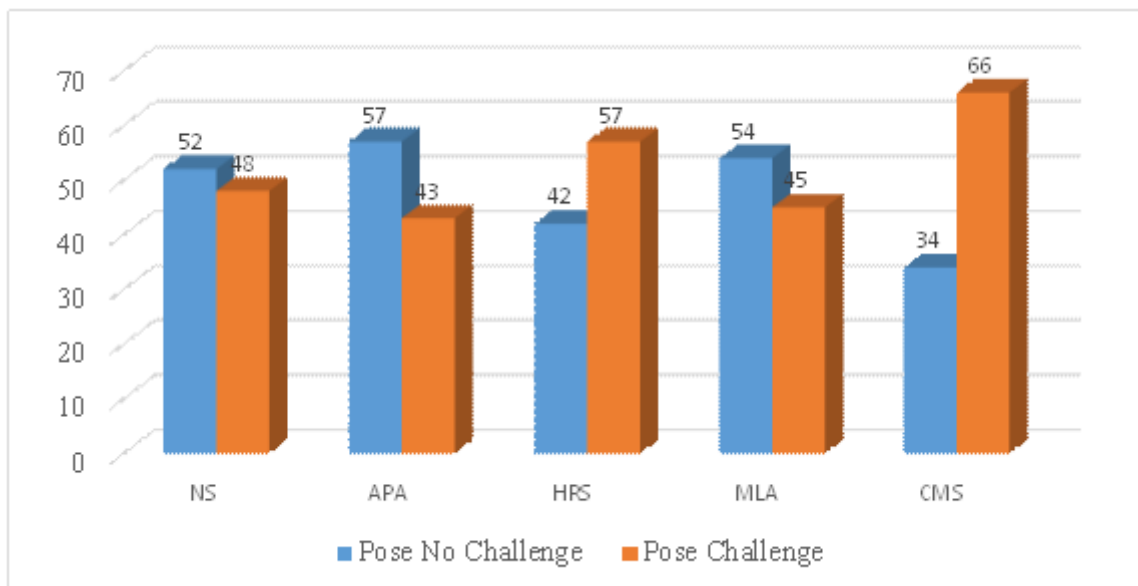
Figure 4.6: Teacher trainees' conversance with referencing styles

The findings indicated that the American Psychological Association (APA) style did not pose challenge to 173 (57 %) bachelor of education teacher trainees, Mordern Language Association (MLA) did not pose challenge to 164 (54%) bachelor of education teacher trainees and Numeric System (NS) did not pose challenge to 158 (52%) bachelor of education teacher trainees when citing e-resources consulted or when compiling reference lists. This implied that more than half (50%) of bachelor of education teacher trainees are conversant with APA, MLA and the Numeric System. The teacher trainees do not mix the styles when presenting their academic and research work in the in-text and reference section of their work. This situation augurs well with promoting utilization of e-resources by the bachelor of education teacher trainees. Further findings revealed that Chicago Manual of Style (CMS) poses challenge to 200 (66%) bachelor of education teacher trainees whereas 103 (34%) bachelor of education teacher trainees indicated that CMS does not pose any challenge. Findings also indicated that Harvard Referencing Style (HRS) poses challenges to 173 (57%) bachelor of education teacher trainees while 127 (42%) bachelor of education teacher trainees indicated that HRS does not pose a challenge. This implies that more than half (50%) of the bachelor of education teacher trainees are not conversant with CMS and HRS. This means that the teacher trainees intermix different styles when citing and referencing e-resources consulted incourse of completing assignments.

The study also sought to establish the teacher trainees referencing abilities across all B.Ed courses offered at the School of Education. A cross tabulation between the courses pursued by the bachelor of education teacher trainees and citation and referencing ability was carried out.

The findings were presented in Table 4.12

Table 4.12: Bachelor of education teacher trainees referencing ability across courses

		not conversant at all	not so conversant	Conversant	very conversant	Total
B.Ed (Arts)	Count	38	120	37	5	200
	% within course	19.0%	60.0%	18.5%	2.5%	100%
	% within rate of conversance in referencing e-resources	59.4%	54.8%	77.1%	62.5%	58.8%
B.Ed (Science)	Count	3	49	5	0	58
	% within course	5.2%	84.5%	8.6%	0.0%	100%
	% within rate of conversance in referencing e-resources	4.7%	22.4%	10.4%	0.0%	17.1%
B.Ed (P.E &sports)	Count	10	18	0	2	30
	% within course	33.3%	60.0%	0.0%	6.7%	100%
	% within rate of conversance in referencing e-resources	15.6%	8.2%	0.0%	25.0%	8.8%
B.Ed (Early Child Education)	Count	4	10	0	0	14
	% within course	28.6%	71.4%	0.0%	0.0%	100%
	% within rate of conversance in referencing e-resources	6.3%	4.6%	0.0%	0.0%	4.1%
B.Ed (ICT)	Count	9	22	6	1	38
	% within course	23.7%	57.9%	15.8%	2.6%	100%
	% within rate of conversance in referencing e-resources	14.1%	10.0%	12.5%	12.5%	11.2%
Total	Count	64	219	48	8	340
	% within course	18.8%	64.4%	14.1%	2.4%	100%
	% within rate of conversance in referencing e-resources	100%	100%	100%	100%	100%

Table 4.12 indicated that most of the bachelor of education teacher trainees across different courses are not conversant with referencing styles. However, among those who said that they are conversant, B.Ed Arts is leading at 42 (20%), followed by B.Ed (ICT) teacher trainees 17 (7%), B.Ed (Science) 5 (8.6%) and B.Ed (P.E & Sports) 2 (6%).

The results shows that none of the teacher trainees undertaking B.Ed (Early Child Education) is conversant with referencing of e-resources. The reason for B.Ed Arts teacher trainees leading others in referencing e-resources could be attributed to term papers that they write as part of their assignments.

4.7.1 Referencing styles posing challenges to teacher trainees by year

The study examined whether the referencing styles posing challenges to bachelor of education teacher trainees vary by year of study. The findings are presented in Table 4.13

Table 4.13: Referencing styles posing challenges to teacher trainees by year

	APA		HRS		CMS		MLA		NS	
	Pose no challenge	Pose challenge	Pose no challenge	Pose challenge	Pose no challenge	Pose challenge	Pose no challenge	Pose challenge	Pose no challenge	Pose challenge
2nd	44%	56%	52%	48%	35%	65%	60%	40%	55%	45%
	133	170	158	145	106	197	182	121	167	136
3rd	68%	32%	34%	56%	35%	65%	54%	46%	50%	50%
	206	97	103	170	106	197	164	140	152	152
4th	50%	50%	39%	61%	34%	66%	54%	46%	57%	43%
	152	152	118	185	103	200	164	140	173	130

The findings revealed that bachelor of education teacher trainees from different years of study experience difficulties when using different referencing techniques to compile reference lists. Further findings revealed that 170 (56%) second year bachelor of education teacher trainees experience challenges when using the APA style whereas 197 (65%) second year bachelor of education teacher trainees experience challenges when using the CMS to reference e-resources. Further findings revealed that 158 (52%) second year bachelor of education teacher trainees face no challenges when using the HRS

whereas, 182 (60%) second year bachelor of education teacher trainees experience no challenge when using the MLA. Additionally, 167 (55%) second year bachelor of education teacher trainees encounter no challenges when using the NS to compile reference lists.

Further findings revealed that 152 (50%) fourth year bachelor of education teacher trainees experience no challenge of using the APA whereas 152 (50%) fourth year achelor of education teacher trainees experience the challenge of using the APA to compile reference lists. More still, findings indicated that 164 (54%) fourth year Bachelor of education teacher trainees do not experience any challenge when using the MLA whereas, 173 (57%) fourth year bachelor of education teacher trainees do not experience any challenge when using the NS styles of referencing. However, the findings indicated that 185 (61%) fourth year bachelor of education teacher trainees face challenges when using the HRS while 200 (66%) fourth year bachelor of education teacher traineesface challenges when using the CMS. More findings revealed that the APA pose no challenge to 206 (68%) third year bachelor of education teacher trainees while MLA pose no challenge to 164 (54%) third year bachelor of education teacher trainees. Additionally, NS referencing styles pose no challenge to 152 (50%) third year bachelor of education teacher trainees when compiling reference lists.

Nonetheless, the findings indicated that CMS poses challenge to 197 (65%) third year bachelor of education teacher trainees whereas, the HRS poses challenge to 170 (56%) third year bachelor of education teacher trainees when compiling reference lists. Further findings revealed that the CMS pose challenges to bachelor of education teacher trainees across all levels from second year to fourth year, whereas the HRS pose challenges to

third year and fourth year bachelor of education teacher trainees. The findings confirmed that bachelor of education teacher trainees encounter challenges when citing sources consulted and while compiling reference lists. The findings concurred with Nierenberg and Fjeldbu (2015) findings which established that Norway's undergraduate students require more instructions in referencing abilities in order to know when citing is required.

Additionally, the findings confirmed that bachelor of education teacher trainees require more instructions on referencing in major documentation styles to avoid committing plagiarism due to poor citation and referencing skills (Obachi, 2014). The study has established that Chicago Manual Style pose a big challenge to bachelor of education teacher trainees across all levels from second year to fourth year. In the same vein, Harvard Referencing System poses challenge to bachelor of education teacher trainees in third year and fourth year. The findings support the work of Lee (2013) who revealed that students have inadequate skills in understanding citation, particularly citing e-resources. The findings also concur with those by Anafo and Filson's (2014) which noted that Ashesi University College's undergraduates had challenges when identifying citation for journal articles and did not know when to cite.

The bachelor of education teacher trainees were interviewed to triangulate the findings. The teacher trainees were asked to indicate their conversance with various referencing styles. A fourth year male bachelor of education teacher trainees taking the Kiswahili/Christian Religious Education combination said:

> *"I only know the American Psychological Association taught*
> *by the information skills librarians who insisted that we use*
> *the American   Psychological Association for all assignments".*

A second year bachelor of education teacher trainees taking the Biology/Chemistry combination said:

> *I'm not familiar with any and this hinders completion of my project because the supervisor advised us to always cite the author(s) of the sources that quote in our project to avoid being accussed of practicing plagiarism".*

A fourth year female bachelor of education teacher trainees taking English/Linguistics combination said".

> *"I am familiar with Modern Language Association and American Psychological Association taught by the linguistics lecturer and the information skills librarian respectively".*

A third year female bachelor of education teacher trainees taking Mathematics/Business Studies combination said:

> *"I am familiar with American Psychological Association style taught by College librarian during a library workshop. The librarian trained us how to use APA to compile reference lists".*

The verbatim findings on bachelor of education teacher trainees' conversance with referencing styles confirmed that the teacher trainees are only conversant with the APA referencing style. Further findings revealed that different courses/subject combinations advise the teacher trainees to use specific styles for their academic work. Majority of the courses recommend the teacher trainees to use APA style and this perhaps explain the reason for most of the teacher trainees being conversant with it. This means that bachelor of education teacher trainees' participation among learning communities through conference proceedings can be adversely affected. This is so because bachelor of education teacher trainees do not understand the in-text citations and reference lists that are compiled using referencing styles like CMS and HR system. The findings concur to those by Sentleng and King (2012) which revealed that undergraduate students of a

higher education institution in South Africa do not know how to reference internet resources.

A chi-square test was run to establish whether there was a relationship between bachelor of education teacher trainees' reference abilities and utilization of e-resources. The findings are presented in Table 4.14.

Table 4.14: Teacher trainees referencing ability and utilization of e-resources

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.542[a]	4	.637
Likelihood Ratio	2.722	4	.605
Linear-by-Linear Association	.208	1	.648
N of Valid Cases	303		

The findings showed that there was no statistically significant association between bachelor of education teacher trainees' referencing ability and utilization of e-resources (p>0.05) implying that there was no significant association. The findings have confirmed that bachelor of education teacher trainees are not conversant with ACRL (2015) third frame of ILFHE which emphasize that information has value. The frame requires bachelor of education teacher trainees to understand that intellectual property laws require one to acknowledge ideas of others that have been incorporated into ones' work. This is accomplished through appropriate citing in the in-text section and compilation of a reference list of documents consulted in the process of completing assignments or writing journal articles. The study supports the views of ACRL's (2015) third and fifth frames, 'information has value' and 'participation in scholarly comversations among

learning communities' respectively which emphasize appropriate citation and referencing of original ideas of authors incorporated into one's assignment to avoid bachelor of education teacher trainees being accussed of practicing plagiarism unintentionally.

4.8 Collaborative information literacy efforts and utilization of e-resources

The study sought to establish the relationship between collaborative information literacy efforts among staff and utilization of e-resources. The bachelor of education teacher trainees were asked to rate the information literacy support they get from university staff from different departments that promote utilization of resources. The findings are presented in Table 4.15.

Table 4.15: Collaborative information literacy effort and utilization of e-resources

Information Literacy Collaborators	Not supportive		Lukewarm		Supportive		Very supportive	
	F	%	F	%	F	%	F	%
Support from lecturers	61	17	55	15	146	41	97	27
Support from Information skills librarians	45	13	76	22	147	42	85	24
Support from library staff	45	13	89	25	136	37	91	25
Support from students	30	9	59	16	119	34	147	41
Support from administrators	105	30	122	34	89	25	38	11

The findings indicated that 147 (41%) bachelor of education teacher trainees were very supportive in promoting utilization of e-resources. This meant that bachelor of education teacher trainees assists each other to utilize e-resources in preparing teaching notes or completing group assignments. Further findings revealed the opinion of 119 (34%) bachelor of education teacher trainees were of the view that fellow students were supportive. Furthermore, the findings indicated 59 (16%) bachelor of education teacher

trainees' view was that fellow students provided lukewarm support. However, 30 (9%) bachelor of education teacher trainees felt that fellow students were not supportive in promoting utilization of e-resources. The findings indicated that bachelor of education teacher trainees lead in being very supportive to fellow teacher trainees on utilization of e-resources. Moreover, findings revealed that 97 (27%) bachelor of education teacher trainees were of the opinion that lecturers were very supportive in promoting utilization of e-resources whereas, 146 (42%) bachelor of education teacher trainees were of the opinion that lecturers were supportive.

However, the findings indicated that 55 (15%) bachelor of education teacher trainees were of the opinion that lecturers provided lukewarm support while 61 (17%) bachelor of education teacher trainees were of the opinion that lecturers were not supportive in promoting utilization of e-resources by bachelor of education teacher trainees.

Additionally, the findings revealed that 85 (24%) bachelor of education teacher trainees were of the opinion that information skills librarians were very supportive in promoting utilization of e-resources by bachelor of education teacher trainees while 147 (42%) bachelor of education teacher trainees were of the opinion that information skills librarians were supportive. Further findings confirmed that 76 (22%) bachelor of education teacher trainees were of the opinion that information skills librarians provided lukewarm support whereas 45 (13%) bachelor of education teacher trainees felt that information skills librarians did not support the promotion of utilization of e-resources by bachelor of education teacher trainees. Furthermore, the findings indicated that 91 (25%) bachelor of education teacher trainees were of the opinion that library staff is very supportive in promoting utilization of e-resources by bachelor of education teacher

trainees whereas 136 (37%) achelor of education teacher trainees had the opinion that the library staff is supportive. Further findings indicated that 89 (25%) bachelor of education teacher trainees felt that the library staff provides lukewarm support in promoting the utilization of e-resources by bachelor of education teacher trainees while 45 (13%) of the bachelor of education teacher trainees reported that the library staff are not supportive.

Nonetheless, the findings revealed that 38 (11%) bachelor of education teacher trainees indicated that administrators were very supportive in promoting utilization of e-resources by bachelor of education teacher trainees whereas 89 (25%) of the bachelor of education teacher trainees revealed that the administrators were supportive. Moreover, the findings confirmed that 122 (34%) of the bachelor of education teacher trainees affirmed that the administrators provided lukewarm support while 105 (30%) of the bachelor of education teacher trainees indicated that the administrators did not support utilization of e-resources by bachelor of education teacher trainees. The findings revealed that students lead in being very supportive in training each other how to access e-resources, followed by lecturers, information skills librarians and library staff, in that order, while administrators are least supportive to utilization of e-resources by bachelor of education teacher trainees.

To triangulate the findings the bachelor of education teacher trainees were asked to highlight the administrator's contribution to promoting utilization of e-resources. A second year female bachelor of education teacher trainees pursuing ICT/Mathematics combination replied that:

> *"Wi-Fi is unreliable in lecture theatres in Kenya Science Campus while internet points in the campus library are inadequate. The administrators have not added internet points even though the students have passed their complaints through Class Representatives".*

Another second year bachelor of education teacher trainees taking PE/Mathematics combination said:

> "The School of Education computer labs in Kikuyu are not opened during the evenings and on Sundays. Of late, the e-resources section of the library is locked due to shortage of library staff to offer services in the e-resources lab".

A third year bachelor of education teacher trainee pursuing Early Childhood Education stated:

> "Administrators have neglected students. We queue for computers for a long time because computers are inadequate". Four computers in the LH Comp Lab1 at Kikuyu campus have broken down and have not been replaced".

A fourth year bachelor of education teacher trainees taking the Kiswahili/History comnbination replied:

> "I waste valuable time queuing for computers to access e-resources. Sometimes one misses a chance to use the computer altogether. This happens often but the administrators have done nothing to improve Wi-Fi connectivity".

The verbatim findings from bachelor of education teacher trainees corroborate the findings from questionnaires on information literacy collaborative efforts among the university staff from different professions that support bachelor of education teacher trainees' utilization of e-resources which ranked administrators as least supportive. The findings revealed that libray staff, computers and internet access points are inadequate. The administration is responsible for providing the facilities that enable access to e-resources. Collaborative information literacy efforts between the administrators and library staff is weak and does not promote utilization of e-resources by the bachelor of education teacher trainees.

Document analysis reviewed that the college librarian submitted a list of ICT infrastructure to support utilization of e-resources by bachelor of education teacher trainees but it has not been acquired. Analysis of the E-resources lab register for users revealed that the lab is not opened regularly for users due to shortage of staff. The implication is that bachelor of education teacher trainees wishing to use computers in the library to access e-resources are denied that opportunity and this hampers utilization of e-resources. Consequently, bachelor of education teacher trainees' rate of utilizing e-resources is adversely affected by shortage of library staff to assist users who require assistance to navigate e-resources. The findings differ with the outcome of research conducted by Mwantimwa and Elia (2017) which revealed high use of e-resources at Sokoine University of Agriculture due to installation of wireless routers in the library, computer labs and theatres.

The study sought to examine University of Nairobi staff's collaborative effort in teaching bachelor of education teacher trainees information literacy abilities. The bachelor of education teacher trainees were asked whether lecturers invite information skills librarians for team-teaching embedded information literacy (information literacy entrenched in a subject). The findings revealed that 212 (58%) of bachelor of education teacher trainees noted that there was no team-teaching embedded information literacy among lecturers, information skills librarians and library staff. However, 154 (42%) bachelor of education teacher trainees indicated that lecturers invited information skills librarians and library staff to teach embedded information literacy. The findings do not concur with those by Wang (2010) who participated in an information literacy collaborative team in a fourth year university in New Zealand where librarians, lecturers,

Student learning advisors and IT staff collaborated to promote the information literacy ability of the students. The findings also differ with those of Kovalik, Jensen, Schloman and Tipton (2010) survey on teacher education faculties in selected states in USA which affirmed that two-thirds of faculty members collaborated with academic librarians to integrate information literacy into the courses.

To triangulate findings, lecturers were also asked whether team-teaching embedded information literacy is practiced among lecturers and library staff. The findings revealed that only 7 (37%) lecturers invite information skills librarians and library staff to teach bachelor of education teacher trainees embedded information literacy in class. However, more findings revealed that 12 (63%) lecturers do not invite information skills librarians and library staff to team-teach embedded information literacy. The findings concur with 212 (58%) bachelor of education teacher trainees' views who said that lecturers do not invite library staff and information skills librarians to teach embedded information literacy. The findings do not concur with those by Cote and Juskiewicz (2016) which affirmed successful collaborative information literacy effort in chemistry and writing courses between two librarians and professors of Engineering at the University of Montana. The findings also differ with those by Duke and Ward (2009) which observed that collaborative efforts between faculty and librarians are beneficial because students become proficient in information literacy abilities. In the same vein, the findings differ with those by Earp (2009) indicating that information literacy programmes which librarians develop and conduct with the faculty are successful in imparting information literate abilities.

The study sought to establish the availability of computers in the library and in the School of Education computer laboratories as another dimension of showing collaboration between faculty and the library. Computers facilitate the teacher trainees to access and utilize e-resources. The library staff was asked to indicate the number of computers in the library computer lab. The findings are presented in Table 4.16.

Table 4.16: Library staff's responses on computers availability in the library

Number of computers	N	Minimum	Maximum	Mean	Std. Deviation
How many computers are Functional	6	16.00	18.00	16.3333	.81650
Valid N (list wise)	6				

The findings showed that on average there are 16 networked computers available in the library computer rooms for the bachelor of education teacher trainees at Kikuyu campus to access and utilize e-resources. The computers are inadequate compared with the large (4,500) population of bachelor of education teacher trainees in Kikuyu campus. The implication was that bachelor of education teacher trainees were inconvenienced by wasting time queuing for computers in order to access e-resources. This means that several bachelor of education teacher trainees are denied a chance to utilize e-resources. This implies that the weak collaboration efforts between library and faculty expressed by limited computers availed for use in the library does not promote utilization of e-resources by bachelor of education teacher trainees.

The study sought to establish the level of collaboration between staff in promoting utilization of e-resources among bachelor of education teacher trainees by exposing the students to the sources of information. The lecturers were asked to comment on their role

of exposing bachelor of education teacher trainees to e-resources. The exposure could be achieved by including e-resources in the reading lists and giving bachelor of education teacher trainees assignments that involve interaction with e-resources. The findings revealed that 14 (74%) lecturers refer bachelor of education teacher trainees to e-resources and this broadens their horizon of resources to consult in case information need arises. This means that 14 (74%) lecturers participate in collaborative information literacy effort by promoting utilization of e-resources by exposing bachelor of education teacher trainees to e-resources. This implies that bachelor of education teacher trainees are directly linked to unlimited and up-dated subject content in text or video and simulations. However, more findings indicated that 5 (26%) lecturers do not refer bachelor of education teacher trainees to e-resources and this militates against promoting collaborative information literacy effort among staff to support utilization of e-resources.

The study sought to examine whether information skills librarians and library staff are invited for collaborative curriculum review meetings where Information literacy syllabus is discussed alongside syllabi for other bachelor of education courses.

The findings revealed that 2 (100%) information skills librarians are not invited for such meetings where changes to bachelor of education teacher trainees' syllabi are discussed. This implied that the views and suggestions of information skills librarians and library staff on improving information literacy are not included in curriculum review meetings. The implication is that bachelor of education teacher trainees fom the school of education may not compete favourably with peers from other schools of the University of Nairobi. The findings concur with those by Gunselman (2012) which confirmed that many lecturers do not invite librarians to faculty meeting because of non-recognition of

librarians as instructors. Conversely, the finding differs with those in Cote and Juskiewicz's (2014) study which observed successful collaborative information literacy effort between a librarian and a professor, in concept mapping exercises. The librarian and professor later jointly taught the writing course in the technical communication department.

The bachelor of education teacher trainees were interviewed on collaborative information literacy effort between library staff, administrators, information skills librarians and lecturers in order to triangulate the findings. A second year female bachelor of education teacher trainees taking the English/Linguistics combination was asked whether lecturers invite information skills librarians to teach embedded information literacy. The bachelor of education teacher trainees replied:

> *"There is no cooperation among library staff and lecturers*
> *to promote access and utilization of on e-resources by*
> *bachelor of education teacher trainees".*

A fourth year female pursuing Mathematics/Business Studies combination stated:

> *"The lecturers ask the students to consult the library staff to be shown the*
> *relevant e-resources to utilize to complete assignments. There is no collaborative*
> *information literacy effort because the lecturer ought to approach the librarian*
> *and agree when the students can consult the library staff for practical*
> *searching of e-resources".*

The verbatim findings from the bachelor of education teacher trainees confirmed that there is no collaborative information literacy effort among staff. This impedes utilization of e-resources by bachelor of education teacher trainees. Efforts of corroborating the findings through document analysis were unfruitful because of the unavailability of records on the issue. However, information skills librarian and library staff did not show

letters from the faculty inviting them to attend curriculum review meetings. This confirmed that information skills librarians and library staff do not participate in such academic activities where they could air their views on the importance of different departments and units collaborating in the promotion of utilization of e-resources by the bachelor of education teacher trainees. To establish if there was a relation between staff's collaborative information literacy efforts and utilization of e-resources by bachelor of education teacher trainees, a chi test was run. The findings are presented in Table 4.17.

Table 4.17: Collaborative information literacy efforts and utilization of e-resources

	Val1ue	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	56.190[a]	30	.003
Likelihood Ratio	54.609	30	.004
N of Valid Cases	338		

The findings revealed that there was a statistically significant association between collaborative information literacy efforts and utilization of e-resources by bachelor of education teacher trainees ($p<0.05$). This implies that improved collaborative information literacy efforts among library staff, School of Education administrators, information skills librarians and lecturers would increase utilization of e-resources by bachelor of education teacher trainees.

The findings of the study revealed that collaborative information literacy efforts between information skills librarians, lecturers and library staff and was weak. The findings do not concur with those of Sullivan and Porter (2016) and Oakleaf and Leah (2011) which revealed that successful information literacy programmes require strong collaboration among librarians, administrators, students and faculty. In the same vein, the findings

differ with those of Earp (2009) which emphasizes the importance of collaborative information literacy programmes. Earp stresses that collaborative information literacy programmes which librarians develop with the faculty are successful. This study has established that the collaborative information literacy effort among lecturers and information skills librarians, School of Education administrators and library staff within the School of Education is not well coordinated. However, the findings revealed that some effort has been made to expose bachelor of education teacher trainees to e-resources by information skills librarians, lecturers and library staff but a lot remains to be done in order to increase utilization of e-resources by bachelor of education teacher trainees.

The findings also do not concur with those by Davis' (2013) study which revealed that collaboration between librarians and academic staff is important for the students to master information literacy hence making it easier for the students to utilize e-resources. Davis further affirmed that it is beneficial for the faculty, the instructional designer, and the librarian to cooperate in order to enhance the learning and teaching experience of the bachelor of education teacher trainees and librarian, respectively.

4.9 Utilization of e-resources by bachelor of education teacher trainees

This study sought to determine whether bachelor of education teacher trainees access and utilize e-resources. All the categories of staff that is, information skills librarians, lecturers, library staff, bachelor of education teacher trainees and administrators were asked various questions regarding utilization of e-resources by bachelor of education teacher trainees. The lecturers were asked their views on whether bachelor of education teacher trainees utilize e-resources. All 19 (100%) lecturers indicated that bachelor of

education teacher trainees utilize e-resources to complete assignments. This was a good indication that e-resources are used by the bachelor of education teacher trainees.

The study sought to examine whether bachelor of education teacher trainees utilize e-resources. The findings revealed that 285 (77%) bachelor of education teacher trainees utilize e-resources whereas 85 (23%) bachelor of education teacher trainees did not. This raised concern because such students do not experience the interactive and motivating multimedia learning experiences enjoyed through utilizing e-resources. Bachelor of education teacher trainees who do not utilize e-resources have narrow subject content which lead to low academic performance in the subject.

The study sought to establish bachelor of education teacher trainees' conversance with different e-resources to assess whether they utilize a wide range of resources. The findings were presented in Figure 4.7

Figure 4.7: Utilization of e-resources by bachelor of education teacher trainees
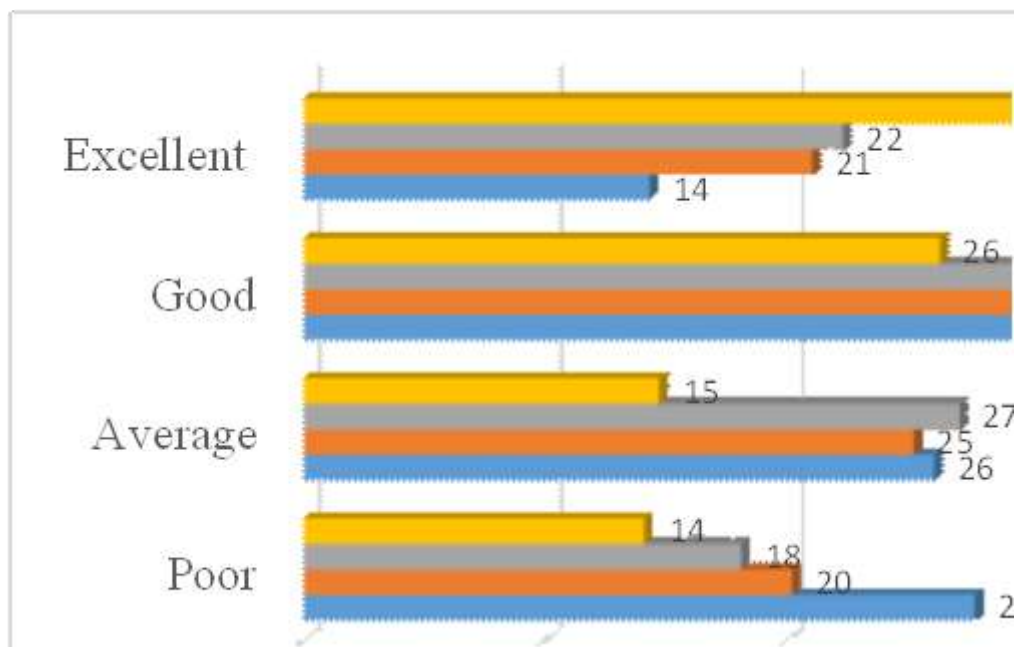
According to the findings 166 (45%) bachelor of education teacher trainees rated conversance with open access resources as excellent while 96 (26%) bachelor of education teacher trainees rated conversance with the resources as good. Further findings indicated that 55 (15%) bachelor of education teacher trainees rated conversance with open access as average, whereas 52 (14%) bachelor of education teacher trainees rated conversance with the resources as poor. Further findings revealed that 81 (22%) bachelor of education teacher trainees rated conversance with University of Nairobi digital resources as excellent, while 122 (33%) bachelor of education teacher trainees rated conversance with the resources as good. Moreover, findings confirmed that 100 (27%) bachelor of education teacher trainees rated conversance with University of Nairobi digital resources as average, while 67 (18%) bachelor of education teacher trainees rated conversance with the resources as poor.

Furthermore, findings indicated that 78 (21%) bachelor of education teacher trainees rated conversance with e-journals as excellent while 126 (34%) bachelor of education teacher trainees rated conversance with the resources as good. Additionally, the findings affirmed that 93 (25%) bachelor of education teacher trainees rated conversance with e-journals as average whereas 74 (20%) bachelor of education teacher trainees rated conversance with the resources as poor. Furthermore, the findings revealed that 52 (14%) bachelor of education teacher trainees rated conversance with e-books as excellent while 118 (32%) bachelor of education teacher trainees rated conversance with the resources as good. Additionally, the findings indicated that 97 (26%) bachelor of education teacher trainees rated conversance with e-books as average while 104 (28%) bachelor of education teacher trainees rated conversance with e-books as poor.

The findings revealed that bachelor of education teacher trainees are most conversant with open access resources 262 (71%), followed by University of Nairobi digital repositories 203 (55%) and e-journals 197 (55%) in that order. Conversely, bachelor of education teacher trainees are least conversant with e-books at 170 (46%). The findings concur with those by Owolabi, Idowu, Okocha and Ogundare (2016) which revealed that 170 (90.4%) social science and education undergraduates used e-resources for assignments, whereas 142 (75.5%) used the sources of information to communicate with friends. Findings affirmed that more than three quarter of bachelor of education teacher trainees utilize e-resources.

4.10 Comments on utilization of e-resources by teacher trainees

The study sought to capture additional comments from the respondents which could add value to the research findings on utilization of e-resources by bachelor of education teacher trainees. The respondents were asked to comment on information need recognition, searching, evaluating, citation and referencing, collaborative information literacy effort and utilization of e-resources by bachelor of education teacher trainees which had not been tackled. A second year bachelor of education teacher trainees taking the English/Linguistics combination replied:

> *"We request the university to enhance Wi-Fi facilities within the college and add more computers in the library and computer labs to enable students to utilize e-resources*

A second A second year bachelor of education teacher trainees taking pursuing

Chemistry/Biology Combination said:
> *"We request management to employ adequate staff to facilitate access to networked computers by keeping the labs open in addition to assisting students expriencing challenges of accessing e-resources."*

A third year female bachelor of education teacher trainees taking the Geography/Business combination said:

> *"We request the College librarian CEES Library to keep the
> e-resources lab open and assign a library staff to assist
> students with challenges of accessing e-books."*

An information skills librarian said:

> *"Despite the apathy by bachelor of education teacher trainees of University
> of Nairobi, efforts should continue on training the bachelor of education
> teacher trainees on access and utilization of e-resources because they
> experience challenges of utilizing the resources".*

A male lecturer asserted:

> *"Bachelor of education teacher trainees from the School of Education are
> below the worlds' average in utilizing e-resources. There is need for
> University of Nairobi to up the game in training the teacher trainees on
> accessing and utilization of e-resources. However, I challenge the library
> staff to market the resources appropriately among the lecturers and students".*

The verbatim findings indicated 80% of the respondents confirming that bachelor of education teacher trainees requires information literacy on accessing e-resources because they do not have the skills. Further findings revealed that 70% of the respondents requested adequate staff and ICTs thus indicating that collaborative information literacy efforts among university staff from various departments should be be increased to support utilization of e-resources by the bachelor of education teacher trainees. Utilizing e-resources exposes Bachelor of education teacher trainees to unlimited subject content in multimedia presentions that lead to improved academic grades. However, for the bachelor of education teacher trainees to embrace the culture of utilizing e-resources, the library staff were challenged by 20% of the respondents to market the e-resources available in the library services portal using appropriate marketing strategies. The findings highlighting low marketing of e-resources was timely and corroborates findings

which indicated that 105 (23%) Bachelor of education teacher trainees were not aware that e-resources are accessible from the library website.

Furthermore, to cope with the influx of bachelor of education teacher trainees visiting computer labs and libraries to utilize e-resources after awareness creation, the School of Education and Library management should heed bachelor of education teacher trainees' request of improving the ICT environment. This could be achieved through the acquisition of more computers and installing internet and Wi-Fi facilities in the libraries, lecture theatres and student centres to facilitate access and utilization of e-resources by bachelor of education teacher trainees. Furthermore, adequate library staff should be recruited to keep the computer labs open and train bachelor of education teacher trainees on e-resources. The findings do not concur with those by Mwantimwa and Elia (2017) which revealed that library users at Sokoine University of Agriculture access e-resources easily because the institution has created an enabling environment by adding more networked computers and installing Wi-Fi facilities in key points.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings of the study and conclusions. The chapter ends with recommendations which are broken down into practices, policy and suggestions for further research.

5.2 Summary of the findings of the study

The study examined the relationship between information literacy and utilization of e-resources by bachelor of education teacher trainees of University of Nairobi in teaching and learning processes. The objectives of the study were to: establish the relationship between bachelor of education teacher trainees' information needs recognizing ability and utilization of e-resources; determine the relationship between bachelor of education teacher trainees' information searching ability and utilization of e-resources; examine the relationship between bachelor of education teacher trainees' information evaluating ability and utilization of e-resources; establish the relationship between bachelor of education teacher trainees' citation and referencing ability and utilization of e-resources and determine the relationship between collaborative information literacy effort among university staff and utilization of e-resources.

The study was guided by the systems theory which viewed the bachelor of education programme as an open system that accepts input from the environment, process and passes output to the environment.

The present study adopted descriptive survey research design. The target population for the study included 3082 bachelor of education teacher trainees from second to fourth year, enrolled at the University of Nairobi. Both probability and purposive sampling procedures were used and stratified random sampling procedure was used to ensure that each student had an equal chance to participate in the study. A sample of 370 bachelor of education teacher trainees and 30 staff participated in the study. The study used questionnaires, interview guides and a document analysis guide to collect data from bachelor of education teacher trainees, information skills librarians, lecturers, library staff and administrators. The findings were presented in accordance with the objectives of the study.

The first objective sought to establish the relationship between bachelor of education teacher trainees' information needs recognizing ability and utilization of e-resources. The study established that more than half of bachelor of education teacher trainees are conversant with all indicators of information need recognition. The indicators of information need recognition include identifying the purpose for which information is needed, formulating good research questions to guide search for the right information, knowing the right sources to consult and planning acquisition of information. Information need recognition propels the teacher trainees to search for relevant information to fill the information gap. However, a cross tabulation of teacher trainees' information need recognition and courses undertaken by the teacher trainees revealed that there are variations on information need recognition. The study confirmed that teacher trainees pursuing B.Ed ICT are more conversant with information needs recognition compared to

the other teacher trainees. They are followed by B.Ed (P.E and Sports Option), B.Ed (Science), B.Ed (Arts) and B.Ed Early Childhood Education in that order. The study established that there was a statistically significant association between bachelor of education teacher trainees' information needs recognition and utilization of e-resources (p<0.05). The findings determined that improving bachelor of education teacher trainees' information needs recognizing ability increases efficient utilization of e-resources.

The second objective sought to establish the relationship between bachelor of education teacher trainees' information searching ability and utilization of e-resources. The study established that bachelor of education teacher trainees are not conversant with truncation, wildcard and Boolean operator searching techniques. This is a drawback because the teacher trainees are unable to use the superior searching techniques to access relevant information to advance their academic work. This is worrisome because the teacher trainees are not able to access up-to-the-minute information on various topics like other undergraduates in other schools and colleges of the university. This meant that the teacher trainees might not perform well in their exams. In the same vein, the University of Nairobi count loss of money wasted for subscribing to e-resources that are not utilized by the teacher trainees to improve their academic performance.

The study sought to establish whether there were variations in the ability of searching information across the courses undertaken by bachelor of education teacher trainees. The findings indicated that B.Ed (ICT) teacher trainees tops other teacher trainees on ability to search information. They are followed by B.Ed Early Childhood Education students then B.Ed Science, B.Ed (Arts) and lastly, B.Ed (PE and Sports. The study revealed that there was a statistically significant association between bachelor of education teacher

trainees' searching ability and utilization of e-resources (p<0.05). This means that improving bachelor of education teacher trainees' conversance with searching techniques increases utilization of e-resources.

The third objective sought to examine the relationship between bachelor of education teacher trainees' information evaluating ability and utilization of e-resources. The findings confirmed that authority leads in posing challenges to the bachelor of education teacher trainees followed by accuracy, objectivity and coverage criteria in that order. This worrisome situation impedes utilization of e-resources by the teacher trainees due to inability to choose quality e-resources to advance their academic tasks. A cross tabulation of the teacher trainees' information evaluating ability and the courses they pursue revealed that B.Ed ICT teacher trainees are more conversant/very conversant with evaluating e-resources than the other cohorts. They were followed by B.Ed (Science) teacher trainees, B.Ed (Arts) teacher trainees and lastly B.Ed (Early Childhood Education teacher trainees.

The study revealed that there was a statistically significant association between bachelor of education teacher trainees' information evaluating ability and utilization of e-resources (p<0.05). The findings emphasize the need to enhance bachelor of education teacher trainees' information evaluating ability through teaching the teacher trainees the evaluation criteria. Improving bachelor of education teacher trainees' evaluating ability increases efficient utilization of e-resources which may lead to improvement of the academic performance of the teacher trainees.

The fourth objective sought to establish the relationship between bachelor of education teacher trainees' citation and referencing ability and utilization of e-resources. The findings confirmed that Chicago Manual of Style (CMS) leads in posing challenges to bachelor of education teacher trainees followed by the Harvard Referencing Style (HRS). Further findings affirmed that the bachelor of education teacher trainees are most conversant with the American Pschological Association style followed by Modern Language Association style and Numeric System in that order. Furthermore, a cross tabulation of the teacher trainees' citation and referencing ability and the courses they pursue revealed that B.Ed Arts teacher trainees are more conversant/very conversant with citation and referencing e-resources than the other cohorts. They are followed by B.Ed (ICT) teacher trainees, B.Ed (Science) and B.Ed (P.E & Sports) in that order. Further findings confirmed that none of the teacher trainees undertaking B.Ed (Early Child Education) is conversant with referencing of e-resources.

The findings revealed that there was no statistically significant association between bachelor of education teacher trainees' citation and referencing ability and utilization of e-resources (p>0.05). This implied that bachelor of education teacher trainees' ability to access and utilize e-resources is not determined by referencing ability of the teacher trainees. However, there is need to step up teaching of citation and referencing styles to empower the teacher trainees with the skills of properly citing and referencing e-resources consulted in course of writing papers. Lack of citing or inappropriate citing of the e-resources consulted amounts to plagiarizing other peoples' information resources and is punishable by law or may lead to the teacher trainees failing their examination. The bachelor of education teacher trainees who are empowered with referencing abilities

participate in scholarly conversation through seminar presentations without plagiarizing other peoples' ideas. Such information literate bachelor of education teacher trainees conform to ACRL (2015) third frame of the ILFHE, 'Information has value including being a means in attaining quality education'. The frame emphasize that researcher and students should give credit to authors whose ideas are incorporated into someones' intellectual work through proper citation and referencing.

The fifth objective sought to determine the relationship between staff's collaborative information literacy effort and utilization of e-resources. The findings affirmed that students lead in being very supportive to promoting bachelor of education teacher trainees' utilization of e-resources followed by lecturers, information skills librarians, library staff and administrators in that order. The findings also revealed that there is weak collaborative team-teaching of embedded information literacy between library staff, lecturers and information skills librarians. Availing adequate functional computers to be used by bachelor of education teacher trainees to access e-resources is another aspect that can support collaborative information literacy effort among library staff, administrators, lecturers and information skills librarians. The findings confirmed that networked computers are inadequate and the Wi-Fi in the libraries and lecture theatres in Kenya Science and Kikuyu campuses are unreliable. Furthermore, the staff does not collaborate to solve these challenges to enable bachelor of education teacher trainees to access and utilize e-resources and this situation impedes utilization e-resources.

 The findings affirmed that there is a statistically significant association between collaborative information literacy efforts among staff that enhance bachelor of education teacher trainees' utilization of e-resources (p<0.05). This implies that increasing

collaborative information literacy effort among library staff, lecturers, information skills librarians and administrators increases utilization of e-resources by bachelor of education teacher trainees. The collaborative information literacy effort may include providing facilities such as networked computers and Wi-Fi in libraries, student common rooms and theatres and this would enhance utilization of e-resources. Improved collaborative information literacy efforts like provision of adequate computers and reliable internet would boost utilization of e-resources by bachelor of education teacher trainees.

5.3 Conclusions

The findings established that bachelor of educaton teacher trainees' conversance with information need recognition is good which implies that they are conversant with information need recognition indicators like knowing the right e-resources to consult that have the right information to complete a specific assignment. This is a good start which gives the teacher trainees an edge in utilizing the e-resources that have been subscribed for by the University. The findings also established that bachelor of education teacher trainees were conversant with key word and phrase searching techniques which they use very often to search information from various e-resources. However, the teacher trainees are not conversant with superior searching techniques like wildcard, truncation and Boolean operator searching techniques which could assist them to search relevant information from specific databases efficiently and effectively. For instance, conversance with wildcard searching technique would allow the teacher trainees to get all articles on a specific topic like labour/labor relations though spelt differently in English language by the authors of articles on the topic. Wildcard is used to replace an unknown letter in a word, where the user is not sure of the spelling, for instance labo?r or labour. The

truncated word looks thus: labo?r to capture all articles on labour written in UK English as well as on labor written in American English. Bachelor of education teacher trainees are not utilizing e-resources efficiently to improve academic performance because they are not conversant with superior searching techniques.

Findings also established that bachelor of education teacher trainees are not conversant with the evaluation criteria. Conversance with the evaluation criteria would help the teacher trainees to scrutinize e-resources using the authority, currency, objectivity, accuracy and coverage of topics so as to utilize documents that have quality information and discard propaganda and unreliable information. Conversance with the evaluation criteria could promote utilization of e-resources because the teacher trainees would consult several e-resources before extracting quality information to integrate into their academic work. Integrating quality information into the teacher trainees academic work would lead to improvement of the performance of the subjects pursued by the teacher trainees. This would be a step in the right direction because the university subscribes a lot of money annually to avail up-to-the-minute information to the teacher trainees to advance knowledge. This implies that the scarce resources spent by the university in subscribing for the e-resources will be seen not to have been wasted as long as the e-resources are utilized by the teacher trainees.

Findings also established that majority of bachelor of education teacher trainees' citation and referencing ability is low. Majority of the teacher trainees are not conversant Chicago Manual of Style and Harvard Referencing System. This implies that the teacher trainees unknowingly commit plagiarism when completing assignments or writing conference papers because they do not give credit to authors whose works have been referred to in

course of completing academic tasks. Further, the bachelor of education teacher trainees are not consistent in in-text citations and in compiling reference lists appealing at the end of conference papers or assignments. This is a matter of concern because the teacher trainees may fail their exams because of plagiarizing other peoples' works unintentionally. The matter is worrisome because it may lower the number of teacher trainees scoring first class honours or upper second division at the end of the course

It was also established that collaborative information literacy efforts expended by library staff, lecturers, information skills librarians and administrators is weak and does not meet the threshold of campus-wide information literacy collaboration. Different departments separately make information literacy efforts of promoting utilization of e-resources by the teacher trainees. This strategy has made little progress in promoting utilization of e-resources by the teacher trainees. Findings also established that majority of bachelor of education teacher trainees utilize e-resources to complete assignments, promote professional development, participate in learning communities and to generate knowledge. However, the performance of the bachelor of education teacher trainees in accomplishing the tasks mentioned above would improve if they utilized e-resources efficiently. Efficient utilization of e-resources can be achieved through improving the information literacy abilities of the bachelor of education teacher trainees hence the need to implement the recommendations suggested below.

5.4 Recommendations

The study offer several recommendations based on the findings of the study.

The recommendations were categorized into practice, policy and further research.

5.4.1 Practices

The following recommendations offer guidelines to library staff, administrators, information skills librarians and lecturers on current practices that support bachelor of education teacher trainees to utilize of e-resources.

i. Bachelor of education teacher trainees should be taught a wide range of searching techniques including superior techniques like Boolean operator, wildcard and truncation to narrow the search for information and yield the specific sources sought. Proficiency in formulating the right search strategy would enable the bachelor of education teacher trainees to access specific information from e-resources to prepare class notes or complete assignments leading to improved academic perfomance.

ii. Bachelor of education teacher trainees should be trained on evaluation of e-resources. It is important to empower bachelor of education teacher trainees with information evaluating abilities in order to filter propaganda and dubious publications that are not peer-reviewed. This would assist the bachelor of education teacher trainees to scrutinize the credibility and expertise of the authors before extracting information from any publiction. Bachelor of education teacher trainees who are conversant with the evaluation criteria utilize e-resources efficiently to complete assignments or perform other academic tasks.

iii. Bachelor of education teacher trainees should be trained how to cite and reference e-resources consulted in course of completing academic tasks to avoid plagiarizing other peoples' works unknowingly.

5.4.2 Policy

The following recommendation at policy level is directed to the University of Nairobi.

(i)   A clause emphasizing collaborative information literacy effort among university staff should be included in the University's mission statement. This will inform the bachelor of education teacher trainees that acquiring information literacy and efficient utilization of e-resources is an institution-wide goal which every teacher trainee should achieve.

5.4.3 Further research

Based on the findings, the study recommends further research in the following areas in order to increase bachelor of education teacher trainees' utilization of e-resources and enrich the body of knowledge on information literacy and utilization of e-resources.

(i)   A similar study on the influence of information literacy and utilization of e-resources should be carried out to compare utilization of e-resources by undergraduates from different colleges of the University of Nairobi.

(ii)   A study should be carried out to establish the relationship between utilization of e-resources by bachelor of education teacher trainees of University of Nairobi and academic performance.

(iii)   A longitudinal study on "The influence of information literacy on utilization of e-resources by bachelor of education teacher trainees" should be carried out at the University of Nairobi.

REFERENCES

Abdullahi, M. and Tijani, F. (2013) Electronic library and its impact on the development of teacher education in Nigeria. *South-West Journal of Teacher Education* (2013). 5, pp. 333-338.

Adegbore, A. (2011). University faculty use of electronic resources: A review of the recent literature. *PNLA Quarterly, the official publication of the Pacific Nsorthwest Library,* pp. 1-11.

Adeniran, P. (2013). Use of electronic resources by undergraduates at the Redeemer's University, Nigeria. *International Journal of Library and Information Science*, 5, pp. 319-324.

Adeyemi, T and Olaye, F. (2010). Information communication and technology for effective management of secondary schools in Ekiti State, Nigeria. *American-Eurasian Journal of Research,* 5, pp. 106-113.

Ahmad, W. et al (2013). Modeling of the acceptance of e-books among school teachers in Terengganu, Malaysia. *Applied Mathematical Sciences*, 7, pp. 5791-5806.

Aina, R. (2014). Awareness, accessibility and use of electronic databases among academic staff of Babcock University Business school. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 3, pp. 2-6.

Alliant Libraries. "*What is Boolean Operator*?" Retrieved on 20th February 2017. From: https://library.alliant.edu/screens/boolean.pdf.

Al, U., Soydal, I., and Tonta, Y. (2010). *Analysis of e-book use: The case of ebrary.* Paper presented at the 14th International Conference on Electronic Publishing, Helsinki Finland.

American Chemical Society Committee on Professional of training (2008). *Undergraduate professional education in chemistry: ACS guidelines on evaluation procedures for bachelor's degree programmes.* Washington, DC: ACS

American Library Association. Education and Behavioural Sciences Section Instruction for Educators Committee, (2011). *Information literacy standards for teacher education.* Retrieved on 7th October 2015. From: https://www.ala.org/.../ilstandards_te.pd

American Psychological Association (APA). (2017). American Psychological Association style guide to electronic references. Retrieved on 22nd October 2017 From: http://www.apa.org/books

American Psychological Association. (2010). Manual of the American Psychological Association 6th ed. Washington, DC: APA.

Amunga, H. (2011). Information literacy in the 21st century universities: The Kenyan experience. 8th international CALIBER, 02 - 04 March. INFLIBNET Centre, Ahmedabad.

Anafo, P and Filson, C. (2014). Promoting information literacy among undergraduate students of Ashesi University College. *Library Philosophy and Practice, 1032*, pp. 1-17.

Anaraki, N. and Babalhavaeji, F. (2013). Investigating the awareness and ability of medical students in using electronic resources of the integrated digital library portal of Iran: a comparative study. *The Electronic Library,* 31, pp. 70 - 83.

Angello, C. (2010). The awareness and use of electronic information sources among livestock researchers in Tanzania. *Journal of Information Literacy*, *4*, pp. 6-22.

Ani, O. (2010). Internet access and use: a study of undergraduates in three Nigerian universities. *The Electronic Library*, 28, pp. 555-567.

Ankrah, E and Atuase, D. (2016). The use of electronic resources by postgraduate students of the University of Cape Coast. *Library Philosophy and Practice*, pp.1-37. Retrieved on 12th May, 2018. From: https://digitalcommons.unl.edu/libphilprac

Ankuya, B. (2013). *Library science and information technology*. New Delhi: Discovery Publishing House PVT.

Ansari, M. and Zuberi, B. (2010). Use of electronic resources among academics at the University of Karachi, *Library Philosophy and Practice*, June, pp.1-8

Armstrong, C. and Lonsdale, R. (2011). Introduction. [In: Price, K and Havergal, V. (Eds.). *E-books in libraries: a practical guide*]. London, U.K.: Facet Publishing.

Armstrong, I. (2010). Electronic resources access: Issues and resolutions in two academic libraries. *Virginia Polytechnique*, pp. 19-28.

Ashcroft, L. (2011), E-books in libraries: an overview of the current situation. *Library Management,* 32 pp. 398-407.

Association of College and Research Libraries (ACRL), (2015). *Framework for information literacy for higher education*. Retrieved on 20th January 2016. From: https://www.ala.orf/acrl/standards/ilframework.

Association of College and Research Libraries (ACRL), Information Literacy Best Practice Committee (2012). Characteristics of programs of Information Literacy that illustrate best practices: A guideline. *College and Research Libraries, 73*, pp. 353-359.

ACRL Instruction Section Research and Scholarship Committee (2011). *Research agenda for library instruction and information literacy.* Retrieved 13th June 2017. From: http://www,ala.org/acrl/aboutacrl.

Asunka, S. (2013). The viability of e-textbooks in developing countries: Ghanaian university students' perceptions. Open Learning: *The Journal of Open, Distance and e-Learning*, 28, pp. 36-50.

Bamidele, I., Omeluzor, U. and Amadi, U. (2013). Utilization of journal publications by undergraduate students of Babcock University, Nigeria. *Library Philosophy and Practice (e-journal), paper 1006.* Retrieved 13th June 2017. From: http://digitalcommon.unl.edu/libphilprac/1006

Bhatt, S and Rana, M. (2011). E-information use among engineering academics in India with special reference to Rajasthan State. *Library Hi Tech*, *29,* pp. 496-511.

Baro, E. (2011). A survey of information literacy education in library schools in Africa. *Library review*, 60, pp. 202-207. doi:10.1100242531111117263.

Baro, E. and Zuokemefa, T. (2012). Information literacy programmes in Nigeria: A survey of 36 University Libraries. *New Library World*, 112, pp. 549-565. Retrieved on 12th December 2015 from: https://emeraldinsight.com doi/full/10.1108/0307481111190428

Baro, E., Eze, M. and Nkanu, W. (2013). E-Library services: Challenges and training needs for librarians in Nigeria. *OCLC Systems & Services*, 29, pp. 101-116.

Baro, E., and Keboh, T. (2012). Teaching and fostering information literacy programmes: A survey of five university libraries. *The journal of Academic librarianship, 38*, pp. 311-315. doi:10.1016/j.acalib.2012.07.001.

Bashorun, M., Tunji, I. A. and Adisa, M.Y. (2011). User perception of electronic resources in the University of Ilorin, Nigeria (UNILORIN). *Journal of Emerging Trends in Computing and Information Sciences*, 2, pp. 554- 562.

Bature, I. (2009). Utilization of library resources by students of tertiary institutions in Kebbi state of Nigeria. *International Journal Research in Education*, 6, pp-180-188.

Best, J and Khan, J. (2011). *Research in education* (10[th]ed.). New Delhi. Prentice Hall Learning.

Bloom, B., Engelhart, M., Frost, E., Hill, W., and Krathwohl, D. (1956). *Taxonomy of educational objectives: Handbook I, Cognitive Domain*. New York: Longman - Mc Kay.

Bosman, J. (March 14, 2011). *Publisher limits shelf life library e-books.* Retrieved on 14th December 2015. From: https://www.nytimes.com/20/03/15/business/media/15libraries.html

Booth, C. (2011). *Reflective teaching, effective learning: Instructional literacy for library educators*. ? American Library Association

Brayman, A. (2012). S*ocial research methods* (4th ed.). Oxford University Press: Oxford.

Central Connecticut State University. (2016). *Elihu Burrit Library information literacy programme.* Retrieved on 12th December 2016. From: http://library.ccsu.edu/InfoLitAssessmen2016.pdf

Chen, H.and Jang, S. (2013). Exploring the reasons for using electric books and technologic pedagogical and content knowledge of Taiwanese elementary mathematics and science teachers. *Turkish Online Journal of Educational Technology*, 12, pp. 131-141.

Conley, M. (2012). *Content area literacy: Learners in context*. London: Pearson.

Cote, C and Juskiewicz, S. (2014). Two approaches to collaborative information literacy instruction. *Collaborative Librarianship*, 6, pp. 73-81.

Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, pp. 297-334.

Curie, L. (2010). *Undergraduate search strategies and evaluation criteria: Searching for credible sources.* Retrieved on 4th June 2015. From: http://kuscholarworks.ku.edu/bitsream/.../New_library_world.pdf?

D'Agostino, D. (2010). *The strange case of academic libraries and e-books nobody reads*. Retrieved on 15th July 2016. From: http://www.teleread.com/ebooks/the-strange-case-of-academic-libraries-and-e-books-nobody-reads

Dadzie, P. (2005). Electronic resources: access and use at Ashesi University
College.*Campus–wide Information Systems* 22, pp. 290-297. Retrieved on
11[th]January 2016. From: http//www.emeraldinsight.com.

Daramola, C. (2016). Perception and utilization of electronic resources by undergraduate
students: the case of the Federal University of Technology library, Akure.
American Journal of Educational Research, 4, pp. 366-370.

Daugherty, A and Russo, M. (2011). An assessment of the lasting effects of a stand-alone
information course: The students' perspective. *The Journal of Academic
Librarianship, 37*, pp. 319-326. doi:10.1016/j.acalib.2011.04.006.

Davis, A., Using instructional design principles to develop effective information literacy
instruction: The ADDIE model. (2013). *Association of College and Research
Libraries Newsletter*, 74, pp. 205-207.

Deng, H. (2010). Emerging patterns and trends in utilizing electronic resources in a
Higher education environment: An empirical analysis. *New Library* World,
111, pp. 87-103.

Dhanavandan, S., Esmail, M and Nagaranjan (2012). Use of electronic resources at
Krishnasamy College of Engineering and Technology Library, Cuddalore.
Library Philosophy and Practice. Retrieved 23rd June 2016. From: http://
www.unllib.uni.edu/LPPpdf

Dilrukshi, W. (2014). Utilization of online journals by undergraduates: a case study based
on the Faculty of Agriculture, Rajaranta University of Sri Lanka. In *Proceedings
of the papers presented at the conference on Information Literacy: global
challenges and local solutions, NILIS Colomo 20-21 November 2014*, p. 271-272

Duke, S and Ward, D. (2009). *Preparing information literate teachers: A metasynthesis.
Library and Information Science Research*, 31 pp.247-256. Retrieved 12th July
2016 From: http://dx.doi.org/10.1016/jlisr.2009.04.003

Earp, V. (2009). Integrating information literacy into teacher education: A successful
grant Project, *Behavioural and Social Sciences Librarian* 28, pp. 166-78,
Retrieve on 7th June 2015. From:
http://dx.doi.org/10.1080/01639260903275748

EBSCOHost. (2017). *EBSCO interfaces user guides using wildcards and truncations*.
Retrieved on 12th May 2017. From:
https://help.ebsco.com/interfaces/EBSCO_Guides/EBSCO_Interfaces_User_Guid
es/Using_Wildcards_and_Truncation

Egberongbe, H. (2011). The use and impact of electronic resources at the University of Lagos. *Library Philosophy and Practice (e-journal).* Retrieved 23rd May 2017. From: http://digitalcommons.unl.edu

Ekenna, M. and Igabo, M. (2013). Information retrieval skills and use of library electronic resources by university undergraduates in Nigeria. *Information and Knowledge Management,* 3, pp. 6-15. Retrieved 16th January 2017 from: https://de.slideshare.net

Electronic Information for Libraries (EIFL) annual report. (2014). Sharing knowledge and saving lives: one doctors story http://www.eifl.net/annual-report-2/2014

Emmons, M., Keefe, E., Moore, V., Sánchez, R., Mals, M. and Neely, T. (2009). Teaching information literacy skills to prepare teachers who can bridge the research-to-practice gap. *Reference and user services quarterly*, 49, pp. 140-150.

Eisentein, E. (1983). *The printing revolution in early modern Europe*. New York: Cambridge University Press.

Fallon, H. and Breen, E. (2012). The changing role of the academic library in learning and teaching: Emerging Issues. *National Academy for Integration of Research, Teaching and Learning, University,* 2, pp. 141-152

Fister, B. (2013). *Decode Academy Lecture Presented at the Annual LOEX Conference, Nashville, Tennessee*, May 3 2013.

Floyd, D., Colvin, G. and Bodur, Y. (2008). A faculty–librarian collaboration for developing information literacy skills among bachelor of education teacher trainees. *Teaching and Teacher Education,* 24, pp. 368-376, doi:10.1016/j.tate.2006.11.018, http://dx.doi.org/10.1016%2Fj.tate.2006.11.018

Freeman, E and Lynd-Balta, E. (2010). Developing information literacy skills early in an Undergraduate curriculum. *College Teaching*. 58, pp. 109-115.

Gakibayo, A, Ikoja-Odongo J and Okello-Obura, C. (2013). Electronic information resources utilization by students in Mbarara University Library. *Library Philosophy and Practice*. Retrieved on 12th May 2017. From:http://digitalcommons.unl.edu/libphilprac/869.

Garba, S and Alademerin, C. (2017). Exploring the readiness of Nigerian colleges of education toward pre-service teacher preparation for technology integration. *International Journal of Integration and Inclusive Education*, 3, pp. 335-343

Georgetown University. (2017). *Evaluating internet resources*. Retrieved on 6th August 2017. From: http://www.library.georgetown.edu/tutorials/research-guide/evaluation

Google. (2009). *Google privacy policy*. Retrieved 22nd April 2017From: http://www.google.com/intl/en/privacypolicy.html

Grafton, A. (1997). *The footnote: A Curious history*. London: Blackstone.

Grigson, A. (2011). An introduction to e-book business models and suppliers. [In: Price, K and Havergal, V. (Eds.). E-*books in libraries: a practical guide*]. London, UK: Facet Publishing.

Grinnel, R., and Unrau, Y. (2010). *Social work research and evaluation*. Illinois: F.E. Peacock Publishers.

Gunselman, C. and Blakesley, E. (2012). Enduring visions of instruction in academic libraries: A Review of a spirited early twentieth century discussion. *Portal: Libraries and the Academy,* 12, pp. 259-281.

Gupta, S (2012). Statistical methods. New Delhi: Sultan Chand Educational.

Hadimani, M. and Rajgoli, I. (2010). Assessing information literacy competencies among the undergraduate students of College of Agriculture, Raichur: A case study. *DESIDOC Journal of Library and Information Technology*, 30, pp. 70-78

Haridasan, S and Khan, M. (2009). Impact of e-resources by social scientists in National Science Documentation Centre (NASSDOC), India. *The Electronic Library,* 27, pp. 117-133.

Harle, J. (2010). *Growing knowledge: Access to research in East and Southern Africa*. Retrieved on 11th March 2016. From: https://www.acu.uk/focus-areas/arcadia-growing-knowledge

Head, A and Eisenberg, M. (2009). How today's college students use Wikipedia for Course-related research, *First Monday 15*, pp. 1-2

Head, A and Wihbey (2014). At sea in a deluge of data. *Chronicle in Higher Educat*ion, July

Igun, S and Odafe, J. (2016). Information literacy among undergraduate students in Nigeria.*IGI Global*Retrieved 8th September 2017 from: http://service.igi.-global.com/resolveddoi/resolve.aspxdoi:10.0481/978-1-4666-8632-8.ch071.

Inyega, H and Inyega J. (2017). Psycotherapy, (II) literacy, information communication and technologies: Building bridges to literacy excellence. *Journal of Education and Human Development,* 6, pp. 128-138 doi:10.15640/jehd.v6n2a14

Jacobs, H. L. M. (2008). Information literacy and reflective pedagogical praxis. The *Journal of Academic Librarianship*, 34, pp. 256–262, http://dx.doi.org/10.1016%2Fj.acalib.2008.03.009

Jarson, J. (2010). Information literacy and higher education: A toolkit for curricular Integration.College *and Research Libraries News*, 71 pp. 534-538.

Johnson, C., Anelli, C., Galbraith, B. and Green, K. (2011). Information Literacy Instruction and assessment in an honors college science fundamentals course. *College and Research Libraries*, 72, pp. 533-547. Retrieved on 20th February 2014. From: http://crl.acrl.org/content/72/6/533.short

Johnson, G and Buck, G. (2014). Electronic books versus paper books: pre-service teacher preference for university study and recreational reading. *International Journal of Humanities Social Sciences and Education* 8*, pp.13-22*

Johnson, G., Miller, C. and Pietersen, J. (Eds*).] The Quest for Deeper Meaning of Research S upport*, University of Cape Town Libraries, Cape Town.

Joshua, D. (2014). Users' assessment of e-resources at the university library of the Phillipines. *Journal of Philippine Librarianship*, 34, pp. 1-13

Jwan, J. O. and Ongondo, C. O. (2011). *Qualitative research: An introduction to principles and techniques.* Eldoret, Kenya: Moi University Press.

Kabugu, A. (2013). *Enhancing the visibility and accessibility of research: Demystifying and promoting open access at the University of Nairobi*. Retrieved on 15thDecember 2015. From: http://www.acu.ac.uk/focus-areas/open-source/enhancing

Kargbo, J., (2010). Undergraduate students' problem with citing references, *The Reference Librarian,* 51, pp. 222-236.

Kaur, B. and Verma, R. (2009). Use and impact of electronic journals in the Indian Institute of Technology, Delhi, India. *The Electronic Library*, 27 pp. 611-622.

Kenchakkanavar, A. (2014). Types of e-resources and its utilities in libraries. *International Journal of Information Sources and Services*, 1, pp. 97-104

Kenya Library Association. (2017) Kenya library and information Services Consortium. Retrieved on 29th October 2017. From: http://www.kenyalibraryassociation.org.ke

Khan, J. (2016). Awareness and use of digital resources and services in the IIT Delhi Library. *International Journalof Research-GRANTHAALAYAN*, *4*.

Khan, S. and Bhatti, R. (2012). Application of social media in marketing of library and Information services: A case study from Pakistan, *Webology*, 9

Kokić, I. (2012). Information Literacy for Future Teachers. *World Journal of Education* 2, pp. 45-54.

Kimani, H. (2014). *Information literacy skills among incoming first-year undergraduate students of the Catholic University of Eastern Africa in Kenya.* MSc thesis, University of *South* Africa, Pretoria, South Africa.

Kingori, G. (2013). *Analysis of information literacy programmes of Nairobi-based public and private universities in Kenya*. PhD thesis. Moi University, Eldoret.

Kodani, L. (2012). *Information literacy for electronic resources.* Retrieved On 28th October 2015. From: http://laulima.hawaii.edu/.../Laureenkodani_ETEC687_ideaPaperFinal.do

Koneru, I. (2010). ADDIE: Designing web-enabled ILI modules. *DESIDOC Journal of Library & Information Technology*, 30, pp. 23-33.doi:10.14429/djlit.30.388.

Kothari, C., (2014). *Research Methodology: Methods and Techniques* (3rded.). New Delhi: New Age International.

Koul, L. (2009). *Methodology of educational research* (4thed.) New Delhi: VIKAS.

Kovalik, C., Jensen, M., Schloman, B. and Tipton, M. (2010) "Information Literacy, Collaboration, and Teacher Education.*Communications in Information Literacy 4*, pp. 145-69. Retrievedon 13th July 2016. From: http://www.comminfolit.org/index.php?journal=cil&page=article&op=view&path

Kumar, G.R. (2016). Awareness and use of digital library resources by faculty members of engineering collegelibraries in Warangal District Telangana: A study. *International of Journal of Research in Library Science*, *2*, pp. 188-200.

Latham, D. and Gross, M. (2013). Instructional preferences of first-year college students with below-proficient information literacy skills: A focus group study. *College and Research Libraries*, 74, pp. 430-449.

Lee, A. (2013). It's time to teach citation basics. *The Reference Librarian, 54*, pp.55-60

London Metropolitan University. (2010). *London Metropolitan University Libraries information literacy mission statement.* Retrieved on 12th September 2015. From: http://www.metra.net.londonmet.ac.uk/fms/MRSite/psd/Is/general/Information%20Literacy%20Strategy.pdf

Lukhele, B. (2013). Exploring relationships between reading attitudes, reading ability and academic performance amongst primary teacher trainees in Swaziland. *Reading and Writing*, 4, pp. 1-8.

Lwoga, E. (2014). Mapping information literacy outcomes and learning experiences of health sciences undergraduate students. *Partnership: The Canadian Journal of Library and Information Practice and Research*, 9, pp. 2-17.

Lynch, K. (2012). E-books: The Future for publishers and libraries. *Collection Building*, 31, pp. 78-80

Manoj Kumar, Gauri and Bimal (2011). Use of electronic resources available under UGCINFONET Digital LibraryConsortium by Assam University Library Users. Proceedings of 8th International CALIBER. Goa University: March 02-04. pp. 490-510

Mardhusudhan, M. (2010). Use of electronic resources by research scholars of Kurukshetra University. *The Electronic Library,* 28, pp. 492-506.

Markless, S. (2009). A new conception of information literacy for the digital learning environment in higher education. *Nordic Journal of Information Literacy in Higher Education*, 1 25-40.

McBurney, D. and White, T. (2010). *Research methods.* Belmont, CA: Wadsworth Cengage Learning.

Medical Library Africa. (2017). *Module three: Electronic information searching techniques.* Retrieved on 4th August 2017. From: http://karibouconnections.net/medlibafrica/training-module/pdf

Meredith, S. (2013). Critical review of referencing software when used with OSCOLA. *European Journal of Law and Technology*, 4, pp. 1-20. Retrieved 12th December 2017 from: http://ejil.org

Mestre, L. et al (2011). Learning objects as tools for teaching information literacy online: A Survey of librarian use. *College and Research Libraries,* 72, pp. 236-252.

Miller, E. (2014). Imagine on the future of teaching and learning and academic library Portal. *Library and the Academy*, 14, pp. 329-351.

Miller, J., Nutting, A. and Baker-Eveleth, L. (2013). The determinants of electronic textbook use among college students. *American Economist*, 58, pp. 41-50.

Min, S. and Yi, Y. (2010). E-resources, services and user surveys in Tsinghug University Library. *Electronic Journal and Information Systems*, 45, pp. 67-77.

Mishra, R and Mishra, C. (2010). Relevance of information literacy in digital environment. *Journal of Emerging Trends in Computing and Information Sciences,* 1, pp. 48-54.

Modern Language Association (MLA). (2016). *Modern Language Association handbook for writers of research papers.* Retrieved on 12th November 2016. From: http://style.mla.org

Mogase, R. and Kalema, B. (2015). E-resources use in South African higher institutions of learning computer science and education. Paper Presented at *Computer Science and Education (ICCSE), 10th International Conference on IEEE* 22 -24 July 2015, Tshwane University of Technology.

Mugenda, A and Mugenda, O. (2012). *Research methods dictionary.* Nairobi: Applied Research and Training Services.

Munira, N. and Bushra, A (2010). Use of Electronic Resources among Academics at the University of Karachi. *Library Philosophy and Practice* [online].

Mwantimwa, K and Elia, E. (2017). Utilisation of E-Resources to Support Teaching and Research in Higher Learning Institutions, Tanzania. *University of Dar es Salaam Library Journal,* 12, pp. 98-123

Neuman, W., (2011). *Social research methods: Qualitative and quantitative* (7[th]ed.) Pearson: Boston.

Neville, C. (2010). *The complete guide to referencing and avoiding plagiarism* (2nd ed.) Maidenhead: Open University Press.

Ngoako, S. (2011). *Record management in support of service delivery in the public sector of Limpopo Province in South Africa.* Master's thesis, University of South Africa, Pretoria, South Africa.

Nierenberg, E and Fjelbu, G. (2015). How much do first year undergraduate students in Norway know about information literacy. *The Reference Librarian, 9*, pp. 15-33

Nierenberg, E. (2017). *A comparison of nursing and teacher education students' information literacy learning. Results from Norway.* Norway: Hedmark University of Applied Sciences.

Novosel, V. and Batarelo, I. (2008). Information literacy among pedagogy majors. Poster Abstracts of the ITI 2008: *30th International Conference on Information TechnologyInterfaces* / Lužar-Stiffler, Vesna; Hljuz Dobrić, Vesna; Bekić, Zoran (Eds.). - Zagreb: University of Zagreb, University Computing Centre SRCE, 23-24.

Nunnally, J. (1978). *Psychometric theory* (2nded.) New York: McGraw-Hill.

Nyamboga, C. (2014). E-resources complexities and their use among Information Science students Mount Kenya University, Kigali Campus.*Global Journal Engineering Science and Research Management, 1*, pp.14-23

Oakleaf, M., and Owen, P. L. (2010). *Closing the gap together: School and college* Retrieved on 12th January 2014. From: https://web.ebscohost.com.eres.library.library,manoa.hawaii.edu/ehost/detail?sid= beeadf8e-488d

Obachi, E. (2014). Plagiarism deterrence at the University of Nairobi. *Utafiti News* no. 1 pp 6-7.

Ochoa, M. (2015). *Understanding and using information standards for teacher education.* Retrieved on 22nd November 2015. From: https://www.aace.org/conf/site/submission//.../paper_3053_38717.doc

O'Connor, J. (2010). Global Warming and the Future. *Jane Murphy Blog*, 14 January 2010. Web. 13 April 2010 From: (http://www.ucd.ie/library/endnote)

Odundo, P. and Gunga, S. (2013). Effects of application of instructional methods on learner achievement in business studies in secondary schools in Kenya. *International Journal of Educational Research*, 1, pp. 1-22.

Ogutu, J., Odundo, P and Mwanda, P (2017). Adoption of information communication and technology on historical research at the University of Nairobi: Implication on teaching and learning process. *Asian Journal of Educational Research*, 5, pp. 22-31

Okello-Obura, C. (2010). Assessment of the problems LIS postgraduate students face in accessing e-resources in Makerere University. Uganda: *Collection Building*, *29* 98105.

Okello-Obura, C. and Magara, E. (2008). Electronic Information access and utilization by Makerere University students in Uganda. Retrieved on 23rd February2017 From: http://creative commons.org/licenses/by/2-0.

Okiki C. (2012). Electronic information resources awareness attitudes and use by academic staff of members of university of Lagos, Nigeria. *Library Philosophy and P(e-journal)*, paper no. 834.

Okon, M.E. Etuk, E. P. and Akpan, U.J. (2014). Literacy skills and information use by students in two south university libraries in Nigeria. *International Journal of Economics, Commerce and Management,* 2, pp. 1-15

Olaniran, S., Duma, M. and Nzima, D (2016). Availability, access andutilization of e-resources among pre-service teacher trainees by distance. In *Technology for Education (T4E), 2016 IEEE Eighth International Conference* on pp. 232-235.

Omosekejimi, A., Eghworo, O. and Ogo, E. (2015). Use of electronic information Resources (EIRS) by undergraduate students of Federal University of Petroleum resources, Effurun. *Information and Knowledge Management, 5*, 94-103

Onasanya, A., Shehu, O., Oduwaiye and Shehu, L. (2010). Higher institutions lecturers attitudes towards integration of ICT into teaching and research in Nigeria, Research Journal of Information Technology, pp. 1-10. http://scialert.net/qredirect.php

Oparah, O and Faloye, J. (2011). Beyond the lesson plan: an eye of the teachers' emotion

[In Ogundele, O., Moronkola, Oand Babalola, J (Eds.)]. *Contemporary issues education, health and sports: the way forward.*] Ibadan: University of Ibadan.

Oregon State University Libraries. (2017). *Undergraduate information literacy competencies*. Retrieved on 9th June 2017. From: http://osulibrary.oregonstate.edu/instruction/ug_comp.html.

Orodho, J. (2009). *Elements of education and social science research methods*. Maseno, Kenya: Kanezja Publication.

Otando, R. (2011). *The establishment and development of an institutional repository at the University of Nairobi: case study.* Retrieved on 1st January 2018 from: http://www.inasp.info/en/publications/details/13/2

Owolabi, S., Idowu, O., Okocha, F and Ogundare, A. (2016) Utilization of electronic Information resources by undergraduate students of Ibadan University: A case of education and social sciences. *Journal of Education and Practice*, 17 pp. 30-36

Oyewo, R. and Bello, G. (2014). Students' accessibility and utilization of electronic information resources in the library: A case study of selected mono-technics in Oyo State.*The InformationTechnologist*, 11, pp. 227-232.

Pietersen, J. and Raju, J. (2015). *The shape and form of the 21st century academic library with particular reference to a South African case* [In Raju, R., Adam, A.,]

Porter, B. (2011). Millennial Undergraduate Research Strategies in Web and Library Information Retrieval Systems.*Journal of Web Librarianship*, 5, pp. 267-285.

Post University. (2017). *Evaluating information sources*. Retrieved on 7th August 2017. From: http://post.edu/doc/default-source/library/evaluating-information

Pritchard, P. (2010). The embedded science librarian: Partner in curriculum design and delivery, *Journal of Library Administration*, 50, pp. 373-396.

Purcell, S and Barrell, R. (2014). The value of collaboration: Raising confidence and skills in IL with first year initial teacher education students. *Journal of Information Literacy,* 8, pp- 56-70.

Queens Education Library, (2010). *Information literacy standards for teacher candidates.* Retrieved on 30th November 2015. From: https://library.queensu.ca/webedu/.../ILstandards_Tc.pdf

Ramalho, R., Helffrich, G., Schmidt, D.N. and Vance, D. (2010) Tracers of uplift and subsidence in the Cape Verde archipelago. *Journal of the Geological Society. [Online] 167,* pp. 519-538. doi:10.1144/0016-76492009-056

Roy, M. and Kenchakkanavar, N. (2017). Use of electronic resources in academic library. *International Journal of Information Movement,* 2, pp.1-6

Sabouri, M. et al (2010) Use of electronic resources by users in the faculty of Agriculture, Islamic Azad University. *Middle-East Journal of Scientific Research* 6, pp.490-499.

Saleemi, N. (2000). Systems theory and management information systems simplified. Nairobi: Saleemi Publications.

Salleh, M. and Halim, A. (2011). Measuring the effect of literacy on the undergraduates' academic performance in higher education. *International Conference of Social Science and Humanity,* 5, pp.506-510. Retrieved on 20th February 2014. From:http://www.ipedr.com/vol5/no2/112-H1067.pdf

Sanderson, H. (2011) Using learning styles information literacy: Critical considerations for librarians. *The Journal of Academic librarianship*, 37, pp. 376-385.doi: 10.1016/j.aclib.2011.06.002.

Sarantakos, S. (2013). *Social research* (4th ed.) London: Palgrave MacMillan.

Satgoor, U. (2015). Celebrating libraries in 20 years of democracy: An overview of library and information services in South Africa. *IFLA Journal*, 41, pp. 97-111.

Schugar, R., Smith, A, and Schugar, T. (2013). Teaching with interactive picture E-books in grades K- 6. *Reading Teacher*, 66, pp. 615-624.

Schiller, N. (2008). A portal to student learning: What instruction librarians can learn from video 87game design? *Reference Services Review*, 36 (4), pp. 351-365. Retrieved 20thAugust, 2009. From:http://www.emeraldinsight.com.ezproxy.auckland.ac.nz/Insight/viewPDF.jsp?contentType=Article&Filename=html/Output/Published/EmeraldFullTextArticle/Pdf/2400360403.pdf

Sentleng, M. P. and King, L (2012). Plagiarism among undergraduate students in the Faculty of applied science at South African higher education institutions. *South African Journal of library and information science,* 78, pp. 57-67

Shittu, A., Kareem, B., Obielodan, O. and Fakomogbon, M. (2017). Investigating pedictors of pre-service science teachers' behavioral intention toward e-resources for teaching. *Contemporary Educational Technology*, 8, pp. 142-157.

Sithole, N., Chisita, C. and Jagero, N. (2015). Information literacy evaluation: A case of the Africa University, Mutate, Zimbabwe. *British Journal of Education, Society and Behavioural Science*.9, pp. 341-151

Southeastern Louisiana University. (2010). *LS 102: Introduction to Information Research* (http://www3.selu.edu/adunnington/LS102/)

Starret, R. (1994). *CD-ROM fundamentals*. Massachusetts: Boyd & Thompson.

Stockham, M. and Collins, H. (2015). Information literacy skills for bachelor of education teacher trainees: Do they transfer to K – 12 classrooms. *Education Libraries*, 35, pp. 59-72

Suber, P. (2012). *Open Access*. Cambridge, MA, USA: MIT Press. Retrieved from http://mitpress.mit.edu/sites/default/files/titles/content/9780262517638_Open_Access_PDF_Version.pdf

Thanuskodi, S. (2012). Use of e-resources by students and researchers of Faculty of Arts, Annamalai University. *International Journal of Library Science, 1*, pp.1-7

Tlakula, T. and Fombad, M. (2017). The use of electronic resources by undergraduate students at the University of Venda, South Africa. *The Electronic Library*, 35, pp. 861-881.https://emeraldinsight.com/doi/10.1108/EL-06-2016-0140

Toyo, D., (2017). Undergraduate's information literacy skills and the use of electronic resources in Delta State University, Abraka, Nigeria. *International Journal of Education and Evaluation, 3*, pp. 27-36

Tsinghua University. (2017). Library e-resources. Retrieved 12th July 2017. From: http://www.eng.lib.tsinghua.edu.cn/E-Resources/default.html

Ukachi, N., Onuoha, U. and Nwachukwu, V. (2014). Students' attitude as determining factor to electronic information resource use in university libraries in South West Nigeria.*Journal of Library and Information Technology*, 34, pp. 47-55.

Ukachi, N., (2015), Information literacy of students as a correlate of their use of electronic resources in university libraries in Nigeria. *The Electronic Library*, 33, pp. 486-501.

Umunnakwe, G and Eze, J. (2015). Information needs and resources provision for secondary school teachers in Imo State, Nigeria: Male versus female teachers. *Library Philosophy and Practice*. Retrieved on 12th January 2018: From: http://digitalcommons.unl.edu/libphilprac/1242

United Nations Educational, Scientific and Cultural Organization (UNESCO). *Introduction to open access:open access for library schools,*1, pp. 1-83. Retrieved on 1stJanuary 2017 from: unesdoc.unesco.org/images/0023/002319/231920E.pdf

University of Alaska Fairbanks. (2017). *Evaluating information resources*. Retrieved on 5th August 2017. From: http://library.uaf.edu/ls101-evaluation

University of Chicago. (2010). *Chicago Manual of Style* (16th ed.). Chicago: University of Chicago. Retrieved 30th March 2017. From: www.chicagomanualofstyle.org

University of Groningen (2015). *Information literacy course.* Retrieved on 13th January 2016. From:https://www.libguides.rug.nl/InformationLiteracyCourseIL2015

University of Michigan Library. (2018). *University of Michigan Library guides: Managecitations with Zotero, Mendeley, RefWorks and EndNote*. Retrieved 2nd January 2018 from: http://guides.lib.umich.edu/citationmanagementoptions

University of Nairobi. (2018). Academic calendar and almanac 2017/2018. Nairobi: University of Nairobi.

University of Nairobi. (2018). Core textbooks online. Retrieved on 12th August 2018. From: https://uon.ekitabu.com

University of Nairobi. (2018). Communities in the repository. Retrived on 12th July 2018 from: https://erepository.uonbi.ac.ke

University of Nairobi. (2018). E-resources. Retrieved on 12th July 2018 from: https://uonlibrary.uonbi.ac.ke

University of Nairobi. (2016). *Student information handbook* 2016/2017. Nairobi: University of Nairobi.

University of New South Wales. (2018). *Library electronic resources.* Retrieved on 17/11/2018 from https://www.library.unsw.edu.au/study/informationresources

University of Tasmania. (2017). *Referencing and assignment writing: Harvard.* Retrieved 20th June 2017. From: https://utas.libguides.com

Vasileiou, M., Rowley, J. and Hartley, R. (2013). Metadata and providing access to e-books, *British Journal of Educational Technology*, 44(3), 518-529

Walliman, N. (2011). *Research Methods: The basics*. New York: Routledge.

Walter, S. (2008). Librarians as teachers: A qualitative inquiry into professional identity. *College and Research Libraries*, 69, pp 51-70.

Walraven A., Brand-Gruwel, S and Boshuizen, H. (2009). How students evaluate information and sources when searching the World Wide Web for information. *Computers & Education*52, pp. 234-46. Retrieved 12th January 2018. From: https://dx.doi.org/10.1016/j.compedu.2008.08.003

Wang, L. and Cook, S. (2017). *Curriculum integration of academic and information literacy program.* Retrieved on 25th March 2017. From: http://www.sciencedirect.com

Westminster University. (2017). *Online library types of e-resources.* Retrieved on 8th July 2017. From: https://westminster.ac.ke.uk/library-and-it/our-libraries/online-library/types-of-e-resource

West Virginia University. (2013). *WVU libraries instruction and information literacy programme,* 2013. Retrieved on 12th January 2018 from: https://lib.www.edu/instruction/infolit/plapdf

Wijetunge, P. (2015). Information resources use by the agriculture undergraduates of the University of Peradeniya, Sri Lanka. *Annals of Library and Information Studies, 62,* pp. 77-83.

Wilson, M. (2016). *Librarians' use of instructional design methods in creating Information Literacy Instruction*. Doctoral dissertation. Nova Southeastern University, USA.

Yusuf, M and Balogun, M. (2011). Student-teacher competence and attitude towards information and communication technology: A case study in a Nigerian university. *Contemporary Educational Technology*, *2*, pp. 18-26.

Zdravkovic, N. (2011). *An investigation into the interactive teaching practices of librarians in Information Literacy instruction at the University of Auckland Library*. Unpublished PhD thesis, University of Wellington, New Zealand.

Zhong, Y. (2012). Universal design for learning (UDL) in library instruction. *College and Undergraduate Libraries,* 19, pp. 33-5doi:10.1080/10691316.2012.652549

Zinn, S. (2012). *Information literacy in the classroom: assessing the competency of Western Cape teachers in information literacy education*. Unpublished PhD thesis, University of Cape Town, South Africa.

Zurkowski, P. (1974). The information service environment: Relationships and priorities. (Report ED 100391). Washington DC.: National Commission on Libraries and Information Science.

APPENDICES

Appendix I: Letter of Introduction

John N. Kanori
Department of Educational Communication and Technology
University of Nairobi
P.O. BOX 30197
Nairobi

Dear respondent,

You have been identified to participate in the study titled:

"**Influence of information literacy instruction on utilization of electronic resources by bachelor of education teacher trainees, University of Nairobi, Kenya".**

The study seeks to establish the relationship between information literacy (IL) instruction and utilization of e-resources by bachelor of education teacher trainees. The objectives of the study were to: establish the relationship between Bachelor of education teacher trainees' ability to recognize information need and utilization of e-resources; determine the relationship between Bachelor of education teacher trainees' information searching ability and utilization of e- resources; examine the relationship between s' information evaluating ability and utilization of e-resources; establish the relationship between Bachelor of education teacher trainees' citation and referencing ability and utilization of e-resources and determine the relationship between collaborative information literacy effort among staff and utilization of e-resources.

The information you will provide will assist a lot in improving information literacy instruction for bachelor of education teacher traineesto enable the learners to utilize e-resources in class. The issues you discuss will not be disclosed to anyone. Your decision to participate in this study is voluntary and you can choose not to answer any question you are uncomfortable with or terminate your participation in the study without any victimization.

Thank you in advance.

Yours sincerely,

John N. Kanori

Appendix II: Consent Form

I understand the overview on the study:

"**Influence of information literacy instruction on utilization of electronic resources by bachelor of education teacher trainees, University of Nairobi, Kenya".**

I understand that:

My name will not be disclosed in the findings of the study;

I'm at liberty to withdraw participation anytime I choose to do so;

It's my right to choose which questions to answer;

I oblige to be recorded during interview session;

I pledge to participate in the study by signing this form

Signature _____

Appendix III: Questionnaire for Bachelor of Education Teacher Trainees

Dear respondent,

The study seeks to establish the relationship between information literacy instruction and utilization of e-resources by bachelor of education teacher traineesin learning, teaching and research processes. I would be very grateful if you could answer the following questions.

Thank you in advance

SECTION A: DEMOGRAPHIC INFORMATION

1. What is your gender? Male []   Female [] (Tick one)

2. Indicate your age 18-20[] 21-23[] 24-26 [] 27- 30 [] Over 30

3. Indicate the course you are pursuing: Bacheor of Education (B.Ed.) (Arts)[] B.Ed. (Science) []   B.Ed. (P.E& Sports) []   B.Ed. (Early Childhood Education)[] B.Ed. (ICT) []

4. What are your subject combinations? _____

5. Which is your year of study? 2ndYear[] 3rdYear []   4thYear []

SECTION B: ABILITY TO IDENTIFY INFORMATION NEEDS

6. Rate your conversance in recognizing the following information need indicators where 1= Poor 2= Average   3= Good   4= Excellent

Recognizing Information Needs	1	2	3	4
Identifying purpose for which information is needed				
Formulating questions to clarify the information need				
Knowing where needed information is available				
Planning acquisition of information				

7. Rate your frequency of utilizing e-resources for the following purposes where: 1=Never 2=Rarely 3 =Often 4= Very often

Purpose of cessing and utilizing e-resources	1	2	3	4
To complete assignments				
Utilize information to generate knowledge (articles)				
To contribute to scholarly conversation (seminar presentations in class)				
To promote professional development (interact with e-resources in class)				
Other (please specify)				

SECTION C: SEARCHING TECHNIQUES

8. Rate your conversance in formulating the following searching techniques where 1= Poor 2= Average 3= Good 4= Excellent

Searching techniques	1	2	3	4
Key word searching				
Boolean operator searching				
Truncation searching technique				
Wildcard searching technique				
Phrase searching technique				

9. Which of the following techniques pose challenges when searching information where: 1= Pose challenge 2=Pose no challenge

Challenges posed by searching tchniques	1	2
Key word searching technique		
Boolean operator searching technique		
Truncation searching technique		
Wildcard searching technique		
Phrase searching technique		

10. Does the information skills librarian allow you hands-on experience of searching e-databases during Information Skills lessons? Yes [] No []

SECTION D: EVALUATION CRITERIA

11. Rate your conversance with the following evaluation criteria where:
    1= Poor   2= Average   3= Good   4= Excellent

Evaluation parameters	1	2	3	4
Authoritativeness (check author's expertise, credentials and experience)				
Currency of information (check latest bibliographies for publication date)				
Accuracy of information (Consult other sources to confirm accuracy)				
Objectivity (confirm inclusion of different viewpoints, unbiased language)				
Coverage (confirm database covers topics and themes it purports to cover)				

12. Which of the following evaluation criteria pose challenges when evaluating e-resources where 1= Pose challenge 2= Pose no challenge (Tick appropriately)

Challenges of evaluating information	1	2
Authoritativeness (Check author's expertise and credentials)		
Currency of information (check latest bibliographies for publication date)		
Accuracy of information (consult other sources to confirm accuracy of facts)		
Objectivity (confirm inclusion of different viewpoints, use of unbiased language)		
Coverage (confirm coverage of topics and themes the e-database purports to cover)		
Other (Please specify)		

SECTION E: REFERENCING TECHNIQUES

13. Which of the following referencing styles pose challenges to bachelor of education teacher traineeswhere: 1=Pose challenge 2= Pose no challenge

Challenges of compiling reference lists	1	2
American Psychological Association Style		
Harvard Referencing System		
Chicago Manual of Style		
Modern Language Association Style		
Numeric System		

SECTION F: COLLABORATIVE INFORMATION LITERACY EFFORT

14. How would you rate the support you get from the following information literacy collaborators where: 1= Not supportive 2= Lukewarm support 3 = Supportive 4= Very supportive

Collaborators in developing student's information literate abilities	1	2	3	4
Subject lecturers				
Information skills librarians				
Library staff				
Students				
Administrators from the School of Education				

15. Do Lecturers invite the Librarian/Information Skills Librarian to teach vital aspects of information skills embedded in the subject? Yes [] No []

SECTION G: ACCESS AND UTILIZATION OF E-RESOURCES

16. Rate your conversance of using the following e-resources where:
    1= Poor   2= Average 3= Good 4= Excellent

Electronic resources	1	2	3	4
E-book (Taylor and Francis,)				
E- journals (ERIC, Academic Search Premier, JSTOR,)				
UoN digital Repository (e-thesis, e-policies, e-UoN archives)				
Open access resources (Kenya open data initiative, Kenya journals)				
Other (Please specify)				

17. Which of the following databases are you familiar with: Education Research Information Centre []   Academic Search Premier []   Kenya open data [] Taylor and Francis [] (Tick more than one where applicable)

18. Do you access and utilize e-resources from the Library Services Portal? Yes [] No []

 (Optional) Would you like to be interviewed on the same topic?

   If yes, please give your telephone number _____

Thank you for your cooperation.

Appendix IV: Questionnaire for Information Skills Librarians

Dear Respondent,

The study seeks to establish the relationship between information literacy instruction and utilization of e-resources by bachelor of education teacher traineess in learning, teaching and research processes. I would be very grateful if you could answer the following questions.

 Thank you in advance

SECTION A: DEMOGRAPHIC INFORMATION

1. Indicate your gender: Female [ ] Male [ ]
2. What is your age: Below 30[] 31-35[] 36-40[] 41-45[] 46-50[] 51-55[]
    Over 56[]
3. Indicate your highest qualification in Information Science: Masters []   PhD[]
4. Indicate the campus/college you teach information skills: Kenya Science Campus [] College of Education and Education Studies[]

SECTION B: INFORMATION NEEDS RECOGNITON

5. Indicate your views on bachelor of education teacher traineesconversance with information needs recognition where:1= Poor [] 2=Average [] 3= Good [] 4= Excellent []

SECTION C: SEARCHING TECHNIQUES

6. What are your views on bachelor of education teacher trainees' conversance with searching techniques where: 1= Poor [] 2 =Average []   3= Good [] 4= Excellent []

SECTION D: EVALUATION CRITERIA

7. What are your views on bachelor of education teacher traineesconversance with the evaluation criteria where:1= Poor []   2= Average []   3= Good [] 4= Excellent []

SECTION E: REFERENCING TECHNIQUES

8. Which referencing styles pose challenges to bachelor of education teacher traineeswhere: 1=Pose challenge 2= Pose no challenge

Referencing styles	1	2
Numeric system		
American Psychological Association (APA)		
Harvard Referencing System		
Modern Language Association (MLA		
Chicago Manual of Style		
Other (Please specify)		

SECTION F: COLLABORATIVE INFORMATION LITERACY SERVICES

9. Do you collaborate with lecturers in mapping information literacy syllabus
Yes [] No []

10. Which of the following collaborative efforts do university staff participate in to promote utilization of e-resources by bachelor of education teacher trainees?
1= False   2 =True

Collaborative efforts that promote utilization of e-resources	1	2
Lecturers invite librarian to teach information literacy concepts in their lessons		
Librarians collaborate to train bachelor of education teacher traineeson e-resources access		
Administrators invite librarian to attend curriculum review meetings		
Lecturers include e-resources in the reading lists they give undergraduates		

SECTION G: ACCESS AND UTILIZATION OF E-RESOURCES

11. Do bachelor of education teacher traineesutilize e-resources? Yes [] No []

(Optional) Would you like to be interviewed on the same topic?

If yes, please give your telephone number _____

Thank you for your time

Appendix V: Questionnaire for Library Staff

Dear Respondent,

The study seeks to establish the relationship between information literacy instruction and utilization of e-resources by bachelor of education teacher traineesin learning, teaching and research processes. I would be very grateful if you could answer the following questions.

Thank you in advance

1. Indicate your gender Female [ ] Male [ ]
2. Indicate your age: Below 30[] 31-35[] 36-40[] 41-45[] 46-50[] 51-55[] Over 56[]
3. What is your highest qualification in Information Sciences: Diploma [] Higher National Diploma [] Bachelor's degree [] Master's degree []   PhD []
4. Indicate where you work: Kenya Science Library [] CEES Library []
5. Indicate your designation: Senior Librarian[] Librarian[]   Senior Library Assistant[] Library Assistant [] Other (Please specify)_____

SECTION B: ABILITY TO IDENTIFY INFORMATION NEEDS

6. Indicate your views on bachelor of education teacher traineesconversance with recognizing information needs criteria where:1= Poor   [] 2= Average [] 3= Good [] 4= Excellent []

SECTION C: SEARCHING TECHNIQUES

7. What are your views on bachelor of education teacher trainees' conversance with searching techniques where: 1= Poor []   2 Average = []   3= Good [] 4= Excellent []

SECTION D: EVALUATING INFORMATION

8. What are your views on bachelor of education teacher trainees' conversance with evaluating e-resources where:
    1= Poor []   2=Average [] 3= Good [] 4= Excellent []

SECTION E: REFERENCING TECHNIQUES

9. What are your views on bachelor of education teacher trainees' conversance with various referencing styles where: 1= Poor []   2=Average [] 3= Good [] 4= Excellent []

10. Which referencing styles pose challenges to bachelor of education teacher traineeswhere: 1=Pose challenge 2= Pose no challenge

Referencing styles	1	2
Numeric system		
American Psychological Association (APA)		
Harvard Referencing System		
Modern Language Association (MLA		
Chicago Manual of Style		
Other (Please specify)		

SECTION F: COLLABORATIVE INFORMATION LITERACY EFFORT

11. Mention two ways you collaborate with the lecturers to promote utilization of e-resources   by   bachelor   of   education   teacher   trainees 1_____2_____

12. Has the library set aside a computer laboratory for bachelor of education teacher traineess? Yes [] No []

13. If yes, indicate the number of functional computers in the laboratory
     Below 10 [] 11-15 []   16-20 [] 21-24 [] 25-30 [] 31-34 [] Over 35

14. Are the computers connected to the Internet? Yes[] No []

SECTION G: ACCESS AND UTILIZATION OF E-RESOURCES

15. Do bachelor of education teacher trainees utilize e-resources? Yes [] No []

(Optional) Would you like to be interviewed on the same topic?

If yes, please give your telephone number _____

Thank you for your time.

Appendix VI: Questionnaire for Lecturers

The study seeks to establish the relationship between Information Literacy Instruction and utilization of e-resources by bachelor of education teacher traineesin learning, teaching and research processes. I would be grateful if you could answer the following questions.

Thank you in advance

SECTION A: DEMOGRAHIC INFORMATION

1. Indicate your gender: Female [ ] Male [ ]

2. Indicate your age: Below 30 [] 31-35[] 36-40[] 41-45[] 46-50[] 51-55[] Over 56[]

3. What is your highest level of education level: Master's degree []   PhD []

4. Which subjects/units do you teach bachelor of educaton teacher trainees? _____   _____   _____

SECTION B: INFORMATION NEED RECOGNITION

5. Indicate your views on bachelor of education conversance with recognizing their information needs:1=Poor [] 2= Average [] 3= Good [] 4=Excellent []

SECTION C: SEARCHING TECHNIQUES

6. What are your views on bachelor of education teacher trainees' conversance with formulating searching techniques:1= Poor [] 2= Average []   3=Good 4=Excellent[]

SECTION B: EVALUATING CRITERIA

7. What are your views on bachelor of education teacher traineesconversance with evaluating e-resources where: 1=Poor [] 2=Average []   3= []   4=Excellent []

SECTION E: REFERENCING TECHINQUES

What are your views on bachelor of education teacher trainees' conversance with referencing techniques where:1= Poor []Average []   3= Good []   4= Excellent []

SECTION F: COLLABORATIVE INFORMATION LITERACY EFFORT

8. Do you allow the librarian or information skills librarian to train bachelor of education teacher traineesinformation literacy skills entrenched in your subject/unit? Yes[] No []

SECTION G: ACCESS AND UTILIZATION OF E-RESOURCES

9. In your view do bachelor of education teacher trainees' utilize e-resources? Yes [] No []

10. Do you refer bachelor of education teacher trainees to relevant e-resources? Yes [] No []

11. Rate the frequency at which bachelor of education teacher trainee

12. utilize e-resources where

1= Never []   2 = Rarely []   3 = Often []   4 = Very often []

Thank you for your cooperation.

Appendix VII: Questionnaire for School of Education Administrators

The study seeks to establish the relationship between Information Literacy instruction and utilization of e-resources by bachelor of education teacher traineesin teaching, learning and research experiences. I would be very grateful if you could answer the questions that follow. Thank you in advance

SECTION A: DEMOGRAPHIC INFORMATION

1. Indicate your gender: Female [ ] Male [ ]

2. What is your designation?

3. What is your highest educational level: Bachelor's Degree [] Master's degree []
   PhD []

SECTION B: COLLABORATIVE INFORMATION LITERACY EFFORT

4. Is there a programme at the School of Education that embeds Information Skills in the course? Yes[] No[]

5. If yes, name the programme_____

6. Does the School have a computer laboratory for bachelor of education teacher trainees? Yes [] No []

7. If yes, indicate the number of functional computers in the laboratory
   Below 10 [] 11-15 []   16-20 [] 21-24 [] 25-30 [] 31-34 [] Over 35

8. Are the computers connected to the Internet? Yes [] No []

9. Does the School invite librarian for curriculum review meetings? Yes/No

Thank you for your time.

Appendix VIII: Interview Guide for Bachelor of Education Teacher Trainees

DEMOGRAPHIC INFORMATION

1. What is your gender?
2. What is your age bracket?
3. Which Bachelor of Education programme do you take?
4. What is your subject combination?
5. Which is your year of study?

RECOGNIZING INFORMATION NEEDS

6. Which e-resources do bachelor of education teacher traineesutilize from the University of Nairobi's Library services portal?

7. For what purposes do bachelor of education teacher traineesutilize e-resources?

SEARCHING TECHNIQUES

8. Which searching techniques are you conversant with?

9. What challenges do you experience when applying searching techniques to extract information from e-resources

EVALUATION OF INFORMATION

10. Highlight the evaluation criteria you are conversant with.

11. What challenges do you face when evaluating information?

REFERENCING STYLES

12. Which referencing styles are you conversant with?

COLLABORATIVE INFORMATION LITERACY EFFORT

13. What collaborative practices exist among the lecturers, administrators and librarians that enhance the utilization of e-resources by bachelor of education teacher trainees?

UTILIZATION OF E-RESOURCES

13. What else would you like to say concerning information need recognition, searching, evaluating, referencing and collaborative information literacy effort that could enhance the utilization of e-resources by Bachelor of education teacher trainees?

Thank you for your time.

Appendix IX: Interview Guide for Information Skills Librarians

DEMOGRAPHIC INFORMATION

1. What is your highest professional/academic qualification?

2. How long have you been teaching pre-service teacher's information skills?

INFORMATION NEED RECOGNITION

3. Comment on bachelor of education teacher trainees' conversance with recognizing the information they need to complete academic work?

4. What are some of the purposes for which bachelor of education teacher traineesutilize e-resources for?

SEARCHING TECHNIQUES

5. Comment on the challenges which bachelor of education teacher traineesencounter when searching information from e-resources?

EVALUATING OF INFORMATION

6. In you view what are some of the challenges which bachelor of education teacher trainee encounter when evaluating information extracted from e-resources?

REFERENCING STYLES

7. Comment on the challenges which bachelor of education teacher traineesexperience when referencing e-resources?

COLLABORATIVE INFORMATION LITERACY EFFORTS

8. Comment on your participation in curriculum review meetings held at the School of Education?

UTILIZATION OF E-RESOURCES

9. What are your views on the type of e-resources utilized by bachelor of education teacher trainees?

10. What else would you like to say concerning information need recognition, searching, evaluating, referencing and campus wide collaborative information literacy effort that could enhance utilization of e-resources by bachelor of education   teacher trainees?

Thank you for your time.

Appendix X: Interview Guide for Library Staff

DEMOGRAPHIC INFORMATION

1. What is your gender?

2. What is your age bracket?

3. What is your highest professional/academic qualification?

INFORMATION NEED RECOGNITION

4. Comment on bachelor of education teacher trainees' conversance with recognizing the information they need to complete academic work?

5. What are some of the purposes for which bachelor of education teacher traineesutilize e-resources for?

INFORMATION SEARCHING TECHNIQUES

6. Comment on the challenges which bachelor of education teacher trainees' encounter when searching for information from e-resources?

EVALUATION OF INFORMATION

7. What challenges do bachelor of education teacher trainees' encounter when evaluating information?

REFERENCING STYLES

8. In your view what challenges do bachelor of education teacher trainees' experience when referencing e-resources?

COLLABORATIVE INFORMATION LITERACY EFFORTS

9. Which areas do you collaborate with lecturers, information skills librarians and school administrators to boost the utilization of e-resources among bachelor of education teacher trainees'?

UTILIZATION OF E-RESOURCES

10. What are your views on the type of e-resources utilized by bachelor of education teacher trainees?

11. What else would you like to say concerning information need recognition, searching, evaluating, referencing and campus wide collaborative information literacy effort that could enhance utilization of e-resources by bachelor of education   teacher trainees?

Thank you for your time.

Appendix XI: Document Analysis Guide

The researcher analyzed the following documents:

E-resources training workshop attendance lists, library performance contract targets on e-resources training, UoN library services portal http://uonlibrary.uonbi.ac.ke, UoN digital repository website http://e-repository.uonbi.ac.ke and computer lab attendance registers.

1. UoN library services portal: Assessed the various e-books, e-journals, open access databases and other e-resources that are accessible from the portal. Confirmed whether the e-databases cover subjects pursued by bachelor of education teacher traineessuch as physics, biology, Kiswahili, psychology, Chemistry Mathematics, Computer Science among other subjects.

2. UoN digital repository: Scrutinized the various digital resources that are created by the university community. Confirmed ease of use of digital resources and how current the resources are. Communities in the institutional repository include e-thesis and e-policies among other e-resources. Examined digital resources within CEES sub-community

3. Workshop attendance lists: Perused e-resources workshop attendance lists and assessed the number of bachelor of education teacher trainees trained on e-resources every year by level, course and subjects

Title of document being analysed………….

Date………….

Type of e-resources addressed………

Evidence that audience targeted are bachelor of education teacher trainees …..

Evidence on training on e-resources…….

Evidence on subscription…..

Any other information available from the document relevant to the study…….

Appendix XII: Research Permit

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.
2. Government Officer will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one (1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science Technology and Innovation

RESEACH CLEARANCE PERMIT

Serial No.A 13811

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MR. JOHN NJOROGE KANORI
of UNIVERSITY OF NAIROBI, 58277-200
Nairobi, has been permitted to conduct research in *Nairobi County*

on the topic: *INFLUENCE OF INFORMATION LITERACY INSTRUCTION ON UTILIZATION OF ELECTRONIC RESOURCES BY PRE-SERVICE TEACHERS, UNIVERSITY OF NAIROBI*

for the period ending:
24th April, 2018

Permit No : NACOSTI/P/17/81316/16701
Date Of Issue : 25th April, 2017
Fee Recieved : Ksh 2000

....
Applicant's Signature

....
Director General
National Commission for Science, Technology & Innovation

Appendix XIII: NACOSTI Research Authorization Letter

**NATIONAL COMMISSION FORSCIENCE,
TECHNOLOGY ANDINNOVATION**

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax: +254-20-318245,318249
Email:dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O.Box 30623-00100
NAIROBI-KENYA

Ref.No **NACOSTI/P/17/81316/16701**

Date **25th April, 2017**

John Njoroge Kanori
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *"Influence of information literacy instruction on utilization of electronic resources by pre-service teachers, University of Nairobi,"* I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for the period ending **24th April, 2018.**

You are advised to report to **the Vice Chancellor, University of Nairobi, the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The Vice Chancellor
University of Nairobi

The County Commissioner
Nairobi County.

Appendix XIV: Ministry of Education Research Authorization Letter

Republic of Kenya
MINISTY OF EDUCATION
STATE DEPARTMENT OF BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone: Nairobi 020 2453699
Email: rcenairobi@gmail.com
 cdenairobi@gmail.com

When replying please quote

Ref: **RCE/NRB/GEN/1 VOL. I**

REGIONAL COORDINATOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 – 00200
NAIROBI

DATE: **18ᵗʰ December, 2017**

John Njoroge Kanori
University of Nairobi
P O Box 30197-00100
NAIROBI

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on "**Influence of information literacy instruction on utilization of electronic resources by pre-service teachers, University of Nairobi**".

This office has no objection and authority is hereby granted for a period ending **24ᵗʰ April, 2018** as indicated in the request letter.

Kindly inform the Sub County Director of Education of the Sub County you intend to visit.

18 DEC 2017

RHODA MWEI
FOR: REGIONAL COORDINATOR OF EDUCATION
NAIROBI

C.C

Director General/CEO
Nation Commission for Science, Technology and Innovation
NAIROBI

Appendix XV: Authority to collect data at the University of Nairobi

UNIVERSITY OF NAIROBI

OFFICE OF THE DEPUTY VICE - CHANCELLOR

(Research, Production & Extension)
Prof. Lucy W. Irungu B.Sc., M.Sc., Ph.D.

P.O. Box 30197-GPO.
00100,Nairobi-Kenya
Telephone: +254-20-2315416 (DI), 318262

Fax:0202317251
Email:dvcrpe@uonbi.ac.ke

UON/RPE/3/5

July 17, 2017

John N. Kanori
Dept. of Educational Communication and Technology
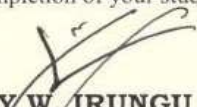University of Nairobi
P.O. Box 30197 – 00100
NAIROBI

Dear Kanori,

AUTHORITY TO COLLECT DATA AT THE UNIVERSITY OF NAIROBI

I refer to your request dated July 14, 2017 to collect data at the University of Nairobi for your PhD research entitled: *"Influence of Information Literacy Instruction on Utilization of E-Resources by Pre-Service Teachers from School of Education, University of Nairobi".*

I write to inform you that your request has been approved.

You are however required to share the findings of your study with the University of Nairobi by depositing a copy of your research findings with the Director, Library and Information Services on completion of your study.

LUCY W. IRUNGU
DEPUTY VICE-CHANCELLOR
(RESEARCH, PRODUCTION AND EXTENSION)
&
PROFESSOR OF ENTOMOLOGY

Copy to: Vice-Chancellor
              DVC, A&F
              DVC, AA
              DVC, SA
              Principal, CEES
              Chairman, Dept. of Educ. Comm. And Technology
              Director, Library & Information Services

ISO 9001:2008 CERTIFIED

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Appendix XVI: Time Frame

Activities	Time period
Proposal writing and submission	December 2015- March 2016
Proposal defense	April –September 2016
Making corrections on proposal	October – December 2016
Developing research instruments	January – March 2017
Data collection	April – June 2017
Data analysis	July - August 2017
Writing draft thesis	September - November 2017
Submission of draft thesis to supervisors	December 2017
Submission of revised draft thesis to Graduate School	February 2018

Appendix XVII: Budget

No	Item	Qty	Kshs.
1	Cost of employing research assistants	2@12,500	25,000
2	Purchase of a Laptop	1@40,000	40,000
3	Travel expenses	20,000	20,000
4	Subsistence/ allowance	10,000	10,000
5	Incidental expenses	15,000	15,000
6	Per diem for researcher	1researcher @ 7000	62,500
7	Internet access		10,000
8	Printing papers	20rims@ 450	10,000
9	Flash disks	2 @ 1500	3,000
10	Writing material	2 rims @ 450	900
11	Printing costs	1 page @ 10	15,000
12	Binding final plus spiral copies	6 @ 1000	15,000
13	Pens, pencils, erasers, etc.		500
14	Audio tape	1	30,000
	TOTAL		**256,900**