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ATTITUDES OF STUDENTS TOWARD TECHNOLOGY USAGE IN FOREIGN LANGUAGE LEARNING: EXAMINATION OF THE MODERATING ROLE OF GENDER, LEVEL OF STUDY AND SELF-EFFICACY.

BY

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DECLARATION

I, AUDREY LAMPTEY, do hereby declare that this thesis has been undertaken by me under the supervision of Dr. Charles B. Wiafe-Akenten and Dr. Angela Anarfi Gyasi-Gyamerah. This thesis has never in its present form, or in any other form, been presented to any other examining body for the award of any degree. All references and works cited have been duly acknowledged.

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DEDICATION

Then Samuel took a stone, and set it between Mizpeh and Shen and called the name of it Eben-ezer, saying, Hitherto hath the LORD helped us (I Samuel 7:12, Authorized King James Version).

This thesis is dedicated to the God of Abraham, Isaac and Jacob who has been my help in ages past, and who will forever remain my hope for years to come.

AMEN!

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LIST OF ABBREVIATIONS

ATTU - Attitude Towards Technology Use

CALL - Computer Assisted Language Learning

CSE - Computer Self Efficacy

FL - Foreign Language

L2 - Second/ foreign Language

PEOU - Perceived ease of Use

PU - Perceived Usefulness

TAM - Technology Acceptance Model

ABSTRACT

This study investigated the relationship between gender, level of study and self-efficacy on students' attitudes toward technology use in second language learning. Using a quantitative cross-sectional survey, three hundred and sixty (360) undergraduate and graduate students were sampled from the Departments of Modern Languages and French by means of stratification. Data was collected using a questionnaire to assess students' attitudes. Four hypotheses were postulated and tested using the Hierarchical Multiple Regression, Independent t-test and Pearson Moment Correlation Coefficient tests. The first hypothesis was partially supported, the second was confirmed and the third and fourth other hypotheses were not supported. The results of the analysis indicated no statistically significant difference in gender-attitudes amongst the students. The results further revealed a significant positive relationship between students' perceived ease of use and their attitudes toward technology use. However, self-efficacy and level of study played no moderating role in the relationship between gender and attitudes toward technology use although in interaction, computer self-efficacy showed a significant positive relationship with attitudes. Based on the research findings, theoretical and practical implications are discussed and limitations and suggestions for future research are also highlighted.

CHAPTER ONE

INTRODUCTION

Background of Study

Globalization facilitated by ease of travel and the emergence of the internet in the 21st century has made the acquisition of foreign languages a necessity. People in pursuit of careers and other ambitions have felt the need and importance to attain an additional language as some job advertisements now come with the caveat: "a second language or bilingual proficiency is an added advantage". Currently, the pervasiveness of technology use has culminated in the world being a global village, and thus, one can achieve this learning target without necessarily sitting in a classroom. In a quest to attain a second language, people may seek out extra ways of supplementing their lessons so as to achieve their aim. Prospective language learners resort to using various means to achieve their target of learning a language. These involve tools such as language videos, films, songs, language learning applications, blogs, websites, social media, the internet and additional forms of multimedia to assist in accomplishing their language learning ambitions. Commensurate with such people, the desire to seek other means of improving upon their learning may be intrinsically based, such as attitudes, or extrinsic such as learning with the hopes of acquiring a better job.

Over the world, new means of learning foreign languages (FL) are being devised periodically. Some Universities have resorted to online/ distance learning to make learning easier for those who wish to attain a second language but have little or no time. In Africa as well, foreign language learning is progressively gaining recognition with many more countries looking out for ways to integrate other languages into their culture and system. Ghana has not been left out of the foreign language integration as the President of Ghana, President Akufo-Addo disclosed his readiness to make the study of French language compulsory for all senior high students during an official visit to Togo in 2017. The Education Minister, Mr. Matthew

Opoku Prempeh reiterated the President's intention of making the learning of French compulsory up to the secondary school level in his address at a linguistic pact signing ceremony held in Paris in 2018 between Ghana and the International Organisation of the Francophonie (OIF). This pact signing was intended to help provide the necessary technical support and capacity building for French language pedagogy in Ghana. He further emphasized Ghana's dedication to making French its second official language in the country through the promotion of language pedagogy. The Francophonie is a gathering of French-speaking countries around the globe with the objective of promoting peace and good governance as well as providing support through education, research and training and the furtherance of French language and cultural diversity.

The Minister of Foreign Affairs, Madam Shirley Ayorkor Botchway, has also confirmed the intent of government in adopting the advancement of French language beginning with the basic school level and across the educational divide as Ghana is surrounded by ECOWAS countries who are francophone countries. Francophone countries are countries that have French as their official languages (Ministry of Foreign Affairs, 2019). In another vein, members of the Parliament of Ghana have also made calls in support of the adoption of French as a second language after English. This effort is welcome news to both foreign language learners and language teachers. The move has been identified as an initial step to improving regional integration through French language development across Ghana as well as international trade and cooperation among other countries.

Overtime, language learning has been demonstrated to be a social-psychological phenomenon (Gardner, 1985; Khalid, 2016). Khalid (2016) recommended that it was important to pay attention to the language learning environment and its associated conditions. Language has been identified as being part of the individual's social being and is part of the factors that distinguish one individual from another. Learning a foreign language therefore goes beyond learning language speaking skills and acquiring a system of grammatical rules. It involves

altering one's self-image by adopting the socio-cultural and behavioural patterns and ways of being, resulting in the remarkable effects on the language learner (Khalid, 2016).

Foreign Language Learning and Technology

"Learning a non-native language outside the territory where it is usually spoken" is referred to as foreign language learning (Moeller & Catalano, 2015). The term denotes formal classroom language learning. Scholars have tried to distinguish between 'foreign language learning' and 'second language acquisition', however, the terms are used in exchange of another. Whereas foreign language learning denotes learning that takes place in formal classroom settings, the latter denotes language learning without the traditional classroom setting and is usually used to signify learning within the native community where the language is commonly spoken. In this research however, the terms 'foreign language learning' and 'acquisition' may be used interchangeably

Worldwide, the process of language learning has evolved overtime and it keeps widening. In times past, only the traditional classroom settings were utilised in language learning. However, over the last two decades, teachers and learners of second languages have found ways of ensuring the effective learning of a second language (L2), by using varied forms of computer assisted programs and tools. These tools encompass the fusion of diverse multimedia technology to assist in language learning. Technology incorporation in assisting foreign language learning has also seen a remarkable growth overtime. According to Cunningham (1998), in the 1980s, language pedagogy made use of numerous types of technologies such as audio-visual materials in the form of films, videotapes, audios, televisions, computers and interactive videos and other facilities like the television and language laboratories where these items are stored and utilised. Currently, through Computer Assisted Language Learning (CALL) and pervasiveness of technology, language learning has taken a different

dimension as an overwhelming number of individuals are utilising their mobile devices in learning a foreign language (Heil, Wu, Lee & Schmidt, 2016).

These mobile devices afford the individual the opportunity to download a varied range of language learning materials through the worldwide web (www) or the internet. As the internet through social media has made available mobile learning language applications and video tutorials, these downloadable materials are upgradable and often updated making language learning easily accessible to learners of foreign languages. Gradually, the world has transitioned in terms of technology use from multimedia, internet and now, online and virtual learning. Currently, there is a surge in the interest in computer and technology use as well as other technology tools to supplement individual language acquisition skills as both language learners and language teachers or instructors similarly resort to these forms of technology (Liu, Moore, Graham & Lee, 2002).

Many have come to a realize the many benefits that learning a foreign language (FL) accords which include but are not limited to: effective communication with others, broadening of an individual's knowledge base and their perception of other people as well as promotion of an interdisciplinary perspective and the provision of intercultural understanding which aid in promoting respect among people. Learning a foreign language also helps enhance better cooperative relations at all levels between individuals and countries.

Importance of Computer Technologies

Utilising technologies in language learning pedagogy helps out in the provision and improvement of learner-centered approach to language education. This encourages and facilitates variations of lesson presentation styles by language course managers and language teachers in order to arouse students' interests by enabling course managers, instructors and lecturers develop various strategies to vary the presentation modes in order to stimulate learner interests while providing learning opportunities outside the classroom. This eventually creates

an enabling environment to cater for the many individual differences (Al-Mahrooqi & Troudi, 2014).

Kumar, Kumar and Persaud (1999) outlined the details of technology to include as consisting of tooling, equipment, blueprints, various techniques, and processes. These products may include films, PowerPoint presentations, videos, software applications, etc. The use of these tools facilitates good learning and helps the L2 learner save time (Li, Snow, Jiang & Edwards, 2015). Studies have confirmed language learners' inclination towards the use of technology over typical traditional learning forms (Golonka, Bowles, Frank, Richardson & Freynik, 2014). Cunningham (1998) however believes that presently, research on foreign language learning is shifting from computer acceptance and is geared towards incorporating technology use in all aspects of language learning. He further stated that educators have realised that student learning can be influenced and spiked through effective technology use thus focus is no longer on mere description of computer technology but rather, the examination and exploration of language learning enhancement through technology.

Technology use has been made easy by the availability of the internet. The dynamic nature of the internet affords it the capacity to encompass a huge storehouse of information that is easily accessible. The internet is also described as an important language learning tool for learners as almost all the materials and the knowledge needed to acquire the requisite language skills can be accessed through the internet (Conole, 2008; Mitchell, 2009).

With under developed or developing countries or settings, accessing these tools is usually a challenge as regardless of the many benefits that the use of technology accords, there are some demerits such as access and cost, among the many challenges. In comparison with the fast-paced changes in technology experienced by the global society in the adoption and usage of technologies in foreign language pedagogy, the educational sector in most of Sub-Saharan Africa is suffering as it is riddled with the enormous task of having to keep pace with the global world (Boateng, Boateng, Awuah, Ansong & Anderson, 2016). This assertion is highly true and

it is worth noting that Ghana is not very different from these challenges. Nevertheless, Owusu-Mante (2014) is of the view that Ghana as a developing country is also making strides in ensuring a full integration of modern technology within the foreign language learning discipline. To substantiate this, statistics on Ghana's internet usage show a hike from about thirty thousand (30,000) users in the year 2000 to about ten million, one hundred and ten thousand (10,110,000) users in March 2019. This hike represents an increase of about 337%. Approximately thirty-six percent (33.6%) of Ghanaians currently use or have access to the internet, a signal that we are gradually making headway in our use of technology (www.internetworldstats.com/af/gh.htm).

Attitudes and Language Learning

Allport (1935) defined attitudes as "a mental and neural state of readiness, organized through experience, exerting a direct or dynamic influence upon the individual's response to all objects and situations with which it is related". This earlier definition by Allport has evolved over time. Currently, attitude definition focuses much more on evaluative dispositions on how to either approach or avoid behaviours. Ajzen (1991) describes attitude as "the degree of a person's favourable or unfavourable evaluation or appraisal of the behaviour in question". In general, attitude definitions have identified it as the process of evaluating an object with a level of favour or disfavour (Araromi, 2013; Eagly & Chaiken, 1993). Similarly, Hogg and Vaughan (2005) describe attitudes as "the relatively enduring organization of beliefs, feelings and behavioural tendencies towards socially significant objects, groups, events, or symbols". Krosnick, Judd, and Wittenbrink (2005) consider attitudes to be an individual's tendency to like or dislike an object and this the individual shows through approaching that entity or avoiding contact with it. The various definitions given above have identified attitude as the propensity to possess either a positive or negative feeling about something and thus to either draw near or avoid the item. While some scholars argue that attitude encompasses affective, behavioural, and cognitive

components, Eagly and Chaiken (1998) drew a conclusion based on their analysis of research literature that attitude behaviours are formed based on people's cognition, their affective and general behavioural responses to significant objects. Thus, the affective refers to people's emotional reactions, the cognitive to their belief systems, and the conative or behavioural to their behavioural tendencies towards their attitude object.

Predominantly, language learning programs require students to make the other language (L2) a part of them. Gardner asserts that, language learning goes beyond mere linguistic codes which involve sounds, pronunciation, and grammatical aspects. As language learning is recognized to be part of one's social being, language learners are expected to imbibe the culture of the L2 as language learners are not just to learn the language but to take it in and make it a part of them thereby leading to empathy towards the L2 language and culture (Huang, 1998; Torres & Turner, 2016). Gardner (1985), identified attitudes as an influencer to the success with which another language is acquired. Attitude has been itemised as a major factor in addition to beliefs and motivation that influence learner efficiency in language learning (Latchanna & Dagnew, 2009). They further explained that these factors ought to be considered in understanding the process of second language acquisition. In addition to attitudes and beliefs, many researchers have sought to explain the sustaining behaviour or motivation behind individuals wanting to go beyond the normal classroom settings to supplement their studies. These include self-efficacy, motivation, aptitude, perception, L2 learner anxiety, among others (Al-Mahrooqi & Troudi, 2014; Li, et al.,2015; Torres & Turner, 2016).

Gender Differences in Attitudes

Often, students view language learning as a very difficult task to accomplish as the foreign language learning discipline may be entirely new to them (Hsieh & Schallert, 2008). In 1972, Gardner and Lambert, pioneers in the study of second language acquisition hypothesized

that "foreign language learners who show favourable attitudes toward a language, its speakers and their culture are usually more successful in their learning than those who show negative attitudes". Gardner (1985) further predicted that there is a likelihood for language learners who possess positive language attitudes about the foreign language culture to learn that language better and be more effective than those without such positive attitudes. It is also believed that learners who possess positive attitudes toward the foreign language culture group will strive to learn that language better than learners who have negative attitudes. In general, gender has also been discovered as a factor in determining the attitudes of students and technology application in learning. Gradually, investigations into the differences in gender in relation to attitudes toward foreign language studies have become extensive. A number of researches have confirmed that gender is another influencer of students' language learning and technology use attitude. Generally, attitude differences vary with respect to gender with girls showing more positive attitudes toward language learning when compared to boys (Carroll, 1975; Pritchard & Loulidi,1994).

Self-Efficacy

Raoofi, Tan, & Chan (2012) described self-efficacy is a central component of the social cognitive theory. Bandura (1977) first proposed the theory, describing it as students' assessment of their capabilities regarding their abilities to perform a given behaviour. Ajzen and Fishbein (2005), defined it as "an individual's ability to perform a given behavior of interest". Ajzen (1991), termed it "perceived behavioural control" and it involves "one's perception of his ability to perform a given behavior". Hence, perception of one's capabilities will most likely predict intention to use and their actual usage. Bandura (1997) maintained that for individuals with high self-efficacy levels, their task-based performance yields a better output than individuals who possess lower efficacy levels.

Compared with the vast research investigations on the application of self-efficacy across diverse learning disciplines, research centered on foreign language learning self-efficacy has not been widely explored. In spite of this, there has been a surge in self-efficacy centered research interests within the past decade (Raoofi, Tan, & Chan, 2012). Self-efficacy affects learners' interest and tenacity. It also affects the degree and depth of student effort invested in the learning process and the career paths goals they pursue as well as the tactics employed. These in effect affect their own language learning approaches in acquiring the language (Carmichael & Taylor, 2005; Schunk, 2003). Self-efficacy has also been identified as a motivating key which regulates goal setting and affects the individual learner's translation of goals into action. Lai and Gu (2011) emphasized that technology use in language learning may be best realised and its use maximised outside the language learning classroom due to the challenges that the formal instructional contexts are associated with. While this is ideal, not every student will go beyond the normal classroom learning settings to equip himself with the knowledge needed to improve upon his studies. To do this, one would need to possess a generous amount of self-efficacy.

Furthermore, a lesser explored aspect in language learning researches regards the effect of level of study in school on the individual's technology use attitude. This seeks to identify the effect of one's language learning level (i.e. beginner, intermediate, or advanced level). Scholars have discovered an associated positive relationship between advancement in language learning and a positive student attitude. Thus, as students advance in their language learning levels, it is apparent for them to portray language attitudes which are positive. They are also more akin to showing highly efficacious beliefs compared to those who are just beginning or trying to find their feet in the foreign language learning process.

Statement of the Problem

There are quite a number of language learning institutions devoted to the learning of foreign languages in Ghana. These include but are not limited to Alliance Française, Goethe

Institute of languages, Ghana Institute of Languages (GIL) and University of Ghana. At the University of Ghana, degree courses are offered in foreign languages in addition to the many academic degrees the University confers and there has been consistency in language learning pedagogy for over five decades. The Department of French (previously the Department of French Studies), and the Department of Modern Languages, University of Ghana have been directly involved in foreign language pedagogy for several decades. However, challenges with low staffing and inadequate multimedia facilities usually lead to students and lecturers resorting to just the traditional classroom learning settings (Amonoo, Azanku, Bilson, Lamptey, Dzahene-Quarshie & Mohammed, 2014). Language pedagogy utilises an integration of good multimedia facilities in order to yield the needed success on the part of both student and teacher. In a world which is currently moving towards a globalized village, what steps are being taken to enhance foreign language learning in Ghana?

While Moeller and Catalano (2015) acknowledge the importance of the traditional classroom, they have argued however that the traditional classroom tasks basically focus on a combination of texts, practical issues, events and problem-solving-based tasks. Nevertheless, the introduction of technology presents a different dimension to the process of teaching and learning as technology incorporates numerous types of social media. These technologies which encompass multimedia such as video tutorials, language learning applications, blogs and websites, among other social media help facilitate good learning. Gradually, foreign language learning is acquiring a great importance with current trends in globalization, social media and the world economic order, hence the need to accord it attention. How do we accord it attention? How do we incorporate and encourage technology use by language learners?

In consideration of the outlined challenges, this research therefore sought to examine students' attitudes toward the use of technology tools in foreign language learning. Additionally, the roles of gender, level of study and self-efficacy in determining students' attitudes were also examined.

Relevance of the Study

The outcome of this research is expected to be instrumental in contributing to the vast academic knowledge base on students' attitude as regards technology use especially in the Ghanaian settings. These will be achieved through the identification of factors that inform students' attitudes toward using technology and their resoluteness in the face of the many challenges. Another expectation is that this study will help guide policy makers in creating interventions geared towards the advancement of language learning pedagogical success. It is also believed that results from this study will enable academic manages create and develop attractive mechanisms in the area of technology use, accessibility and everyday application. Finally, it is highly anticipated that the results from this study will fill the research void by outlining factors that will help both foreign language learners and language instructors to design the necessary apparatus needed to facilitate productive and beneficial learning.

Aims and Objectives

This study aimed at examining students' attitudes and technology use in foreign languages learning. The specific objectives were therefore to:

1. Examine students' attitudes toward the study of foreign languages.
2. Examine gender and its relationship with students' attitudes toward technology use.
3. Determine the types of technology tools often used by students and the frequency with which such tools are used.
4. Assess the roles of gender, level of study, self-efficacy and their resultant effects on attitudes and use of technology tools.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The second chapter in this study will examine the theoretical framework upon which the study was based. The theoretical framework will be followed by a review of scholarly works which have evaluated the relationship between individual attitudes, technology use and their associated moderating variables - gender, self-efficacy and level of study. The concluding segment of this chapter will highlight the rationale of the study, proposed hypotheses and a hypothesized model of the relationships between the various variables.

Theoretical Framework

The pervasiveness of technology has led to society witnessing a fast-paced progress in the development of technology and penetration in virtually all facets to the extent that currently, the world at large depends on technology to function, thus, resulting in technology becoming an indispensable part of our daily lives (Cai, Fan & Du, 2016). In defining attitudes, several theoretical frameworks have been identified and used by researchers in a bid to provide some form of explanation of the attitude concept. This study was based on two main theories: Technology Acceptance Model (TAM) introduced by Davis (1986) and later modified by Davis, Bagozzi and Warshaw (1989), and the Self-efficacy theory (Bandura, 1977), with further elaborations on the Computer Self-efficacy theory (Compeau & Higgins, 1995).

The Technology Acceptance Model (TAM)

The Technology acceptance model (TAM) by Davis, Bagozzi and Warshaw (1989) "provides a basis for tracing the impact of external factors on internal beliefs, attitudes, and intentions having been tailored specifically to demonstrate the individual user's acceptance of

information systems". TAM was originally adapted from the theory of reasoned action (TRA) by Fishbein and Ajzen (1975). The TRA was developed to explain a person's general behavior through their intentions (Mathieson, Peacock & Chin, 2001). TAM has gradually turned out to be a robust, influential, and conservative individual user acceptance predictor model (Venkatesh & Davis, 2000) and it dwells on the measurement of two major concepts: perceived usefulness and perceived ease of use. Together, these two concepts highlight individuals' acceptance of technology and their actual usage of its related tools. Perceived usefulness (PU) and perceived ease of use (PEOU) are beliefs about a new technology which are presumed to influence attitudes toward using the technology. PU refers to "an individual's belief that using the technology will improve his or her performance" while PEOU is "the extent to which an individual believes that using technology will be free of effort" (Davis, 1989; Venkatesh & Davis, 2000).

Davis et al (1989) termed these two constructs as mediators of the relationship between external factors and students' attitude as well as behavioural intentions of the individual. These mediators are believed to eventually inform the individual's behavioural intention and their eventual usage having been identified as the very determining factors of actual system usage. Davis et al. (1989) define behavioral intention as the extent to which an individual intends to perform a specific behaviour. The individual's behavioural intention will eventually lead to their usage or not. PU and PEOU are mainly influenced by external factors which are social, cultural and political. Venkatesh and Davis (2000) proposed that PU is influenced by PEOU because, when a system is easy to use, the probability of the user finding it useful is higher. PEOU has also been related to accessibility. Thus, technology being essential to an individual should be easily accessible and within reach for the individual to find it useful.

Originally, attitude was a mediating construct between individual personal belief constructs and their behavioural intentions. However, Venkatesh and Davis (1996) in extending the TAM found out that the two factors, PU and PEOU had a direct influence on behavioural

intention thus, the attitude construct was eliminated from the original model due to the weak mediating role it played (Davis, Bargozzi & Warshaw, 1992; Venkatesh & Davis, 1996; Venkatesh & Davis, 2000). TAM is a generally applied model in the Information and Communication Technology field that aims to explain the individual's behavioural intention to continue using technologies. TAM has been established as an important model in explaining technology in general and its variation has led to its proponents believing in its strength and importance (Lee, Kozar & Larsen, 2003), having been applied to the assessment of different types of technologies (e.g. e-mail and the internet). In addition to being used in the field of information technology, it has also been used in other fields spanning psychology, sociology, online consumer behaviour, health services and hospital information systems, educational sectors among others using a variety of control factors (e.g., gender and age) with varied participants such as university students, workers, hospital patients and product consumers.

Since its inception however, the TAM has undergone a series of modifications and extensions yet, its popularity and robustness has contributed to its vast application to researches that seek to measure individual technology acceptance. Lee et al., (2003) found out through a meta-analysis of over one hundred (100) articles on TAM based researches from the year of its inception 1986 through to 2003 that further modifications have been made to the original TAM. It was discovered that elaborations had been made through the addition of external factors of PU to include 'social influence (subjective norms) and cognitive instruments (job relevance, image, quality, and result demonstrability)'. The construct of PEOU has also been revised to include 'anchor (computer self-efficacy, perceptions of external control, computer anxiety, and computer playfulness) and adjustments (perceived enjoyment and objective usability)' (Venkatesh, 2000; Venkatesh & Davis, 2000). In previous studies based on TAM, PU seemed to show stronger and direct effect on attitudes than PEOU. Davis (1989) was of the assertion that individuals who accept and use new technology do so mainly because of the associated functionality rather than the ease of navigation and application. Consequently, technology users

have a tendency to surmount the challenges associated with using new technology if utilization accords them significant benefits such as the ability to learn the foreign language of choice (Porter & Donthu, 2006). Relating this assertion to our studies therefore, one can state that, students who find technology tools useful for their studies will probably use it compared to students who do not.

Ajigbade (2018) criticized the TAM for its assertion that subjective influence would contribute to user acceptance and use of technology. He argued that underlying behaviours for using technology may not be directly measurable. Thus, it is inadequate to claim that technology users may base their acceptance and eventual usage of technology on the perceptions of its usefulness or how easy they find using it. TAM has also been criticised for its lack of precision and critical consideration of other influential factors and external variables. Mathieson, Peacock and Chin (2001) criticised TAM for being volitional. They argued that, TAM assumes "that there are no barriers that would prevent an individual from using an information system or technology if he or she chose to do so". Ma and Liu (2004), detailed "the complexity of the technology and user characteristics (including gender, culture, experience and level of self-efficacy)" as major factors likely to influence technology use. Furthermore, Zahid, Ashraf, Malik and Hoque (2013), in criticizing the TAM argued that external factors such as age and education are critical factors which influence the acceptance and willingness to use technology. In view of these criticisms therefore, this study assesses three variables: gender, self-efficacy and level of study in measuring students' attitudes toward technology use.

Computer Self-Efficacy Theory

The self-efficacy theory as developed by Bandura (1977) has its grounding in the Social Cognitive theory (Bandura, 1986). Self-efficacy is "the belief in one's capabilities to perform a task successfully". Social cognitive theory generally suggests that "individuals who have more confidence in their skills and abilities will exert more effort in performing a task, persist in order

to overcome compared to those with less confidence in their abilities" (Hasan, 2006). Compeau and Higgins (1995), adapted the concept of computer self-efficacy from the general self-efficacy theory, applying it in the field of information systems (John, 2013). They defined the computer self-efficacy as one's belief in their abilities and confidence in performing computer related tasks successfully. Furthermore, it highlights how an individual perceives and judges his capabilities in the future.

Three dimensions were abstracted from the computer self-efficacy theory, and these are: magnitude, strength, and generalizability. Though distinct, these dimensions are interrelated (Alharbi and Drew, 2014; Compeau & Higgins, 1995). Self-efficacy magnitudes denote the level of task difficulty that one is confident of achieving. As such, individuals possessing high self-efficacy magnitude envisage themselves with a high capability level in comparison with lowly efficacious individuals. To such they may only be able to achieve and perform simple forms of behaviours lacking complexities. With a weak sense of efficacy, such individuals are susceptible to discouragements arising from hindrances to performance and will easily succumb to challenges to quit. On the other hand, stronger efficacy levels are associated with resilience and perseverance. With continued persistence, such individuals are more likely to overcome whatever obstacle presented by finding solutions to the challenge or obstacle.

Self-efficacy generalizability tells the degree to which perceptions of self-efficacy may be limited to specific circumstances. Generally, people differ in diverse ways thus, some individuals may believe in their capability to perform some form of behaviour only under a particular circumstance whereas others might believe in their ability to execute the particular behavior no matter the circumstances. With highly efficacious individuals, they exhibit greater confidence in relation to their ability to successfully perform each of those tasks or behaviours. Such individuals are in effect expected to possess the competency in using varied technologies and diverse computer systems. Comparatively, individuals possessing low efficacious levels, would perceive themselves as being limited in their computer and technology-related use

capability and computer systems. Bandura (1977) postulated that "highly self-efficacious individuals may view certain undertakings as inherently difficult but believe firmly that they can succeed through ingenuity and perseverant effort" and are therefore more likely to find alternative routes or solutions in the application of technology in language learning no matter the challenges they come across (Ajzen & Fishbein, 2005). In technology related tasks, Cooper and Lucas (2006) postulated that gender and self-efficacy could be related based on the persons involved and their perceptions of their task performance capabilities. According to Ackerman and Wolman (2007), self-efficacy influences the choices one would make, efforts to be put forth and persistence when faced with obstacles. Thus, accomplishing tasks despite challenges present requires a highly efficacious individual.

The self-efficacy theory has been criticized for its ambiguity. Eastman and Marzillier (1984) stated that it is not practicable to differentiate efficacy expectation and outcome expectation. They believe that outcome expectations could influence self-efficacy in a great way. Biglan (1987) also criticized the neglect of the role that the environment plays in developing the individual's self-efficacy. Another area of criticism is in relation to the tendency of the same efficacy scale of measurement being used in different aspects and under different conditions (Marakas, Johnson & Clay, 2007). To resolve such limitations, Marakas and his colleagues advised that researchers either develop their own self-efficacy scales or revise them to suit their study conditions in order to measure the exact variable they seek to. In view of the criticisms above and taking the suggestion of Marakas, Johnson and Clay (2007) into consideration, the computer self-efficacy theory was adapted and its accompanying scale modified to suit this study.

In summary, the self-efficacy theory illustrates the concept of how people see themselves and their measurement of their ability level in task accomplishment with or without any form of incentives when posed with a challenge. Thus, perseverance in the face of challenges and difficulties is dependent on the individual. The perseverance effort is employed where there are

access barriers such as the unavailability of internet to access these technology tools. Furthermore, in the explanation, elaboration and understanding of attitudes toward technology use, no one theory provides a holistic approach to the understanding of students' attitudes and technology use in learning a foreign language. Several theories have been used by different authors and proponents to explain how technology use will be moderated by other factors be it social, inherent or external. TAM has proven implications for this study as it focuses on factors influencing an individual's intent and eventual technology use. The computer self-efficacy theory also provides a comprehensive understanding of the motivation to supplement language learning classroom lessons in order to excel. Together, these two theories will be applied in order to predict what attitudes students have toward technology use and their actions in the face of challenges as influenced by their gender, level of study and their self-efficacy.

Review of Related Studies

Gender – Attitude Relationship

Research spanning gender and attitudes have recorded inconsistencies in gender-attitude relationship differences. In a survey conducted by Araromi (2013) to determine undergraduate students' attitudes to the study of French languages in the Ajayi Crowther University in Nigeria, two hundred (200) undergraduates, comprising one hundred and four (104) males and ninety-six (96) females were sampled. Araromi (2013) sought answers to whether any difference exists in gender attitudes among undergraduate students towards French Language. No significant difference was found between both genders as males (*M*= 54.82, *SD*= 9.282*)* did not differ significantly from females *(M*= 55.09, *SD=9.326); t* (198) = -0.203, *p = .840, two-tailed)*. Liao (1999) conducted a quantitative synthesis of research literature on the gender differences in attitudes toward computers using one hundred and six studies (106) from 1984 to 1997. Of the 106 studies sampled, 85 studies representing 80% were positive and favoured males while the other 21 studies (20%) favoured females. Thus, his studies demonstrated that there were

significant gender differences among the participants from the reviewed studies with males showing a slightly higher attitude towards computers than females.

As a follow up study, Cai, Fan and Du (2016) carried out a quantitative synthesis of fifty (50) articles from 1997 to 2014 to identify the gender differences in attitudes and technology use. They conducted a quantitative meta-analysis of fifty (50) articles on gender differences and attitudes toward technology. Through the use of research databases such as google scholar, Taylor & Francis Online, SAGE and ScienceDirect, they identified researches that investigated attitudes and technology use which they subjected to meta-analytic procedures in order to examine the effect sizes of the studies. They classified their literature on three levels: affect, belief and self-efficacy. Their study revealed that both men and women showed positive attitudes toward technology use. However, women showed lower level of attitudes than their male counterparts. The results supported the studies conducted by Liao (1999). Both results showed that males still held more favourable attitudes to technology use than females with small effect sizes. Cai, Fan and Du (2016) further explained that the comparison suggested that the attitudinal gap had reduced slightly over the years. In addition, they noted that general attitude differences were minimal but when attitude was broken down, there was a significant decrease with respect to affect and self-efficacy, but not belief. They also discovered that at the college level, gender differences were not as significant as secondary school level.

In all of the studies, it is observed that research findings have been inconsistent with regards to studies on gender-related differences on attitudes and technology use. Cai, Fan and Du (2016) stated that based on the variations in results on gender attitudes, it was difficult to draw any firm conclusions.

Attitudes and Level of study

There is paucity of knowledge in the research conducted on level of study in school as a variable in relation to attitudes and self-efficacy. Jenset (2011) studied two groups of English

student teachers (teacher trainees) at the Bergen University College (HiB) Faculty of Education on their technology-related attitudes in the teaching of English. The sample was divided into two groups comprising twenty-six (26) students each, thus, a total of fifty-two (52) students. The sample comprised first and third/ fourth year students. A survey questionnaire was used where respondents reported their use of technology. The results revealed that both groups did not differ when measured on their attitudes. Thus, level of study was not a determinant in language related technology use attitude. In another quantitative study, Saracaloğhu and Dinçer (2017), examined two hundred and four (204) first and fourth-year undergraduate students on their attitudes toward language learning. The students were enrolled in English and German language teaching departments of two Turkish universities. They observed after their study that 1st year students showed more positive attitudes than the 4th year students.

Self-efficacy and Technology Use

Self-efficacy is a strong predictor of task-based performance in language and technology use (Marakas, Johnson & Clay, 2007). Venkatesh and Davis (1996) tried to understand factors that precipitate individual's effortlessness use of technology. Their study showed computer self-efficacy as a determinant of ease of use before usage and after usage experience. Raoofi, Tan and Chan (2012) explored the predictability of self-efficacy in the field of second language learning by investigating the factors that affect learners' self-efficacy beliefs in learning a foreign/ second language. They conducted an empirical literature review of thirty-two (32) articles published between 2003-2012. The review findings revealed that several factors augment the level of students' self-efficacy, and self-efficacy was a strong predictor of performance in different language skills and tasks. Compeau and Higgins (1995) conducted an online survey using about one thousand and twenty (1,020) Canadian managers and professionals. Their study revealed that computer self-efficacy is greatly influenced by encouragement of others within the individual's reference group. Furthermore, they postulated

that self-efficacy perceptions are significant precursors to computer use. Thus, one's self-efficacy can be influenced by the subjective norm or social influence as described by the technology acceptance model. In another related work, self-efficacy among other psychological traits was found to be a significant determinant of technology acceptance thus, the higher self-efficacy is, and the higher technology acceptance will be (John, 2013).

Self-efficacy and Gender

Like attitude, self-efficacy and technology use have also resulted in mixed research findings. Yau and Cheng (2012) in their research discovered that males appeared to possess more confidence and were more knowledgeable in using technology-related skills than females. Whitley (1997), conducted a meta-analysis of gender differences in computer-related attitudes and behaviour among US and Canadian participants. The study identified that men and boys (males) exhibited greater sex-role stereotyping of computers, high self-efficacy and more positive affect about computers than girls and women (females).

Cooper and Lucas (2006) attributed the resulting gender differences in self-efficacy studies to the difference in possible inherent individual psychological states, their behaviours and motivation levels. It is believed that the underlying factor for the gender-self-efficacy relationship may be based on their general ability perceptions in performing a task.

The literature presented shows that it is evident that gender, level of study and self-efficacy are related in determining students' attitudes and technology use as it is believed that introducing technology in the learning process will stimulate learner engagement and result in the development of positive attitudes in language learning.

Rationale of the Study

Institutional investments in infrastructure are a necessity in language learning as teaching and learning foreign languages require access to good multimedia facilities. These multimedia

facilities or technology tools exist in varied forms such as video tutorials, language learning applications and websites, among others which help facilitate good learning. However, accessing these technology tools mainly require access to the internet. The state of internet network in Ghana leaves much to be desired as one is left pondering the poor access and unreliability despite its exorbitance. Thus, how are students able to cope with the poor internet connectivity and will such affect their attitudes toward using technology in learning foreign languages?

In addition, most studies have looked mainly at studying English as a foreign language (Alhamami, 2014; Alsulami, 2016; Cakir & Solak, 2014; Khalid, 2016). In Ghana, studies on foreign language learning have looked at French and Russian languages (Csajbok-Twerefou, (2010) in isolation. This study on the other hand will explore technology usage in relation to other foreign languages aside the English language. In addition, Alhamami (2014) suggested the incorporation of the study of social media applications like YouTube in future studies. In view of the above recommendation and challenges, the present study aims at analysing the attitudes associated with technology use (specifically, YouTube and language learning applications) in studying other foreign languages aside the English language.

Statement of Hypotheses

The following hypotheses were proposed in light of the literature discussed:

1. Male students will show a more positive attitude towards technology use than female students
2. Perceived ease of use will show a significantly positive relationship with students' attitude on technology use (In effect, students who see that it would be easier to use technology tools are more likely to be positive about using it compared to those who perceive using technology tools as difficult).
3. The relationship between gender and students' attitude will be moderated by self-efficacy.

4. Gender- attitude relationship will be moderated by level of study in school.

Operational definitions

Variable	**Definition**
Perceived Usefulness (PU):	An individual's perception of how useful it is to use technology as measured by the technology acceptance model (Davis et al.,1989).
Perceived ease of use (PEOU):	An individual's perception of how easy it is to use technology as measured by the technology acceptance model (Davis et al.,1989).
Subjective Norm (SU):	Individual's perception of and of the views of those who are important to him or her as measured by the technology acceptance model (Davis et al.,1989).
Attitude:	Attitude refers to the positive or negative feeling an individual shows toward an entity as measured by the Media and Technology Usage Scale (Rosen, Whaling, Carrier, Cheever, & Rokkum, 2013).
Computer Self-efficacy:	One's belief in his ability to accomplish a task successfully as measured by the computer self-efficacy scale (Compeau & Higgins, 1995; Laver et al., 2011).

Conceptual Framework

Generally, attitude towards learning either strengthens or weakens one's level of achievement. However, the strength of such relationship depends on several factors which may include: gender, level of study and self-efficacy. Based on the theoretical framework, the literature reviewed and hypotheses formulated, below is a conceptual framework for this study.

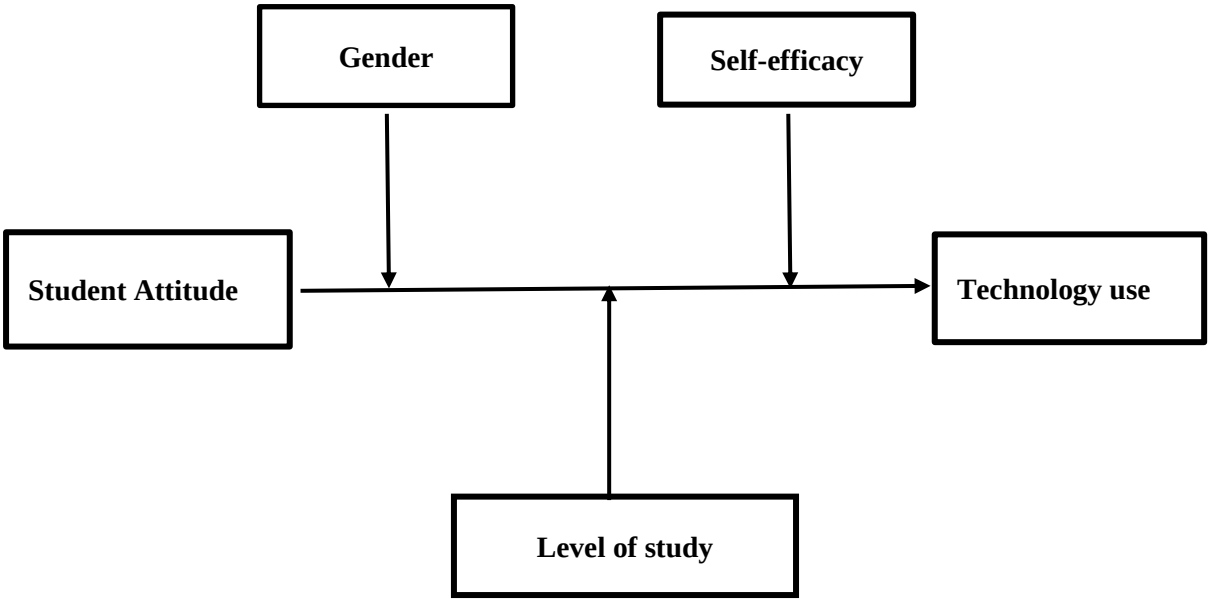

Figure 2.1: Proposed conceptual framework of hypothesized relationships between the variables in the present study.

The hypothesized model in figure 2.1 is a summary of the relationship of the variables under study. The model explains the expectation of a positive relationship in students' attitude and technology use. It was also expected that there will be a significant positive relationship between gender and students' attitudes toward technology use. Furthermore, students' attitudes toward technology use was expected to be moderated by external variables such as gender, self-efficacy and level of study.

CHAPTER THREE

METHODOLOGY

Introduction

This section entails the research methodology employed in the present study. It features the description of the target population, research design, sample and sampling techniques. The various instruments and procedure used during the data collection process are also detailed in this section. The present study examined the relationship between student attitude and technology use. The role of gender, self-efficacy and level of study in determining attitudes are also assessed.

Research Setting

The study setting was the Departments of French and Modern Languages at the University of Ghana, Legon in Greater Accra Region, Ghana. The Department of French and the Department of Modern Languages have been directly involved in foreign language pedagogy for over five decades now. Currently, the two departments together teach six foreign languages (Arabic, Chinese, French, Kiswahili, Spanish and Russian) including one African language (i.e. Kiswahili) which are taught by both Ghanaian and expatriate lecturers. The departments have a population of about two thousand eight hundred students.

Population

The target population comprised students undertaking a course in foreign (modern) language in Ghana. The sample for the study were foreign language learning students from the Department of French and the Department of Modern Languages of the University of Ghana who were taking undergraduate and graduate level foreign language coursework toward the award of a degree. Participants were enrolled in first year through fourth year and graduate level in the two language departments. Students were enrolled in one or two of each of six foreign languages (Arabic, Chinese, Kiswahili, Spanish, French and Russian). To ensure a better

representation of the students in the departments and also in order to ensure an increased generalizability, samples were selected from the Arabic, Chinese, Kiswahili, Spanish, French and Russian language sections and across all the course levels (i.e. level 100 through to level 600). This was done in order to ensure that at least each language section has been represented and also to ensure that the results of the study are generalizable to the whole population.

Sample

Four hundred and twenty (420) students studying various foreign languages in the University of Ghana were sampled for this study. Tabachnick and Fidell (2007) proposed that studies employing the use of multiple regression analysis require an appropriate sample size (n) using the formula n= (n>50 + 8k). The guidelines for testing regression should be equal or exceed 50 + 8k, [n> 50 + 8k], with k representing the number of predictor (independent) variables. Based on the above, a minimum number of about seventy-four (74) cases were considered ideal for this study which employed the use of multiple regression with three predictor variables. The figure for the sample size in this study was decided based on Krejcie and Morgan's (1970) suggestion to use a sample size of three hundred and thirty-eight (338) units when the population is about two thousand eight hundred (2800). Thus, even though Krejcie and Morgan (1970) in their estimation gave a sample size of three hundred and thirty-eight (338) units for a population of about three thousand (2800) people, in the present study however, a sample size of four hundred and twenty was considered ideal (See Table 3.1 for a distribution of the population). The sample of four hundred and twenty (420) students was selected based on suggestions by Pallant (2016) and Kumar (2011) who advised researchers to always select more participants than they needed, particularly if using a sample of humans in order to create room for more certainty of inference.

Table 3.1: Population of Language Students

Level	Arabic*	Chinese*	Kiswahili*	Spanish*	Russian*	Total	French**	Total
100	98	328	115	224	359	**1124**	334	**1458**
200	12	235	63	86	42	**438**	191	**629**
300	15	112	25	71	29	**252**	105	**357**
400	6	42	11	42	27	**128**	139	**267**
600	6	0	0	1		**7**	6	**13**
Total	**137**	**717**	**214**	**424**	**457**	**1942**	**775**	**2724**

*2018/ 2019 academic year population. Source: Department of Modern languages
**2016/2017 academic year population. Source: Department of French

Table 3.1 shows the total population of language students from which the sample size was calculated. The Department of Modern Languages had a total of one thousand, nine hundred and forty-two modern language students enrolled in the 2018/2019 academic year while the Department of French had a total of about seven hundred and seventy-five (775) students in the 2016/2017 academic year (the most recent database available at the department). Collectively, a total of two thousand, seven hundred and twenty-four students were enrolled in both departments.

Table 3.2: Summary of Respondents' Characteristics.

Variable	Categories	Frequency	Percentage
Gender	Female	264	73.3%
	Male	96	26.7%
Age in years	17-20	264	73.3%
	21-25	94	26.1%
	26 and above	2	0.6%
Religion	Christian	333	92.5%
	Islam	21	5.8%
	Traditional	3	.8%
	Other	3	.8
Foreign Language of Study	French	100	27.8%
	Chinese	90	25%
	Russian	62	17.2%
	Spanish	56	15.6%
	Kiswahili	32	8.9%
	Arabic	20	5.6%
Level of Study	Level 100	197	54.7%
	Level 200	89	24.7%
	Level 300	50	13.9%
	Level 400	22	6.1%
	Level 600	2	.6%
Marital Status	Single	354	98.3%
	Married	3	.8%
	In a relationship	3	.8%

The demographic data in Table 3.2 showed that 264 of the respondents were females representing 73.3% with 96 being males which represented 26.7%. 73.3% of the students

sampled were between 17-20 years, 26.1% were between 21-25, while the remaining 0.6% representing two students were of the ages 26 and above. The sample for the study were majorly Christians (92.5%), followed closely by Muslims who represented 5.8% of the sample. 8% were traditionalists and .8% chose not to disclose with one being a free thinker. The reason for the skewness of the religion demography is because Ghana is generally termed a religious country with a majority of its population being Christians. Furthermore, the sample showed that 98% of the respondents were single, .8% were married with three in a relationship.

Sampling technique

A mixture of both random and non-probability sampling techniques was utilised in this study. Sampling was done in two main stages: the selection of institution for the study and selection of participants within the selected institution. The purposive sampling method (a non-probability sampling technique) was used in the identification and selection of the target population of language learning students. Convenience sampling was further used to select the research setting which involved the Departments of French and Modern Languages, University of Ghana. This is because among the language learning institutions in Ghana, the University of Ghana, and for that matter, the Departments of Modern Languages and French have the largest number of foreign language learners. Hence, it also afforded the researcher access to obtain data from a large number of participants within a limited time frame.

Secondly, to obtain the required sample for the study, the stratified sampling technique, a form of random sampling was used. Stratified sampling is based on the ability of the researcher to divide (stratify) the target population into groups (based on similar and easily identifiable characteristics), called stratum, and a further selection of elements using the simple random sampling (SRS) technique. Beyond stratification, the proportion of each stratum's element was calculated in proportion to the total population and then, elements within each stratum were

further selected using the simple random sampling technique. Stratification usually requires the selection of elements based on identifiable features in the study population so as to enable generalizability. Similarly, stratification requires that the element selection variable be related to the main variable of study (Kumar, 2011). In this study therefore, the variable used in the stratification of the sample was participants' level of study as this is one of the main variables under study. Using the level of study simplified data collection and enabled the researcher to gain access to the required number. The stratification method used afforded the opportunity to use sample proportional to the population of language learners. To further obtain the ideal sample, the sample size was calculated in proportion to the total population size using the following formula: s = $\frac{n}{N} x\ y$. Where s=stratum size, n = stratum population, N = total population size, y = estimated sample size (i.e. 420 in this study). Table 3.3 gives a summary of the calculated sample size.

Table 3.3: Summary of Sample Size Calculation based on the population

Level	Arabic*	Chinese*	Kiswahili*	Spanish*	Russian*	Total	French**	Total
100	15	51	18	35	55	173	51	225
200	2	36	10	13	6	68	29	97
300	2	17	4	11	4	39	16	55
400	1	6	2	6	4	20	21	41
600	1	0	0	0	0	1	1	2
Total	21	111	33	65	70	299	119	420

Note: the figures are to the nearest whole number.

From table 3.3, 225 students were expected from level 100 (which had the highest student population), 97 students were expected from Level 200, while 55, 41 and 2 were expected from Levels 300, 400 and Level 600 respectively.

Inclusion and Exclusion Criteria

Students who were studying other foreign languages aside the English language. Such students should have had at least a semester's contact with the foreign language of study. This is to ensure that participants are not entirely new to the foreign language of study but have gone through at least a semester's procedure of language teaching and learning experience. On the other hand, students who were studying English as a foreign language and prospective participants who refused participation in the study were excluded.

Instruments / Measures

This study employed the use of a number of standardized scales developed by different authors in the form of a survey questionnaire. These scales were categorized into five sections labelled Section A through to Section E. The section for collecting demographic information was placed under Section A while Section B through to Section E collected data using four different scales modified from existing studies to suit the nature of this study. In all, the four scales measured different aspects of technology usage namely: PU, PEOU, self-efficacy, subjective norm and influence, intention, attitudes toward technology usage and Internet usage (operationalized as the frequency with which an individual uses the internet). These scales were used because they had demonstrated reliabilities exceeding the acceptable minimum alpha levels of 0.7. The various sections are described below.

Section A: Self-Report Items

This section contained a 20-item self-report questions developed by the researcher specifically for the purpose of soliciting relevant demographic information from the participants used in this study. It was in two parts; the first part comprised of questions one (1) to question six (6) which sought information on the participants' biographic characteristics-age, gender, marital status, nationality, their level of study in school and religious background. The second part comprising questions seven to twenty (7 – 20) sought information on participants' language

learning background such as language of study, frequency and usage of technology tools as well as their usage of and access to the internet. The demographic information enabled the researcher obtain an appropriate description of the sample used based on the data obtained. (See table 3.4).

Section B: Technology Acceptance Model Scale

The TAM scale was used in Section B of the questionnaire. It comprised the scale developed by Davis et al. (1989) to assess student technology acceptance and usage. The TAM scale is a 30-item scale rated on a 7-point Likert scale. Responses ranged from 1 to 7: "1 =Strongly Disagree (SD), 2= Disagree (D), 3= Slightly Disagree (SLD), 4= Neutral (N), 5= Slightly Agree (SLA), 6= Agree (A) and 7=Strongly Agree (AS)". The subscales included perceived usefulness (PU), which measures individual's perception of technology usefulness, perceived ease of use (PEOU),which measures effortless use of technology tools, behavioural control (BC), subjective norm (SN), focuses on measuring the social influence on the individual to use a form of technology, behavioural intentions (BI), measures individual intentions to use and continue using technology and Internet Use (IU), measures individual access to and ability to use the internet. The questions corresponding to the various subscales are as follows: PU =1-6, PEOU=7-12, BC=13-17, SN=18-25, BI=26-28, IU=29-30.

Examples of items on the scale are — 'technology tools enable me to learn a language more quickly', 'Overall, technology tools are easy to use' and 'learning to operate technology tools was easy for me'. The technology acceptance model scale has a proven internal consistency and a Cronbach α= 0.85, having been used in several fields such as Information systems (Davis et al., 1989, Venkatesh & Davis, 2000); spanning health, consumer sciences (Ajigbade, 2018), e-commerce (Gefen, 1997) and education.

Section C: The Attitude Towards Technology Usage (ATT)

The Attitude towards Technology Usage Scale (ATT) was labelled section C in the study questionnaire. It contained a five-item standardized questions which were rated on 7-point semantic differential rating scale as proposed by Ajzen and Fishbein (1980). It has two opposite adverbs on either ends and its rating had a midpoint labelled "Neutral". It also has a Cronbach alpha reliability of 0.96 (Davis, 1993).

Section D: Attitude Scale

The attitude scale was represented by section D. This scale was established by Rosen, Whaling, Carrier, Cheever and Rokkum (2013). The attitude scale used in this study was a 13-item scale which was extracted from the Media, Technology Usage and Attitudes Scale (MTUAS). This scale examines both positive and negative attitudes of technology, anxiety/ dependence on technology as well as multitasking preference. Response rating was on a 5-point Likert scale ranging from "1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree". The reverse-scored items were (7, 8, 9). It has 6 items measuring positive attitude, three items measuring negative attitudes, two items on anxiety and dependence on technology and two other items on multitasking preference. Some of the items on the questionnaire read as follows: *'It is a waste of time using technology tools'* and *"Technology tools make learning a language more complicated*'. The attitude scale by Rosen et al, (2013) has a standardised Cronbach alpha of 0.892 and has also been explored in varied fields and levels of education and language studies.

Section E*: *Computer Self-Efficacy Scale (CSE)

This section comprised a modified version of the CSE scale developed by Compeau and Higgins (1995). It measures the ability to use new technology. It is was developed based on Albert Bandura's recommendation for the construction of a self-efficacy scale. The CSE contains a ten-item scale assessed on a ten-point Likert scale. Its responses range in values from "1=not at all

confident, to 10= extremely confident". It has mid-point values of 5 and 6 which represent 'moderately confident'. This scale was designed based on Bandura's proposal that "self-efficacy items should portray different levels of task demands and should be based on a 0–100% rating scale, ranging in 10-unit intervals that reflect the percentage of students' confidence in completing a specific type of foreign language task" (Bandura, 2006; Torres & Turner, 2016).

The CSE scale required respondents to provide an answer to a preceding question on their belief in their ability to use a technology tool in a specific context, then, a subsequent rating of their confidence of usage on the rating scale given. However, in this study, modifications were incorporated based on Laver, George, Ratcliffe and Crotty's (2011) simplified scale. They omitted the isolated opening sentence/ question "(whether they feel they would be able to use the software package in a particular circumstance)", conjoining them with each of the ten questions thereby making it easier to read and understand. An example of the modification was a change in the initial statement of, "I could complete the job using the software package if, I had used similar packages before this one to do the same job" which was modified to read, "I could use the technology tools, if I had used similar technology tools before this one" (Compeau & Higgins, 1995; Laver et al., 2011). CSE has a standardised Cronbach alpha of $\alpha = 0.85$ and has been used in the measurement of a range of varying everyday computer technologies and technological tools.

Research Design

The study conducted used a quantitative, cross-sectional research design. A cross – sectional survey was used because data collection was done within a given period of time, from different participants in different levels and across different language classes. It allowed the researcher to investigate the association between the various variables and the outcome variable in the study.

Procedure

A verbal pre-survey consent was sought from the two departments to express the intention to use the departments for the study. The proposed departments for the study were visited during the course of the second semester to discuss modalities with the Head of Department as well as the various Coordinators of the six language sections. A formal letter requesting for permission to conduct a study using the two departments had been presented and permission granted. Prior to that, correspondence was made with the Ethics Committee for the Humanities (ECH), University of Ghana for approval and clearance. Permission was obtained from the various coordinators and the various lecturers who readily granted permission for their lecture rooms to be used for data collection.

Piloting of the research study was done two weeks before the main data collection. For the main study, four hundred and twenty (420) undergraduate and graduate full-time students were administered questionnaires in the second semester of the 2018/ 2019 academic year. This was done in order to ensure that the students have at least had contact with the foreign language learning classroom for a minimum of one academic semester.

Pilot Study

Piloting was done using twenty (22) students to ascertain the psychometric properties of the instrument for data collection as they were adapted from studies used in the health sciences and other disciplines to suit this study. The pilot study enabled minor revisions such as rephrasing some of the statements to be made to the instrument before the final survey was administered. E.g. The computer self-efficacy scale which had an isolated opening sentence, *"I could complete the language learning course using technology tools" was later simplified an*d the opening sentence conjoined to each of the ten-item statements after the piloting, thereby making it easier to read and understand. Thus, the new statement read, 'I could use technology

tools if I had never used applications like it before'. This statement is similar to the original statement only that it has been simplified to make reading and understanding easier.

The group used in piloting satisfied the same inclusion criteria as the proposed sample for the main data collection sourced from across the language sections and the levels. Four main scales were tested and their Cronbach Alpha reliability calculated accordingly to confirm their appropriateness for the study. The TAM scale yielded a Cronbach alpha value of 0.954. The Computer Self-Efficacy (CSE) Scale yielded a Cronbach alpha value of 0.803. The Attitude Towards Technology Use (ATTU) scale recorded an alpha value of 0.808 this is an indication that each of the scales employed are reliable. The results of the reliability analysis are presented in table 3.4.

Table 3.4: Summary of Reliability Analysis obtained for the Measures

Scales	No. of items	Alpha values
Computer Self-Efficacy	10	0.803
ATTU	9	0.808
Technology Acceptance Model (TAM)	30	0.954
TAM Subscales		
Perceived Usefulness	6	0.920
Perceived Ease of Use	6	0.790
Behavioural control	5	0.964
Subjective norm	8	0.717
Intention	3	0.879
Internet Usage	2	0.744

Main study

For the main study, the lecturers were approached after permission had been granted and discussions were held with them concerning the feasible time and venue for the data collection. The main data collection spread over a period of one month due to the lecture time schedules of the students. Considering the time of the semester and nature of the study, it was appropriate to visit the various language lecture rooms to collect the data. Arrangements were made with the various lecturers and teaching assistants who acted as research assistants in many instances to help out with the distribution and collection of questionnaires before, during and after the study respectively.

At the lecture venue, questionnaires were distributed after a short introduction and briefing on what the study was about. Only participants who volunteered to take part were administered questionnaires. The participants were informed of their rights to voluntary participation and withdrawal and signed an informed consent form indicating their willingness to participate. Objectives of the study were explained to the volunteering participants who were also assured of anonymity and confidentiality. To ensure anonymity, only signatures and date of filling out the questionnaires were requested on the consent form. The questionnaires were coded for analysis purposes. The participants were verbally assured of their confidentiality, anonymity and were also informed of their right to withdraw from the study without any penalty. They were assured of confidentiality and anonymity as well.

In all, the duration of the main study lasted a period of four weeks and a total of twenty-six (26) foreign language learning classrooms were visited during their lecture periods for data collection. Time allocated was between fifteen and twenty minutes in most cases. The data collection period from piloting through to main study took about six weeks to complete. In majority of the cases, the researcher waited to collect the questionnaires as the times for data collection was either twenty minutes before the lecture starts or twenty minutes to the end of the

lecture. In ten of the language learning classrooms, the teaching assistants in the particular class acted as research assistants and collected data on behalf of the researcher. As some of the teaching assistants helped out in the pilot study, they were able to identify some of the students who took part in the piloting. Unfortunately, not everyone of the students who took part in the piloting was identified to be excluded from the study as the particular research assistants were not present during the main data collection. In all four hundred and twenty questionnaires were administered and after data cleaning and coding, three hundred and sixty (360) were considered appropriate to be used for this study. This represents a return rate of 85.7%. Table 3.5 shows a cross tabulation of the distribution of the actual sample size.

Table 3.5: Cross tabulation of the actual sample size

		Foreign language of study						Total
		Arabic	Chinese	French	Kiswahili	Spanish	Russian	
Level of study in school	Level 100	14	40	47	17	31	48	197
	Level 200	2	30	29	9	13	6	89
	Level 300	2	15	15	4	10	4	50
	Level 400	1	5	8	2	2	4	22
	Level 600	1	0	1	0	0	0	2
Total		20	90	100	32	56	62	360

Ethical Considerations

A formal request was made to the Department of Psychology for an introductory letter to conduct the study. The introductory letter in addition to the research proposal and other relevant documents were submitted to the Ethics Committee for the Humanities (ECH), University of Ghana, Legon for clearance prior to data collection as the ECH has oversight responsibility of regulating the ethical conduct of research within disciplines in the humanities at the University of Ghana. The American Psychological Association (APA) guidelines on informed consent and

the right of participants to decline participation at any point of the research were strictly adhered to. Participants were assured of their confidentiality, anonymity and the right to withdrawal.

The questionnaire included an informed consent form which gave a brief summary of the study, highlighting the rights of the participants i.e. freedom to withdraw from the study at any point in time during the data collection process without penalty and voluntary participation in the study. It also included a portion for participants to append their signature in agreement of participation in the study. To ensure anonymity and confidentiality, participants were not to indicate their names on the questionnaire; only the participants' signature and date of participation were required. They were briefed on what the study was about in order for them to make the decision to either take part or not. The consent form also included the address and contact of the researcher which gave participants the opportunity to establish contact for clarification should there be need (See Appendix).

CHAPTER FOUR

RESULTS

Introduction

This chapter focuses on the results of the study. The inferential statistical tests used to analyze each hypothesis are discussed followed by presentations of the various tables with their interpretations. The present study investigated the relationship between gender, self-efficacy, level of study and students' attitudes toward technology use.

Preliminary Analyses

This section involved the testing of the normality of the variables, reliability analysis, descriptive analysis, a bivariate correlation co-efficient among the main variables under study and descriptive analysis.

Analysis of Normality of Scores

A test of the normality of the scores obtained was conducted to assess the skewness and kurtosis of the scores obtained for the variables under study. The results indicated that the skewness and kurtosis values were within the range of +2 and -2. Tabachnick and Fidell (2007) postulated the ranges of +2 and -2 to show normal distributions for variables employed. This indicated that the data was normally distributed.

Reliability Analysis of the Scales

The coefficient of internal consistency (Cronbach's alpha) was computed to establish reliability of the measures used in the study. The Cronbach's alpha (α) values observed are as follows: Computer Self-Efficacy (number of items = 10, α = .863), Attitude towards Technology Use (number of items = 9, α = .745); Perceived Ease of Use (number of items = 6, α =0.871).

DeVellis (2012) recommended an ideal Cronbach alpha coefficient of .7 for a scale to be considered reliable. As observed, all the scales used in this analysis yielded acceptable results of Cronbach's alpha coefficients, hence the scales are reliable. The results of the reliability analysis are presented in table 4.1.

Table 4.1: Summary of Reliability Analysis of the Scales

Scale	Number of Items	Cronbach's Alpha
Computer Self-Efficacy Scale	10	.863
Attitude Towards Technology Usage	9	.745
Perceived Ease of Use	6	.871

Descriptive Statistics of the Variables

An analysis involving computation of means, standard deviation, minimum and maximum values obtained on the various scales was conducted before the tests of hypotheses. Table 4.2 below contains a summary of the results obtained:

Table 4.2: Means, Standard Deviation and Normality of Variables

	Mean	SD	Min	Max	Skewness	Kurtosis
Computer Self-Efficacy Scale	77.05	15.575	10	100	-.705	.738
Attitude Towards Technology Usage	35.57	5.598	9	45	-.701	1.110
Perceived Ease of Use	31.68	7.310	6	42	-1.023	1.223

From table 4.2, computer self-efficacy had a mean of 77.05 and standard deviation of 15.575 with individual scores ranging from a minimum of 10 to a maximum of 100. Attitude towards technology use recorded a mean score of 35.57 and a standard deviation of 5.598, with the scores ranging between a minimum of 9 to a maximum of 45. Perceived ease of use also had a mean of 31.68 and standard deviation of 7.310 with scores ranging between a minimum of 6 and

a maximum of 42. Furthermore, skewness ranged between -.701 to -1.023 while kurtosis ranged between 0.738 and 1.223. Having tested the normal distribution, the results revealed a normally distributed data making it suitable for parametric tests to be conducted. As mentioned above, skewness fell within the acceptable range of +2 and -2 (Tabachnick & Fidell, 2007).

Pearson Correlation between Variables

To give the direction and relationship between the variables, Pearson Product Moment Correlation was run on the variables. The results indicated a significantly positive relationship between computer self-efficacy and attitudes toward technology use (r=.162, p<.01). This implies that a high self-efficacy will be associated with an increase in attitude towards technology use. Perceived ease of use also showed a significantly positive relationship with attitude towards technology use (r=.366, p<.01). In addition, perceived ease of use showed a significantly positive relationship with computer self-efficacy (r=.211, p<.01). The results indicated above imply that an increase in perceived ease of use is associated with an increase in students' attitudes toward technology use. Thus, the more or greater an individual perceives a form of technology as useful, the greater the chances are that such an individual will be positive about it. On the contrary, there is no significant relationship between gender and any of the variables. Level of study also did not show any significant relationship with any of the variables under study. A summary of the outcome is presented in table 4.3.

Table 4.3: Correlation Matrix

Variables	1	2	3	4	5
1. Gender	-				
2. Level of study	-.086	-			
3. ATTU	-.085	-.084	-		
4. CSE	-.048	.012	.162**	-	
5. PEOU	-.086	.065	.366**	.211**	-

**Correlation is significant at the 0.01 level (2-tailed).

Hypothesis Testing

Based on the objectives stated in this study, four hypotheses were proposed and tested. Hypothesis 1 was analysed using the independent t-test. Hypothesis 2 was analysed using the Pearson Moment correlation co-efficient. Hypotheses 3 and 4 were analysed using the hierarchical multiple regression.

Hypothesis 1: Gender and Students' Attitude

Hypothesis one stated that male students will show a more favourable attitude towards technology use than female students. The Independent t-test was used to determine whether males and females will vary in their attitudes toward technology use. When compared on their means, the results indicated that there was no significant difference in attitudes to technology for males (M=36.35, SD=5.856) and females (M=35.28, SD=5.484); t (358) = 1.61, p >.01, (two-tailed). In addition, the assumption of homogeneity of variance was tested and satisfied using the Levene's F test, F (358) = 0.04, p = 0.849. Hence, both males and females did not differ significantly in their attitudes toward technology use. Although no statistical difference existed, the mean differences show that males slightly outperformed females on their attitudes toward

technology use. Thus, the hypothesis that males will show a more favourable attitude towards technology use than females was partially supported.

Table 4.4: Summary of Independent t-test results

Gender	Means	SD	*t*	*P*
Males	36.35	5.856	1.608	0.849
Females	35.28	5.484		

Hypothesis 2: Perceived ease of use and Attitude towards technology Use.

Hypothesis two stated that there will be significant positive relationship between students' perceived ease of use and their attitudes toward technology use. Results from Pearson Correlation test are presented in the table 4.5.

Table 4.5: Summary of the Pearson Correlation between Perceived ease of use and Attitude towards Technology use.

	R	*P*
PEOU	.366**	.000
ATTU		

**. Correlation is significant at the 0.01 level (2-tailed).

Results in the table above show a significant positive relationship between perceived ease of use and students' attitudes toward technology use (r = .366, p<.01). This indicates that as one variable increases, there is a corresponding increase in the other as well. Therefore, this result demonstrates that moderate levels of perceived ease of use are associated with higher attitudes. Thus, hypothesis two is confirmed.

Moderation Analysis

Moderation analysis was used to test hypotheses 3 and 4. According to Baron and Kenny (1986), moderation occurs when the relationship between two variables (predictor and criterion) depends on a third variable called moderator. Thus, these hypotheses were analysed to test the effects of a third variable (moderator) on the two variables (predictor and criterion)

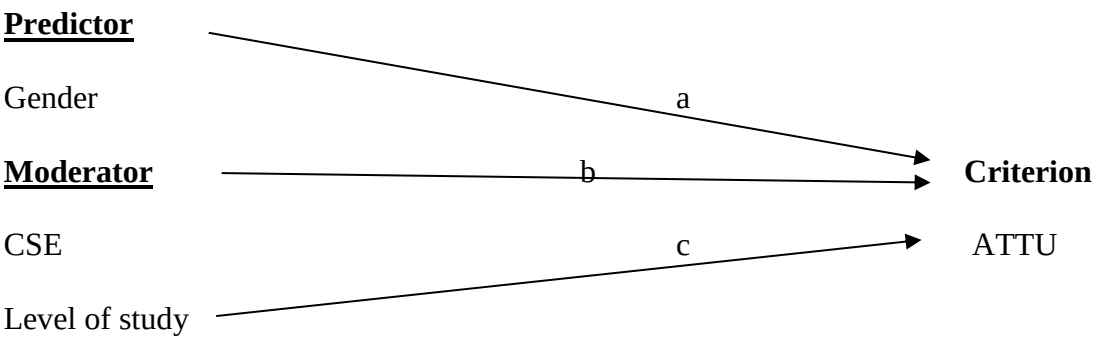

Figure 4. 1:Relationship between Predictor, Moderator, and Criterion Variables

In figure 4.1, there are three paths that are causal and that relate to the outcome variable (attitude towards technology use). The influence of gender as a predictor falls along the first path (a). The second path (b) has the influence of computer self-efficacy and level of study as moderators. Finally, the third path (c) comprises the interaction of the predictor (gender) and the moderators on the outcome variable. Based on this model, the moderation hypothesis will be supported should the interaction path (c) be significant. The results of the moderation analysis are presented.

Hypothesis 3: Self-efficacy will significantly moderate the relationship between gender and students' attitudes toward technology usage

Hypothesis three stated that computer self-efficacy will moderate the relationship between gender and students' attitudes toward technology use. The hierarchical multiple regression analysis was used to test this hypothesis. The results are summarised in table 4.6.

Table 4.6: Summary of Results for the Moderation Effect of Computer Self-Efficacy on the Relationship between Gender and Attitude Towards Technology Use.

Model	*B*	*SEB*	*B*	F	*p*
Step 1: Constant	37.424	1.191			.000
Gender	-1.070	.666	-.085	2.584	.109
Step 2: Constant	37.257	1.179			.000
Gender	-.974	.659	-.077		.140
CSE	.057	.019	.158	5.937	.003
Step 3: Constant	37.262	1.183			.000
Gender	-.976	.661	-.077		.0141
CSE	.057	.019	.158		.003
Gender * CSE	.003	.044	.004	3.948	.947

R^2 = .007, .032 and .032 for steps 1,2 and 3 respectively. ΔR^2 =.004, .027 and .024 respectively for steps 1, 2 and 3. **p < 0.01

As shown in table 4.6, the results of the analysis show that the model in step one was not significant as it accounted for only 0.4% of the variance in explaining students' attitudes toward technology use [$F_{(1, 359)}$ =2.58, p > .01, R^2 =.007]. Thus, gender did not predict attitudes toward technology use (β = -.085, p > .01). At step two of the model, computer self-efficacy made a 3.2% contribution in explaining the variance in attitudes toward technology use, [$F_{(2, 359)}$ =5.94, p< .01, ΔR^2 =.027]. There was also a significant positive interaction between computer self-efficacy and attitude (β = .158, p < .01). In step 3 however, the interaction of computer self-

efficacy and gender did not significantly predict attitudes toward technology use. The results revealed that the model accounted for 2.4% of the variance in explaining attitude towards technology use, [$F_{(3, 359)} = 3.95$, $p > .01$, $\Delta R^2 = .024$]. The interaction between computer self-efficacy and gender was not statistically significant ($\beta = .004$, $p > .01$). Thus, the hypothesis that computer self-efficacy will moderate the relationship between gender and attitudes toward technology use was not supported.

Hypothesis 4: Level of study will moderate the relationship between gender and students' attitudes toward technology usage

Hypothesis four stated that level of study will moderate the relationship between gender and students' attitude towards technology use. The hierarchical multiple regression analysis was used to test this hypothesis.

Table 4.7: Summary of Results for the Moderation Effect of Level of Study on the Relationship between Gender and Attitude towards Technology use.

Model	*B*	*SEB*	*B*	F	*p*
Step 1: Constant	37.424	1.191			.000
Gender	-1.070	.666	-.085	2.584	.109
Step 2: Constant	37.595	1.191			.000
Gender	-1.170	.666	-.093		.080
Level of study	-.528	.302	-.092	2.824	.082
Step 3: Constant	37.622	1.198			.000
Gender	-1.182	.669	-.094		.078
Level of study	-.518	.305	-.090		.091
Gender * Level of study	.164	.643	.014	1.900	.798

$R^2 = .007$, .016 and .016 for steps 1,2 and 3 respectively. $\Delta R^2 = .004$, .010 and .007 respectively for steps 1, 2 and 3.

The results in Table 4.7 indicted that the model was not significant as it accounted for only 0.4% of the variance in explaining students' attitudes toward technology use [$F_{(1, 359)}$ =2.58, p > .01, R^2 =.007]. Thus, gender did not predict attitude towards technology use (β = -.085, p > .01). At step two of the model, level of study made a slight change (1%) in contributing to the variance in attitude towards computer use, [$F_{(2, 359)}$ =2.82, p > .01, ΔR^2 =.010]. Although there was a 1% change in variance, level of study did not significantly predict attitude towards technology use, (β = -.092, p > .01). In the third step, results revealed that the model accounted for 0.7% of the variance in explaining attitude towards technology use, [$F_{(3, 359)}$ =1.90, p > .01, ΔR^2 =.007]. Thus, the interaction between level of study and gender was not statistically significant (β = .014, p > .01). Therefore, the hypothesis that level of study will moderate the relationship between gender and attitude towards technology use was not supported.

Summary of Key Findings

Four hypotheses were tested in this study. Hypothesis one was partially supported while hypothesis two was confirmed and hypotheses three and four were not supported. Below is a summary of the findings:

1. There was no statistically significant difference between males and females on their attitudes toward technology use although males performed slightly better than females.
2. Perceived ease of use showed a significantly positive relationship with attitude towards technology use.
3. Computer self-efficacy did not moderate the relationship between gender and attitude towards technology use. It was observed that computer self-efficacy showed a positive relationship with attitude towards technology use. However, upon interaction with gender, it did not moderate the relationship between gender and attitude towards technology but rather weakened the relationship.

4. Level of study also did not moderate the relationship between gender and attitude towards technology use.

Observed Model

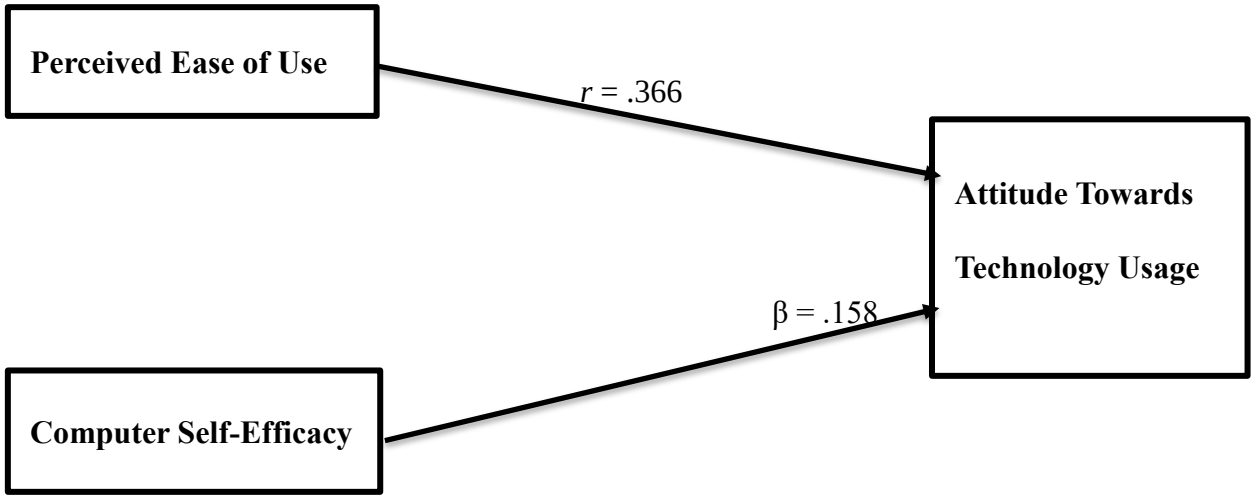

Figure 4.2: Summary of observed relationships between the variables under study.

The model in figure 4.2 shows a revision of the proposed conceptual model based on the results of the study. It indicates that perceive ease of use showed a significantly positive relationship with attitude towards technology use. Computer self-efficacy also showed a significant positive relationship with attitude towards technology use.

CHAPTER FIVE

DISCUSSION

Introduction

The aim of this study was to investigate the relationship between students' attitude and technology use and the moderating effects of gender, level of study and self-efficacy. This chapter entails a discussion of the findings of this research in relation to relevant theories and previous research conducted on the study variables. The implications of these findings for theory and practice along with its limitations and recommendations for future research have been presented in this chapter.

Discussion of Findings

Gender Difference in Attitudes toward Technology Use.

The first hypothesis investigated gender differences in students' attitudes toward technology use. Based on the results obtained, the hypothesis stating "males will show a more favourable attitude towards technology use than females" was partially supported. Although the mean difference was statistically insignificant, males slightly outperformed females on their gender differences. This can be interpreted as both genders had an almost similar attitude towards technology use. The findings from this study substantiates that of Araromi (2013) who examined undergraduate French students on their attitudes toward foreign languages and discovered no significant gender differences between them. It is also consistent with the findings of Sainz and Lopez-Saez (2010), which indicated that males showed more positive computer attitudes than females and the results of Cai, Fan and Du (2016), who reported that males still held more favourable attitudes than females but with small effects. Furthermore, it also supports Saracaloğhu and Dinçer (2017) who reported no significant difference in gender attitudes in their study of undergraduate students enrolled in the English and German language teaching departments in two Turkish universities.

Generally, results on gender attitudes in foreign language learning and technology use have been mixed. However, a majority showed that males showed more positive attitudes than females. In this study, although there were more females (n=264) than males (n=96), males scored better on attitudes than females. An observation made during data collection process was that there were more females than males in almost all the language classes visited. These findings therefore substantiate the assertion by Cai, Fan and Du (2016) that the technological gap is gradually closing. This is because, before an individual qualifies for college, he or she may have been prepared to use advanced technology as is required with higher learning thus, making both genders familiar with such tools and eventually leading to an insignificant difference in the gender difference on attitudes toward technology use.

This finding gives an indication of the narrowing technological gap between males and females in the 21st century as the world currently orients individuals to be technology savvy. Furthermore, considering the age groups, majority of the participants (73%), fell within the millennial or technology age, and thus, members of this cohort may already be familiar with the digital and social media world. Due to this, they may already be primed to use technology and this could lead to the insignificant differences discovered. According to Tsai and Lin (2004), technology use has grown in its relevance and prominence as virtually all aspects of society and the daily lives of people are connected in one way or the other to the use of technology. With this argument, they stressed the possibility of changes having occurred with regards to technology use resulting in narrowing of the gender related differences in attitudes toward technology use. This also confirms the claim by Internet world statistics that Ghana has seen a remarkable transformation in internet usage as there has been an overwhelming growth of 337% in the number of internet users between the year 2000 to 2019.

Another reason that may account for males outperforming females could be due to gender-role socialization. Although there has been increased female enrollment in technology-related courses, cultural practices remain a force to reckon with as some individuals still engage

in gender-role stereotyping. In typical Ghanaian settings, males are socialized to be proactive in the area of technology compared to females and this might have contributed to their attitude differences.

Perceived Ease of Use and Attitude towards Technology Use

The second hypothesis that there will be a significant positive relationship between perceived ease of use and students' attitudes toward technology use was supported. The finding implies that an individual who finds using a technology tool easy to operate and use will report an increased positive attitude towards technology use. The results showed a significantly positive relationship between perceived ease of use and attitudes toward technology use. This implies that, an increased perception of how effortless using an application will be is associated with an increase in technology use attitude. Thus, students who see a form of technology tool easy to use are more likely to use that form of technology tool in their language learning process. This finding is in sync with the TAM theory which identified PEOU as one of the two influencers of individual technology use attitude (Davis et al., 1989; Venkatesh & Davis, 2000). Thus, students who perceive using technology tools like YouTube video tutorials and language learning applications as effortless are more likely to have positive attitudes toward using that particular technology to supplement their studies.

Porter and Donthu (2006) emphasized that users of technology will be likely to overcome difficulties in using new technology if the benefits of usage are substantive. Over the period, ease of use has been related to accessibility. In this study, majority of the students indicated using one form of technology tool or another and that they use them to supplement their studies (see appendix). However, they decried the poor nature of the internet connectivity which is what they need to be able to access these tools. To those who are unable to access these forms of technology tools, they have found a way around it by acquiring language learning applications that do not need access to internet. Davis (1989), made an assertion that an

individual adopts a new technology primarily because of the functionality offered, rather than because it is easy to use. The results of this study however prove otherwise. This is because, despite the challenges faced in terms of infrastructure and accessibility, students tend to find using technology tools easy thus possessing a positive attitude towards technology use and eventually influencing the use of technology in their foreign language learning.

Self-efficacy, Gender and Students' attitude

The third hypothesis stated that self-efficacy will moderate the relationship between gender and students' attitudes toward technology use. This hypothesis was not supported although self-efficacy showed a positive interaction with attitudes. The results from hypothesis one showed no significance difference between gender and attitudes and the correlation matrix from table 4.3 showed a negative correlation between the two variables. This means that gender does not significantly predict attitudes and technology use. The introduction of self-efficacy further weakened the relationship although it accounted for only 3.2% of the variance in explaining the gender-attitude relationship. However, when self-efficacy interacted with attitudes, it showed a significant positive relationship. This means that the presence of self-efficacy did not improve significantly, the gender-attitude relationship. It however contradicts findings that have identified self-efficacy as a predictor of gender-attitude relationships in foreign language learning (Alhamami, 2014; Whitley, 1997; Yau & Cheng, 2012).

The computer self-efficacy theory describes an individual's belief in his abilities to perform a technology related task. While the theory explains reasons why people will persevere in the face of challenges, there may be underlying factors that influenced the outcome of self-efficacy on the gender-attitude difference. According to Cooper and Lucas (2006), the underlying gender-attitude difference in self-efficacy might result from differences in individual psychological states, their behaviours and their motivation for learning a language. In the

University of Ghana for instance, there are course bouquets from which choices are made with regards to University application and enrollment. These course bouquets are usually made up of a structured number and type of courses or subjects which are discipline-related. Not all students are fortunate to have their preferred choices in one selection bouquet. In addition, when students are unable to meet the selection pass mark for a chosen course, they are usually compensated with another set of subjects which they may be compelled to accept in order to be enrolled in school.

The University provides the option for students to drop some courses after a period of study. However, between the time of accepting the admission offer and the time of dropping the course, individuals who may fall under this category may not entirely be motivated to put in their best as the course from inception was a "compulsion". Such persons may just want to sail through and may not be confident in their abilities to undertake such courses. In effect, they may put in very little or no effort at all. On the other hand, individuals who selected and were offered their preferred subject choices may be more likely to invest effort and time in succeeding no matter the circumstance. Cooper and Lucas (2006), stated that within the context of using technology, gender and one's self-efficacy could be related based on one's perception of his/her own abilities as related to a particular task.

Ackerman and Wolman (2007) indicated that because self -efficacy will influence the choices that one makes and the efforts that would be put forth, any gender difference in self-efficacy technology use would have implications on gender groups' attitudes toward technology. One possible interpretation therefore may mean that students considered using technology tools as nothing desiring effort and another possible explanation could be that students exhibited a highly positive efficacious level in relation to attitude and that their gender is not an influencing factor. Thus, there was very little room to influence their gender attitudes further as they may have found their ways around it. The results of this study through the self-report section discovered that some students have found a way around their access challenges experienced by

opting for applications which do not need access to internet in order to make learning easier. Thirdly, the students may have been unsure about what skills they needed to possess in order to use these tools (Jenset, 2011) thus, they may avoid using such tools despite its proven significance in contributing to language learning.

Level of study, Gender and Students' attitude

The fourth hypothesis investigated the moderating role of level of study in school on the relationship between gender and attitudes. The hypothesis stating that level of study will moderate the relationship between gender and students' attitudes toward technology use was rejected. This could mean that advancement in the language learning course is not a determining factor for attitudes notwithstanding the individual's gender. The negative correlation results indicate that the higher an individual goes, the lower his or her attitude towards technology use. The results of this study support findings of Jenset (2011) whose examination of first- and fourth-year language teaching students (teacher trainees) on their attitudes toward using technology in language learning revealed that level of study does not play a role in language learning attitudes. On the contrary, the findings of this study contradict the study conducted by Saracaloğhu and Dinçer (2017) using two hundred and four (204) first- and fourth-year undergraduate students enrolled in English and German language teaching departments of two Turkish Universities.

Several factors may account for the variation in the results. The technology acceptance model theory highlights an individual's perception of ease of use and usefulness of technology tools as the driving force in using technology. The importance of external factors has been highlighted by Zahid et al. (2013). Thus, factors external to the students may have resulted in this outcome being obtained. To facilitate technology use, assess to good internet facilities is recommended. Results from the self-report section in this study highlighted the difficulties in

students finding access to the needed internet network in order to facilitate usage of their technology tools. Eventually, as such students progress through their language learning course, they may be demotivated to utilize technology tools, leading to the results obtained.

Another reason for the disparity could be language learning experience. The reason for this finding may be attributed to the fact that the higher an individual goes in the language learning course, the more conversant he or she becomes in understanding the nitty gritty of foreign language learning. A high rise in language learning equips one with the needed confidence in terms of fluency and articulation as well as assimilation through immersion/ year-abroad programs. Thus, such individuals may not be motivated to seek out supplementary ways of studying the language. A final year (level 400) language student who has gone through the required one-year immersion program and has returned from studying in the home country of the respective language of study may be less likely to use technology tools. Such an individual may have acquired a near-native language proficiency and is likely to rely on his own language learning experience gained through assimilation in the home country to guide him. At most, a dictionary may be what he or she may use. Thus, the low predictability may stem from the fact that with a higher progress in students' language learning, the tendency of students to possess negative or neutral attitudes toward technology use may be high.

Limitations and recommendations

The major limitation in this study was the inability of all the variables present to be explored in predicting their influence on the dependent variable (attitude towards technology use). Furthermore, the results may have been skewed in a certain direction as unfortunately, not all the pilot study cohorts were identified during the main study to be excluded from taking part. This may have contributed to data skewness in a way although the number may have been insignificant.

Given the limitations of this research, it is recommended that future researchers should consider studying the effect of other variables such as perceived usefulness, intention and the influence of social and external factors in predicting their influence on the hypotheses tested in this study. It is further recommended that careful strategies are employed during the data collection process to ensure that pilot study cohorts are excluded from the main study as this might lead to skewness of the data.

In determining the reasons for the failure of level of study to moderate the effect of gender on attitudes, it was discovered that students may be demotivated in using technology tools to supplement their studies due to inaccessible and unreliable internet network. It was also discovered that gender-role socialization (cultural factors) may be a contributing factor in leading to males outperforming females in their foreign language learning attitudes. It is therefore recommended that the needed infrastructural facilities such as improved multimedia facilities and access to good and reliable internet network to facilitate productive language learning be put in place as institutions need to invest time and resources into churning out very good language students. It is also recommended that future studies consider the impact of cultural factors such as orientation and gender role socialization in determining the relationship between gender and attitudes toward technology use.

Implications for Practice

The study will be essential for language course managers as they may gain enlightenment in handling student's attitudes toward technology use and how these attitudes are affected by factors such as self-efficacy. Language teachers may also gain an understanding of what makes up an individual's attitude and how students respond in relation to their perception on utilizing a particular language tool in their studies. Here, it would enable them attend to each individual and develop varied strategies in addressing the learning attitudes of the students.

Based on this study also, language managers may be able to draft policies and student-oriented programs which will lead to the strengthening of student attitudes. Findings of this study will be valuable to management of language institutions in developing effective policies regarding course selection and grouping in general in order to improve students' learning motivation. Finally, it is in hopes that policy makers will consider developing strategies to improve upon language learning facilities in language learning institutions through the provision of good infrastructure and other learner-centered policies to arouse students' interests and attitudes in general.

Conclusion

This study sought to investigate students' attitudes toward technology use in foreign language learning by examining the role of gender, level of study and self-efficacy on attitudes. Four hypotheses were tested using results obtained from three hundred and sixty (360) foreign language students. The strengths of this study are exhibited in the findings where perceived ease of use has a significant positive relationship with attitude towards technology use. The results further showed a partial confirmation of hypothesis one which stated that males will have more favourable attitudes toward technology use than females. Although there was no significant difference in gender attitudes, males still outperformed females on their attitudes. Contrary to expectations, self-efficacy and level of study did not significantly moderate the effect on gender-attitude relationships in technology use in foreign language learning. An obvious interpretation is that any effect that takes place is weak and cannot be objectively distinguished from other sources of variation in the data.

The overall implication of this study is that students' language learning attitudes need critical assessment and evaluation as failure to inspire a positive attitude in language learning may lead to the development of a negative attitude not just in the application of technology but

that may be extended to the original culture and speakers of the language. Another area needing improvement is the learning conditions of the students. This area needs critical assessment and evaluation as this could spike demotivation in furthering the study of the language by the student and this may pose a threat to globalization and the quest to make the learning of foreign languages such as French compulsory across all levels of the educational divide in Ghana. One major limitation is the use of a few variables in determining the effect on students' attitudes. Finally, it is in hopes that the observations made in this study will serve as a guide in the drafting and implementation of mechanisms to improve upon language learning in Ghana as a whole.

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APPENDICES

APPENDIX I – ETHICAL CLEARANCE

UNIVERSITY OF GHANA
ETHICS COMMITTEE FOR THE HUMANITIES (ECH)
P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No.....

24th April, 2019

Ms Audrey Lamptey
Department of Psychology
University of Ghana
Legon

Dear Ms Lamptey,

ECH 065/18-19: ATTITUDES OF STUDENTS TOWARD TECHNOLOGY USE IN SECOND/FOREIGN LANGUAGE ACQUISITION: EXAMINATION OF THE MODERATING EFFECTS OF GENDER, LEVEL OF STUDY AND SELF-EFFICACY.

This is to advise you that the above reference study has been presented to the Ethics Committee for the Humanities for a full board review and the following actions taken subject to the conditions and explanation provided below:

Expiry Date:	24/04/20
On Agenda for:	Initial submission
Date of Submission:	19/11/18
ECH Action:	Approved
Reporting:	Bi-Annually

Ethics Committee for Humanities
24 APR 2020
Valid Until.....
(University of Ghana)

Please accept my congratulations.

Yours Sincerely,

Prof. C. Charles Mate-Kole.
ECH Vice Chair

Cc: Dr. C. B. Wiafe-Akenten, Department of Psychology, University of Ghana.
Dr. Angela A. Gyasi-Gyamerah, Department of Psychology, University of Ghana.

Tel: +233-303933866 Email: ech@ug.edu.gh

APPENDIX II

PERMISSION AND APPROVAL LETTER

P. O. Box GP 1549
Accra
16TH April, 2019

The Head
Department of Modern Languages
P. O. Box LG 207
Legon-Accra

Dear Madam,

PERMISSION TO COLLECT DATA

I am Audrey Lamptey, a second year Mphil Psychology Student with the Department of Psychology, Legon. As part of the requirements for the award of a master's degree, I am currently embarking on a research project titled "**Attitudes of students toward Technology use in Second/ Foreign Language Acquisition: examination of the Moderating Effects of Gender, Level of Study and Self-Efficacy**".

I have received approval from the Department of Psychology Graduate Studies Committee and in correspondence to receive clearance from the Ethics Committee for the Humanities.

I will be very grateful if permission is granted me to collect data from the students of the Department of Modern Languages as the semester is drawing to an end and students will soon go on recess.

I hope to receive a favourable response.

Attached are copies of my questionnaire and other documents detailing my correspondence with the Ethics Committee for the Humanities.

Thank you.

Yours faithfully,
Audrey Lamptey
0203733505

DEPARTMENT OF MODERN LANGUAGES
RECEIVED
16 /
UNIVERSITY OF GHANA
LEGON

Permission is granted to collect data from students of DML.
18/4/2019

CC: All Coordinators

APPENDIX III

CONSENT FORM

UNIVERSITY OF GHANA

Official Use only Protocol number

Ethics Committee for Humanities (ECH)

PROTOCOL CONSENT FORM

Section A- BACKGROUND INFORMATION

Title of Study:	Attitudes of Students toward Technology Use in Second/ Foreign Language Acquisition: Examination of the moderating effects of Gender, Level of study and self-efficacy.
Principal Investigator:	Audrey Lamptey
Certified Protocol Number	10241289

General Information about Research

This study seeks to examine students' attitudes toward using technology (***specifically, internet-based language learning applications and YouTube video tutorials***) in second/ foreign language acquisition and the differences in gender, levels of study as well as their self-efficacy and whether there is a relationship between these and their attitudes. If you are currently studying a foreign language in the Departments of French and Modern Languages of the University of Ghana, your participation in this survey will be very helpful. This survey will require a maximum of fifteen minutes to fill up.

Benefits/Risk of the study

There will be no direct benefits associated with this research neither will the research pose any hazard or danger to the participant. There is no foreseeable or perceived risk for your participation in this study.

Confidentiality

All information collected during the study will be number coded and your personal information will be kept confidential throughout the study. Data from this research is for educational purposes only and will be used for its intended purposes only.

Compensation

No compensations will be awarded after participation in the study.

Withdrawal from Study

Participation is voluntary and participants may withdraw at any time without penalty. Your participation or non-participation will not influence your grade.

Contact for Additional Information

Ms Audrey Lamptey, MPhil Psychology Student, Department of Psychology, University of Ghana
aulamptey@gmail.com
00233-203-733-505

If you have any questions about your rights as a research participant in this study you may contact the Administrator of the Ethics Committee for Humanities, ISSER, University of Ghana at ech@isser.edu.gh / ech@ug.edu.gh or 00233- 303-933-866

Section C- PARTICIPANT AGREEMENT

"I have read or have had someone read all of the above, asked questions, received answers regarding participation in this study, and am willing to give consent for me, my child/ward to participate in this study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records."

_____

Name of Participant

_____ _____

Signature or mark of Participant Date

If participant cannot read and or understand the form themselves, a witness must sign here:

I was present while the benefits, risks and procedures were read to the volunteer. All questions were answered and the volunteer has agreed to take part in the research.

_____

Name of witness

_____ _____

Signature of witness / Mark Date

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been explained to the above individual.

_____

Name of Person who Obtained Consent

_____ _____

Signature of Person Who Obtained Consent Date

Section C- PARTICIPANT AGREEMENT

"I have read or have had someone read all of the above, asked questions, received answers regarding participation in this study, and am willing to give consent for me, my child/ward to participate in this study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records."

_____

Name of Participant

_____ _____

Signature or mark of Participant Date

APPENDIX IV

TECHNOLOGY USE QUESTIONNAIRE

Dear Respondent,

I am Audrey Lamptey, an MPhil Psychology student. I am embarking on this research as part of the requirements for the award of a Master's degree.

This study seeks to examine students' attitudes toward some aspect of technology with specific emphasis on the study of second/ foreign languages. If you are currently studying a foreign language in the Departments of French and Modern Languages of the University of Ghana, your participation in this survey will be very helpful. This survey will require a maximum of fifteen minutes to fill up.

Please note that your participation in this survey is voluntary and you are at ease to discontinue participation at anytime without penalty. Answers provided are confidential and would only be used for its intended academic purposes.

Please indicate your agreement to participate in this survey by signing below:

_____ _____

Signature of Participant Date

Should you have any questions or need for clarification, please contact:

Dr. Wiafe Akenten-Brenya
Department of Psychology
University of Ghana
cbwiafe-akenteng@ug.edu.gh

Ms Audrey Lamptey,
Department of Psychology
University of Ghana
aulamptey@gmail.com or
0203733505

SECTION A

Instruction: Kindly tick (√) or fill in the spaces where applicable.

1. Gender: Male [ ] Female [ ]
2. Age (in years): _____
3. Religion: Christianity [ ] Islam [ ] Traditional [ ] Other (please specify)_____
4. Level of study/ Level in school: _____
5. Marital status: Single [ ] Married [ ] Divorced [ ] Widowed [ ] Other (please specify) _____
6. Nationality: Ghanaian [ ] Other (please specify): _____
7. What foreign language are you studying?
   Arabic [ ] Chinese [ ] French [ ] (Ki)Swahili [ ] Spanish [ ] Russian [ ]
8. How long have you studied this language? _____
9. Did you apply/ choose to study this language? Yes [ ] No [ ]
10. Do you use technology tools? Yes [ ] No [ ]
11. Do you use YouTube language tutorials in studying the language?
    Yes [ ] No [ ]
12. At least how many hours in a day do you use these tools? _____
13. Do you use language learning applications (apps) in your study?
    Yes [ ] No [ ]
14. Please list the language learning apps you use in your language study
    _____
15. How often do you use language learning apps in learning the foreign language? Not at all [ ] Hourly [ ] Daily [ ] Weekly [ ] Monthly [ ]
16. At least how many hours in a day do you use these apps? _____
17. Do you need internet access to use these tools? Yes [ ] No [ ]
18. Do you always have internet access? Yes [ ] No [ ]
19. If NO, please state why
    _____
    _____
20. Any other information?
    _____
    _____

SECTION B

Instructions: Please tick (√) in the appropriate box corresponding to your chosen answer to the items using the following scale:

1 = Strongly Disagree (SD)
2 = Disagree (D),
3 = Slightly Disagree (SLD),
4 = Neutral (N),
5 = Slightly Agree (SLA),
6 = Agree (A)
7 = Strongly Agree (AS)

		1 SD	2 D	3 SLD	4 N	5 SLA	6 A	7 AS
1.	Technology tools enable me to learn a language more quickly.							
2.	Technology tools help improve my performance in my studies							
3.	Technology tools make it easier to learn a language							
4.	Technology tools have helped improved my language proficiency							
5.	Technology tools give me greater control over my studies							
6.	Technology tools enhance my effectiveness in my studies							
7.	My interaction with technology tools is clear and understandable.							
8.	Overall, technology tools are easy to use.							
9.	Learning to operate technology tools was easy for me.							
10.	I rarely become confused when I use technology tools.							
11.	I rarely make errors when using technology tools.							
12.	I am rarely frustrated when using technology tools.							
13.	I am able to confidently use technology tools.							
14.	I have the knowledge to use technology tools.							
15.	I have the resources to use technology tools.							
16.	I have the ability to use technology tools.							
17.	I have control over using technology tools.							
18.	Family members think I should use technology tools.							
19.	My lecturer thinks I should use technology tools.							
20.	My close friends think I should use technology tools.							
21.	My peers think I should use technology tools.							
22.	People whose opinions I value prefer that I use technology tools in my work.							

23.	My use of technology tools is voluntary.							
24.	My lecturer requires me to use technology tools.							
25.	Although it might be helpful, using technology tools is not compulsory in my language studies.							
26.	I intend to continue using technology tools in my language studies.							
27.	I intend to frequently use technology tools in my language studies							
28.	I intend to continue learning this language in my next year							
29.	The resources necessary (e.g. software application, communication network) are available for me to use the tools effectively.							
30.	I can access the Internet very quickly within my University.							

SECTION C

Please **tick (√) your response** about using technology tools in your foreign language study on the following five scales based on the most appropriate response for filling in the blank.

All things considered, using technology tools in my language learning course is a/(an) _____ idea.

Good								**Bad**
	Extremely	Quite	Slightly	Neither	Slightly	Quite	Extremely	
Wise								**Unwise**
	Extremely	Quite	Slightly	Neither	Slightly	Quite	Extremely	
Favourable								**Unfavourable**
	Extremely	Quite	Slightly	Neither	Slightly	Quite	Extremely	
Beneficial								**Harmful**
	Extremely	Quite	Slightly	Neither	Slightly	Quite	Extremely	
Positive								**Negative**
	Extremely	Quite	Slightly	Neither	Slightly	Quite	Extremely	

SECTION D

Please rate the following on a scale of 1 to 5. Please Note:

1 = Strongly Disagree (SD)
2 = Disagree (D)
3 = Neutral (N)
4 = Agree (A)
5 = Strongly Agree (SA)

		1 SD	2 D	3 N	4 A	5 SA
1.	I feel it is important to be able to find any information whenever I want online.					
2.	I feel it is important to be able to access the Internet any time I want to use technology tools					
3.	I think it is important to keep up with the latest trends in technology.					
4.	Technology will provide solutions to many of our problems.					
5.	With technology anything is possible.					
6.	I feel that I get more accomplished because of technology tools.					
7.	It is a waste of time using technology tools					
8.	Technology tools make learning a language more complicated.					
9.	Using technology tools make people more isolated.					
10.	I get anxious when I don't have the internet available to me.					
11.	I am dependent on my technology tools					
12.	I like to finish one task completely before focusing on anything else					
13.	When doing a number of assignments, I like to switch back and forth between them rather that do one at a time.					

SECTION E

The following questions ask you to indicate whether you could use technology tools **(language learning applications and Youtube videos)** under a variety of conditions. For each of the conditions, please rate your confidence about using technology tools on a scale of 1- 10. i.e "**1 = not at all confident** to **10 = totally confident".**

1. I could use the technology tools, if there was no one around to tell me what to do as I go on

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

2. I could use the technology tools, if I had never used applications like it before.

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

3. I could use the technology tools, if I had only the software instructions for reference.

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

4. I could use the technology tools, if I had seen someone else using it before trying.

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

5. I could use the technology tools, if I could call someone for help if I got stuck

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

6. I could use the technology tools, if someone else helped me get started

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

7. I could use the technology tools, if I had a lot of time to learn the language for which the technology tools were provided

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

8. I could use the technology tools, if I had just the built-in help facility for assistance.

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

9. I could use the technology tools, if someone showed me how to do it first.

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

10. I could use the technology tools, if I had used similar technology tools before this one

Not at all confident	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Completely confident

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE!

APPENDIX V

RELIABILITY OF STUDY VARIABLES AND CORRELATION MATRIX

Scale: Computer Self-Efficacy

Case Processing Summary

		N	%
Cases	Valid	360	100.0
	Excluded[a]	0	.0
	Total	360	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.863	10

Scale: Attitude towards Technology Use

Case Processing Summary

		N	%
Cases	Valid	360	100.0
	Excluded[a]	0	.0
	Total	360	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.745	9

Scale: Perceived Ease of Use

Case Processing Summary

		N	%
Cases	Valid	360	100.0
	Excluded[a]	0	.0
	Total	360	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.871	6

APPENDIX VI

CORRELATION TABLE AND DESCRIPTIVES OF STUDY VARIABLES

Correlations

		GENDER	LEVEL	CSE	ATTU	PEOU
Gender	Pearson Correlation	1	-.086	-.048	-.085	-.086
	Sig. (2-tailed)		.104	.362	.109	.102
	N	360	360	360	360	360
Level	Pearson Correlation	-.086	1	.012	-.084	.065
	Sig. (2-tailed)	.104		.814	.111	.217
	N	360	360	360	360	360
CSE	Pearson Correlation	-.048	.012	1	.162**	.211**
	Sig. (2-tailed)	.362	.814		.002	.000
	N	360	360	360	360	360
ATTU	Pearson Correlation	-.085	-.084	.162**	1	.366**
	Sig. (2-tailed)	.109	.111	.002		.000
	N	360	360	360	360	360
PEOU	Pearson Correlation	-.086	.065	.211**	.366**	1
	Sig. (2-tailed)	.102	.217	.000	.000	
	N	360	360	360	360	360

**. Correlation is significant at the 0.01 level (2-tailed).

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
GENDER	360	1	2	1.73	.443	-1.060	.129	-.882	.256
LEVEL	360	1	6	1.74	.976	1.309	.129	1.424	.256
CSE	360	10	100	77.05	15.575	-.705	.129	.738	.256
ATTU	360	9	45	35.57	5.598	-.701	.129	1.110	.256
PEOU	360	6	42	31.68	7.310	-1.023	.129	1.223	.256
Valid N (listwise)	360								

APPENDIX VII

T-TEST OUTPUT

Group Statistics

	gender of Participant	N	Mean	Std. Deviation	Std. Error Mean
TOTAL ATTITUDE	1 Male	96	36.35	5.856	.598
	2 Female	264	35.28	5.484	.338

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ATTITUDE	Equal variances assumed	.037	.849	1.608	358	.109	1.070	.666	-.239	2.379
	Equal variances not assumed			1.559	159.396	.121	1.070	.686	-.286	2.426

APPENDIX VIII

REGRESSION OUTPUT

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.085[a]	.007	.004	5.585
2	.179[b]	.032	.027	5.522
3	.179[c]	.032	.024	5.530

a. Predictors: (Constant), gender of Participant
b. Predictors: (Constant), gender of Participant C_CSE
c. Predictors: (Constant), gender of Participant, C_TCSE*C_gender
d. Dependent Variable: TOTAL ATTITUDE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.612	1	80.612	2.584	.109[b]
	Residual	11167.652	358	31.195		
	Total	11248.264	359			
2	Regression	362.082	2	181.041	5.937	.003[c]
	Residual	10886.182	357	30.494		
	Total	11248.264	359			
3	Regression	362.218	3	120.739	3.948	.009[d]
	Residual	10886.046	356	30.579		
	Total	11248.264	359			

a. Dependent Variable: TOTAL ATTITUDE
b. Predictors: (Constant), gender of Participant
c. Predictors: (Constant), gender of Participant, C_TCSE
d. Predictors: (Constant), gender of Participant, C_TCSE*C_gender

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	37.424	1.191		31.429	.000
	Gender	-1.070	.666	-.085	-1.608	.109
2	(Constant)	37.257	1.179		31.611	.000
	Gender	-.974	.659	-.077	-1.478	.140
	TCSE	.057	.019	.158	3.038	.003
3	(Constant)	37.262	1.183		31.501	.000
	Gender	-.976	.661	-.077	-1.477	.141
	TCSE	.057	.019	.158	3.018	.003
	TCSE * gender	.003	.044	.004	.067	.947

a. Dependent Variable: TOTAL ATTITUDE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.085[a]	.007	.004	5.585
2	.125[b]	.016	.010	5.569
3	.126[c]	.016	.007	5.577

a. Predictors: (Constant), gender of Participant

b. Predictors: (Constant), gender of Participant, C_level_sch

c. Predictors: (Constant), gender of Participant, C_level_sch * C_gender

d. Dependent Variable: TOTAL ATTITUDE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.612	1	80.612	2.584	.109[b]
	Residual	11167.652	358	31.195		
	Total	11248.264	359			
2	Regression	175.196	2	87.598	2.824	.061[c]
	Residual	11073.068	357	31.017		
	Total	11248.264	359			
3	Regression	177.227	3	59.076	1.900	.129[d]
	Residual	11071.036	356	31.098		
	Total	11248.264	359			

a. Dependent Variable: TOTAL ATTITUDE

b. Predictors: (Constant), gender of Participant

c. Predictors: (Constant), gender of Participant, C_level_sch

d. Predictors: (Constant), gender of Participant, C_level_sch*C_gender

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	37.424	1.191		31.429	.000
	Gender	-1.070	.666	-.085	-1.608	.109
2	(Constant)	37.595	1.191		31.555	.000
	Gender	-1.170	.666	-.093	-1.756	.080
	C_level_sch	-.528	.302	-.092	-1.746	.082
3	(Constant)	37.622	1.198		31.416	.000
	gender of Participant	-1.182	.669	-.094	-1.767	.078
	C_level_sch	-.518	.305	-.090	-1.696	.091
	C_level_schXC_gender	.164	.643	.014	.256	.798

a. Dependent Variable: TOTAL ATTITUDE

APPENDIX IX

FREQUENCY DISTRIBUTION OF STUDENT TECHNOLOGY USE

How often do you use technology tools?

	Frequency	Percent	Cumulative percent
Not at all	34	9.4	9.4
Hourly	40	11.1	20.6
Daily	163	45.3	65.8
Weekly	101	28.1	93.9
Monthly	22	6.1	100.0
Total	360	100.0	