

T. R.
GAZIANTEP UNIVERSITY
INSTITUTE OF EDUCATIONAL SCIENCES
DEPARTMENT OF EDUCATIONAL SCIENCES
EDUCATIONAL CURRICULUM AND INSTRUCTION PROGRAM

INVESTIGATING THE DIGITAL READINESS
FOR ACADEMIC ENGAGEMENT OF
INTERNATIONAL UNIVERSITY
STUDENTS

Masters in Educational Curriculum and Instruction Thesis

RAHHAMANI Kange

Gaziantep
May, 2019

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MASTERS IN EDUCATIONAL CURRICULUM AND INSTRUCTION

RAHHAMANI Kange

Supervisor: Dr. Bulent Dos

Gaziantep
May, 2019

APPROVAL OF THE JURY

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Thesis Title : Investigating the digital readiness for academic engagement of international university students

Thesis Date : ... May. 2019

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It is approved that this thesis has been written in compliance with the formatting rules laid down by the Graduate School Educational Sciences.

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RESEARCH ETHICS DECLARATION

The information contained here is, to the best of my knowledge and belief, accurate. I have read the University's current research ethics guidelines, and accept responsibility for the conduct of the procedures set out in the attached application in accordance with these guidelines, the University's policy on conflict of interest and any other condition laid down by the Gaziantep University Research Ethics Committee or its Sub-Committees. I have attempted to identify all the risks related to this research that may arise in conducting this research and acknowledge my obligations and the rights of the participants.

I have declared any affiliation or financial interest in this research or its outcomes or any other circumstances which might present a perceived, potential or actual conflict of interest, in accordance with Gaziantep University policy on Conflicts of Interest.

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DEDICATION

I dedicate this work to my lovely family who encouraged me to work successfully towards my academic work. It is through their advice which stirred my interest to go through the required process and accomplish the meaningful academic work. Truly without their love and sacrifice this task would have been impossible. May the Almighty Allah reward them abundantly.

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ÖZET

Üniversitede Okuyan Uluslararası Öğrencilerin Akademik Dijital Hazırbulunuşluk Düzeylerinin İncelenmesi

Rahhamani, Kange
Yüksek Lisans, Eğitim Programları ve Öğretim
Tez Danışmanı: Dr. Öğr. Üyesi Bulent DÖŞ
Mayıs-2019, 95 sayfa

"Bana söylerseniz unuturum. Bana öğretirseniz hatırlarım. Beni dâhil ederseniz öğrenirim." Benjamin FRANKLIN.

Dijital teknolojiler, öğretme öğrenme sürecinde öğrencilerin aktif katılımı için bilinir. Bu nedenle dijital yeterlilik hem akademik başarı için hem de kendi kariyerlerinde kullanılmak üzere herhangi bir düzeyde üniversite öğrencileri için gereklidir. Bu çalışmanın amacı, üniversitede okuyan uluslararası öğrencilerin akademik dijital hazırbulunuşluk düzeylerini araştırmaktır. Bu araştırmanın katılımcıları, Afrika, Amerika, Asya ve Avrupa kıtalarından farklı fakültelerde, seviyelerde ve yıllarda öğrenim gören Gaziantep Üniversitesi Uluslararası öğrencileridir. 288 öğrenci (%64.2 erkek ve %35.8 kadın) üzerinde nicel tanımlayıcı bir anket yapılmıştır. Arapça, İngilizce ve Türkçe olmak üzere 3 farklı dilde tasarlanmış anketler uygulanmıştır. Anket aracı, Hung ve Kim (2018) DRAE ölçeğinden türetilen 17 madde ve 5 alt ölçek içermektedir; dijital medya bilinci, dijital araç uygulaması, bilgi arama becerileri, bilgi paylaşım davranışı ve dijital uygulama kullanımı. Bulgular, büyük ölçüde uluslararası üniversite öğrencilerinin dijital teknolojilerin akademik alanda kullanımına hazır olduklarını ortaya koymuştur. Bulgular, katılımcının cinsiyeti, coğrafi bölgesi, öğrenme yılı, öğrenme düzeyi ve öğrenim gördüğü fakülte konularında anlamlı farklılıklar ($p \leq 0.05$) olduğunu göstermiştir. Araştırmacı çalışmasının sonunda, öğrencilere ekstra dijital teknoloji ile ilgili derslere programda yer verilmesinive lise öğrencileri tarafından dijital teknolojiye erişimin üniversite düzeyinde kullanımına ortam hazırlamasını önermiştir.

Anahtar Kelimeler: Dijital Hazırbulunuşluk, Öğrenci Katılımı ve Uluslararası Öğrenciler.

ABSTRACT

INVESTIGATING THE DIGITAL READINESS FOR ACADEMIC ENGAGEMENT OF INTERNATIONAL UNIVERSITY STUDENTS

Kange, Rahhamani

MA Thesis, Education Curriculum and Instruction Program

Supervisor: Asst. Prof. Dr, Bulent DOS

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“Tell me and I forget, teach me and I remember, involve me and I learn.”

Benjamin Franklin.

Digital technologies are well known for active involvement of learners in the teaching learning process, so digital competence is essential for the university students at any level for both their academic success and for use in their respective careers. The purpose of this study was to investigate digital readiness of international university students for academic engagement. It was conducted at Gaziantep University on international students from Africa, America, Asia and European continents studying at different faculties like education, medicine, theology, engineering and law among others and at different years of study. A quantitative descriptive survey involved 288 students (64.2% male and 35.8% female), questionnaires in 3 different languages i.e. Arabic, English and Turkish language were administered. The instrument contained 17 items derived from Hung and Kim (2018) DRAE scale having 5 subscales; digital media awareness, digital tool application, information seeking skills, information sharing behaviour and digital application usage.

The findings revealed that to a large extent the international university students are ready for the digital technologies' utilization in the academic field. Despite the fact that there were some deficiencies at the digital media awareness and digital tool application subscales. The findings showed that there were significant differences ($p \leq 0.05$) in participant's gender, geographical region, year, level and faculty of study groups. The researcher recommended provision of extra digital technology related lessons to students, political stability in the Middle East region and increased access to digital technology by students at high school to prepare them their usage at university level.

Keywords: Digital readiness, Student engagement, International University students.

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LIST OF ABBREVIATIONS

DRAE:	Digital readiness for academic engagement
NSSE:	National Survey of Student Engagement
DTA:	Digital Tool Application
DAU:	Digital Application Usage
DMA:	Digital Media Awareness
ISS:	Information-Seeking Skills
ISB:	Information-Sharing Behaviour
ICT:	Information and Communication Technology
UNESCO:	United Nations Educational, Scientific and Cultural Organization

CHAPTER ONE

INTRODUCTION

1.1 Background

Digital readiness for academic engagement, digitalization is the transformation of all information types (texts, sounds, visuals, video and other data from various sources) into the digital language. Ainslee (2018) defines digitalization as the integration of digital technologies into everyday life. By talking about digital language it implies the language of ones and zeros, Ones and zeros are eating up the world. UNESCO (2002) defined Information and Communication Technology as the mishmash of informatics technology and communication technology. In this contemporary era, the creation, communication, storage and consumption of information are all being turned into the worldwide language of computers.

Gil (2015) highlighted that:

Digitalization is traced back from 1679 when Leibniz developed the modern binary number system. It was in the beginning of 1700s Leibniz published explanation of binary arithmetic. A century later Boole introduced Boolean algebra thus forming the field of mathematical logic resulting into universal computation. It was in 1938 Reeves apprehended the application of Pulse-Code Modulation for voice communications digitally representing sampled analog signals. 5 years later in 1943 digital voice transmission was for the first time used for high-level Allied communications during the Second World War, 350 disk storage unit invented by IBM in 1956, first commercial compact disc invented in 1982, Finland launched 2G cellular network in 1991. First photo uploaded to website by Tim Berners in 1992. Online shopping began by a large pepperoni, mushroom and extra cheese pizza orders from Pizza Hut in 1994. The world's first digital audio broadcasting channel was launched in 1995 by the

Norwegian broadcasting corporation. UK and U.S begins digital television transmission. The Internet Archives started million book project in 2004. Estonia voted using computers in 2007. There was about 3 billion internet users in 2014. By august 2018, social media statistics presented that Facebook had 2,23B monthly active subscribers, 1,47B were active daily, twitter had 335M monthly active members and 157M active daily, link in had 562 registered members, Instagram 1.0B monthly active daily 500M active and 400stories, 188M snapchat daily active, 150M Pinterest monthly active. Thus implying the increment in socialisation and knowledge sharing. It has been a long way but rapid developments have been seen in the digital sector, such developments have been applied in different sectors for example trade, education, medicine among others. Daniels (2002) states that “Information and Communication Technologies came in a short period but currently one of the essential structure blocks of contemporary civilisation”. So various studies have verified the benefit of digital technology in making high quality education. For this reason, individual have to be informed and acquainted with skills about digitalisation for the development of the education sector such that such individuals become digitally literate. Heitein (2016) defines digital literacy as the capability to utilise information and communication technologies to look for, assess, invent, and transfer information needful for both intellectual and technical skills.

Educators (teachers and administrators in the education sector) at university level have realized the benefits of technology in the sector. Archetypally, education is among the last industries to make all-round change, holding on to archaic methods and practices. This current and the previous centuries the digital transformation and the rise of educational technology have made teachers to begin making fundamental changes to their instruction, assessments, even the physical make-up of the learning environment and at a much faster rate than anticipated. These contemporary trends are making legends in educational sector because of the ways in which they are affecting teaching learning process.

Nowman (2017) highlights that:

There have been gradual developments in technology application in the education field since 1600s from the invention of the slide rule in 1954 by Bissaker. The hornbook was later introduced and used in classroom. Magin Catacoprica (magic lantern) was invented in 1646. Learners started using slates written on with a piece of chalk in 1800s, now these blackboards are being

replaced by whiteboards. Calculating engine was introduced in 1822 by Charles Babbage and he is known as the grandfather of modern digital computing. The type writer was introduced in 1873 by Christopher L. Sholes hence being the first QWERTY keyboard. The film projector was making its way into classroom environments by 1925. Radio started to be used in education in 1925 in various schools. The overhead projector was first used in classroom in 1930 hence being an alternative to blackboard. Printing classroom materials using mimeograph (ditto machine) in 1940s. Headphones and video tapes first used in classroom in 1950s. In this same decade skinner teaching machine was assimilated in classroom teaching learning process. Still the photocopier was introduced. The Scantron was invented and used for grading multiple choice exams purposes in the 1970s. Apple II desktop computer was released in 1977 and students were allowed to learn geography and math problems using computer games. First personal computer introduced by international business machines (IBM) in 1980s and Plato computer was used in education and CD-ROM replaced the floppy disk. In mid 1990s internet was made available to the general public. In the beginning of the 21st century, digital technology and educational institutions became more coupled. YouTube was revealed to be an efficient tool in the teaching learning process in 2004. iClicker also became a popular classroom tool for teachers. Between 2007 and 2010, there was a rise in popularity of smartphones hereby seeing an increase in their use by students. 2010 iPad was introduced. In 2015, various mobile applications for all types of technology devices and operating systems became the core of efficient and effective teaching learning process. As recently as in 2017, education instructors enhanced the classroom learning experience using virtual reality that is modern digital devices such as Google Cardboard and virtual reality that permit learners to study locations and objects in 3 dimension form in addition to sightseeing current events.

Currently, educators have a swarm of ICT equipment like tablet personal computers, whiteboards, apps, Internet resources, virtual reality devices and other tools that permit them to access every student irrespective of the learning style.

Reeves and Jonassen (1996) states that “the use of digital technologies in educational situations play as a catalyst for transformation in the sector, as digital devices promote independent learning and encourages students to become absorbed in the teaching-

learning process.”(P.13) Furthermore, the amalgamation of digital technologies in schools helps refresh students (Oliver, 2000). To this regard the teaching-learning process has become an act of constructing knowledge through interaction. This is in line with contemporary learning theory of Cunningham and Duffy (1996) which states that "learning is an active process of constructing knowledge rather than acquiring knowledge, and that instruction is the process by which this knowledge construction is supported rather than a process of knowledge transmission". Lebow (1993) also supports this theory by stating that “in this sphere learning is observed as the construction of meaning rather than as the memorization of facts”. Hence learning can be achieved through physical activity with the ICT devices as instructional facilities. On another note ICT device are utilized to eradicate communication blockades like that of time & space (Lim and Chai, 2004). The European Parliament and Council (2006) looked at digital competence as a vital skill for all -life learning in this era. This is because digital competency involves the buoyant and acute utilization of information sector in academics, leisure, communication & work among others. The utilization of ICT devices to access, store, retrieve, produce, assess, communicate and take part in collaborative networks using Internet and share information necessitates university students to have new digital competencies like the capability to produce, process, look for and effectively communicate information and fluency in technologies (Radovanovic’ et al., 2015), this is because they utilize such competence in their academic endeavours. It is emphasized that students must have right to utilize knowledge via digital technologies to keep pace with the modern advancements in various sectors (Pelgrum, Plomp and Law, 2007). The application of digital technologies improves students’ performance, facilitates teaching as well as administration and develop pertinent skills in the underprivileged societies (Sharma and Bottino, 2003). Depending on the current needs of the society, knowledge about digital technologies’ usage by the university students is essential for academic achievement (Goode, 2010). Learning phases are experiencing continuous modifications due to the existence and fruition of the Internet and relevant ICT media and learning at universities is chiefly influenced by these modifications (Andrews and Haythornthwaite, 2011). The improvements in technology at universities act a vital role in rising learners’ involvement. University learners can use the available digital technology like university support systems such as e-portfolios and learning management systems to individual tools like e-mail, word processors, messengers and

search engines (Henderson et al., 2015). University learners utilize technology devices to find out the course syllabi and materials, to review the past lecture videos done during their presence or absence, to keep in touch with people at the university this may be lecturers or fellow students, to complete lecture room surveys and tasks and to look for information necessary for the improvement of their understanding and increment of their knowledge (Goode, 2010). Despite the fact that ICT is important in the university life, internet and ICT devices' espousal across population segments has been un-equal. For instance, Pew Research Centre of late reported that some individuals are incapable of effectively utilizing the internet and ICT devices for fundamental activities like applying for scholarships, uploading videos, looking for jobs among others. University students may be facing similar challenges. Here two points are put into consideration: First, different university learners have wavering degrees of vigilance for utilization of the available advanced technologies. Second, reality can lead into the wavering degrees of utilization of new technologies as they verbose in the university community. These variances may eventually increase the likelihood that unequal espousal and application of technology could bring negative impacts like poor performance of students for those who are not facile and comfortable. Ever since 1990s, disparities in technology espousal have been known as the "digital divide". But in recent times there has been an axis in the technology implementation debate that looks at students' readiness like their trust in technology and digital skills that can inspire their utilization of digital tools. The term often used is "digital readiness" (Smith, 2014). Yoemans (2016) states that "when educators ruminate about digital readiness, mainly it is about whether students possess the necessary skills to apply digital technology in their academic life, as well as the digital literacy tools". The effective description of digital readiness comprises of: Digital skills necessary to commence a wired session, surf on the internet and share the obtained content online, Trust that is the reliability of online information and protection of personal information and use the level at which individuals can utilize the digital tools in the course of doing online responsibilities (Pusey, 2016).

Digital readiness for academic engagement is an international research territory intellectualising and quantifying the several success dynamics and enabling situations. There are several readiness models developed like that of Alaaraj and Ibrahim (2014) and that of Darab and Montazer (2011), various instruments have also been developed such as the one developed by Hung (2016) and Lin, Wang, Yeh, Lin, & Jansen (2015)

and various pragmatic researches have been carried out for example the study carried out by Aldhafeeri and Khan (2016), Chipembele and Bwalya (2016), Gay (2016), Parkes, Stein, & Reading (2015) among others. Some researches were focused at national level such Beetham & Sharpe (2007)'s study while others focus on students like Hong and Kim (2018), Parkes et al. (2015) and Dray et al. (2011).

In order to measure the degree of digital readiness for academic engagement of students various scales have been developed for example General Technology Competency and Use (GTCU), Digital Competency Profiler (DCP) among others, it is in the same sphere that Hong and Kim (2018) developed DRAE (Digital Readiness for Academic Engagement) scale to focus majorly on the university students, it is this scale that the researcher used in this study. In this scale five subscales (measures) were highlighted i.e. digital tool application, digital media awareness, information-seeking skills, information-sharing behaviour and digital application usage.

1.2 Statement of the Problem

In the 21st.century the educational sector has been invaded by the machine world which is traced from 1600s as well as the industrial revolution of 18th.century, machines are being utilized in almost all aspects in the teaching learning process i.e. in lesson planning, lesson development and sometimes in lesson evaluation. This era is known as the digital era thus every aspect is being digitalized. According to Daniels (2002) information and communication technology came within a very short period, however it has become one of the vital construction blocks of the present modern society. Presently every nation takes understanding ICT and mastering its fundamental skills and models as part of the core of education alongside writing, numeracy and reading. Knowledge about the digital technologies usage in university life is essential for academic achievement (Goode, 2010).

Improvements in technology in universities play an important part in the increment of university learners' engagement, this is through communication with their fellow students, academic & non-academic staff (NSSE, 2013). Students can exploit a variety of digital technologies like plagiarism detection tools, learning management systems, word processors, and spreadsheets and e-portfolios among others (Henderson et al., 2015; Goode, 2010). University learners employ their digital devices in a variety of academic endeavours for example in identifying course syllabi and materials, communicating with their professors for clarification and more explanation on various

topics, completing assignments among others (NSSE, 2013; Goode, 2010). Looking at the value of digitalization, NSSE testified that learning with aid of technology devices and courses that enriched learners' understanding and technology usage were positively linked with learners' academic engagement, they included higher-order learning and philosophical and integrative learning among others (NSSE, 2013). Student engagement in various academic fields have a tendency to be boosted by the embracement of ICT for digitally knowledgeable learners, who are skilled with technology from the technology rich environment (Jones, 2012). Gaziantep University with a vision of being a world university which has a high international competition capability in educational and scientific undertakings was established in 1973 and it is one of the modernized universities in Turkey which has tried to cop-up with the prevailing digital world forces, it has students from about 108 countries from Africa, Asia, South America, Australia and Europe, the question here was were these students from different parts of the world ready for the digitalization of the education field despite its importance in the field and availability at the university? Therefore, the study focused on the investigation of digital readiness of international students in Gaziantep University for academic engagement. It studied 5 elements/measures of digital readiness for academic achievement of university students i.e. Digital Tool Application (DTA), Digital Media Awareness (DMA), Digital Application Usage (DAU), Information-Sharing Behaviour (ISB) and Information-Seeking Skills (ISS) using the scale developed by Hong and Kim DRAE scale (2018).

1.3 Aim of the study

The study was aimed at investigation of the digital readiness of international students in Gaziantep University for academic engagement.

1.3.1 Research Objectives

The study was guided by five objectives as below;

- To examine the element of Digital Tool Application (DTA) for academic engagement amongst the international students at Gaziantep University.
- To find out the rate at which international students at Gaziantep University are knowledgeable about digital applications in the academic field.
- To find out the extent at which of international students at Gaziantep University are aware of the digital media used in the academic field.

- To investigate the Information-Seeking Skills (ISS) of international students at Gaziantep University.
- To find out the Information-Sharing Behaviour (ISB) of international students at Gaziantep University.

1.3.2 Research Questions

The research objectives were turned into questions which were answered in order to obtain data necessary for the study.

- To what extent do international students at Gaziantep University knowledgeable about the digital tool application?
- At what extent do international students of Gaziantep University able to use digital applications in the academic field?
- To what extent do the international students at Gaziantep University aware of the digital media in the academic field?
- To what degree do international students at Gaziantep University conversant about Information-Seeking Skills (ISS)?
- To what enormousness do international students at Gaziantep University able to share Information pertaining academics with classmates and the community?

1.4 Scope of the study

1.4.1 Content scope

The study focused on five factors that indicates the readiness of university students including Digital Tool Application (DTA), Digital Media Awareness (DMA), Digital Application Usage (DAU), Information-Seeking Skills (ISS) Information-Sharing Behaviour (ISB) using the scale developed by Hong and Kim (2018) DRAE scale.

1.4.2 Geographical scope

The study involved international students from over 50 countries from the world studying at Gaziantep university, these came from continents like Africa (Kenya, Tanzania, Ghana, Mali, Nigeria, Egypt, Morocco, Zambia etc.), from South America (Brazil), Asia (Saudi Arabia, Yemen, India, Myanmar, Pakistan, Syria etc.) and Europe (Azerbaijan, Kosovo among others), the target was to get students from under developed and developing countries and their readiness to apply binary in the academic field.

1.5 Significance of the study

The study has the following contributions to education, economy and society among others;

The study exposed the gaps in the education sector as it identified groups that need help in government allocation of resources so as to make the digitalization process in the education sector more successful. The government and world forces have made the teachers to involve technology at all levels in the teaching learning process, however none has bothered to know whether the students from different backgrounds have the same capacity to get involved in this revolution.

The study is expected to help lecturers at the universities to identify the learners' individual differences which is a key to effective teaching as well as the students' academic success. Lecturers normally give assignments and since they assume that we are living in a digital world, so everyone knows how to use machines, yet this is not correct, some individuals it is their first time to gain access to digital utilization in the academic field.

It helps learners to identify their weaknesses as pertaining their readiness digitally for academic engagement, by looking at the questions which will be set in the questionnaire, they were able to do a self-evaluation and this made those ones who have the gap to fill it by going in for either an additional course in computing and computer usage or to be consultative enough in order to match with other fellow learners.

The study exposed to the university the need of some learners to do a preparatory course in the computer field so as enable them to apply digitalization in the academic fields. This course might be a one-month course or taken together with other course units.

1.6 Assumptions

The researcher assumed that international students studying at Gaziantep University since they come from different geographical regions including the war affected areas, under-developed countries with limited access to electricity and digital devices just in line with Manjulika & Reddy (2002) who reported that access to information and communication technology differs extremely from one geographical region to another for instance from continent to continent and from country to country and it is evident

when comparisons are made between developed and developing countries signifying a stark digital divide, they have low knowledge about information and communication technology therefore are not digitally ready for academic engagement. Also the under-developed countries face a challenges in funding the ICT education projects, the high rural than the urban sector, this is testified by findings of Qian and Smyth (2000) and Ma, Fang and Zhang (2010) who states that the no finance aid for hardware, infrastructure and training, software, ICT training was never instigated and also the longstanding inequalities in contact to ICT education between rural and urban communities resulted in unequal educations in various countries, such inequalities cannot yield the same level of students in relation to digital readiness for academic engagement.

The researcher also assumed that the participants will answer the questionnaires with honest so as to capture the exact picture.

The researcher also assumed that the participants have interests in participating in the study

1.7 Limitations

Language barrier, most international students are not good in Turkish language, they speak their local official languages like French, Arabic, Persian, Uzbek, Chinese, Kazak among others. The questionnaires administered were designed in only 3 languages, even though this was intended to close the communication gap but when it came to additional information required from the researcher by the respondents, it became a challenge.

Limited time, there are more than 2000 international students studying at Gaziantep university and the researcher wished to get opinions of all of them about the topic of study, however due to limited time the researcher decided to limit his study to only 300 students basing on their responses generalisations were made.

Limited resources, for effective data collection assistants become inevitable but due to limited finances the researcher had to do all the work alone and this made the data collection process to take a lot of time, in addition to that the cost of printing and binding is relatively high in relation to the researcher's income.

Low response rate, it was impossible to reach each and every international students therefore the researcher designed online google forms and sent them to various international students WhatsApp groups but in a group of 100 people less than 30% filled the questionnaire which necessitated him to print the forms out and administer them manually.

Unfavourable weather condition, data collection of this study was made during winter season where finding the respondents was challenging due to the coldness outside. International students could just move from their homes/halls of residence just for lectures so meeting them was not easy. And this limited the number of respondents.

1.8 Definitions

The digital readiness of university students is the level at which university learners are prepared to utilize digital technologies for their educational engagement (Chen et al., 2010).

Technology readiness is an individual's propensity to embrace and use technologies for accomplishing a goal or an total state of mind coming from psychological enablers (e.g., optimism and innovation) and inhibitors (e.g., discomfort and insecurity) that form a predisposition towards technology use that determines behaviour (Parasuraman, 2000).

Digital media skills;- is a set of capabilities to access, create, consume, interpret and disseminate information (Potter, 2010).

Information seeking skills refers to ways people search for and utilise information in order to satisfy their social, economic and political needs (Baro, Onyenania and Osaheni, 2010).

Information sharing behaviour refers to how individuals exchange the acquired information amongst themselves (Yuen & Majid, 2007)

Information and communication technology refers to all networking components, devices, systems and applications that are combined to allow people and organizations to interact in the digital era (Goode, 2010)

Digitalisation is the process of integrating digital technologies into individual or organization's daily life (Ainslee, 2018)

CHAPTER TWO

LITERATURE REVIEW

2.1 Value of Digital Readiness for Academic Engagement to University Learners

Digital technology has a crucial impact on all aspects of university education worldwide. The growth of information and communication technologies (ICT) has dramatically reshaped teaching and learning processes in higher education (Pulkkinen, 2007), ICT for education is more important today than ever before since its growing power and capabilities are triggering a change in the learning environments available for education (Pajo & Wallace, 2001). The use of digital technology offers powerful learning environments and can transform the learning and teaching process so that students can deal with knowledge in an active, self-directed and constructive way (De Corte et al., 2003). At present digital technology is considered as a central means of promoting new methods of instruction (teaching and learning). Therefore, it must be utilized to cultivate students' skills for cooperation, communication, problem solving and lifelong learning (Plomp et al., 1996; Voogt, 2003), thus making digital readiness necessary. In addition to that, Innovative use of ICT can facilitate student-centred learning (Drent, 2005), that is being agitated for by almost all educators in the world with an assurance that student centred learning promotes self-reliance of the learners and also curb the prevailing problem of unemployment hence improving on the standards of living of the world citizens. Mungania and Reio (2005) found a significant relationship between dispositional barriers and digital usage in education self-efficacy. They argued that educational practitioners should take into consideration the learners' dispositions and find ways through which digital usage in education self-efficacy could be improved. In this study, digital usage in education self-efficacy is generally represented as the personal confidence and readiness in finding information, using and

sharing with fellow classmates and the teaching staff at the university not forgetting the necessary skills for using the education digital system.

UNESCO (2002) points out the increased access flexibility of content and delivery combination of work and education, learner-centred approach, high quality education and new ways of interaction as the major advantages of digital involvement in the education sector to the students. So the level of technology adoption of individuals for informal and formal learning purposes with the expectation that adoption is expected to provide learners with significant benefits (Lin et al., 2015), therefore, the extent at which students are prepared to apply their digital technology experience within a particular learning environment is made-up of software, course design or pedagogy, and the computer-mediated interactions between participants during lesson preparation, lesson delivery and evaluation stages (Gay, 2016). Saadé, Nebebe and Tan (2007) also insisted that university students' participation and involvement were important to successful educational digital systems and therefore students' acceptance behaviour should be assessed. Islam et al. (2015) provide a deductive, narrative review of digital readiness research from the perspective of human stakeholders at institutions of higher learning i.e. the students, lecturers and administrators among others, in relation to five types of challenges: learning styles and culture, pedagogy, technology, technical training and time management. With respect to technical training, it is argued that students and teachers in university settings must have the motivation and digital competencies which are vital to utilization of technology in the teaching learning process. In 2006, the College Student Surveys Project Group analysed the relationship between information literacy and college student engagement in a study that involved 12,044 students at thirty-three US institutions. They found strong significant positive relationships between information literacy and college students' academic engagement (Gratch-lindauer, 2008). Further still, higher education institutions have a key part to play in supporting graduates to be able to interact with digital technologies in their professional and personal lives (Littlejohn et. al., 2012). Still in the same line, Chipembele (2016) emphasizes this through finding that individual technology skills and confidence of students and teachers to be more significant than organizational factors for assessing readiness, suggesting that if the readiness levels are low, organizational investments in digital-learning infrastructure are most likely to be underutilized. Given the importance of digital-readiness factor, in this study it is all the more important to ask about how the digital readiness for academic engagement

can be measured thus leading us to the five key factors of focus i.e. digital tool application, digital application usage, digital media awareness, information seeking skills and information sharing behaviour. These factors portrays a clear picture on the university learners' ability in terms of knowledge and skills required in the education sector digitalisation process.

2.2 Measures of Digital Readiness for Academic Engagement

2.2.1 Digital Tool Application for academic engagement of university students

Wyte (2017) defines digital tools as software and platforms for teaching and learning that can be employed with computers or other ICT devices to work with text, images, audio, and video. Digital tool application refers to the software that can be utilized by a mobile device, computer or tablet to perform useful academic, personal or organisational tasks (Loo, 2019). In this modern era where student engagement is encouraged, Chmielewski and Dansereau (1998) emphasised that students learn better while real world problems to be solved are linked with real world tools necessary for problem solving in class and outside class. As information and communication technology is an essential part of this century learners' realities and the tools require to be digital and significant, for instance during mapping, digital tools stimulate problem solving behaviours in learners which persevere even when students are not applying them. Kee (2005) noted that ICT is the mainstay of the knowledge sector and in contemporary era have been recognized as an effective tool for stimulating economic growth plus the sustainable development. It is no wonder that learners use their digital devices to review lecture videos, communicate with people at the university and in the society, recognize course syllabi and materials, complete assignments through mobile video recording apps, complete classroom surveys and search for information to expand their understanding among others (Goode, 2010). It is also emphasised by Berge (1998) and Gin (1998) that Learning approaches using modern technology provides number of chances for constructivist learning through the establishment and support for resource-based student centred settings and by enabling learning to be linked to context and to practice.

Several findings show the positive relationship between availability of ICT devices and academic performance for example a study made in 1994 by Kulik, he looked at 75 studies in the United States and discovered that learners who used digital tool

applications had significantly higher test scores i.e. computer tutorials in mathematics, natural science, and social science, pupils who used tutorial software in reading scored significantly higher on reading scores. These findings have significant consistence with that of Aduwa-Ogiegbaen, & Iyamu (2005). However, challenges were usually due to the fact that these technologies have not been integrated fully into the curriculum of schools and universities and some students were not ready to use the digital tool application due to the digital divide. In order to curb the digital divide challenge Kennewell et al. (2000) suggested that it is crucial that computers and other ICT devices to be placed in the lecture rooms, so as to maximize the chances for curriculum activity and improve their readiness for continuous use of these devices. He added that ICT rich environments improve the experience of the learners and instructors and to intensively apply them in the learning time for better grades. The digital rich environment can be established by using various software and extended experience in developing web based and multimedia materials. Technology has the central role to play in changing and modernizing educational systems and techniques of learning, however the students has to be prepared to use the technology devices in their academics.

Sturm and Rankin-Erickson (2002) paralleled four major fundamentals of essay writing using computer generated concept maps that is the syntactic maturity, number of words, holistic writing scores, number of T-units. Learners who created computer-generated maps scored higher, wrote more and felt better about their writing than the students who created hand drawn maps. Students preferred the computer-generated maps because the hand drawn maps were untidy, difficult to modify and the page became confusing without an easy way to organize the information written. Thus ICT increasing student engagement leading to an increased amount of time students spend working outside class (Becker, 2000). For that reason digitalization taken as catalyst to learner centred education which is advocated by the modern educators. Therefore, all features of education are going continuous changes with the existence & the evolution of the Internet and collaborative participatory media and education in universities principally affected by these changes in all ways (Haythornthwaite and Andrews, 2011).

Fuchs and Woessman (2004) employed international data obtained from the Programme for International Student Assessment and indicated that the correlation between the presence of ICT and students' performance is significantly positive,

however the correlation reduces and becomes insignificant when student environment characteristics are put into consideration, in our study we put into consideration of students originating from different environments which differ in political, economic and social spheres.

Chickering and Ehrmann (1996) mentions that the integration of technology in teaching and learning process advocates good practices in terms of emphasising time based tasks, boosting active learning, communicating high expectations, giving prompt feedback and respecting diverse talents and ways of learning. It is upon these results that agitates for digital integration into the curriculum about its effectiveness in learning better than the utilization of the older technologies of blackboard and the like. Student engagement is enhanced by the adoption of digital technology to the digitally native students. These students are naturally proficient with technology because of their experience in the technology-rich environment especially students from high social economic class (Jones, 2012), however some students come from low developed countries where the so called technology rich environment is taken as a myth, when they come to study their digital readiness for academic engagement becomes doubtful. Park and Burford (2013) stated that currently university learners encounter undependable and poor quality digital content concerning their academic works in their day to day living. With aid of digital tool application skills, a learner who is digitally knowledgeable has the ability to critically recognize, interpret media content and communicate effectively using digital media devices.

Hepp et al (2004) in their paper “Technology in Schools: Education, ICT and the Knowledge Society” claim that technology has been applied in education sector ever since its inception however, it has not always been used massively like nowadays. Even if computers have not been fully integrated in the learning of traditional subjects at the university, it is accepted rhetorically that education systems must prepare citizens for lifelong learning in an information society (Pelgrum & Law, 2003).

The digital readiness for academic engagement especially the digital tool application cuts across all departments and faculties of study for example in the healthy sector Masood, Khan and Waheed (2014) wrote that the existence of computers and other ICT devices have led to individuals’ increased ability to rapidly and effectively, store, share, analyse & retrieve large volumes of information related to patient care, medical learning process therefore computer skills are essential for medical practitioners. This study is taking into consideration of the medical students. The increasing use of

technology in healthcare theorise that healthcare services' efficacy and efficiency can be developed through informatics technology and systems hence leading to better quality healthcare for patients (Tung & Cheng, 2011).

technology engages and inspires university students this is quoted as an aspect influencing ready adaptors of information and communication technology (Long, 2001), despite the fact that digitalization in the academic field is germane, some finding show that some learners have less exposure to the digital tools, In a study about Korean university students' perceptions of courses at universities, the university students showed that universities perceived courses related to digital competencies as significant but that they were inadequate in terms of actually availing relevant courses at their schools to their learners (Song et al., 2016). In the digital tool application readiness includes the ability to fix computer virus, upload and download files, manage software and change security settings on web browsers among others.

2.2.2 Digital application usage for academic engagement of university students

The application of information and communication in educational sector acts as a reagent for revolution and development in the academic sphere. University students applying technology for education use become engrossed in the learning course as more and more learners apply digital technology as cognitive tools and information sources (Reeves and Jonassen, 1996). The impact of digital technology on supporting how learners learn will continue to rise. Teaching and learning strategies applying modern digital technology avail various chances for constructive learning through provision & support for student centred resource-based settings and by making learning to be linked between the contexts & practice (Berge, 1998; Barron, 1998). It is also of advantage that university learners applying digital technology for learning drives become involved in the learning process. Therefore, university learners use wide range of digital technology like learning management systems, presentation tools, E-mail and search engines among others (Henderson et al., 2015). Also for university learners working with abstract ideas their capability to renovate information into a visual representation with aid of graphs and digital technology assist them in obtaining a big picture of what they are learning.

Saranto & Leino-kilpi (1997) used the Delphi technique to find out the Computer Learning's level required in nursing education. It was discovered the basic skills necessary were word processing skills, basic computer operation, internet skills, spreadsheet and database experience among others. In addition to that Ershadisarabi

& Bahadini (2005) examined computer learning in medical university students, it was concluded that computer learning score was 56%. It was also found out that there was a significant difference between gender groups & computer learning. Furthermore, Zarei, Diant & Rokhafroz (2012) in their survey on computer literacy in university medical students, it was found out that the learners' familiarity with computer learning were unsatisfactory. There were significant differences in gender whereby male students had higher computer learning capability than female learners. Salehi and Hajiabadi (2010) investigated the general computer learning among employees. It was found out general computer learning was less than moderate. From these studies we identify that there are differences in digital readiness based on gender, how about nationalities, it is not addressed. It was also discovered that digital application usage is crucial for university students.

Attwell and Battle (1999) in their study about the relationship between having a computer at home and school performance, sample of 64,300 students from United States was involved and the findings showed that students who had access to computer at home and used it educational use, had high scores in mathematics & reading. This is due to the fact that digital devices help in deepening learners' knowledge content, engages learners in making up their own knowledge & encourage the creation and advancement of complex thinking skills (Kozma, 2005; Webb & Cox, 2004; Kulik, 2003) similarly to Kulik (1994)'s study findings, indicated that on an average, a university student who used digital based instruction, learn more and score better. ICT based instruction makes the classroom interesting and attractive to the students, this is also similar to Fister et al (2008) who depicted the power of digital devices in aiding mathematics instruction, it was also found out that digital devices have the prospective for rising access to and enlightening the significance and superiority of education. However, these findings is contrary to Leuven et al. (2004) threw light that there was no evidence about the correlations between increased educational utilization of digital devices and students' academic success. In fact, in his study they found negative relationships between digital devices use and learners' academic success. Despite their findings, it is widely accepted that digital devices have the ability to accelerate, improve and deepen skills, motivation and engagement of students, creation of economic viability for tomorrow's workers, helping in relating school experience to work practices, as well as strengthening teaching and helping schools change (Yusuf, 2005).

Brosnan (2001) identified motivation, attitude, computer self-efficacy and computer anxiety as dominant factors affecting teachers' application of computers and other digital devices in their lessons. Hennessy, Harrison and Wamakote (2010) noted that the effective introduction of technology into universities dependent upon the existence and accessibility of digital resources (e.g. hardware, software and communications infrastructure). The availability of these software and hardware will increase the effectiveness of students in using Microsoft office application (Microsoft word, Microsoft excel, Microsoft access and Microsoft power point among others) hence making them ready for digitalization in the academic field. Since all facets of education are experiencing continual modifications with the existence plus the development of the Internet and collaborative participatory digital media and education at higher institutions of learning is predominantly la-di-da by these modifications (Andrews & Haythornthwaite, 2011).

2.2.3 Digital media awareness for academic engagement of university students

University students who study in technologized universities must be aware of digital media and also have new digital competencies, for example the capacity to look for, process information, produce it and communicate it and fluency in technologies, applications, communication norms and programming atmospheres (Radovanovic' et al., 2015), the contemporary university students apply a variety of digital media to realise their search objectives and intentions (Rieh and Hilligoss, 2007; Xie, 2000). In addition to that university learners' information digital literacy skills are associated with the learning outcomes, for instance the academic success and engagement, Gratch-lindauer (2008) identified digital media to cover smart phones, radio, iPads, television, digital camera, computer and internet facilities, scanner, computer game console, DVD player and recorder among others. In contemporary era, there is extreme encouragement both nationally and internationally for the use of digital media in the teaching learning process. Even though this digital media play a great role in the academic field of learners, there is also rumours and false information that is spread via them therefore Information digital competent learners apply various information search skills with critical evaluation and effective search strategies so as to identify the bias in the digital media content (McGuinness, 2006).

It is also asserted that digital technology has the power to accelerate, innovate, enrich, and deepen skills that motivate and also engage students in the teaching learning process, it also helps relating school experience with work practices, this creates

economically viable tomorrow's workers and at the same time strengthening teaching and helping the schools to adjust to the prevailing need of the society (Yusuf, 2005), Application of digital technology is changing processes in teaching and learning as it adds elements of vitality to learning environments. These virtual environments have various purposes (Collins, 1996). Zhao and Cziko (2001) put forward three conditions are required for instructors to introduce digital media into their classrooms: instructors should trust the effectiveness of technology, teachers, believe that the use of digital media will not cause any disturbances and that they possess control over digital media to be used in the classroom. But various studies show that most instructors do not utilize the potential of digital media to add value to the quality and magnificence of learning environments, even if they worth this prospective quite significantly (Smeets, 2005) in addition to that Mooij and Smeets (2001) suggested five successive phases of digital media usage, i.e. (i) the incidental and isolated use of digital media by one or more instructors (ii) rising awareness of digital media relevance at all levels (3) putting weight on digital media co-ordination and hardware (4) emphasising moralising improvement and digital media support (5) application of digital media integrated teaching and learning that is independent of time and place. During this implementation process, teachers and learners develop the digital media and post them on different sites implying that they are the primary owners and they have rights on them however Duncan & Ekmekcioglu (2003) states that "the intellectual property rights issue is among the increasingly permeate debates among digital media experts". Renner (2015) clearly stated that "the digital media professionals are creating educational materials (video, audio and other files) that are spread on a wide scale". With the changing frontier of content delivery, there are many questions that needs to be answered concerning intellectual property rights among content developers and providers for example who owns the digital materials and content that are created and posted online? Can the creator patent his/her work and what are organizational implications? What are institutional or organizational limits of ownership to the creators' e-materials and digital products? Does the creator has the right to use content for eLearning courses that is easily downloadable and found on the worldwide web at another organization?, in her very article she addressed the intellectual property rights related to the field of eLearning she pointed out that better management of intellectual property rights is important for the fruitful execution of eLearning, she also added that effective use of intellectual property rights in creating, developing and implementing

eLearning courses is an important component in the education sector, as it plays a great role in a knowledge-based economy, as she was explaining these rights she pointed out copyright, patents and trademarks, our question here is that are the international students studying in Gaziantep university aware of these property rights? It is believed that digital media presents an exclusively new learning environment for university students, hence requiring a different necessary skill for it to be successful. Research, critical thinking and evaluation skills are increasing in significance as university students have accumulative volumes of information from various sources to sort through (New Media Consortium, 2007). However, they have to be aware of the rights governing the information they are acquiring and posting on the digital media.

Critical thinking and judgments decisions are vital 21st century skills, the ability of university students to precisely construe information is essential in assuring that they don't necessarily admit to everything they are articulated to or observe in print (De Rycker, 2001). If data management comes, the Partnership for 21st Century Skills (2007) states various goals for university learners to become literate in information and media, they comprise the capability to access, analyse, manage, integrate, evaluate as well as creating information in various of forms and media. In addition to that, to nurture skilful problem solving and development of deep thinking skills, university students need to identify a problem to be solved, analyse the data and the situation and finally find a solution to the problem. Across all subject areas, it is vital for the university students to possess the capability so as synthesize huge information amounts into an intelligible layout and communicate the information clearly as the academic giants.

2.2.4 Information seeking skills for academic engagement of university students

Information searching is an essential skill for university students as it includes a sense-making practise that embraces habituated viewing and informal searches which rise the learners' understanding of subject matter and fields of interest, it is through which learning takes place (Zhu et al., 2011).

The United Nations report (1999) explains that information and communication technology encompasses digital equipment and services, telecommunications equipment and services, media & broadcasting, Internet service provision, libraries & documentation centres, network based information services, commercial information providers plus other related information and communication activities. It is from which information is sought from by the university students. Various studies show that the

contemporary learning at universities has transformed as a consequence of information and communication technology; for instance, university learners are more acquainted with amalgamated learning plus having instantaneous right to use the academic resources through laptops and phones than with direct instruction through daily lectures alone (Stowell, 2015; Everson et al., 2013; Fitch, 2004). It was also discovered that mobile technologies are broadly applied by university students to encourage learning and engaging in various educational activities like reviewing lecture videos before class, identifying course information or interacting with faculty staff and other fellow students. Being digitally proficient in contemporary knowledge economy and information society necessitates the development of vital socioemotional, intellectual and technical expertise (Singh and Mohammadyari, 2015).

University students require information seeking expertise to access a variety of e-resources, effectively quest for information necessary for teaching learning purposes, to interpret information correctly in a way that smooths the attainment of their objectives, select suitable digital technologies to complete academic tasks presented in lecture, collaborate or communicate effectively using online communities and effectively manage digital learning environments (Mohammadyari and Singh. 2015; Ng. 2012; European Commission. 2010). Application of digital technology inspires university students to process information well and hence enriches the understanding and expands students' memory (Hull, 1995; Gayeski, 1993). University learners are anticipated to be prepared of using digital skills for use within the academic life and livelihoods (Radovanovic et al., 2015; Julien and Genuis, 2011). Although Coates et al. (2004) exposed that university learners pursuing on-campus courses normally score well compared to their online counterparts, however the difference is not significant here. Digital technologies do not only facilitate new methods of learning but also allow instructors and learners to do what they have done before in a better way.

According to Adeyemi & Esere (2013) the potentials and scope of digital technologies tears down international boundaries as it makes equal information and knowledge of different categories available as fast and early as possible. In the educational research field, university learners and other educational providers has the ability to exchange knowledge, research findings and opportunities through publications and other outlets present in various nations around the world (Jegede, 2002). Again the introduction of ICT in higher education is a catalytic utility to technology as it improves academic performance as well as efficiency in management, teaching and other social activities

at large (Cross, 2007). Digital technologies give room for the establishment of digital resources such as digital libraries from where university learners, instructors and professionals can get access to various research materials and subject content materials published from a different place at any time (Bhattacharya and Sharma, 2007; Cholin, 2005). These amenities permit the interaction of academicians and researchers thus sharing and seeking of academic resources. Digital technologies eliminate time barricades in education for university students as well as lecturers through seeking information as they avails new educational methodologies (Sanyal, 2001). Technology also advances the quality of education by smoothing learning through self-learning, information seeking and analysis, problem solving and critical thinking and not forgetting the ability to communicate, collaborate and teach (Yuen et al., 2003).

Sosin et al. (2004) found substantial, but less, positive effect on learners' academic success because of technology application. They also exposed that some digital technologies have proven to have a positive correlation to learners' academic performance whereas others are not. ICT plays a role of enhancing the quality of education as it has undoubted increased the rate of flexibility in the education delivery so that students can have access to anything, anytime and from anywhere. These technologies have in addition influenced the way learners are being taught in the classroom and how their method of learning. As now the process of learning is mostly student centric and not teacher centric. This would help in preparing the student for lifelong learning and refining the quality of education.

Kulik (1994) exposed that, on average, learners who utilized computer based instruction performed better than students with no computers since people who have access to knowledge via digital technologies move together with the contemporary developments in the social and academic world (Plomp, Pelgrum & Law, 2007). ICT avails chances to university students to access a variety of information using multiple information resources as well as observing information from multiple outlooks, hence nurturing the genuineness of learning atmospheres. Digital technologies can also make multifarious processes easier to understand through simulations hence contributing to authentic learning atmospheres. Therefore, ICT can work as an enabler of lively learning and higher order thinking (Alexander, 1999; Jonassen, 1999).

Instructors makes their lectures so attractive by utilisation digital technology also students are able to learn and understand easily. This is because classes become very interesting, knowledge learnt is retained even after examination. ICTs allow university

students to explore and discover other than just listening, memorizing and remembering. The World Wide Web avails a virtual international gallery for learners' academic work (Loveless, 2003).

The ubiquitous existence of digital technology for the X and Z generation has resulted in to better-quality information seeking, information retrieval and information evaluation (Rowlands et al., 2008).

A study made by UNESCO (2002) explored that there drawbacks exist in general education in India as well as all over the world due to limited instructional materials, inaccessibility of education amenities, inadequate trained teachers and high school dropout rates among others. Innovative use of digital technology hypothetically solve this problem. Information seeking skills as a university students' digital readiness can result into further developed digital competency (C, oklar et al., 2017).

2.2.5 Information sharing behaviour for academic engagement of university students

According to Loveless (2003), the World Wide Web avails a virtual global gallery for university learners' academic tasks. Adeyemi and Esere (2013) state that "technology break down boundaries and make equal information and knowledge of different categories available as fast as possible". The educational research field allows learners and other educational providers are able to share knowledge, search and research findings and opportunities through publications and other outlets available in countries around the world (Jegede, 2002). Digitalisation encourages students' engagement, student engagement is known as the rate at which learners are lively involved in the teaching learning process that help to achieve the demanded academic objectives (Krause and Coates, 2008; Hu and Kuh, 2002). This done through blogs, social networking services or webpages among others. This have made Governments around the world to see digital technologies as an essential element to its educational success in terms of improvement in educational standards, broadening their involvement at higher education and facilitation of all-life learning. This has necessitated learners to possess a certain degree of competence (Jenkins et al., 2006).

Through ICT sharing and availability of best course material in education became an easy task and may help in improving teaching. Digital technologies allow the learning institutions to reach the disadvantaged groups of the society (Young, 2002). Students use technology to cooperate with their fellow students and their lecturers to discuss and complete academic tasks (Kuh, 2009). If education curricula provide a gorgeous

and fetching digitally enhanced atmospheres, learners learn basing on their own preference. Therefore, university students are required to possess a reasonable degree of readiness so as to utilise digital technology as an aspect of academic sphere (Henderson et al., 2015). Digital resources like digital libraries created by ICT allows for sharing of scholarly material between academic and researchers and also aids management to effectively and efficiently manage information in institutions of higher learning.

Cabero (2001) reported "the flexibilization time-space accounted for by the integration of ICT into teaching and learning processes contributes to increase the interaction and reception of information. Such possibilities suggest changes in the communication models and the teaching and learning methods used by teachers, giving way to new scenarios which favour both individual and collaborative learning".

University students feed through sample papers, e-books and previous year papers among others with the aid of digital technologies. This also guarantees easy access to resource persons, experts, guides, researchers from everywhere in the world. This tractability in learning has resulted in to the existence of life-time learning by provision of opportunities for learners who hitherto constrained to learning because of other obligations (Young, 2002). Valasidou and Bousiou, (2005) in their study stated that "ICT aid in improvement of communication between students and instructors. Researches have publicised that the suitable application of technology propels the vital and habitual change in both curriculum and instruction that is the soul of education modification in this 21st century".

Digital technology eliminates communication barricades like that of time and space (Lim and Chai, 2004). Since it provides fast spreading of education to the intended underprivileged groups (Chandra and Patkar, 2007; UNESCO, 2002). Technology boosts the global dimension of educational amenities (UNESCO, 2002). The application of technology in the education sector nurtures higher order skills like collaboration across time and place and solution to multifarious real world problems are provided (Bhattacharya & Sharma, 2007; Bottino, 2003; Lim & Hang, 2003; Mason, 2000). The use of ICT may nurture supportive learning and reflection about the content (Susman, 1998). Further still, information and communication technology serves as an instrument to curriculum differentiation through provision of chances for acclimatising the learning content and assignments to the desires and competences of every student due to its tailored feedback (Smeets & Mooij, 2001; Mooij, 1999).

The experience of introduction of a variety of digital technologies in the classroom and other educational settings globally for the past several decades proposes that there must be full apprehension of the prospective educational benefits of technology. The direct correlation between digital utilization and learners' academic achievement has been the core of all-embracing literature during the past two decades. However digital technology helps learners during and after their learning process by cultivating their communication amongst themselves, their instructors and then at their workplaces (Valasidou and Bousiou, 2005).

Ehrmann (1996) highlights that the incorporation of digital technologies in the education process advocates for better practices in form of inspiring lively learning, providing quick feedback, emphasising time-based tasks, announcement of high anticipations and respect to varied skills and techniques of learning. ICT increases student engagement, which results into an increment in the amount of time students usually take working outside lecture rooms through motivation and information sharing amongst themselves (Becker, 2000).

In conclusion, Aduwa-Ogiegbaen, & Iyamu (2005) observe that even if in the teaching learning process, we cannot avoid the old technologies like textbooks and chalkboard, but none has greatly affected the learning process like the computer and other ICT devices. Computers has the capability of galvanizing the sight senses, hearing and touch senses of the students. Digital technologies also have the ability to avail advanced collaborating chance for the students to improve and cultivate their logical and resourceful ability. Blayone, Kavtaradze, Kokhan, vanostveen and Barber (2018) in their study about digital readiness of university students in Ukraine and Georgia for academic engagement, hypothesised ICT as an educational conduit to democratic changes, while using Digital Competency Profiler, their findings reveal that great percentage of Georgian and Ukrainian university students were ill-prepared for a variety of online-learning activities. It must not be forgotten that advancements in digital technology in university education plays a vital part in rising learners' engagement in university academic and social life (NSSE, 2013).

All the findings signify the value of digitalisation in the academic field, however none of them had been done specifically international students some of whom are coming from low developed countries, while others from war affected countries and this study put them into consideration.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

The study employed a quantitative descriptive survey research design to investigate digital readiness of international students in Gaziantep University for academic engagement. Quantitative study was preferred because the researcher was interested in measuring the degree of digital readiness for academic engagement which the international students at Gaziantep University possess. Descriptive survey was preferred because it allows simple random sampling of the population from which the findings will be generalised and does not setup artificial conditions as with the case of experimental designs.

3.2 Study Population

The study involved International students at Gaziantep University, there are 2500 students from 108 countries worldwide.

3.3 Sample and Sampling Techniques

The researcher employed simple random sampling technique, where everyone had a chance to be selected in the study. With the aid of online Rao-soft sample size calculator, with margin of error 5%, confidence level 95%, and the study population of 2500 and response distribution of 50%, a sample of 334 students were selected for the study. 334 questionnaires were distributed and 300 were returned.

These participants were selected irrespective of their age, country, faculty, level of study or year of study. Out of the 300 questionnaires 12 were outliers and deleted hence making the study to consider 288 respondents.

3.3.1 Sample Characteristics

In order to get to know the kind of participants being involved in the study, they were asked about their gender, country of origin, faculty of study, level of study and year of study and their responses are as presented in the table below;

Table 4.1

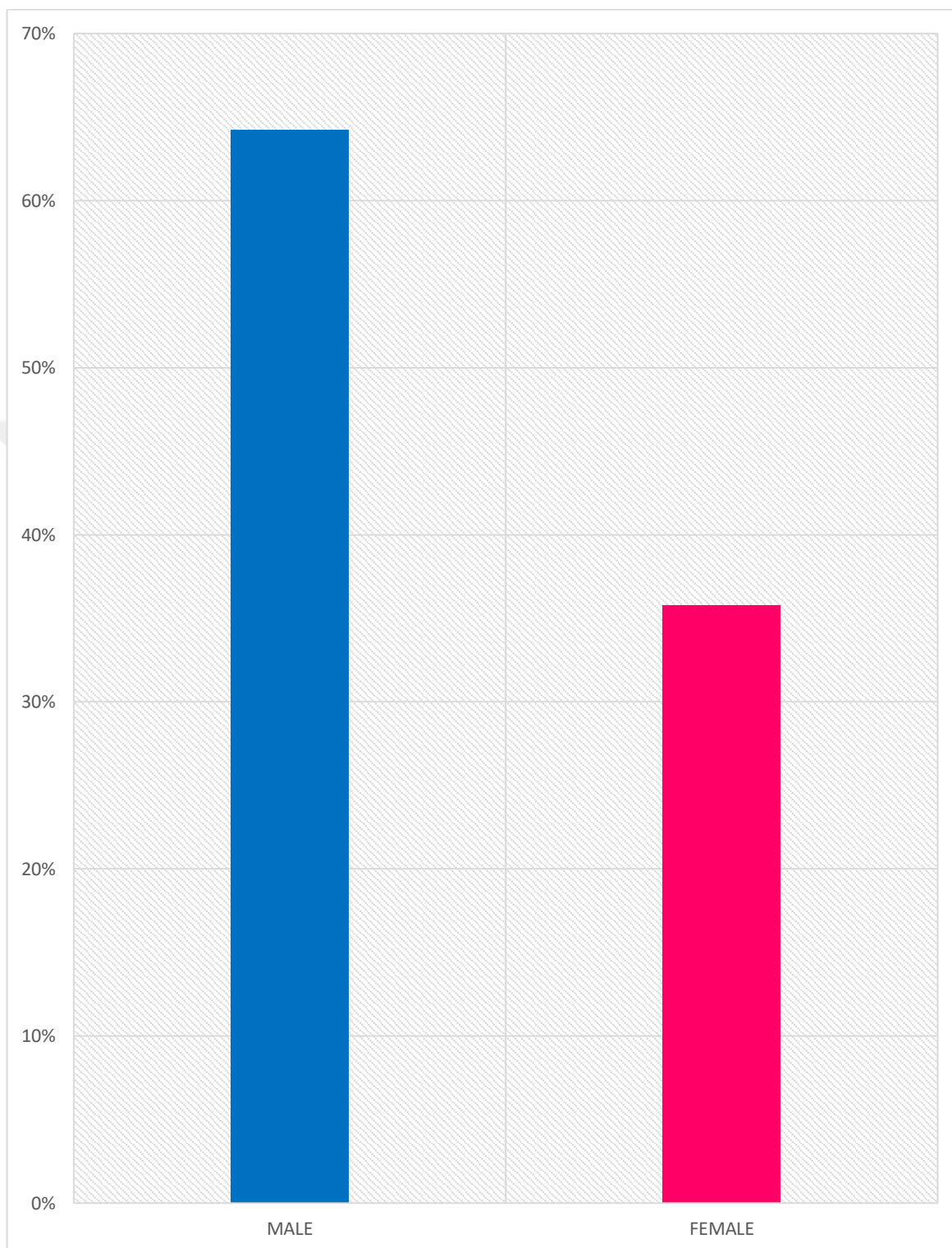
Demographic Characteristics of the Participants

		Frequency	Percent
Gender	Female	103	35,8
	Male	185	64,2
	Total	288	100
Country	Africa	90	31,3
	Rest of Asia	43	14,9
	Middle East	155	53,8
	Total	288	100
Faculty of Study	Education	81	28,1
	Economics	50	17,4
	Engineering	54	18,8
	Medicine	33	11,5
	Theology	22	7,6
	Others	48	16,7
	Total	288	100
Level of Study	LPS	75	26
	Bachelors	176	61,1
	Graduate	37	12,9
	Total	288	100
Year of Study	Freshman	165	57,3
	Sophomore	56	19,4
	Junior	31	10,8
	Senior	36	12,5
	Total	288	100

These are further portrayed in the graphs below;

Figure 1

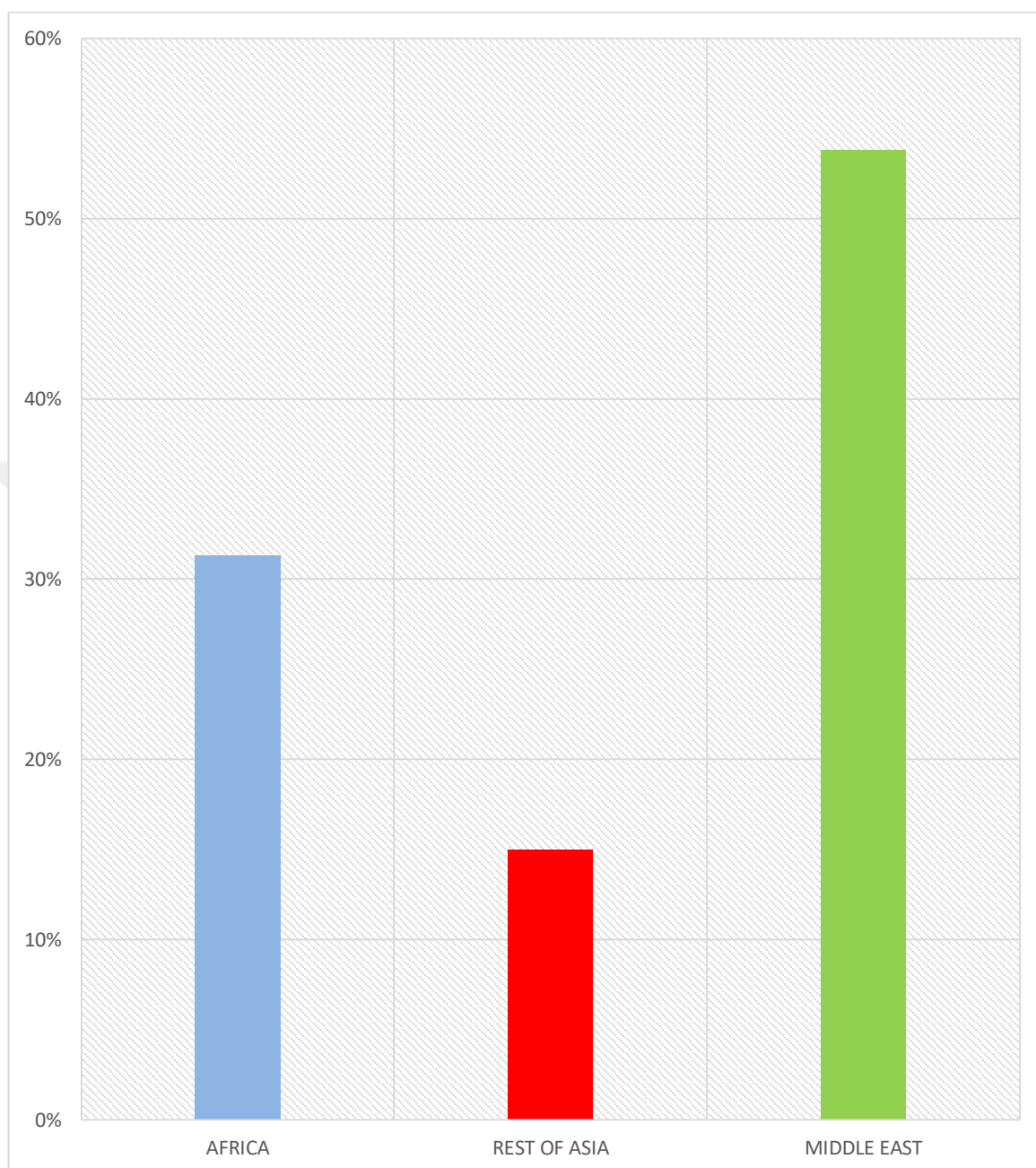
Bar Graph Showing Participants' Gender (%)



Basing on the above table and graph, it indicates that the study involved both gender i.e. 64.2% were male and 35.8% were female.

Figure 2:

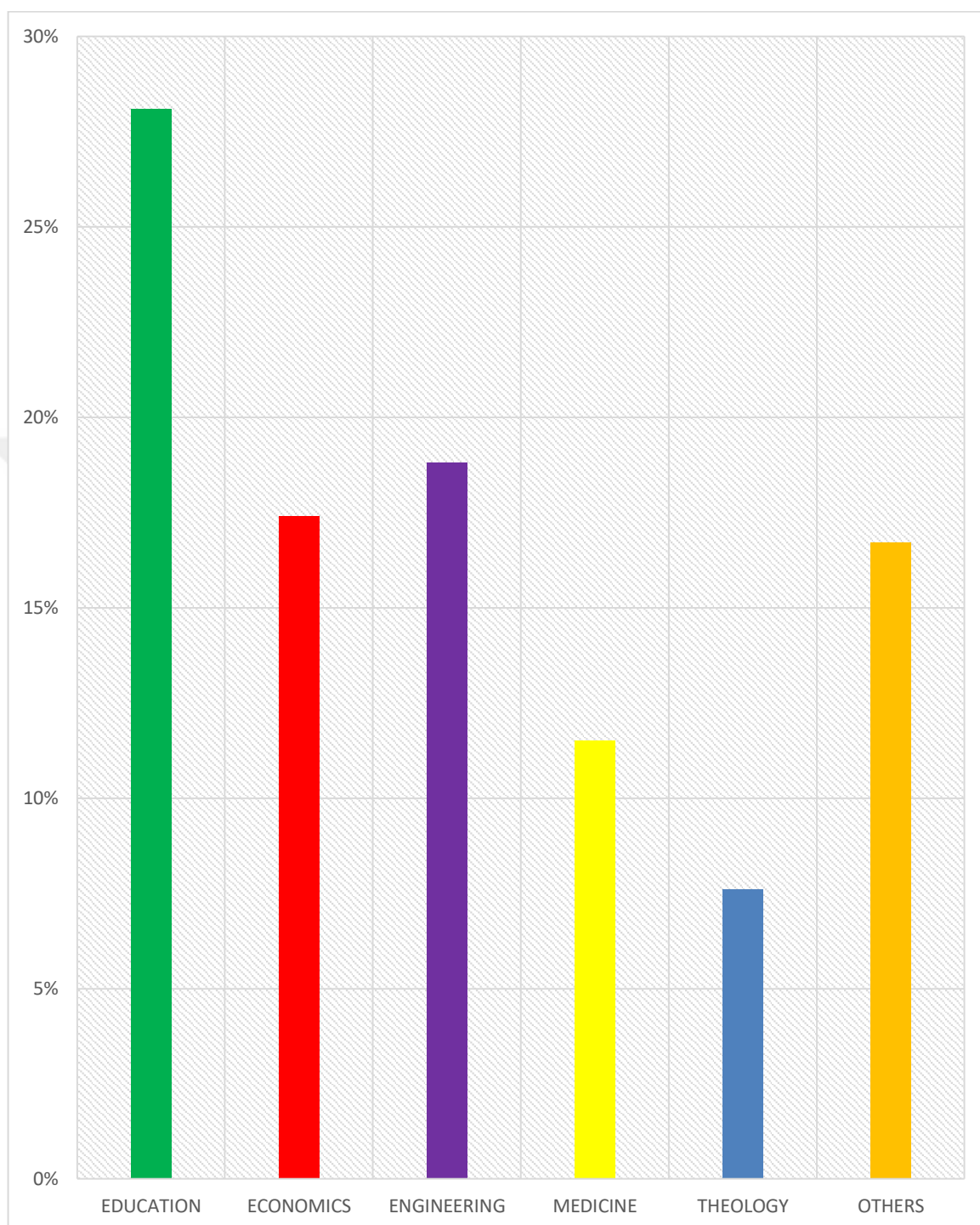
A Bar Graph Showing Participant's Geographical Region (%)



The above graph and table shows that the respondents were from African continent involving countries like Chad, Kenya, Somalia, Sudan, Tanzania, South Africa, Benin, Ghana, Nigeria, Niger, Cameroon, Egypt, Morocco, Tunisia among others contributing to 31,3% , 53,8% from Middle East region involving countries like Syria, Saudi Arabia, Iraq, Iran, Lebanon among others, 14,9% from Rest of Asia (representing countries on Asian continent outside the Middle East region e.g. Korea, China, Taiwan, India, Indonesia, Bangladesh among others).

Figure 3:

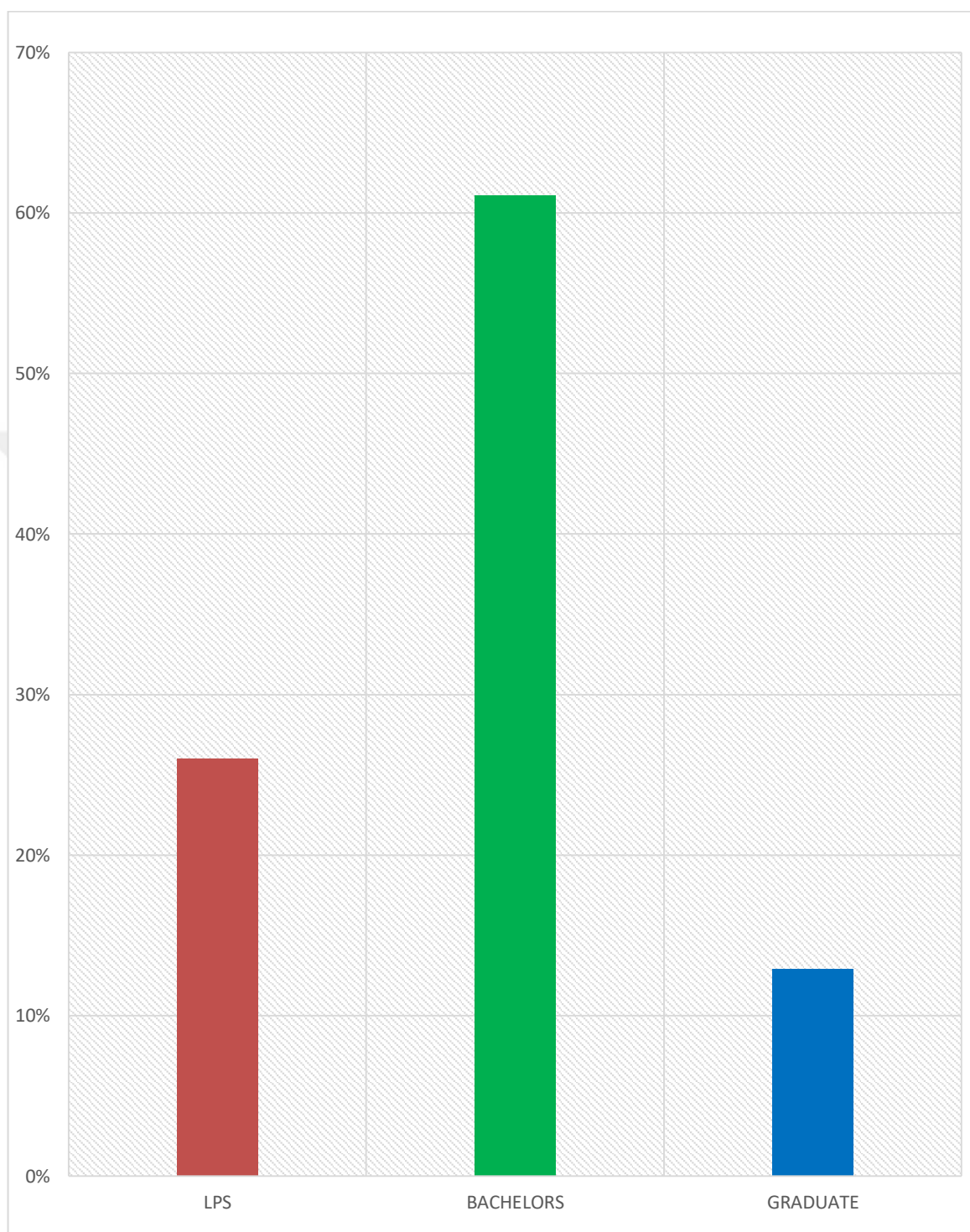
Bar Graph Showing Participants' Faculty of Study (%)



The table and graph shows that the respondents were from different faculties i.e. 28,1% from faculty of education, 18,8% from faculty of economics and administration, 17,4% from faculty of engineering, 11,5% from faculty of medicine, 7,6% from faculty of theology and 16,7% from other faculties like social sciences, law among others.

Figure 4:

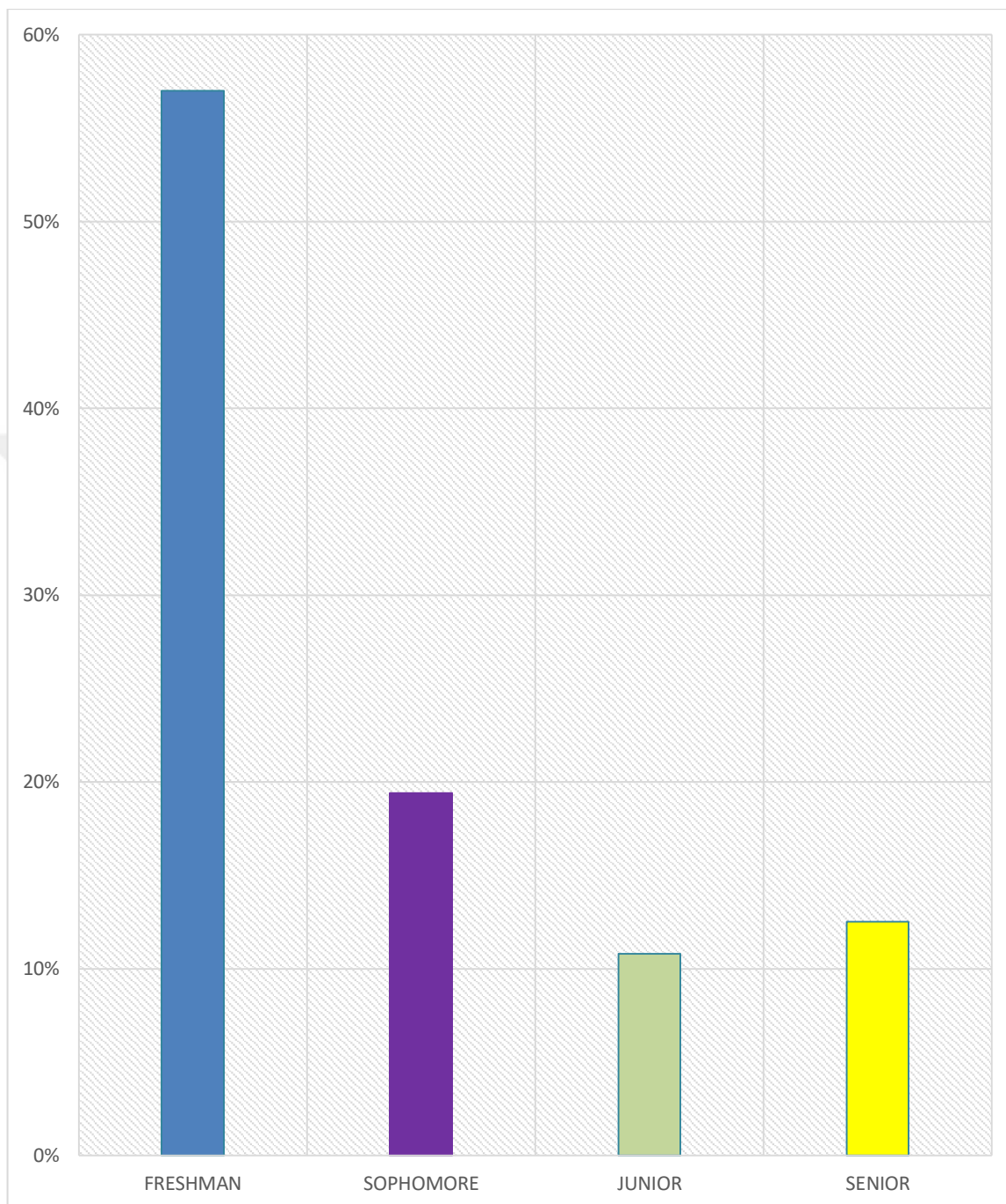
Bar Graph Showing Participants' Level of Study (%)



The table 3.3.1 and graph 5 show that the study involved respondents were studying at different levels of education that is 26% from the language preparatory school, 61.1% were studying at bachelors' level and 12.9% were studying at graduate level i.e. masters and doctorate.

Figure 6

Bar Graph Showing Participants' Year of Study (%)



Still from the above table and graph indicate that respondents from different years of study that 57% were in their first year (freshman), 19.4% were in their second year (sophomore), 10.8% were in their third year (junior) and 12.5% were in their last year of study (senior).

3.3.2 Availability of Digital Devices and Internet Usage of the Respondents

The respondents were asked to tick on the digital devices they have as they were provided a check list and on this check list an individual was free to select one or more than one device and they were also asked on how long do they spend daily on internet in terms of hours, their responses are as presented below;

Table 3.3.2

Availability of Digital Devices & Daily Internet Usage

		Frequency	Percent
Devices	Smartphone	272	94.4
	Laptop	168	58.3
	IPad	49	17
	Desktop	28	9.7
	Television	9	3.1
	Radio	2	0.7
Hours of internet usage	Less than an hour	14	4,9
	1-3 hours	79	27,4
	3-6 hours	95	33,0
	More than 6 hours	100	34,7
	Total	288	100

Table 2 shows that out of the respondents 94.4% had smartphones, 58.3% had laptops, 17% had iPads, 9.7% had desktops, 3.1% had televisions and 0.7% had radios, it was also discovered that some of the respondents had multiple possession of devices whereby one had more than one device. The same table still shows the number of hours spent by the respondents on internet daily that is, 4.9% spend less than an hour on internet, 27.4% spend 1-3 hours on internet daily, 33% spend 3-6 hours daily on internet and 34.7% spend more than 6 hours on internet daily.

3.4 Data Collection Instruments

3.4.1 Questionnaire

Designed questionnaires were administered to the respondents, these questionnaires involved questions pertaining the students' digital readiness for academic engagement. Questionnaire instrument was preferred because it allowed the respondents to provide the required information at their preferred time, the questionnaires were kept such that they can be used for another related study (record keeping) and it also allowed confidentiality. They were designed in 3 languages to enable every participant understand the questions and respond well i.e. English, Turkish and Arabic language

3.5 Validity and Reliability

The digital readiness for academic engagement scale the researcher used in this study was developed by Hong and Kim (2018) and applied on university students in Korean university, they made the validity analysis of the items in the scale and it is the very scale without any changes the researcher applied on international university students studying at Gaziantep University

Reliability is the ability of an instrument to create reproducible results. The developers of the scale conducted a Cronbach's alphas and the result for all the 17 items in the scale was .874, the researcher in this study also conducted the Cronbach's alphas for all the 17 items in the scale and the result was .828 which shows that the internal consistency is good.

Table 5.1
Reliability Statistics

Cronbach's Alpha	N of Items
.828	17

3.6 Data Collection Process

Questions were designed in form of a questionnaire and it was administered to international students. Both online (google forms) questionnaires and printed out questionnaires were made in three languages that is Arabic, Turkish and English, the filled in questionnaires were collected and analysis was made using them. The collection process took 2 months.

3.7 Method of Data Analysis

Univariate analysis was used, where every element or variable was analysed at a time. SPSS was used to calculate the frequencies, percentages, mean, significance and compare various groups in relation to dependent variables. 300 Questionnaires were returned and out of them 12 were outliers, removed and parametric tests were done on the remaining 288. Then the data was then presented in tables and graphs, interpretations, discussions and conclusions were made depending on the availed data then recommendations and areas for further research were suggested by the researcher.

CHAPTER FOUR

FINDINGS

4.1 Measures of Digital Readiness for Academic Engagement (DRAE)

4.1.1 Digital Tool Application a Measure of DRAE

In order to provide answers to research question one that states that “To what extent do international students at Gaziantep University knowledgeable about the digital tool application?” four items were presented in the questionnaire and respondents were asked to either strongly disagree, disagree, remain undecided, agree or strongly agreed depending on their ability and knowledge concerning a particular item. In their responses the one who strongly agreed it implies that he/she possess excellent knowledge about a particular item and the vice versa. Their responses are as presented in the table below;

Table 4.1.1

Participants’ Responses on Digital Tool Application

		Frequency	Percent
I can fix a computer virus or malware on my laptop or desktop computer.	Strongly disagree	26	9,0
	Disagree	67	23,3
	Neutral	63	21,9
	Agree	89	30,9
	Strongly Agree	43	14,9
	Total	288	100,0
I can upload and download media including online photos, files, video files and sound files.	Strongly disagree	2	,7
	Disagree	2	,7
	Neutral	20	6,9
	Agree	124	43,1
	Strongly Agree	140	48,6
	Total	288	100,0
I can manage software or apps from a computer or mobile services.	Strongly disagree	2	,7
	Disagree	24	8,3
	Neutral	40	13,9
	Agree	129	44,8
	Strongly Agree	93	32,3
	Total	288	100,0

I can set up and change security options on web browser.	Strongly disagree	8	2,8
	Disagree	58	20,1
	Neutral	47	16,3
	Agree	117	40,6
	Strongly Agree	58	20,1
	Total	288	100,0

The table above indicates that 9% of the respondents strongly disagreed that they can fix a computer virus or malware on their computers, 23.3% disagreed, 21.9% were neutral, 30.9% agreed and 14.9% strongly agreed. The table shows that 0.7% strongly disagreed, 0.7% disagreed, 6.9% were neutral, 43.1% agreed and 48.6% strongly agreed that they can upload and download media including online photos, files, video files and sound files. The table shows that 0.7% strongly disagreed, 8.3%, 13.9% were undecided, 44.8% agreed and 32.3% strongly agreed that they have the ability and knowledge to manage software or apps from a computer or mobile services. It is indicated that 2.8% strongly disagreed, 20.1% disagreed, 16.3 were neutral, 40.6% agreed and 20.1% strongly agreed that they have the knowledge and skills of setting up and changing change security options on web browser.

4.1.2 Digital Application Usage as a Measure of DRAE

So as to provide answers to research question two that states that “At what extent do international students of Gaziantep University able to use digital applications in the academic field?” three items were presented in the questionnaire and respondents were asked to either strongly disagree, disagree, remain undecided, agree or strongly agreed depending on their ability and knowledge concerning a particular item. In their responses the one who strongly agreed it implies that he/she possess excellent knowledge about a particular item. Their responses are as presented in the table below;

Table 4.1.2:

Participants' Responses on Digital Application Usage

		Frequency	Percent
I can use the fundamental functions of a presentation program (e.g. Microsoft PowerPoint) for class presentations.	Strongly disagree	7	2,4
	Disagree	21	7,3
	Neutral	33	11,5
	Agree	116	40,3
	Strongly Agree	111	38,5
	Total	288	100,0
I can use fundamental functions of word processing programs to create and edit documents for class assignments.	Disagree	29	10,1
	Neutral	40	13,9
	Agree	103	35,8
	Strongly Agree	116	40,3
	Total	288	100,0
I can use spreadsheet programs (e.g. Microsoft excel) to handle data and analyze it in class assignments.	Strongly disagree	7	2,4
	Disagree	36	12,5
	Neutral	46	16,0
	Agree	108	37,5
	Strongly Agree	91	31,6
	Total	288	100,0

It is also indicated that 2.4% strongly disagreed, 7.3% disagreed, 11.5% were undecided, 40.3% agreed and 38.5% of the respondents strongly agreed that they can use the fundamental functions of a presentation program for class presentations. The table shows that 10.1% of the respondents strongly disagreed, 13.9% were neutral, 35.8% agreed and 40.3% strongly agreed that they can apply fundamental functions of word processing programs to create and edit documents for class assignments. It is also indicated that 2.7% of the respondents strongly disagreed, 12.5% disagreed, 16% were neutral, 37.5% agreed and 31.6% strongly agreed that they can use spreadsheet programs to handle data and scrutinise it in class assignments.

4.1.3: Digital Media Awareness as a Measure of DRAE

To enable the researcher to provide answers to research question three that states that “To what extent do the international students at Gaziantep University aware of the digital media in the academic field?” three items were presented in the questionnaire and respondents were asked to either strongly disagree, disagree, remain undecided, agree or strongly agreed depending on their ability and knowledge concerning a particular. Their responses are as presented in the table below;

Table 4.1.3

Respondents' Responses on Digital Media Awareness

		Frequency	Percent
I can recognize the bias or rumours in digital media content.	Strongly disagree	12	4,2
	Disagree	56	19,4
	Neutral	75	26,0
	Agree	107	37,2
	Strongly Agree	38	13,2
	Total	288	100,0
I can critically interpret digital media content.	Strongly disagree	13	4,5
	Disagree	63	21,9
	Neutral	89	30,9
	Agree	95	33,0
	Strongly Agree	28	9,7
	Total	288	100,0
I know how to protect intellectual property rights when I use digital media content.	Strongly disagree	15	5,2
	Disagree	58	20,1
	Neutral	77	26,7
	Agree	102	35,4
	Strongly Agree	36	12,5
	Total	288	100,0

The table shows that 4.2% of the respondents strongly disagreed, 19,4% disagreed, 26% were neutral, 37.2% agreed and 13,2% strongly agreed that they can recognize the bias or rumours in digital media content. It is shown that 4.5% of the respondents strongly disagreed, 21.9% disagreed, 30.9% were neutral, 33% agreed and 9.7% strongly agreed that they can critically interpret digital media content. It is shown in the table that 5.2% of the respondents strongly disagreed, 20.1% disagreed, 26.7% were neutral, 35.4% agreed and 12.5% strongly agreed that they have knowledge about the protection of their intellectual property rights whenever they use digital media content.

4.1.4: Information Seeking Skills as a Measure of DRAE

So as to provide answers to research question two that states that “To what degree do international students at Gaziantep University conversant about Information-Seeking Skills (ISS)?” three items were presented in the questionnaire and respondents were asked to either strongly disagree, disagree, remain undecided, agree or strongly agreed depending on their ability and knowledge concerning a particular item. On the responses the one who strongly agreed it implies that he/she possess excellent knowledge about a particular item while the one who strongly disagree, it implies that

he/she has less or no knowledge/skill about a particular item. Their responses are as presented in the table below;

Table 4.1.4

Participants' Responses on Information Seeking Skills

		Frequency	Percent
I can use a variety of available options to search for information that my colleagues are not aware of.	Strongly disagree	6	2,1
	Disagree	18	6,3
	Neutral	58	20,1
	Agree	127	44,1
	Strongly Agree	79	27,4
	Total	288	100,0
I can inform my classmates of different ways to effectively search for information.	Strongly disagree	4	1,4
	Disagree	11	3,8
	Neutral	54	18,8
	Agree	121	42,0
	Strongly Agree	98	34,0
	Total	288	100,0
I can generate keywords to search information for academic work	Strongly disagree	13	4,5
	Disagree	25	8,7
	Neutral	67	23,3
	Agree	110	38,2
	Strongly Agree	73	25,3
	Total	288	100,0

The table above shows that 2.1% strongly disagreed, 6.3% disagreed, 20.1% were undecided, 44.1% agreed and 27.4% strongly agreed that they can use a variety of available options to search for information that my colleagues are not aware of. It is shown that 1.4% of the respondents strongly disagreed, 18.8% were neutral, 42% agreed and 34% strongly agreed that they can inform their classmates about the different ways to effectively search for information. It is shown in the above table that out of the total respondents 4.5% strongly disagreed, 8.7% disagreed, 23.3% were neutral, 38.2% agreed and 25.3% strongly agreed that they can generate keywords to search information for academic work

4.1.5: Information Sharing Behaviour as Measure of DRAE

So as to provide answers to research question five that states that “To what enormousness do international students at Gaziantep University able to share Information pertaining academics with classmates and the community?” four items were presented in the questionnaire and respondents were asked to either strongly disagree, disagree, remain undecided, agree or strongly agreed depending on their ability and knowledge concerning a particular item. On the responses the one who

strongly agreed it implies that he/she possess excellent knowledge about a particular item while the one who strongly disagree, it implies that he/she has less or no knowledge/skill about a particular item. Their responses are as presented in the table below;

Table 4.1.5

Participants' Responses on Information Sharing Behaviour

		Frequency	Percent
I can interact with classmates using the real-time communication tools for example video conferencing tools or messengers.	Strongly disagree	8	2,8
	Disagree	26	9,0
	Neutral	44	15,3
	Agree	141	49,0
	Strongly Agree	69	24,0
	Total	288	100,0
I can share my opinions online for example with blogs, social networking services or webpages.	Strongly disagree	3	1,0
	Disagree	19	6,6
	Neutral	56	19,4
	Agree	130	45,1
	Strongly Agree	80	27,8
	Total	288	100,0
I can share my files with my classmates using online software.	Strongly disagree	7	2,4
	Disagree	19	6,6
	Neutral	37	12,8
	Agree	134	46,5
	Strongly Agree	91	31,6
	Total	288	100,0
I can collaborate with classmates using online software.	Strongly disagree	1	,3
	Disagree	9	3,1
	Neutral	32	11,1
	Agree	131	45,5
	Strongly Agree	115	39,9
	Total	288	100,0

The above table shows that 2.8% of the respondents strongly disagreed, 9% disagreed, 15.3% were neutral, 49% agreed and 24% strongly agreed that they can interact with classmates using the real-time communication tools for example video conferencing tools or messengers. It is shown above that 1% of the respondents strongly disagreed, 6.6% disagreed, 19.4% were neutral, 45.1% agreed, 27.8% strongly agreed that they can share their opinions online for example with blogs, social networking services or webpages. It is shown that 2.4% strongly disagreed, 6.6% disagreed, 12.8% were neutral, 46.5% agreed, 31.6% strongly agreed that they can share their files with their classmates using online software. The table shows that 0.3% of the respondents

strongly disagreed, 3.1% disagreed, 11.1% were neutral, 45.5% agreed and 39.9% strongly agreed that they can collaborate with classmates using online software.

4.2.1: Gender and Digital Readiness for Academic Engagement

So as to identify whether there is a significant difference between gender groups and digital readiness for academic engagement, analysis was made and the findings are as presented below;

Table 4.2.1

Independent Sample T- Test Results for Gender and DRAE

	Gender	N	Mean	Std. Deviation	F	Sig
DTA	Female	103	3,65	,678	1.498	.010*
	Male	185	3,86	,633		
DAU	Female	103	4,02	,797	.695	.580
	Male	185	3,96	,865		
DMA	Female	103	3,14	,838	.001	.022*
	Male	185	3,38	,828		
ISS	Female	103	3,86	,759	1.663	.816
	Male	185	3,89	,694		
ISB	Female	103	4,04	,651	.052	.314
	Male	185	3,96	,638		
Total	Female	103	3,74	,521	.30	.310
	Male	185	3,81	,523		

For digital tool application subscale there are significant differences observed between groups. From the above table it is shown that there are differences between female and male whereby male group is better than female basing on the mean scores. The table further shows that there are significant differences between male and female in the digital media awareness in that male group is slightly knowledgeable than the female group.

For digital application usage, information seeking skills, information sharing and total scores there is no significant differences observed in between the groups.

4.2.2: Geographical Regions and DRAE

Students from different geographical regions were made in groups and comparisons were made amongst these groups to discover whether there are or there is no significance differences for different subscales and the findings are as presented below;

Table 4.2.2: *Variance Analysis Results for Geographical Regions and DRAE*

		N	Mean	Std. Deviation	F	Sig	Group
DTA	Africa(1)	90	3,86	,645	1,36	,259	
	Rest of Asia (2)	43	3,81	,714			
	Middle East(3)	155	3,72	,644			
	Total	288	3,78	,656			
DAU	Africa(1)	90	4,08	,615	5,39	,005*	2-3
	Rest of Asia (2)	43	4,27	,664			
	Middle East(3)	155	3,85	,964			
	Total	288	3,98	,840			
DMA	Africa(1)	90	3,42	,713	1,94	,145	
	Rest of Asia (2)	43	3,33	,873			
	Middle East(3)	155	3,20	,888			
	Total	288	3,29	,838			
ISS	Africa(1)	90	3,93	,671	4,47	,012*	2-3
	Rest of Asia (2)	43	4,12	,694			
	Middle East(3)	155	3,78	,733			
	Total	288	3,88	,717			
ISB	Africa(1)	90	4,06	,511	1,78	,171	
	Rest of Asia (2)	43	4,06	,760			
	Middle East(3)	155	3,92	,672			
	Total	288	3,99	,643			
Total	Africa(1)	90	3,87	,433	5,20	,006*	1-3
	Rest of Asia (2)	43	3,92	,483			2-3
	Middle East(3)	155	3,69	,564			
	Total	288	3,78	,522			

For the digital tool application subscale there are no significant differences between groups according to geographical regions of students' origin. The same table shows that for the digital application usage there are differences between Rest of Asia and Middle East, where by the participants from Rest of Asia possess better knowledge pertaining digital tool application compared to those from Middle East region.

The table further indicates the absence of significant difference amongst various groups for the digital media awareness subscale, but for information seeking skills subscale significant differences are observed. There are significant differences

between group of participants from Rest of Asia and Middle East, basing on the mean scores, the participants from Rest of Asia have better knowledge, skills and competence pertaining information seeking skills. From the same table still, is shown that for information sharing behaviour subscale there are no significant differences.

In addition to that the table shows the total mean scores in relation to the regions of participants' origin, here there are significant differences observed between various groups. There are differences between those from Africa and Middle East where by participants from Africa had better knowledge and skills and are more ready for digitalisation in the academic field compared to those from Middle East. Other significant differences are observed between participants from Rest of Asia and those participants from Middle East, the participants from Rest of Asia showed for digital readiness for academic engagement than those from Middle East.

4.2.3: Number of Hours Spent Daily on Internet and DRAE

To find out whether there is significant difference between the number of hours spent by students on internet daily and digital readiness for academic engagement, post hoc test was made in different groups and the findings are as presented and discussed below;

Table 4.2.3

Variance Analysis Results for Daily Internet Usage and DRAE.

		N	Mean	Std. Deviation	F	Sig	Groups
DTA	Less than an hour (1)	14	3,57	,317	3,505	,016*	2-3 2-4
	1-3 hours (2)	79	3,61	,692			
	3-6 hours (3)	95	3,81	,614			
	More than 6 hours (4)	100	3,90	,674			
	Total	288	3,78	,656			
DAU	Less than an hour (1)	14	3,24	1,041	5,353	,001*	1-2 1-3 1-4
	1-3 hours (2)	79	3,97	,830			
	3-6 hours (3)	95	3,93	,886			
	More than 6 hours(4)	100	4,15	,713			
	Total	288	3,98	,840			
DMA	Less than an hour (1)	14	3,19	,759	2,773	,042*	2-4
	1-3 hours (2)	79	3,10	,914			
	3-6 hours (3)	95	3,28	,806			
	More than 6 hours (4)	100	3,46	,791			
	Total	288	3,29	,838			
ISS	Less than an hour (1)	14	3,60	,456	2,321	,075	
	1-3 hours(2)	79	3,75	,721			
	3-6 hours (3)	95	3,92	,679			
	More than 6 hours (4)	100	3,98	,761			
	Total	288	3,88	,717			

ISB	Less than an hour (1)	14	3,73	,737		1-4
	1-3 hours(2)	79	3,73	,662		2-3
	3-6 hours (3)	95	4,01	,588	9,181	,000* 2-4
	More than 6 hours(4)	100	4,20	,588		4-3
	Total	288	3,99	,642		
Total	Less than an hour (1)	14	3,47	,420		1-3
	1-3 hours (2)	79	3,63	,529		1-4
	3-6 hours (3)	95	3,79	,522	7,232	,000* 2-3
	More than 6 hours (4)	100	3,94	,485		2-4
	Total	288	3,78	,522		3-4

For digital tool application sub-scale there are some significant differences between groups according to hours spent by participants on internet. There are differences between groups who use internet between 1-3 hour and 3-6 hours. From the findings it is shown that the difference was that the participants who spend more are hours on internet are better than those who spent less time on internet in digital tool application skills and competence, the same was discovered with differences between 1-3 hours and more than 6 hours groups. All in all, basing on the findings the more an individual spend on internet the more he/she acquires knowledge and skills about digital tool application.

For the digital application usage subscale, significant differences between groups were observed that is between a group of participants who spend less than one hour on internet and those who spend between 1-3 hours, it was seen that the earlier had less knowledge about digital application usage than the former, also significant differences were observed between participants who spend less than one hour on internet and those who spend 3-6 hours in that those who spend 3-6 hours on internet daily are more knowledgeable than those who spend less than an hour on internet, lastly there was also a significant difference observed between those who spend less than an hour daily on internet and those who spend more than 6 hours daily on internet where by the later scored higher than the former. In this subscale, it indicates that the more hours on internet the more knowledge and capability about digital application usage.

The table further shows that for the digital media awareness subscale, there are some significant differences shown between individual groups according to hours spent daily on internet. There are differences between those who spend 1-3 hours on internet and those who spend more than 6 hours on internet. The table shows that those who spend more than 6 hours on internet has better knowledge about digital tool awareness

than those who spend 1-3 hours basing on the mean scores. This implies that the more an individual spend on internet in terms of time the more ability, competence and awareness about digital media.

The table above still shows that for the information seeking skills subscale, there was no significant difference found amongst the groups who spend their time on internet. However, it shows that for the information sharing behaviour subscale, there are significant differences between different groups depending on number of hours spent on internet. There are differences between the group that spend less than one hour on internet and that which spend more than 6 hours daily on internet, other significant differences were seen between groups; those who spend 1-3 hours daily on internet and a group that spend 3-6 hours on internet, those who spend 1-3hours on internet and more than 6 hours on internet, more than 6 hours on internet and 3-6 hours daily on internet, basing on their mean scores, it is shown that the more one spend on internet in terms of time the more competence about information sharing.

Looking at the total scores, there are also significant differences observed in between groups depending on the number of hours spent by an individual on internet. The differences are seen in between; a group that spend less than an hour on internet and that which spend 3-6 hours on internet, a group that spend less than an hour on internet and that which spend more than 6 hours daily on internet, a group that spends 1-3 hours daily on internet and that which spends 3-6 hours on internet, a group that spends 1-3 hours daily on internet and that which spends more than 6 hours on internet, lastly a group that spend 3-6 hours daily on internet and that which spend more than 6 hours on internet. Basing on the total mean scores, it is found out that internet usage is one of the most important factor in digital readiness amongst international students in Gaziantep university as it is seen that the more these students are exposed to internet the more competence and ready for the digitalisation in the academic field hence facilitating digital readiness for academic engagement.

4.2.4: Faculty of Study and Digital Readiness for Academic Engagement

Basing on faculties were the participants were studying, 6 groups were formed that is Education, economics, engineering, medicine, theology and others, comparisons were made amongst these groups to discover whether there are or there is no significance differences for different subscales and the findings are as presented below;

Table 4.2.3

Variance Analysis Results for Faculty of Study and DRAE

		N	Mean	Std. Deviation	F	Sig	Groups
DTA	Education (1)	81	3,62	,609	3,194	,008*	1-2
	Economics (2)	50	3,99	,544			1-3
	Engineering (3)	54	3,96	,669			2-5
	Medicine (4)	33	3,77	,564			
	Theology (5)	22	3,65	,826			
	Others (6)	48	3,70	,722			
	Total	288	3,78	,656			
DAU	Education (1)	81	3,69	1,00	3,377	,006*	1-2
	Economics (2)	50	4,19	,720			1-3
	Engineering (3)	54	4,04	,816			
	Medicine (4)	33	3,96	,671			
	Theology (5)	22	4,02	,839			
	Others (6)	48	4,20	,669			
	Total	288	3,98	,840			
DMA	Education (1)	81	3,17	,805	,631	,676	
	Economics (2)	50	3,37	,842			
	Engineering (3)	54	3,28	,917			
	Medicine (4)	33	3,25	,909			
	Theology (5)	22	3,39	,827			
	Others (6)	48	3,40	,762			
	Total	288	3,29	,838			
ISS	Education (1)	81	3,62	,663	3,278	,007*	1-2
	Economics (2)	50	3,94	,612			1-3
	Engineering (3)	54	4,03	,710			1-5
	Medicine (4)	33	3,90	,705			
	Theology (5)	22	4,00	,783			
	Others (6)	48	4,01	,803			
	Total	288	3,88	,717			
ISB	Education (1)	81	3,86	,651	1,524	,182	
	Economics (2)	50	3,98	,649			
	Engineering (3)	54	4,02	,616			
	Medicine (4)	33	3,96	,622			
	Theology (5)	22	4,05	,565			
	Others (6)	48	4,17	,679			
	Total	288	3,99	,643			
Total	Education (1)	81	3,59	,523	3,475	,005*	1-2
	Economics (2)	50	3,89	,448			1-3
	Engineering (3)	54	3,87	,582			
	Medicine (4)	33	3,77	,457			
	Theology (5)	22	3,82	,520			
	Others (6)	48	3,89	,504			
	Total	288	3,78	,522			

For digital tool application subscale there are various significant differences between groups according to faculty of study. There are differences between groups who study at faculty of education and faculty of economics, whereby participants from faculty of economics are better than those studying at faculty of education. There were also differences between participants from faculty of education and engineering whereby those from engineering faculty are better than those from faculty of education. Other differences are also seen in groups of participants from faculty of economics and faculty of theology whereby those ones from faculty of economics are better than those from faculty of theology. Furthermore, significant differences are seen between groups of participants from faculty of engineering and others (law, social sciences, healthy sciences etc.) whereby those from faculty of engineering are better than them in knowledge and competence about digital tool application.

For digital application usage subscale there are several significant differences between groups basing on the faculty of study. There are differences between those from faculty of education and those from faculty of economics as those from faculty of economics are better than those from faculty of education. There is also another difference observed between faculty of education and faculty of engineering whereby those participants from faculty of engineering are better than those from faculty of education.

For digital media awareness and information sharing behaviour subscales there is no difference observed. However, for information seeking skills subscale there are various differences observed between groups according to their respective faculties. There are differences between groups faculty of education and faculty of economics, whereby participants from faculty of economics are better than those in faculty of education. There were also differences between participants from faculty of education group and engineering whereby those from engineering faculty are better than those from faculty of education. There is also differences between participants from faculty of education group and theology whereby those from theology faculty are better than those from faculty of education.

There is also a significant difference observed in the total mean scores. There are differences between groups that is the participants from faculty of education and those from faculty of economics where by those from faculty of economics are more ready for digitalisation in the academic field than those from faculty of education, other

significant differences are seen between those from faculty of education and those from engineering as those from engineering faculty are better than those from the faculty of education concerning digital readiness for academic engagement.

4.2.5: Academic Level and Digital Readiness for Academic Engagement

Students at different levels of study that is language preparatory school, bachelors, masters and doctorate were made in groups and comparisons were made amongst these groups to discover whether there are or there are no significance differences for different subscales and the findings are as presented below;

Table 4.2.5

Variance Analysis Results for Level of Study and DRAE

		N	Mean	Std. Deviation	F	Sig	Groups
DTA	LPS (1)	75	3,64	,637	2,273	,105	
	Bachelors(2)	176	3,83	,637			
	Graduate(3)	37	3,85	,755			
	Total	288	3,78	,656			
DAU	LPS (1)	75	3,64	1,026	8,680	,000*	1-2
	Bachelors(2)	176	4,11	,718			1-3
	Graduate(3)	37	4,07	,798			
	Total	288	3,98	,840			
DMA	LPS (1)	75	3,20	,806	,650	,523	
	Bachelors(2)	176	3,32	,844			
	Graduate(3)	37	3,32	,877			
	Total	288	3,29	,838			
ISS	LPS (1)	75	3,62	,614	7,002	,001*	1-2
	Bachelors(2)	176	3,98	,709			
	Graduate(3)	37	3,93	,828			
	Total	288	3,88	,717			
ISB	LPS (1)	75	3,84	,663	3,629	,028*	1-2
	Bachelors(2)	176	4,06	,584			
	Graduate(3)	37	3,91	,804			
	Total	288	3,99	,643			
Total	LPS (1)	75	3,59	,536	7,571	,001*	1-2
	Bachelors(2)	176	3,86	,463			
	Graduate(3)	37	3,82	,656			
	Total	288	3,78	,522			

For digital tool application subscale there are no significant differences observed, for digital application usage subscale some significant differences are seen between groups. There are differences between language preparatory school and bachelors whereby those studying at bachelor's level are better than those at the language preparatory school as concerning to digital application usage, other differences are also seen between language preparatory school and graduate group as those participants studying at graduate level are better than those studying at the language preparatory school.

For digital media awareness subscale there are no significant differences, however, for information seeking skills subscale there is a significant difference observed that is between the group of participants studying at the language preparatory school and those at bachelor's level as those at bachelors level possess better skills of information seeking than those at the language preparatory school.

For information sharing behaviour subscale there is a significant difference observed between groups according to level of study that is there is a difference between those at language preparatory school and those at bachelors whereby those at bachelor's level possess more knowledge and have the information sharing behaviour than those at the language preparatory school.

For total mean scores there is a significant difference observed between groups that is those at the language preparatory school and those at bachelor's level in that those at bachelor's level are more ready for digitalisation of the academic sector than those at language preparatory school.

4.2.6: Year of Study and Digital Readiness for Academic Engagement

Students studying in different years were grouped basing on their years of study and comparisons were made amongst these groups to discover whether there are or there is no significance differences for different subscales and the findings are as presented below;

Table 4.2.6

Variance Analysis Results for Year of Study and DRAE

		N	Mean	Std. Deviation	F	Sig	Groups
DTA	Freshman(1)	165	3,70	,655	2,165	,092	
	Sophomore(2)	56	3,94	,684			
	Junior(3)	31	3,86	,622			
	Senior(4)	36	3,83	,610			
	Total	288	3,78	,656			
DAU	Freshman(1)	165	3,85	,929	3,715	,012*	1-2
	Sophomore(2)	56	4,26	,636			
	Junior(3)	31	4,12	,718			
	Senior(4)	36	4,04	,670			
	Total	288	3,98	,840			
DMA	Freshman(1)	165	3,30	,872	,228	,877	
	Sophomore(2)	56	3,28	,864			
	Junior(3)	31	3,19	,829			
	Senior(4)	36	3,36	,644			
	Total	288	3,29	,838			
ISS	Freshman(1)	165	3,76	,719	6,405	,000*	1-2
	Sophomore(2)	56	4,20	,644			1-3
	Junior(3)	31	4,03	,611			2-4
	Senior(4)	36	3,80	,744			
	Total	288	3,88	,717			
ISB	Freshman(1)	165	3,91	,686	2,758	,043*	1-2
	Sophomore(2)	56	4,18	,619			
	Junior(3)	31	4,08	,542			
	Senior(4)	36	3,94	,482			
	Total	288	3,99	,643			
Total	Freshman(1)	165	3,70	,563	4,048	,008*	1-2
	Sophomore(2)	56	3,97	,463			
	Junior(3)	31	3,86	,421			
	Senior(4)	36	3,79	,411			
	Total	288	3,78	,522			

For digital tool application and digital media awareness subscales there were no significant differences seen basing on the participants' year of study, for digital application usage there is a significant difference seen between the freshman group and sophomores whereby sophomores had better knowledge and skills concerning digital tool usage.

For information seeking skills subscale there are some differences observed between groups basing on their year of study. There are differences between freshman and sophomores in that the sophomores are better than the freshers. There are also

differences between freshman group and juniors' whereby juniors are better than the freshers. There are also differences between sophomores and seniors in that the sophomores are better than the seniors in the information seeking skills.

For information sharing behaviour subscale there is a significant difference observed between groups according to their year of study i.e. there is a difference between those in first year (freshmen) and sophomores whereby sophomores possess more knowledge about the information sharing behaviour than the freshers.

For total mean scores there is a significant difference observed between groups that is freshman group and sophomores in that the sophomores are more ready for digitalisation of the academic sector than the freshmen.



CHAPTER FIVE

DISCUSSIONS

5.1 Demographic Data

This study is about digital readiness of international students at Gaziantep University for academic engagement. It involved both male and female participants. Majority of the participants were male (64.2%) and female (35.8%). Majority of the participants were from Middle East region (53.8%), others were from Africa (31.3%), Rest of Asia (13.9%) and other regions (1%). The study involved participants studying at different faculties; majority of them were studying at faculty of education (28.1%), faculty of engineering (18.8%), economics (17.4%), medicine (11.5%), theology (7.6%) and others (16.7%). Participants were studying different levels of education; majority were studying bachelors (61.1%), followed by language preparatory school (26%), masters (11.5%) and doctorate (1.4%). Participants were at different years of study; majority were in their first year (57.3%), followed by second year (19.4%), fourth year (12.5%) and third year (10.8%)

5.2 Availability of Devices

Globally it is believed that over a billion people use smartphones, Turkish statistical institute (2015) shows that 96.8% of people living in Turkey use smartphones. In this study out of the participants 95% had smartphones, this is slightly lower than the study made by Bavlı, Katra and Günar (2018) who were investigating about smartphone addiction among university students whose participants 100% of them had smartphones, but slightly higher than that involved in the study by Alfawareh and Jusah (2014) who carried out a study about Smartphones usage among university students: Najran University case, out of their participants 94.4% of them had

smartphones. The percentage is high because smartphones are easy to carry and they provide most of the functions like other technology devices like accessing social media, texting, and email among others. This was highlighted by Cho and Lee (2015) who states that Smartphones are more common than laptops because they are easy to use and carrying is more convenient. They are used for several reasons like video calling, accessing social media, surfing the internet, e-mail communication and messaging. However, having a smartphone does not guarantee that the owner can use it for learning as Hussin et al. (2012) who researched on student readiness for mobile learning in 4 main features: basic, skill, budget and psychological. In their study it was discovered Malaysian university students were not yet ready for mobile learning despite the fact that they had mobile phones. Nevertheless, it was expected that with the emerging development in smartphones companies, mobile learning would be made easy as many companies are very competitive in producing smartphones and sensitizing how their products can be used in various sectors including education, incorporating up-to-date apps, reducing the prices for the device and also for supporting services. Which can enable every one right from the low-income households to have access to smartphone and to be able to use them for academic purposes.

In this study 58.3% of the participants had laptops, this is higher than the findings in a study made by Ayatollahi et al (2014) on computer and internet use among undergraduate medical students in Iran whose participants 53.2% of them had computers. In this study still it was found out that 17% of the participants had iPads, despite the fact that since the launch of iPads in 2010 to 2013 apple sold 170 million iPads (Jones, 2013) and as per now over 360 million iPads have been sold however the number of availability and usability among international university students is low because smartphones and laptops play the same role as iPads so students from poor background have no need to possess items that serve the same purpose. Further still 3.1% of the participants had television and 0.7% had radios this is largely because most of the international students stay in hostels and televisions plus radios are prohibited in hostels. Furthermore 9.7% of the respondents had desktops this is because no student has a personal room at the university to keep his or her desktop there, hence being difficult to be used in the day to day academic engagement so those ones who have them they decide to keep them at home for home works and others decide not to buy them hence lowering their usability among the international

university students. In spite of seeing that international students having access to technology devices does not imply that they possess the ability to adequately use them in the academic field because just because drivers have access to vehicles and roadways doesn't always mean they get where they need to arrive, heavy traffic streets or closed ramps can lead to diversions and delays. Similar issues can arise in digital readiness for academic engagement so international students with computers and often face roadblocks to learning.

5.3 Daily Internet Usage

In this study were the researcher looked at time spent by the participants on internet daily and it was found out that all participants had access to internet similarly to the findings of Ayatollahi et al (2014) on computer and internet use among undergraduate medical students in Iran where all the participants agreed that they had access to internet. In this study 4,9% of the participants spend less than an hour on internet, 27,4% spend 1-3 hours on internet daily, 33% spend 3-6 hours daily on internet, 34.7% spend more than 6 hours on internet daily this is slightly lower than the findings by Perrin and Jiang (2018) in their study about almost a quarter of United States adults said they are almost constantly online where 40% of their respondents 3-4 hours daily working online, this is similar to the findings of Wood (2018) in his study about college students in study spend 8 to 10 hours daily on cell phone the students were reported to spend most of their time texting (94.6 minutes average). That was followed by sending emails an average of 48.5 minutes, an average of 38.6 minutes on checking Facebook, about 34.4 minutes on surfing the Internet and 26.9 minutes on listening to music. In this study 34.7% spend more than 6 hours on internet daily. It was found out that majority of the participants spend more than 6 hours daily on internet this shows a significant level of addiction to internet related devices, similarly to the finding of Robert (2014) in the journal of behavioural addictions whose study found out that approximately 60% of university students admitted that they are addicted to their cell phone, and some showed that they get stressed when their cell phones are not in sight. It was also found out that the more an individual spend on internet the more the level of digital readiness for academic engagement that was seen by comparing groups with mean scores in the digital tool application, digital media awareness, digital application usage, information seeking skills and information sharing behaviour subscales, this is due to direct interaction with new people, new ideas, new information among others

and also the continuous need to upload pictures and videos, to seek information from the internet search engines among others.

5.4. Measures of Digital Readiness for Academic Engagement

5.4.1 Digital tool application a measure of DRAE

In this study, 32.3% could not fix a computer virus or malware on their computers, 21.9% were neutral while 45.8% could fix a computer virus or malware on their computers. The findings show that majority of the international students in Gaziantep University are not knowledgeable about fixing a computer virus and fixing of computer malware when their computers are infected or hacked. It is known that viruses spread through e-mail, some viruses spread through programs and applications that are downloaded directly from the Internet or from a portable storage device like flash drive that have ever been inserted in already infected computer, so it is better to scan files obtained from e-mail or downloaded from the web using anti-virus program help in fighting threats. Due to the continuous exposure to internet, it is necessary for the international students at Gaziantep University to be equipped with knowledge concerning fixing and scanning of computer viruses.

Still the study reveals that 1.4% could not upload and download media including online photos, files, video files and sound files, 6.9% were undecided and 91.7% could upload and download media including online photos, files, video files and sound files. As majority of the respondents spend more time on internet, this is majorly to download and upload content. In this century most youth enjoy music and films, teachers to are now changing the way they teach by creating videos and sound file upload the on YouTube and other online media channels so learners with continuous access to internet they can watch it online while students who have access internet only at campus they download the files and listen to them while at home and during their free time. A study done by Kumar (2011) showed that students were downloading online lectures and reading from e-books to improve learning. Furthermore, a study conducted by Bernard, Msungu, Mtega and Sanare (2012) showed that the participants in their study utilize mobile learning applications such as GPS, camera, voice calls, emails, Google drive among others in creating, uploading, downloading and sharing academic resources with their classmates.

The study shows that 9% could not manage software or apps from a computer or mobile services, 13.9% were neutral and 77.1% could manage software or apps from

a computer or mobile services. Since it was discovered that majority of the university international students have smartphones and other digital devices, it is no wonder that a good percentage of them can manage the apps and software on computers and other devices. Furthermore, since software are downloaded when an individual is in need of using it, it is automatically that they struggle to learn how to use them in order to satisfy their wants.

It is indicated that 22.9% could not set up and change security options on web browser, 16.3% were undecided and 60.7% could set up and change security options on web browser. This shows are better than those participants in a study conducted by Moallem (2017) in Silicon Valley in California about cyber security awareness among college students whose findings show that only 20% agreed that they were knowledgeable and 33% who were not knowledgeable about cyber security and setting up security options on web browsers. So according more training to international students is necessary as Prasad (2006) explored the importance of educating individuals by using appropriate methods of accessing the Internet in various areas such as schools, hotels and airports.

Findings further shows that there are significant differences between different groups participants pertaining digital tool application subscale: there are differences between male and female whereby male are better than female, there are also differences between those who spend 1-3 hours on internet and those who spend between 3-6 hours and also between 1-3 hours and more than 6 hours despite the fact that the mean scores where above the average, the more the time spent on internet the higher the mean scores on digital tool application subscale. There is no significant difference depending on the geographical region and year of study of the participants. However, there are significant differences depending on the participants' faculty of study; there are differences between faculty of education and economics, here economics had better scores than education, there are also differences between education and engineering whereby by engineering had good scores compared to education and there are also difference between economics and theology whereby economics had better scores. Participants from faculty of economics had the best scores implying that they possess the best knowledge about digital tool application and this partially because the economic field is becoming more digitalised day by day so students are being prepared to meet the prevailing demands in the sector.

5.4.2 Digital application usage as a measure of DRAE

The study shows that 9.7% could not use the fundamental functions of a presentation program (e.g. Microsoft PowerPoint) for class presentations, 11.5% were neutral while 78.8% could use the fundamental functions of a presentation program (e.g. Microsoft PowerPoint) for class presentations. The findings show that majority of the international students at Gaziantep University has the ability to use the fundamental functions of a presentation program. This is because presentation programs like PowerPoint offer the convenience of doing old tasks in more creative ways.

The study revealed that 10.1% of the respondents could not use fundamental functions of word processing programs to create and edit documents for class assignments, 13% were neutral whereas 76.1% can use fundamental functions of word processing programs to create and edit documents for class assignments. For the development of any skill, practice is necessary. Having 76.1% participants being able to use word-processing to create and edit documents implies that they spend a reasonable time in practicing. These findings are higher than the findings of Ayatollahi et al (2014) in their study about computer and internet use among undergraduate medical students in Iran when they were asked about what types of computers facilities do they use: 60.5% answered internet and 33% word processing and to the similar study conducted in Jordan still percentages were 82.5% for internet and 22.4% for word processing.

It is also indicated that 15.2% could not use spreadsheet programs (e.g. Microsoft excel) to handle data and analyze it in class assignments, 16.7% were undecided and 69.1% could use spreadsheet programs (e.g. Microsoft excel) to handle data and analyze it in class assignments. The findings show that a good number of international students use spreadsheet programs in handling and analysing data. It was also discovered that students in the first year at the university had less skills and knowledge in this subscale compared to those ones in the rest of the years of study. A survey conducted by Lim (2005) on first-year university students' ability to use spreadsheets shows that the students in first year had less skills of using spreadsheets compared to word-processing hence our finding are in line with his study.

The findings further show that there are significant differences between groups in the digital application usage, for instance there are differences according to time spent by an individual on internet for example there are differences between those who spend less than an hour and 1-3 hours, less than an hour and 3-6 hours, less than an hour and more than hours. Here in this subscale the more an individual spent on internet the

more the digital application usage degree. There are also differences observed between Africa and Middle East whereby Africa region was better than Middle East, also between Rest of Asia and Middle East where by the Rest of Asia is better than Middle East. Middle East performed slightly low compared to other groups this is partially because of the instabilities which have brought problems on their social, political and economic life.

There are also differences faculty of education and faculty of economics where by economics is better than education and also between education and engineering as engineering performed slightly higher than education. In this subscale education is performing lower than others because students from the language preparatory school since they have just joined the university are not yet exposed to various technology devices yet they are considered to be part of faculty of education.

There were also differences observed according to level and year of study of the participants that is; between language preparatory school and bachelors whereby bachelors group is better than the language preparatory school group, also between language preparatory school and masters as masters group is better than the language preparatory school group, also between first year group and second year and the second year are better than those in the first year, this is because the students in first year and those at the language school have yet been exposed to advanced technology knowledge and skills used at the university level.

5.4.3: Digital media awareness as a measure of DRAE

This study shows that 23.6% of the participants could not recognize the bias or rumours in digital media content, 26% were neutral and 50.4% could recognize the bias or rumours in digital media content. It is believed that not all what is on media are right sometimes there is bias in reporting so it is better for students at higher level of learning to be able to recognise such rumours or bias. The study also shows that 26.4% could not critically interpret digital media content, 30.9% were undecided while 42.7% could critically interpret digital media content. These percentages are very low compared to the findings of Sahin, Balta and Ercan (2010) who conducted their research on the usage of internet resources by the university students during their course projects elicitation, in their study 70% of the respondents could crosscheck the accuracy of information that they had accessed through internet sources and other information sources, their findings still shows that 70% of the participants had confidence on the internet however it was only 41% who could pay attention to the

internet addresses which they used on their projects as whether they have “gov” or “edu” domain suffixes. But our findings are higher than that Ayatollahi et al (2014)’s findings as 19.3% of students were very confident about accuracy of internet contents. So it is very important that individuals at all levels and ages from different faculties and geographical region be educated about what personally identifiable information is and what they should not and should share via online social networks (Flinn, 2009)

Bach et al (2010) highlights that Copyrights and Intellectual Property Rights are key drivers in creativity and innovation among students. It shown in this study that 25,3% had knowledge on how to protect intellectual property rights while use digital media content, 26.7% were neutral and 47,9% had knowledge on how to protect intellectual property rights while using digital media content. Cheema et al (2011) in their study about conceptual awareness of research scholars about plagiarism at high educational level also discovered that there are students who are not aware of the intellectual property rights and the penalties for plagiarism. However it is indicated in their findings that that majority of their participants were aware that converting someone else’s work and give no credit to the author is an act of plagiarism (93%), falling to put a quotation in quotation marks is plagiarism (92%), providing incomplete information about the sources such that no one can trace the original source, is an act of plagiarism (82%) coping from several sources of knowledge and tweaking the sentences is plagiarism (87%) and using someone’s work without citation, is plagiarism (84%). After having knowledge on what intellectual property rights are, the students are expected to be aware of how to protect their rights.

The findings show significant differences between groups in this subscale: there are differences between male and female whereby male are better than female, there are also differences between those who spend 1-3hours and those who spend more than 6 hours as more than 6 hours group are better than 1-3 hours group.

5.4.4: Information seeking skills as a measure of DRAE

Julien & Barker (2009) explains that university students’ information seeking skills include a variety of steps that is describing information needs, gaining access to information, utilization of the information and understanding the ethical and legal use of information helpful for academic success effectively, efficiently and ethically. For instance, university students get information seeking skills and strategies for using them in classroom assignments, classroom discussions, examinations or other written work by searching, reading and evaluating papers (McGuinness 2006). In this study it

is shown that 8.4% could not use a variety of available options to search for information that my colleagues are not aware of, 20.4% were neutral while 71.5% could use a variety of available options to search for information that my colleagues are not aware of. These findings are in line with the findings of Baro, Onyenania and Osaheni (2010) on their study about information seeking behaviour of undergraduate students in the humanities in three universities in Nigeria, they found out that students use various sources such as textbooks both online and printed, journals, internet and human resource for information and they also found out that students use various strategies like chaining, browsing, differentiating, monitoring and extracting. After knowing all these sources and searching/seeking strategies, it is good news that majority of the international students can inform their classmates about the different ways to effectively search for information as it in the findings that only 1.4% of the respondents cannot inform their classmates about the different ways to effectively search for information, 18.8% were undecided but 76% could inform their classmates about the different ways to effectively search for information.

It is shown in the study that out of the total respondents 13.2% could not generate keywords to search information for academic work, 23.3% were neutral and 63.5% can generate keywords to search information for academic work. The number is slightly low, this is mainly because present day students know information as product and not as a process that is why the young generation usually search knowledge horizontally but not vertically (Maamiry 2018)

In this subscale according to the findings, there are significant differences observed basing on geographical region, faculty of study, level of study, differences are observed between Rest of Asia and Middle East as Rest of Asia is better than Middle East, also differences are seen between faculty of education and economics as economics is better than education, faculty of education and engineering here engineering is better than education, faculty of education and theology here theology is better than education, differences are also seen between language preparatory school and bachelors, finally differences are observed between first year and second year, first year and third year, second year and fourth year whereby second year is better than 4 year this might be because of the generation gap

5.4.5: Information sharing behaviour as a measure of DRAE

A study made by Hussain (2012) on evaluation of the social media trends among university students shows that majority of the university students join social media and internet interacting channels for purposes of learning (76%), networking with others (87%), enjoying and sharing their opinions (92%), friending (73%) and getting information (92%). It is not a surprise that the international students at Gaziantep University possess a high level of information sharing behaviour. Our study shows that 11.8% of the respondents could not interact with classmates using the real-time communication tools for example video conferencing tools or messengers, 15.3% were undecided while 73% could interact with classmates using the real-time communication tools for example video conferencing tools or messengers. It further shown that 7.6% could not share their opinions online for example with blogs, social networking services or webpages, 19.4% were undecided while the majority 72.9% could share their opinions online for example with blogs, social networking services or webpages. A study made by Al-jabri, Ibrahim and Mustafa (2015) on social networking, knowledge sharing and student learning a case study of university students found out that the most dominant Social Network Services tools used by respondents for file sharing is WhatsApp (80.8%), Dropbox (61.7%), and then Facebook (56.5%). It is shown in our study that 9% could not share their files with their classmates using online software, 12.9% were undecided and 78.1% could share their files with their classmates using online software. The study shows that 3.4% could not collaborate with classmates using online software, 11.1% were undecided whereas 85.4% could using online software collaborate with classmates. The exposure to smartphones, iPads, laptops and access to internet opens gateways for the international students to interact with their classmates using social media share their opinions, collaborate with their classmates and share files amongst themselves. The findings are similar to that of the study made by Sun et al (2018) on online knowledge sharing behaviour of college students as it was found that college students generally share knowledge online and that the main social applications they use were QQ and WeChat that is among the interviewees 80% students prefer to WeChat while 15% students like QQ more it was only 5% students say that they do not favour any online applications so they prefer to share knowledge with roommates, classmates and friends, it was also found out they share course content and general information with their classmates and Mtega, Msungu, Bernard and Sanare (2012)'s study which shows that the respondents do not

just use smart phones for traditional mobile learning applications like text messages and calls, but they use them for mobile learning applications such as camera, GPS, emails, Google drive, voice calls among others to create, download, upload and share academic files with their classmates. Kelly (2013) argues that academic social networks reproduce so in most cases they expand the experience of social activity at conference by helping in creating and expanding researchers' professional networks. Pi et al. (2013) looked at factors that affect the user's willingness of using Facebook Groups for knowledge sharing, their findings showed that status significantly affects the knowledge sharing attitude of group members, since it is common now days for international students create groups so it facilitates the sharing of information amongst themselves, a sense of self-worth would directly and indirectly (through subjective norm) affect knowledge sharing. The findings in this study is in line with Yuen and Majid (2007) the students in their study generally documented the significance of sharing knowledge with their peers.

The findings further still indicates that there are significant differences between groups basing on time spent by an individual on internet and year of study, there are differences between less than an hour and more than 6 hours, 1-3 hours and 3-6 hours, 1-3 hours and more than 6 hours, 3-6 hours and more than 6 hours, amongst all these groups shows that the higher the time spent on internet the higher the level of information sharing behaviour, there are also differences between first year and second year second year better than first year, this is partially because the level of interaction in class is low as the have just entered the university compared to those in second year who have already created friendship and relationship amongst themselves.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The study was about investigating the level of digital readiness of international students for academic engagement. The study involved male and female participants, different geographical regions like Africa, Middle East, Rest of Asia, Europe and America, also participants involved in the study were from different faculties, level and year of study.

It was found out that majority of the participants had smartphones and laptops and all have access to internet however the time they use internet varied but majority of the respondents reported to spent more than 6 hours on internet daily. When comparisons amongst the groups depending on the duration on internet and the levels of digital readiness for academic engagement it was found out that the more the time one spend on internet the higher the levels of digital readiness for academic engagement.

It was also found out that generally there is low knowledge about fixing computer virus problem on their computers among the international students but they have excellent knowledge on uploading and downloading media from and to internet, very good knowledge on managing software or apps on their computers or mobile phones and good knowledge about setting up and changing security options on web browser. So to a reasonable extent international students at Gaziantep University are knowledgeable about digital tool application.

It was found out that generally international students at Gaziantep University are very good in using the fundamental functions of presentation program for class presentations and using fundamental functions of word processing programs in creating and editing documents for class work but good at spreadsheet programs to handle and analyse data in class assignments. Therefore, to large extent international

students of Gaziantep University have the ability to use digital applications in the academic field.

It was discovered that generally international students possess average knowledge about recognizing the rumours and bias in the digital media content, however they possess low knowledge about both critically interpreting digital media content and protection of intellectual property rights. Therefore, to a small extent the international students at Gaziantep University are aware of the digital media in the academic field. It was also discovered that generally the international students have good skills on usage of various options in searching for information and generation of key words to search for information for academic work but very good knowledge about different ways of effectively searching for information and informing them to classmates. So to a large degree do international students at Gaziantep University conversant about Information-Seeking Skills (ISS).

It was found out that the international students are good at interacting with classmates using the real time communication tools like messengers and at sharing opinions online with social media networking services, furthermore they are very good at file sharing using online software with their classmates most interesting is that they can excellently using online software collaborate with classmates. Therefore, to a high enormousness international students at Gaziantep University are able to share Information pertaining academics with classmates and the community.

All in all, generally to a large extent the international students at Gaziantep University are digitally ready for academic engagement irrespective of their gender, faculty of study, geographical region, year of study and rate of exposure to internet. However, we cannot generalize that all the international students studying in Turkey because our study was conducted only on international students in Gaziantep.

6.2 Recommendations

Basing on the study findings analysed and discussed above the following recommendations are suggested by the researcher;

Eliminate classroom bans of student technology devices at high schools, this can help to prepare learners to the digital world and increase the degree of their digital readiness for academic engagement at university level. Even though technological devices can distract students during class, students from humble socioeconomic background and slow learners find these devices useful for their academic improvement. This can be

done by the high school administrators and teachers. Legislators can also pass a law to permit use of technology devices in classrooms.

There must be continuous provision of international students the right to use the technology devices that are imperative to the realisation of their academic goals in the digital era. Providing access computer laboratories equips students with skills of dealing with different digital problems and also learning to repair the computers. In addition to that if digital devices are provided to students at discounts for technology devices used in education by the students enable students from less privileged families to have a right to access and use the technology devices they need to succeed academically. Also some technology devices like VR and AR headsets, scanners and 3D printers should be publicly available free or at a reduced price to all students in various places like libraries among others.

Students at faculty of education and those from Middle East region should be given special attention to perfect their skills and knowledge about the utilisation of ICTs in the academic field. This can be done through organizing special lessons for them.

Political stability must be ensured in the Middle East region to make sure that learners have time to concentrate on their studies than running up and down during wars which affect their level of awareness and skills of using digital devices in classroom environment. It was no wonder that their mean values were low compared to students from other geographical regions.

Development of quality campus and hostel Wi-Fi networks as it was discovered in the study that that the more students spend on internet the more the digital readiness for academic engagement. Wi-Fi connectivity across all areas of hostels and campus since most international students are living in hostels.

6.3 Areas for further research

Since the study was conducted in one university yet digitalization is a global issue the following areas are suggested for further research;

Digital readiness for academic engagement of international students in Gaziantep University using GTCU scale (general technology competency and use) and digital competency profiler.

Digital readiness for academic engagement by international students at different universities apart from Gaziantep University.

Computer use in rural secondary schools of developing countries.

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<https://www.techopedia.com/definition/24839/information-sharing>

APPENDIX

Questionnaire to International Students (DRAE Scale)

Dear respondent,

I am a student of Gaziantep University pursuing masters in Educational Curriculum and Instruction, conducting a study on digital readiness of international university students for academic engagement. You have been selected to be part of the study. I take this opportunity to guarantee you full confidentiality of the information collected from you that will only be used for academic purpose.

In this questionnaire you are requested to either write a short answer, tick or circle on the suitable alternative

Section A

Respondent's details

1. Home Country;
2. Gender
 - a. Male
 - b. Female
3. Age:
4. Faculty of Study;
5. Level of study
 - a. Language preparation school
 - b. Bachelors
 - c. Masters
 - d. Doctorate

Section B

7. Availability of technology devices (circle on the device(s) you do have)

I do have:

- a. Laptop
- b. Desktop
- c. iPad
- d. Smartphone
- e. Radio

8. How often do you use internet in a day?

- a. Less than 1 hour
- b. 3-6 hours
- c. 1-3 hours
- d. More than 6 hours

Section C

Factors and items of the digital readiness for academic engagement scale for university students

Digital Tool Application

s/no	Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	I can fix a computer virus or malware on my laptop or desktop computer					
2	I can upload and download media including online photos, files, video files and sound files					
3	I can manage software or apps from a computer or mobile services.					
4	I can set up and change security options on web browser					

Digital Application Usage

s/no	Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
5	I can use the fundamental functions of a presentation program (e.g. Microsoft PowerPoint) for class presentations					
6	I can use fundamental functions of word processing programs to create and edit documents for class assignments					
7	I can use spreadsheet programs (e.g. Microsoft excel) to handle data and analyze it in class assignments					

Digital Media Awareness

s/no	Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
8	I can recognize the bias or rumors in digital media content					

9	I can critically interpret digital media content					
10	I know how to protect intellectual property rights when I use digital media content.					

Information-Seeking Skills

s/no	Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
11	I can use a variety of available options to search for information that my colleagues are not aware of.					
12	I can inform my classmates of different ways to effectively search for information					
13	I can generate keywords to search information for academic work					

Information Sharing Behavior

s/no	Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
14	I can interact with classmates using the real-time communication tools for example video conferencing tools or messengers					
15	I can share my opinions online for example with blogs, social networking services or webpages					
16	I can share my files with my classmates using online software.					
17	I can collaborate with classmates using online software.					

Thanks for your time

CURRICULUM VITAE

Rahhamani Kange born of Kamuli Uganda, sat for Primary Leaving Examination at Hudah Islamic Primary School Kamuli in 2002, Uganda Certificate of Education at Countryside Secondary School Iganga in 2006, Uganda Advanced Certificate of Education at Gateway High School Jinja in 2008, graduated with a Bachelors in Arts Education at Islamic University in Uganda in 2014 and currently completing Masters in Education Curriculum and Instruction at Gaziantep University Turkey. He is a registered graduate teacher. He taught at St. Joseph Infant Primary School, Kakira High School, Kakira Town Academy, St. Mary's SS Buvuma, Mbale Parents SS and currently working as a teaching assistant at Islamic University in Uganda since January 2015.