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Digital Media Training for Pre-Service Teachers: A Comparison from a TTC in Malawi and a University in Massachusetts

Lusayo Mwenifumbo

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University of
Massachusetts, College
of Education, Center for
international education

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Abstract

This study investigates the perceptions of pre-service teachers about integrating digital media into classroom teaching. It compares the perceptions of students at Machinga Teacher Training College in Malawi with students being trained as teachers at the University of Massachusetts, College of Education in Amherst. The study highlights three questions about effectively integrating digital media in the classroom. Firstly, how pre-service teachers perceive their preparation to use digital media; secondly, digital media tools they are familiar with and lastly challenges they expect to face.

The study is based on data collected from individual interviews from 4 Malawi pre-service teachers at Machinga Teachers Training College and 3 pre-service teachers in the Department of Teacher Education and Curriculum in the College of Education at UMass Amherst. The study finds that, Malawi students focus mostly on hardware instructional technologies while UMass students have access to hardware instructional technologies and focus primarily on software and applications for different digital media tools. The study indicates that pre-service teachers in both Machinga and Amherst receive little or no training on how to effectively integrate digital media in their classroom teaching. The study suggests that future policy makers strengthen the preparation of school teachers for effective use of digital media both in Machinga and Amherst.

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INTRODUCTION

Digital Media is changing the social, educational and economic situation in both the developed and developing countries. It has become central to the learning and teaching process. Bates & Bates, (2005) note that digital media advancement is one of the greatest contributions towards quality of education. Some studies have shown the potential of digital media to significantly enhance learning and teaching in schools and integrating them into all aspects of education (Rastogi & Malhtra, 2013; Raman & Mohamed, 2013) although teachers are still regarded as the main drivers of the classroom.

Because teachers are guardians of the classroom, it is the issue of how they are prepared or trained to integrate digital media in the classroom that interests me. Education reforms such as education technology are being integrated in the classroom both in the global north and global south. There is a large body of literature on education technology but little is known on how teachers are prepared to integrate digital media in their classrooms.

In this world full of globalization and technological revolution, schools in both worlds have incorporated digital media in their pedagogy as a way of learning and teaching. Certainly, the way teachers are prepared to integrate digital media in their classrooms may result in quality education. There is growing evidence that the effectiveness of integrating digital media in the classroom depends heavily on the type of training the teachers receive.

According to the Journal of Digital and Media literacy, digital and media literacy refers to "the ability to access, share, analyze, create, reflect upon, and act with media and digital information". The content can be in the form of audio, text, graphics and video. This also means that news from a TV network, magazine or newspaper that is presented on a web site or blog falls into this

category. It should be noted that digital media for the purposes of this paper, is defined as a tool/medium in which teachers communicate in different ways and share educational information with their students in a classroom over the internet or computer networks. The terms digital media and technology will also be used interchangeably because they both imply a similar meaning. The integration of digital media in the classroom is a complex social phenomenon which we encounter in today's modern world as opposed to the conventional way of teaching.

Statement of the Problem

In today's world whether in a developed or developing country, technology as a means of "education" is used in almost every primary basic task. Continuous professional development is one of the ways which enables individuals to develop the needed knowledge and skills for a successful 21st century career. Teachers are stewards of the way technology is used in the classroom, "and their decisions reflect their pedagogical and epistemological beliefs in terms of technology" (Barham, 2014 p.2). The quality of education is one of the critical factors for student's achievement. How are pre-service teachers in Machinga and Amherst prepared to use digital media in a classroom? What media tools are they familiar with that might be used in the classroom? What challenges are they expected to face in using media in the classroom? Unquestionably, the issue of digital media has posed a challenge in the classroom, considering the fact that teachers may not be properly trained.

Malawi and United States of America have some schools committed to the delivery of their lessons in innovative ways through digital media. In my paper, I am interested in digital media used in a classroom context as opposed to e-learning. Why digital media? From classroom to library to student center to residential halls or dormitories, students are using digital media as a means of communicating and learning. I argue that every teacher in a developed or developing

country should receive an effective training in technology integration providing them with the 21st century knowledge and skills necessary to become informed teachers.

The purpose of this Masters Project

This is the first Masters project written to focus on pre-service teachers in teacher training programs in Machinga and Amherst teacher training institutions. The intent of the proposed study is to learn pre-service teachers' perceptions about the integration of digital media in a classroom and how they are prepared. I wanted to learn the "best" practices of integrating digital media in classroom. I interviewed pre-service teachers from Machinga Teachers Training College and pre-service teachers from the department of Teacher Education and Curriculum Studies, college of education at the University of Massachusetts, Amherst sharing their thoughts and mental images about digital media and how it is shaped by their life experiences, background knowledge and environment. In addition, I was hoping that the study may inform policy makers on the " best" practices of integrating digital media effectively in the classroom and investigate the positive and negative effects in both the developed and developing nations. Bearing in mind that the use of instructional technologies enhances teaching and learning (Muyanda-Mutebi, and Yiga-Matovu, 1993), pre-service teachers need to be prepared before they integrate technology in their classroom. Students report that digital media, when used appropriately, can greatly enhance educational productivity in terms of achievement, learning styles, attitudes, cooperative work and ability to access information (Yildirim & Cakir, 2013).

I became interested in digital media because of how it has been structured through education, geographical/location and social class. The use of technology has enabled students to take control of their learning environment thereby gaining a deeper understanding of different concepts. Teachers also use digital media to best serve the needs of a diverse group of students;

young adolescents use digital media frequently and are engaged in teaching and learning process (Simpson & Clem, 2008). At the same time, digital media has become a platform for social institutions and social networks as part of our everyday practice in our work place, families and education systems among others. As a Malawian, due to the lack of research on the topic in the country, (Kadzera, 2006) I hope to contribute to the literature on how teachers are prepared in teachers training colleges to integrate technology in their classrooms.

Research Questions
The study focused on how pre-service teachers are prepared to integrate digital media in the classroom in Machinga and Amherst Teacher Training institutions. The questions that guided the study were as follows:

- How do pre-service teachers perceive their preparation to use digital media?

  Machinga TTC Malawi

  UMass College of Education

- What media tools are you familiar with that might be used in the classroom?

- What challenges do you expect to face in using media in the classroom?

Definition of terms

As quoted in Kadzera (2006), Tomei (2002), defines "Technology is the application of behavioral and Physical sciences concepts and other knowledge to the solution of problems" (p. 6).

Instructional technology is "the application of educational technologies to the solution of

specific instructional problems," (p. 7), in my paper technology and digital media is used interchangeably.

The context of the study

Malawi education system resembles its colonial master, Britain. It has three teaching and learning levels: Primary school which comprise of standard 1-6 is equivalent to elementary, K-6, Standard 7-8 is equivalent to middle or Junior high in Amherst Public School District. The second level is secondary school forms 1-4 which is equivalent to high school and Tertiary school has teacher training colleges, Universities and technical education.

Machinga Teachers Training College is one of the accredited institutions to train primary school teachers in Malawi. As of 2013, there were six public teachers training colleges; five more colleges were proposed or newly opened in 2014. Machinga Teachers Training College is one of the new institutions. The government of Malawi through the Ministry of Education oversees teachers training colleges. Teachers training colleges like Machinga are intended to produce well equipped and qualified teachers with rich knowledge, values and skills that enable them to be effective in teaching. Teachers are trained for two years with the help of a subject teacher for lesson planning. The pre-service teachers do practice teaching at a demonstration primary school. Demonstration schools are schools adjoined to a teachers training college.

According to the Ministry of Education, Science and Technology Department of Teacher Education and Development, Teachers are trained in both pedagogical and academic courses such as languages (Chichewa and English), foundation studies, Math and Science (Numeracy and mathematics, Science and Technology, Agriculture), Social and Environmental Sciences (with life skills, Religious Studies) and Expressive arts.

The students at Machinga Teachers Training College graduate with a certificate in teaching and they teach primary school; those interested to upgrade to a Diploma level enroll at Domasi college of Education where they are trained to be secondary school teachers. The College comprise of three disciplines Education, Science and Humanities. The University of Malawi and other private colleges train teachers up to bachelors and master's degrees in Education.

Teacher Education and Curriculum department is one of the three academic departments in the College of Education at the University of Massachusetts in Amherst. The College offers a number of options for students interested in pursuing licensure at different teaching levels. Students are trained for four years to obtain an undergraduate degree in Education. Students can also work toward their initial license through the University to Schools for Undergraduates pathway. After their studies, the graduates normally become elementary, middle or junior high, and high school teachers' level in the areas of English, history, mathematics, political science/political philosophy, the sciences, or modern foreign languages (Chinese, French, Italian, Portuguese, Spanish).

Students receive a Master's in Education (M.Ed.) and initial licensure when they complete the University to Schools for Graduates pathway. Students interested in teaching local schools enroll for Bridges to the future, which is a one year master's degree pathway that leads to initial teacher licensure. 180 Days in Springfield is another one year master's degree pathway that leads to initial teacher licensure for students interested in teaching in urban schools. Students interested in elementary education are trained in a one year master's degree pathway leading to licensure.

Chapter 2.

Literature review

The first part of this section reviews the literature on teacher training. The second part addresses the background of digital media in developed countries. The last section focuses on the background of education technology in developing countries of Africa.

Interest in the integration of digital media in the classroom has led to a large body of research in technology and education to inform curricula in both the developing and developed nations (Jones, 2003; Mawson, 2003). In their four year study on digital media integration in education, Downes and Bishop (2010), found that teachers and students feel strongly that technology is an essential learning component because it assists with engagement, makes education relevant to students' lives, and serves as an inspiring force (p. 31). Some studies have shown that integrating digital media in a classroom plays an integral role in students' education ((Culp et al., 2003; CEO Forum on Education and Technology, 2001; Fouts, 2000; Johnson, 2000). However, there is little research on how teachers are prepared to use technology in their classrooms. This study investigates the perceptions of pre-service teachers about integrating digital media in the classroom and how they are prepared. The aim is to develop the "best practices" of integrating digital media effectively in the classroom and to compare the positive and negative effects of integrating digital media in the classroom in both the developed and developing nations. Research leading to the use of digital media as a means of enhancing learning and teaching shows emphasis on students' academic achievement (McLaughlin C & Oliver R 1999) but little is known about teacher training to effectively integrate digital media in their decisions about

pedagogy in the classroom. This study will inform future policy makers for restructuring school teacher preparation curriculum in Machinga and Amherst.

Teacher Training

The use of digital media as a means of development in schools has implications for teachers as well as students whether in a developed or developing nation. Education technology is a constantly evolving process; it helps teachers and students to access educational content, resources, and systems to improve their instruction and learning. On the other hand, "digital media on its own amplifies underlying socioeconomic inequalities" (Kentaro, 2015), there is a need to train teachers for its effective usage. Over the past 25 years, the use of digital media has transformed society and is changing different aspects of everyday life and practices. The United Nations indicate that of the "estimated 7 billion people on Earth, over 6 billion now have access to a working mobile phone and mobile devices are the most ubiquitous information and communication technology (ICT) in history" therefore most teachers even in the remote areas are able to navigate on their phones. Studies have shown the potential of mobile devices as part of technology to significantly enhance learning and teaching in schools and integrating them into all aspects of education (Rastogi & Malhtra, 2013; Raman & Mohamed, 2013) hence the need to train teachers in both low-technology and high technology.

According to the Scottish government (2015) report on the teachers training and support, it was noted that there is a need for teachers to network with other teachers and schools; as a way of experimenting digital media and also the school leaders must upgrade and maintain the equipment used so that the tools are compatible and effectively integrated in the classroom. However, Younie and Leask (2013) predict challenges in knowledge sharing, collaboration and transferability of digital media skills between teachers from different schools as their learning

platforms are also different and borrowing his words "as may not talk to each other". Other researchers have shown that encouraging teachers to support each other informally in their respective communities is one of the good practices and maybe considered as one of the effective models for teachers to network and collaborate outside their schools(Dawes, 2001; Leask and Younie, 2001; Younie, 2007). According to Kadzera (2006), "One important dimension in teacher education is related to the use of instructional technologies" (p3), therefore there is a need to prepare pre-service teachers how to use those instructional technologies. The following suggestion by Wang, X, Wang, T. and Ye (2002) summarize the significant contribution of integrating digital media in a classroom:

> "Knowing how much teachers understand about technology and instructional materials and how they use these technologies and materials in classrooms are essential for staff development programs. Determining teachers' knowledge and usage levels of technology and instructional materials in the classrooms will help planners deliver effective in-service education programs, [which] can increase the likelihood that technology and materials resources will lead to success". (p. 3 - 4)

A recent international survey on Teaching and Learning (TALIS) (OECD 2015), indicate that approximately 60% of teachers report moderate or high development needs for digital media, as a result teachers feel unprepared to integrate digital media in their classroom due to lack of initial training (Black wall, 2013). For digital media to be effectively integrated in a classroom teachers must be fully trained (Foster, 2012). Similarly, Masters et al (2012) on their study of teachers training in digital media, they report that trained teachers have the skills that may enhance learning and students' academic achievement in a classroom as opposed to other approaches of training. When teachers have a long-term blended training it is more effective to integrate digital media in their classroom (Urban-Woldron, 2013).

In their meta-analysis, Cheok and Wong (2015) found that characteristics of teachers are closely linked to teachers' satisfaction and engagement with technology. They concluded that, "Organization support in terms of; training, technical and management, are all important factors necessary in initiating teachers into adopting new innovation." Reimann et al's (2009) study of rural teachers in Australia suggests that in order to bring about effective and efficient use of digital tools and resources (including sharing knowledge across educational institutions), teachers need to 'adapt their professional identity (or attitude) to include the role of innovator' and that to do so, they need space and time to adapt to new methods through training. If these were adopted, more effective implementation of digital technologies should be expected to increase efficiency.

Digital Media in Developed Countries

Studies have shown that developed countries reformed their teaching curriculum to integrate digital media, a radical shift industrial arts as early as 1990 (e.g. Jones, 2003; Lewis, 2000; Satchwell & Dugger Jr, 1996, Kerre, 1994; McCormick, 1993). In New Zealand technology was introduced in schools as a standalone subject and as a critical area in the curriculum reform in 1990 (Jones, 2003,), whereas in Australia the National Curriculum incorporated digital media as one of the key learning areas and as a foundation of a productive global workforce. The main focus was to empower the students with technology skills thereby enhancing various development goals. (Cowley & Williamson, 1998; Ginns, Norton, McRobbie, & Davis, 2007). Additionally, the New Zealand government had students in mind as it believed that technology…… "Contributes to the intellectual and practical development of students, as individuals and as informed members of a technological society" (Ministry of Education, 1995:

p. 7). As a result the government pioneered a systematic development of a technology curriculum to accommodate all stakeholders in the country (Jones, 2003).

 According to Zuga (1992) the government of New Zealand had to take into account the social problems in relation to technology integration, people of all walks of lives were consulted like the politicians, academia and the community at large. This was all done to fully embrace the adoption of digital media in the national curriculum. Although all the activities leading to the national technology curriculum were planned and budgeted for, training for pre-service teachers on how to incorporate digital media in the classroom was not one of the activities (Jones, 2003). Likewise in Australia, their national Curriculum which has eight key learning areas including technology; targets only the skills of students for a productive workforce (Cowley & Williamson, 1998; Ginns, Norton, McRobbie, & Davis, 2007). The Pedagogical Technological College in the Netherlands reformed its curriculum incorporating digital media as a cultural phenomenon which encompassed culture, society and use for the students in schools (deVries, 1993).

Many developed countries including the United States of America were influenced by the social, educational and economic pressures to reform their national curriculum for students' academic achievement. (Ginns, et al., 2007; Treagust & Rennie, 1993). The Technology for all Americans launched its project in 1994 as a response to the increasing demand of technology as a compulsory subject in schools. Just like in New Zealand, Netherland and Australia, the main aim of the Technology for all Americans project was for the students to become technologically literate in the 21st century. According to Zuga,(1997) the industrial arts subject in the country was predominated by material processing for specific trade tools and tool instruction as its general education purpose, hence the need to shift from industrial arts subject to technological arts subject for the students betterment.

The main emphasis of the project was to have young American citizens who are literate in all aspects including technology nationwide (Dugger Jr. & Satchwell, 1996; McCormick, 1993b; Technology for All Americans Project, 2000; Zuga, 1997). The International Technology and Engineering Educators Association (ITEEA) further reports that the project goals and objectives were successfully implemented and achieved. As reported by a project called *the American's Digital Schools*, it is estimated that on average the United States of America's public schools had 3.8 students for every instructional computer in 2008; in 1999, the nation public schools had 5.7 students for every instructional computer and 125 students per instructional computer in 1983((Education Week, 2008; Glennan & Melmed, 1996). A different perspective is that for Educational technology to be effective it is normally restricted to individual use in cases of instructional computer which was not the case for a developed country like the United States of America. The integration of digital media in the classroom has continued to increase over the years in the country; (The Greaves Group, 2006) indicates that only 4 percent of the school districts in the fifty states of the country implemented one –to-one computer programs where students were given their own computer for class use in 2003.

The Greaves Group, (2006) further reported that in 2006, more than 24 percent of the nation's school districts were transforming to one on one programs. Integrating digital media in the classroom is more than the use of computers, it involves other applications and equipment's such as electronic whiteboards, video conferencing (Skype), digital television (where students have the freedom to interact with their programs at their own pace) and digital cameras (Jackson, 2008; Education Week, 2007; McCampbell, 2002; Marshall, 2002). Research has shown that most educators have struggled to decide which digital media to incorporate in their classrooms and how best to use them (Culp et al., 2003); as a result there is still a gap on the best practices to

adopt in preparing teachers. Sivin-Kachala & Bialo, (2000) points out that researchers are yet to agree if there is one "best" type of digital media or one universal way of preparing teachers to integrate technology in the classroom, which should match the country's learning and teaching objectives and accessible to all students; therefore there is a need to have the "best" training for pre-service teachers to effectively integrate digital media in their classroom.

The large body of research above has shown that there was a global school curriculum to technology integration in schools in the 1990's. Developed countries like the Netherlands, Australia, New Zealand and the United States of America embraced the change with the aim of preparing students for the demands of employment and to be skilled workers in their countries. The reforms were also more of a political will as stakeholders in all sectors were consulted in the process of making the change. The integration of digital media in the classroom has been echoed even in developing countries despite having low resources and poor infrastructure for internet connectivity.

Based on a pre-course survey for an open online course of designing digital media for teaching in EDUC 612, 2015 at the department of Learning, Media and technology, College of Education University of Massachusetts in Amherst; 60 teachers of different teaching levels within the United States America shared their knowledge about integration of digital media in the classroom. Some of the questions they were asked included; the current digital media instructional tool they use, how comfortable they were creating in digital media product, if they have ever created a digital media product and where they find digital media tools for education, among others. The survey wanted to find out whether teachers in the United States of America have ever participated in any online education programs in a form of online course, massive open online course, Google+ Community and twitter chats as shown in the chart 1 below.

Chart 1: What online course do teachers in USA participate?

Count of Have you participated in any of the following?

12.4%
7.6%
11%
9%
17.2%
24.8%

- Online Course, T...
- Online Course, T...
- Online Course, G...
- Online Course,...
- Online Course,...
- Online Course
- Online Course,...
- Twitter Chat, Goo...
- Twitter Chat
- Online Course,...
- Google+ Commu...

▲ 1/2 ▼
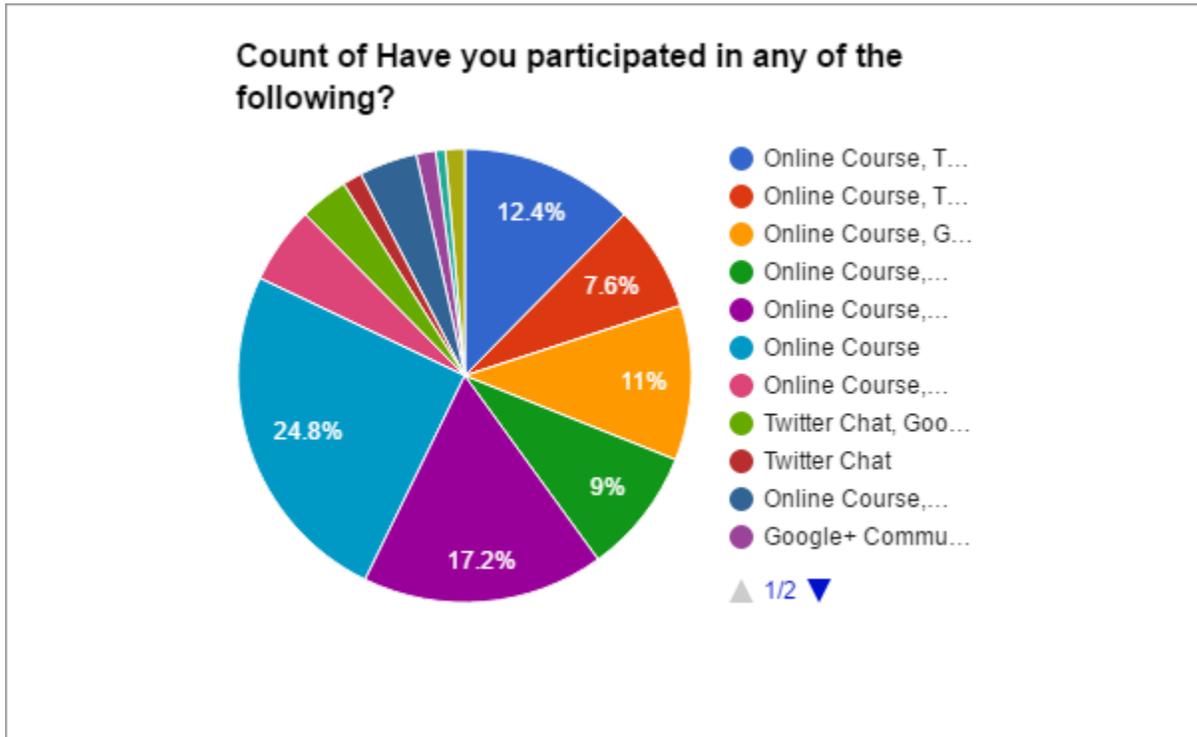
The main aim of the online course was to learn whether digital media sparks fear or intrigue in the classroom among teachers all over the world (Educ 612, 2015). The pre-course survey revealed that 76.3% teachers currently integrate digital media in a classroom, 14.7% of the teachers shown interest in integrating digital media in a classroom but were not sure how to, 9% do not integrate digital media in a classroom as shown in a chart 2 below.

Chart 2: What digital media as instruction tools do teachers in the USA use?
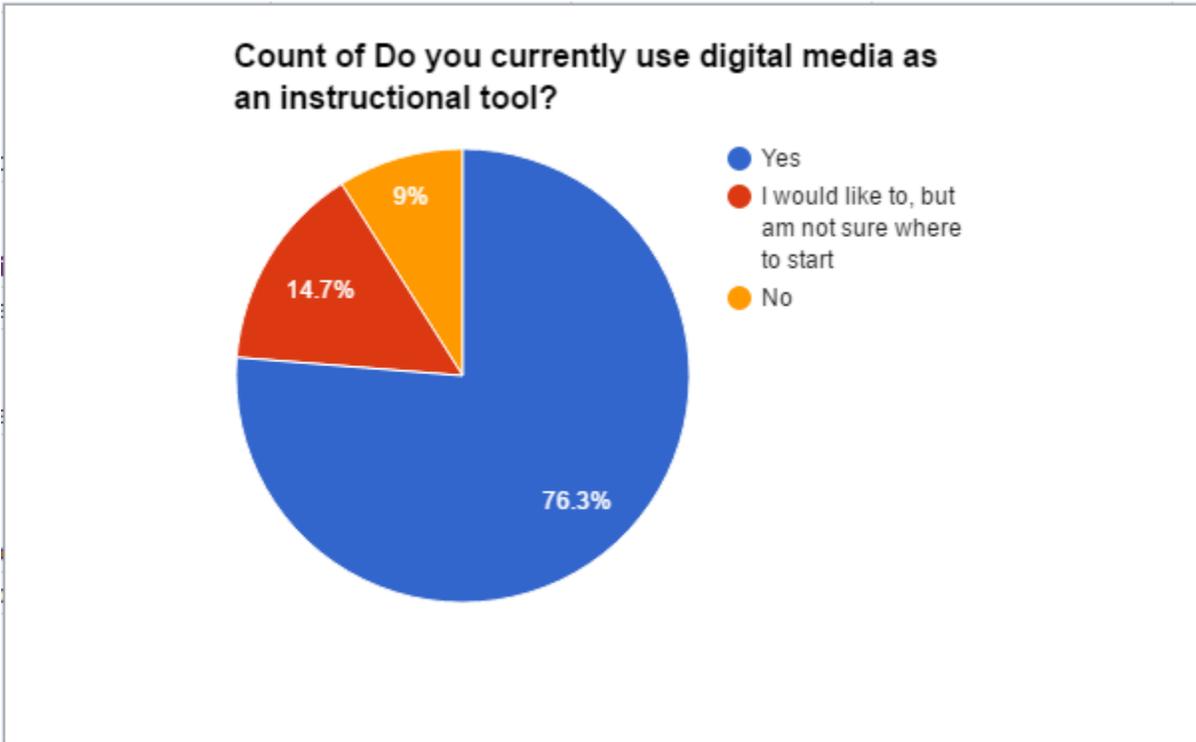
The survey also wanted to find out how comfortable teacher in the United States of America were with creating digital media product. From the chart below, it was revealed that 53.5% were somewhat comfortable, 24.2% were not comfortable and 22.3 were comfortable.

Chart 3. How comfortable are you with creating digital media?

Count of How comfortable are you with creating digital media?

- Somewhat Comfortable
- Not Comfortable
- Comfortable

53.5%

24.2%

22.3%
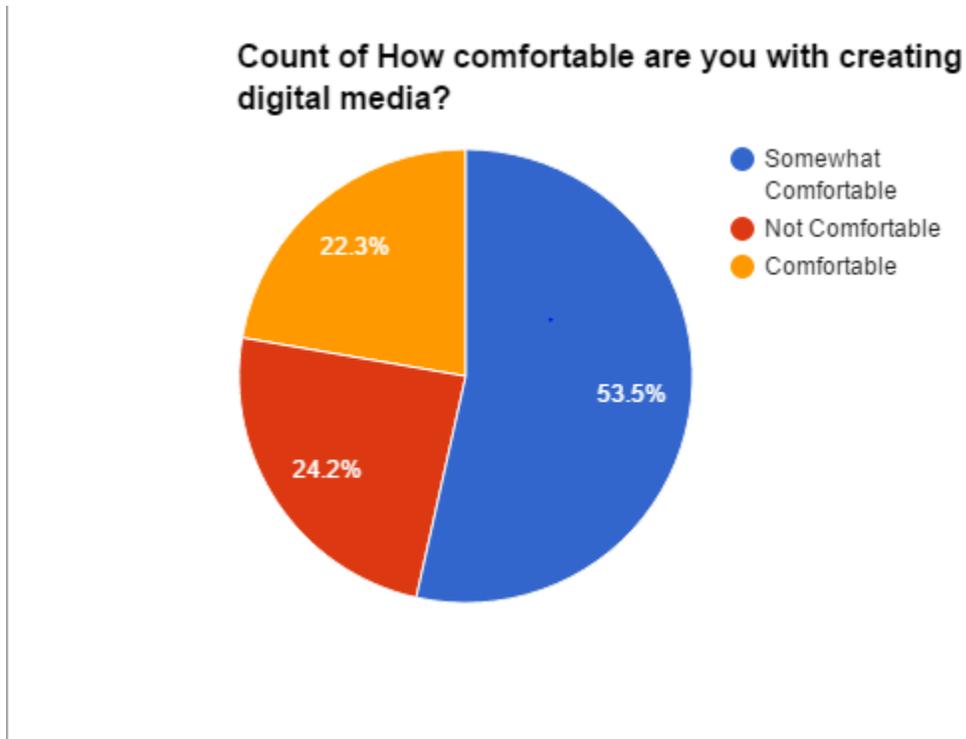
Based on the survey findings, majority of the sampled teachers of different teaching levels in the United States of America; 100% have ever participated in an online course, 76.3% currently integrate digital media as an instructional tool and 22.3% were comfortable to create digital media product for their classroom (Educ 621 course, 2015).

Digital Media in Developing Countries

Similarly, other countries in the developing world especially Sub-Saharan Africa experienced the

technology shift in their curriculum too; Education ministers in the region recommended the

integration of technology in schools at a United Nations Educational, Scientific and Cultural

Organization (UNESCO) meeting held in Zimbabwe in 1982.(Urevbu, 1988). Prior to the

Southern Africa Development Community (SADC) meeting which was organized by UNESCO

in Zimbabwe, there was a global meeting in Paris in 1972 aiming at the dovetailing Science,

Technology, Engineering and Mathematics subjects in the school curriculum. (Faure, et al.,

1972). Faure asserted:

> An understanding of technology is vital in the modern world, and must be part of
> everyone's basic education. Lack of understanding of technological methods makes one
> more and more dependent on others in daily life, narrows employment possibilities and
> increases the danger that the potentially harmful effects of the unrestrained application of
> technology - for example, alienation of individuals or pollution - will finally become
> overwhelming (p. 66)

Although studies have shown that developing countries still maintain the industrial arts subjects

despite the global increase of technology in schools (Arum & Shavit, 1995; Canavan & Doherty,

2007; Lewis, 1991; Urevbu, 1988); it is believed that technology education is a means for

enhancing the students capabilities to effectively compete in a global technology based

village(Lewis, 2000; Petrina, 2000). An underlying reason for developing countries to integrate

digital media in their national education curricula was based on the similar ideologies of

economic growth as espoused in the developed countries. However, the challenge was that

developing countries did not know how to develop and implement a technology curriculum that

would eventually help foster their economies when market forces were controlled in the

developed world (Urevbu, 1988). Similarly, Kerre (1994) had pointed out that African countries

lacked shared understanding on the meaning of education technology and what the integration of digital media entailed. For instance, he gave seven countries as case studies, which included Botswana, Kenya, Ethiopia, Kenya, United Republic of Tanzania, Zimbabwe and Zambia, as said to have a diverse curricula with both technology and traditional subjects but lacked a clear goal.

Being the poorest region in the world (Africa Pulse, 2013), the future of technology education in Sub Saharan Africa is a critical factor in the development sector. Mobile phones which are part of the digital media are increasingly affordable and accessible to some population in the region; the use of handheld devices in a classroom helps to augment instructional objectives to even the most marginalized student in remote areas (Horizon Report, 2013). It has been reported that mobile based solutions can help to compensate the lack of infrastructure which is one of the challenges in the region; mobile devices offer access to educational content by providing access to knowledge through technology and it is also one of the primary ways that young people interact with and learn from each other (NMC 2012, p.11). Teachers, parents and students make use of their mobile devices as learning and support tools frequently.

Malawi is among the poorest countries in the world whether judged by the UNDP's Human Development Index, GNP per capita, or its Human Poverty Index, The Human Development report (2014). Despite being poor, the Malawi government launched a national ICT policy with the aim of promoting the use of Information Communications and Technologies in schools, information services and integrated library and networks (Isaac Shaffika, (2007). The usage of instructional technologies in Malawi urban schools has the potential to aid teachers explain clearly some concepts, resulting in better student academic achievement. According to Kadzera (2006) the government's intervention in using technology in schools may improve the quality of

education. In a study titled *the use of instructional technologies in teacher training colleges in Malawi*; Kadzera (2006) found that that there is a need for the government through the ministry of education to collaborate with teacher training institution for the better use of instructional technologies to enhance learning and teaching and as a way of effectively preparing teachers. He went further, studying how instructional technologies were used by tutors in teacher training Colleges. He concluded that "technology integration in schools may provide the unique ability to address many education challenges in Malawi secondary schools, leading to improvements in student academic learning and life skills". According to Smith and Nagel (1972) Instructional media and materials are everywhere around us; "they are found within the student's total continuum of experience, from the concrete to the abstract, both outside and inside the classroom. ……they provide means for the teachers to teach (make possible the conditions for learning) and students to learn" (p. 3)

However, the integration of digital media in schools does not automatically mean high student academic achievement. In addition to availability, quality of education and teacher quality are to be considered as contributing factors to positive academic achievements of students. Another study conducted by Beggs (2000) revealed that it is not the technology itself but "how the technology is used that improves learning and increases student interest" (p. 3 -4). There is a need for teachers to be fully equipped in using proven technologies and training practices to improve teacher pedagogy in classrooms. The Ministry of Education must allocate funds for professional development for teachers as some are novice others in between or an expert in integrating digital media with technology changing every day; there is a need to experiment the new instructional technologies Kadzera (2006). Teachers need to be assisted regarding training and support for the effective use of technology instruction in the classroom. There is more to the

effective use of digital media in the classroom than training. Apart from integrating technology as a fundamental part of students' lives to enrich teaching and learning, "there are other issues to be taken into account like connectivity, access, and infrastructure; the community at large like parents, school management, teachers, business sector, students and other community bodies must all collaborate to support the process" Clark and Sun (1996).

The government of Malawi through the Ministry of Education and other institutions that support Teacher Training Colleges need to strategize on how best they may prepare pre-service teachers so that they are empowered and confident enough to integrate the new instructional technologies Kadzera (2006). To have quality teachers there must be a system for continual professional growth is that all school teachers in Malawi have access to a connected, supported set of varied and high quality professional development or professional learning activities and process as all stages of their career (Chisakanda, 2011). According to Majed's 1996, survey on student teachers' use of instructional media; most teachers teach the same way they were trained, therefore if they are prepared to integrate digital media at their respective training institutions the probability is high to effectively integrate in their classrooms. Similarly, some researchers (Barron & Goldman, (1994), Cuban, L., Kirkpatrick, H., & Peck, C. (2001) states that teachers teach the way they were taught. Kemp (2000) writes that "In order for pre-service teachers to demonstrate [technology] competencies, teacher education faculty must model the use of technology in their own teaching" (p. 11). As a result, most teachers who were trained using instructional digital media during their training will also teach the same way in their classrooms; this will effectively increase the quality of teaching and learning experience.

The United Nations Educational Scientific and Cultural Organization (UNESCO, 2002), reports that "technology has the potential to transform the teaching and learning process from teacher-

centered classrooms to rich, interactive, student centered classrooms and to teach students the knowledge and skills they need to compete in the 21st century; this can only be achieved when teachers are trained and are entitled to professional development as part of incentives". Some studies have focused on educational technology training as teachers' incentives (Du-o and Hanna, 2005; Glewwe, Ilias and Kremer, 2010; Muralidharan and Sundararaman, 2011). According to Becta report, there is a positive academic achievement when teachers are using technology in all the national curriculum subjects especially having key subjects like science, English and Mathematics. Similarly, a study conducted by the ImpaCT and ImpaCT2 has shown that a there is a statistically significant positive effect of ICT on pupils' learning in all subjects when teachers know how to effectively integrate digital media. Although there is a gap in Teacher Training Colleges in Malawi and other countries, the country has a Science and Technology Policy which stipulates that teachers must be fully prepared to integrate digital media. Likewise, the Malawi growth and development strategy aims at helping students attain technological literacy as it was seen as instrumental in investing in human capital as part of developing the country. Several attempts were undertaken to integrate digital media in the curriculum but among countless factors teachers lack training to effectively integrate digital media in their classrooms (Chisakanda, 2011)

Conclusion.

Most in-service teachers in developing and developed countries have challenges in understanding current technological developments at the personal, national and global levels due to lack of training prior to teaching and professional development. Hence, there is a need to review the current pre-service training offered in teachers training colleges in Malawi and

Amherst so that it promotes opportunities for teachers to build their skills, capabilities and

knowledge for the 21st Century.

Chapter3.

Methodology

This chapter describes the qualitative methods and procedures used to conduct this study with the purpose of exploring how pre-service school teachers are prepared to use of digital media in their classrooms. This section justifies the data-gathering method and outlines how the data will be analyzed. Further, it describes how the study will maintain scientific research standards in terms of procedures and trustworthiness. The chapter also reflects on ethical considerations of protecting the identity and confidentiality of participants.

Participants and Participant Selection

In order to get permission to do a study involving human subjects in the United States, the researcher submitted a proposal to a committee at the College of Education review board at the University of Massachusetts, Amherst. The committee performs ethical review of a proposed research. As for Machinga Teachers Training College, an email was sent to the Principal copying one of the tutors to ask for permission to conduct a study at their institution. When permission was granted, all participants from Machinga Teachers Training College and the College of Education, at the University of Massachusetts in Amherst agreed to be part of the study by signing a consent form which was attached to the questionnaire (see Appendix A). Below is table 1, showing the demographics of participants.

Table 1: Participants

Training Institution	Gender	Year
Machinga TTC	Female	2
Machinga TTC	Female	2
Machinga TTC	Male	2
Machinga TTC	Male	2
College of EDU	Male	2
College of EDU	Male	3
College of EDU	Female	3
Total =7		

The study had 7 pre-service teachers in total. The tutor at Machinga Teachers Training College randomly selected 2 male and 2 female participants for the study. The researcher took some classes with students from the department of Teacher Education and Curriculum Studies and several participants were asked to identify potential participants for the study; a total of 3 pre-service teachers were part of the study.

Positionality of the Researcher

Some of the questions relied on my experience and observations as I was once a secondary school teacher at Likuni boys in Malawi; I also took a class with teachers at the Learning, media and technology department at the college of Education, University of Massachusetts, Amherst to observe how they are prepared to integrate digital media in a classroom.

Data Sources and Data Collection Methods

Data was collected at the College of Education, University of Massachusetts, Amherst during the winter break of December 2015. The researcher took some classes with students from the department of Teacher Education and Curriculum Studies and several participants were asked to identify potential participants for the study. Snowball sampling gives a researcher a chance to choose purposeful participants ((Rossman & Rallis, 2011, p.138). All the participants from the College of Education and Machinga Teachers Training College read and signed consent form to be part of this study. The consent form was written in English as all the participants were expected to understand the language. All participants read and signed a voluntary consent form to be a part of this study. The participants were all above 18 years of age and in good health.

Data from the pre-service teacher of Machinga teachers training college was collected through Skype interviews. The researcher sent an email to the principal of Machinga teachers training college and copied the same to a tutor, whom the researcher was introduced through her friend.

Malawi teacher training college faculty members are called tutors. The researcher emailed the questionnaire to the tutor with consent forms attached. All the four participants agreed to participate by signing the consent forms. The tutor emailed back the filled questionnaires and arranged with the researcher to conduct Skype interviews for clarification and probing for further information. An interview was conducted with each participant and lasted for 35 minutes. The researcher took notes during the interviews. Using interviews as a data gathering tool enhances the experience and understanding of a researcher (Rubin & Rubin, 2005, p. 3).

All of the questions in the study were open-ended; participants were not limited to yes/no question as in quantitative design (Hatch, 2002, p. 23). To analyze the data the researcher used descriptive comparative design. The open ended questions gave the researcher an opportunity to gather more information and data for easy analysis. Most of the questions asked were to gather opinions about digital media related issues. The qualitative study aims at understanding the topic and different perspectives of the participants in a particular setting.

Some of the questions addressed in the questionnaire were their knowledge of digital media tools, remedies suggested to address the challenges, their thoughts of integrating digital media and implications of using digital media.

Data Management and Analysis Data Analysis

Each participant interview was saved electronically in a separate folder, which were named MP 1 to MP 4 for Machinga teachers training college participants and AP 1 to AP 3 for College of education participants. The interviews were conducted in English and were transcribed on a word document. The researcher used an excel sheet to organize the questionnaire. Each participant's response was coded into themes; coding was done manually using excel spreadsheet (Sanldana, 2013, p 26). No software packages were used to analyze the data

Chapter 4.

Findings

This section will present profiles of participants and present themes and patterns across all the participants' answers. Profiles of pre-service teachers from Machinga Teachers Training College will be presented first, and then profiles of the pre-service teachers from the College of Education, University of Massachusetts, Amherst. Their responses were categorized into themes; some of the main issues under discussion were tools, challenges, training and solutions.

Machinga Pre-service Teacher 1

M.P. 1 is a female participant in her first year which is the final year for class work before another year of practice teaching at a demonstration school. Computers, radio and projectors are some of the digital media tools she knows. She believes that blackouts which happen when electricity/power goes off unexpectedly and the fact that people do not know when or if it will come back, is one of the major challenges of integrating digital media in a Malawian classroom. She thinks they are receiving training to integrate digital media in a classroom through computer studies offered as a class/course at their school. On whether the integration of digital media in a classroom is a solution to some of education problems, she had this to say

> "Digital media helps students when they go outside their country for further studies because they will suit the environment; hence all schools in the country must be provided with tools to integrate digital media in their classrooms"

On the question of socio-cultural implications she pointed out that the use of digital media in a classroom may promote immoral behaviors among some students. This was alluding to the fact that in most Malawian communities in the rural areas they have video shows where students

during their free time may have frequent visits which to her is bad as it may promote immoral behavior.

Machinga Pre-service teacher 2

M.P. 2 is a female participant in her first year which is also the final year for class work at Machinga Teachers Training College, and then she has another year for practice teaching. Computers, cell phones and radios are some of the tools she is familiar with. She thinks that the major challenge to integrating digital media in Malawian classroom is the size of the classroom. Typically, Malawian schools have large number of students in a classroom; student-teacher ratio is very high. She believes they are receiving training to integrate digital media in a classroom as they have computer studies as a subject that enables her to operate a computer. She further pointed out the need for on-job training to gain more knowledge as technology is advancing rapidly. On socio-cultural implications she said:

"Learners will become addicted to the use of technology thereby abandoning their culture and there will be poor relationship among people since their attention will just be on the digital media tools"…….

Malawi is known as the warm heart of Africa. Malawians believe that a hand-shake is the best common way of greeting people; too much digital media may take away from the socialization process as most people will be busy with gadgets instead of a hand-shake which is part of their culture. "Anyone seen as being younger, or slightly lower in social standing may bow slightly, often you will see younger people also rest one hand on the other as an extra sign of respect". Malawians are known to be friendly and live in large communities where they value interaction and socialization.

Machinga Pre-service teacher 3

M.P. 3 is a male participant in his first year of class work at Machinga Teachers Training College. Computers, cell phones and projectors are the digital media tools he knows. He thinks lack of knowledge among some learners on how to use the tools is one of the major challenges to integrating digital media in the classroom. He believes the pre-service teachers are not receiving any form of training to integrate digital media in the classroom; but he is learning computer studies to have the computer skills and knowledge. On the need for teachers to be prepared to integrate digital media in their classroom, he pointed out that:

"The world is changing, so teachers need to change with it too; everything is being digitalized therefore teachers must be trained effectively on how to integrate digital media which will enable them to share information freely and on time"

On the socio-cultural implications, he said if digital media is not well monitored in a classroom during a lesson; students may navigate other social networks irrelevant to the lesson, like pornography websites. He concluded that students are expected to be disciplined even when using digital media tools in class.

Machinga Pre-service teacher 4

M.P. 4 is a male participant in his first year which is also the final year for class work at Machinga Teachers Training College. Laptops, projectors and radios are some of the tools he knows. He believes that lack of digital media resources in the country is one of the challenges to integrating digital media in the classroom. On whether the pre-service teachers receive training on how to integrate digital media in the classroom, he pointed out that there is no training at all. On the question of to what extend digital media may influence classroom activities with regard to everyday life and practices, he had this to say:

"Some learners have access to digital media devices in their homes, so they can use the same devices in a classroom; they already have the knowledge to search online instead of going for hard copies in the library"

On social-cultural implications, he said that some Malawian parents think that when a student has a digital media device, it is associated with immoral behavior as they may spend most of their times watching pornographic videos and not school related activities.

College of Education pre-service teacher 1

AP 1 is a male participant, in his third year at the department of learning, media and technology under the College of Education. The tools he currently works with are GAFE (Google Apps for Education), Adobe, Voice, Canva, Canvas, LMS (Learning Management Systems), Voice Thread, Thing link and IMovie. On the challenges of integrating digital media in the classroom he stated that faculties buy-in, reliability of tool/device/environment and fear of a new tool to both students and faculty are some of problems. On whether he is receiving training on how to integrate digital media in a classroom, he asserted that the University of Massachusetts offers on-going support by the Center for Online and Digital Learning. On the question of whether integrating digital media in the classroom is an education strategy for this world today, this is what he said….

"Educators are still figuring out what works and what does not, as such educators have to evolve their thinking of how lessons are delivered until it becomes the norm which it never will, it will always be strategic"

He further stated that teachers must be comfortable at the very least with using digital media to best shape outcomes for real world applicability. At his institution, every class has an online component and students make use of ipads for note taking and online assignment submission.

College of Education pre-service teacher 2

AP 2 is a female participant, in her third year at the department of teacher education and curriculum studies under the college of education. Power point, smart board and you tube are the tools she is familiar with. When teachers rely heavily on digital media, it can be very difficult to adjust when technology fails; this was what she thought as the major challenge.

On the question of whether digital media could be used to solve problems in the classroom, she said that …

> "It can be especially helpful when there is a shortage of classroom suppliers (i.e. books, handouts, etc.), but this depends on how digital media is being used either in a computer lab or through a projector"

On the socio-cultural implications she said that it should not be used in a way which assumes the students have access to a computer or internet at home because not all students have access; although it is 'expected' for students in United States of America to be advanced in any form of technology.

College of Education pre-service teacher 3

AP 3 is a male participant, in his second year at the department of teacher education and curriculum studies under the college of education. Google Apps, Google Classroom, Apple TV, Smart board, student information system Programs (SIS) were some of the tools he was familiar with. On the challenges to integrate digital media in the classroom, he said that constantly keeping up to date, understanding how to take full advantage of technology services and not wasting time and creating delays in the flow of a lesson are some of the problems. He thinks teachers are not receiving much training to integrate digital media in the classroom. On the socio-cultural implications he said that …

"Relying on technology to learn and access new information can take away from learning through socialization"

His final thoughts were that he values and appreciates how technology has helped his institution, in enabling long distance communication and increasing efficiency but at the same time it can be distracting and faulty.

DISCUSSION

From the findings, it is shown that pre-service teachers from the College of Education were more familiar with the actual software used for different digital media devices while the pre-service teachers from Machinga teachers training college were familiar with hardware instructional technologies. According to Stuart (1976), radio, television, computers and films are instructional technologies.

Table 1. **Tools used for digital media in a classroom.**

Machinga Teachers Training College	College of Education
Computers	GAFE (Google Apps for Education)Google classroom, Adobe voice
Cell phones	Apple TV. Canva, Smart board
Radio	Canva, LMS (Learning Management Systems)
Projector	Thinglink
Laptop Computers	I movie
	Google App
	Student Information system program

Challenges of integrating digital media in a classroom

Most of the challenges from Machinga Teachers Training College were related to lack of resources, high student teacher ratio and unexpected power outage or no electricity at all in most Malawian classroom. One student from Machinga Teachers Training College was quoted as saying "If not well monitored some students may not fully participate in classroom activities as surfing other websites and social media like face book, twitter, pin-interest etc." There is a need for internet connectivity and electricity to effectively integrate digital media in the classroom. On the other hand, college of education challenges were more to do with "technical know-how" as in having the knowledge and technique of integrating digital media in the classroom but failing to understand how to take full advantage of technology. Another challenge was that most teachers are constantly failing to keep up to date with new technology

Table 2. **Challenges to effectively integrate digital media**

Machinga teachers Training College	College of Education
Power cuts/Electricity	Lack of understanding on how to take full advantage of technology and services
High teacher-student ratio (large classrooms)	Fear of using new tools
Lack of resources i.e. digital media tools	Constantly failing to keep up to date with technology

Developing countries like Malawi are characterized by unreliable electricity, few if any personal computers, lack of fixed telephone line, few teachers, lack of infrastructure and likely no internet access, this becomes a challenge for integrating digital media in a classroom unlike in a developed country like United States of America which has advanced technology. One pre-service teacher from the College of Education was quoted as saying "The usage of technology in America can be overwhelming for students coming from a background where less technology is being used; as it is almost "expected" that students understand how technology works". According to Toyama, (2015) "The use of technology in schools has profound consequences in any representative set of schools; some are doing well and others poorly. Introducing technology may result in benefit for some, but it distracts the weaker schools from their core mission".

3. **How teachers are prepared to integrate digital media in a classroom**

From the findings, it was revealed that pre-service teachers from both training institutions have little training on how to integrate digital media in a classroom.

Table 3. How teachers are prepared to integrate digital media in a classroom

Machinga Teacher Training College	College of Education
They have computer studies as a subject	They have a Center for online and digital learning
No training on how to use digital media in a classroom	Not much training on how to integrate digital media in a classroom

Teachers need training to streamline process and enhance students learning efficiency and productivity. Borrowing words from one of the students from the college of education "Using digital media allows teachers to expand their learning and share resources; it allows teachers to integrate new ways of learning and teaching", similarly, another respondent from Machinga Teachers Training College was quoted as saying 'I would have loved to be trained and be able to balance and adjust to the learning curve and training, however finances may also not be sufficient for all teachers to be trained to work best and consistently.

On the importance of integrating digital media in a classroom, some of the common responses between the two groups were; efficiency of the learning process as digital media may increase learners motivation and interest and it is easier for students and teachers to access information online.

Another commonality was on the question of how digital media influence classroom activities with regard to everyday life and its practices. Most respondents from both groups pointed out that the usage of similar tools both inside and outside the classroom would be a greater engagement in the teaching and learning process. As technology is advancing student may access more information and resources for learning.

Table 4. **Is digital Media a solution to education problems?**

Machinga Teacher Training College	College of Education
Some problems may be solved as the teacher may have adequate information through digital media	Having recorded classes or lectures can help give access to students who were absent
It is less time consuming as teachers print out notes instead of writing on black board with chalk	Students can use video group chat programs(i.e. Skype) to call into classes from a distance
	Digital media can support accessibility

According to the study findings, integration of digital media in a classroom may be considered a solution to some of the challenges teachers face in teaching. One of the most important contribution integration of digital media in a classroom can make in education is supporting students to learn at their own time using recorded lectures as seen in most developed countries. This may suggest that when pre-service teachers are effectively prepared to integrate digital media in their lessons, digital media could be a solution to some problems educators face today.

Proposed Framework

Ruben R. Puentedura, Ph.D.'s framework for Educational technology should be taken into consideration when developing curriculum for pre-service teachers in training institutions. Pre-serve teachers must be equipped in pedagogy, content and technology as they are the core areas of learning and teaching. According to Koehler & Mishra, (2006) "Thoughtful pedagogical uses of technology require the development of a complex, situated form of knowledge that we call Technological Pedagogical Content Knowledge" (TPCK). Pre-service teachers in developing or developing countries must be fully prepared in pedagogy, technology and content before entering the classroom.

Pedagogy

Technology   Content
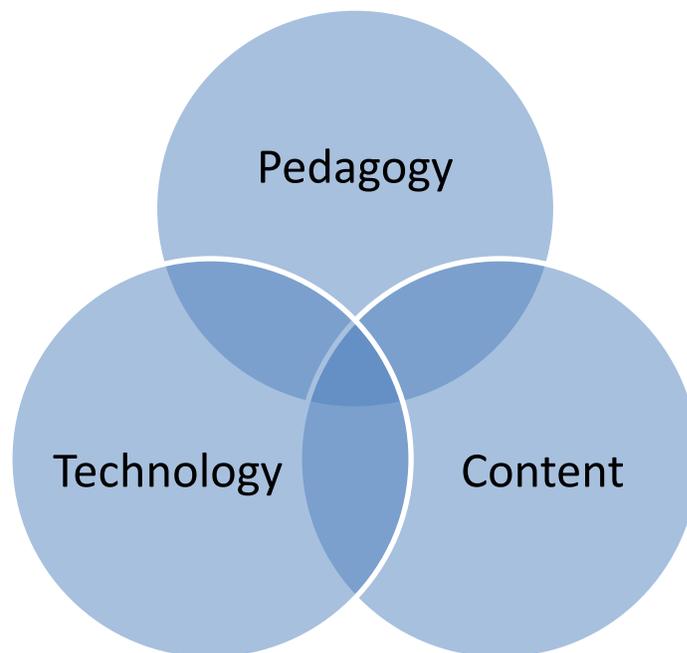
Ruben R. Puentedura, Ph.D.'s framework for Educational technology

Chapter 5.

CONCLUSION

From this study, it has been revealed that pre-service teachers at Machinga Teachers Training College and the department of Teacher Education and curriculum studies, College of Education at the University of Massachusetts, Amherst receive little or no training to integrate digital media in their classroom. Pre-service teachers from the College of Education have access to a Center for Online and Digital Learning, which suggests that they could be receiving training on using digital media in their classrooms.

Machinga Teachers Training College has computer studies as a subject for pre-service teachers, which is primarily used to teach them how to use a computer, but seems not to be used to develop classroom use of digital media. Having a Center for Online and digital learning at the College of Education may indicate that pre-service teachers are trained to integrate digital media in their teaching. Machinga Teachers Training College has Computer studies as a subject for pre-service teachers, there might be a need to include other digital media tools within their resources. Educators today are still figuring out what "type" of training works and does not. There is still a gap on the "best practices" to adopt in preparing teachers; as such teachers evolve their thinking of how lessons are delivered. The way teachers integrate digital media has an impact on the quality of education; if a teacher is not engaging or motivating, digital media alone will not solve the problem. Teachers must be comfortable at the very least with using digital mead to best shape outcomes for read world applicability.

Recommendations

- As findings showed in Machinga, there is a need to improve technology infrastructure in most Malawian teacher training institutions.

- According to the findings, computer studies is taught as a subject at Machinga Teachers Training College, there is a need to re-structure the curriculum of pre-service teachers and incorporate a subject on digital media integration

- According to the findings, students are able to communicate and compete globally when schools are integrating digital media in their classroom whether in a developed or developing nation, policy makers in both training institutions must take it into account and incorporate it in the pre-service teachers' curriculum.

- From the findings, integration of digital media in the classroom contributes to a nation development as most developed countries are characterized by 'advanced technologies' therefore, digital media should be introduced at an early stage in schools, when teachers are comfortably and confidently able to integrate digital media in classroom

Further research areas

- Larger scale, more number of participants

- Extend study to compare other settings

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Appendix A

Consent Form for Participation in a Research Study

University of Massachusetts Amherst

Researcher: Lusayo Mwenifumbo

Study Title: **The Role of Technology as a means of development in schools: Comparative study of Amherst and Malawi pre-service teacher's perspectives towards integrating digital media in the classrooms.**

1. What is this form?

"This form is called a Consent Form. It will give you information about the study so you can make an informed decision about participation in this research."

You are being asked to take part in a research study of the perspectives pre-service high school teachers in Amherst and Malawi towards integrating digital media in the classroom. We are asking you to take part because you are a pre-service high school teacher or student in Amherst and Malawi. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

2. WHO IS ELIGIBLE TO PARTICIPATE?
Subjects must be at least 18 years old to participate; male or female pre-service school teachers who are physically and mentally fit.

3. WHAT IS THE PURPOSE OF THIS STUDY?

This study has two major purposes: (1) to learn the best practices of integrating digital media effectively in a classroom (2) to investigate the positive and negative effects of integrating digital media in a classroom in both the developed and developing nations.

4. WHERE WILL THE STUDY TAKE PLACE AND HOW LONG WILL IT LAST?

The research will be conducted at the University of Massachusetts, Amherst, college of Education, department of Teacher Education and Curriculum studies participants from secondary teacher Education and Skype Interviews with Machinga teachers training college, in Malawi. Each session will be not more than 35 minutes.

5. WHAT WILL I BE ASKED TO DO?

If you agree to be in this study, we will conduct an interview with you. The interview will include questions about your definition of digital media, digital media tools used in a classroom you know, specific challenges of integrating digital media in a classroom, remedies suggested to address the challenges, your thoughts if integrating digital media in a classroom is an effective approach, your thoughts if digital media can be established as a learning tool, implications of using digital media in low resource context, your meaning of development in schools and what role does digital media play in a classroom. You may skip any question you feel uncomfortable answering.

 The interview will take about 30 minutes to complete. With your permission, I would also like to record the interview. The participants will be selected randomly, in total 3 male and 3 females' pre-service teachers from the two institutions.

6. What are my benefits of being in this study?

Participation in this project is voluntary; it does not bring any known benefits to participants.

7. WHAT ARE my RISKS OF being in THIS STUDY?

"We believe there are no known risks associated with this research study; however, a possible inconvenience may be the time it takes to complete the study."] "I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life

8. how will my personal information be protected?

"The following procedures will be used to protect the confidentiality of your study records. The researchers will keep all study records, including any codes to your data, in a secure location in a locked file cabinet. Research records will be labeled with a code

All electronic files such as databases and spreadsheets containing identifiable information will be password protected. Any computer hosting such files will also have password protection to prevent access by unauthorized users. Only the researcher will have access to the passwords. At the conclusion of this study, the researchers may publish their findings. Information will be presented in summary format and you will not be identified in any publications or presentations."

10. WHAT IF I HAVE QUESTIONS?

"Take as long as you like before you make a decision. We will be happy to answer any question you have about this study. If you have further questions about this project or if you have a research-related problem, you may contact the researcher, Lusayo Mwenifumbo her number is (+1) 413-336-7248 or email lmwenifumbo@umass.edu

If you have any questions concerning your rights as a research subject, you may contact the University of Massachusetts Amherst Human Research Protection Office (HRPO) at (413) 545-3428 or humansubjects@ora.umass.edu. You may email the *HRPO e-mail address* humansubject@ora.umass.edu.

11. CAN I STOP BEING IN THE STUDY?

"You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate."

12. WHAT IF I AM INJURED?

"The University of Massachusetts does not have a program for compensating subjects for injury or complications related to human subjects' research, but the study personnel will assist you in getting treatment."

13. SUBJECT STATEMENT OF VOLUNTARY CONSENT

"When signing this form I am agreeing to voluntarily enter this study. I have had a chance to read this consent form, and it was explained to me in a language which I use and understand. I have had the opportunity to ask questions and have received satisfactory answers. I understand that I can withdraw at any time. A copy of this signed Informed Consent Form has been given to me."

_____   _____   _____

Participant Signature: Print Name: Date:

By signing below I indicate that the participant has read and, to the best of my knowledge, understands the details contained in this document and has been given a copy.

_____   _____   _____

Signature of Person   Print Name: Date:

Obtaining Consent

For the purposes of this study, **digital media** will be defined as a tool/medium in which teachers communicate in different ways and share educational information with their students in a classroom over the internet or computer networks. The content can be in a form of audio, text, graphics and video. (Digital Media created by a teacher or content by others)

I.   Knowledge about digital media

1. What digital media tools for classroom do **you** know?

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2. As a teacher, what do you think are some of the specific challenges of integrating digital media in a classroom?

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3. As a student teacher, are you receiving any skills or training on how to integrate digital media in your classroom?

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4. As a teacher, would you like more training on effective usage of digital media in a classroom? Please explain why.

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5. Please describe why **you** would use digital media in your classroom?

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II.   Perspectives on "The role of digital media in a school"

6. What do **you** think about the usage of digital media in a classroom?

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7. To what extend do **you** think digital media influence classroom activities with regard to everyday life and its practices?

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8. What do you think is the role of integrating digital media in a classroom? Why is it important?

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9. In your opinion, why is the integration of digital media an education strategy this time?
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10. In your opinion, has the use of digital media changed teaching? If so, how?

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11. Are there problems in a classroom you think could be solved through the use of digital media? If so, please describe

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12. Do **you** have the resources to effectively integrate digital media in your classrooms in your country?

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13. Do **you** think integrating digital media in a classroom as a way of supporting the traditional method makes a difference in student lives? (How)

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14. Are there any cultural implications in the usage of digital media in a classroom in your country? Please explain.

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15. Why would you recommend to your government/state to allocate funds for the use of digital media in schools as part of the national education budget?

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16. What are some of the social implications of integrating digital media in your country?

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17. In your opinion, how do you see the role of digital media in the future of learning and teaching?

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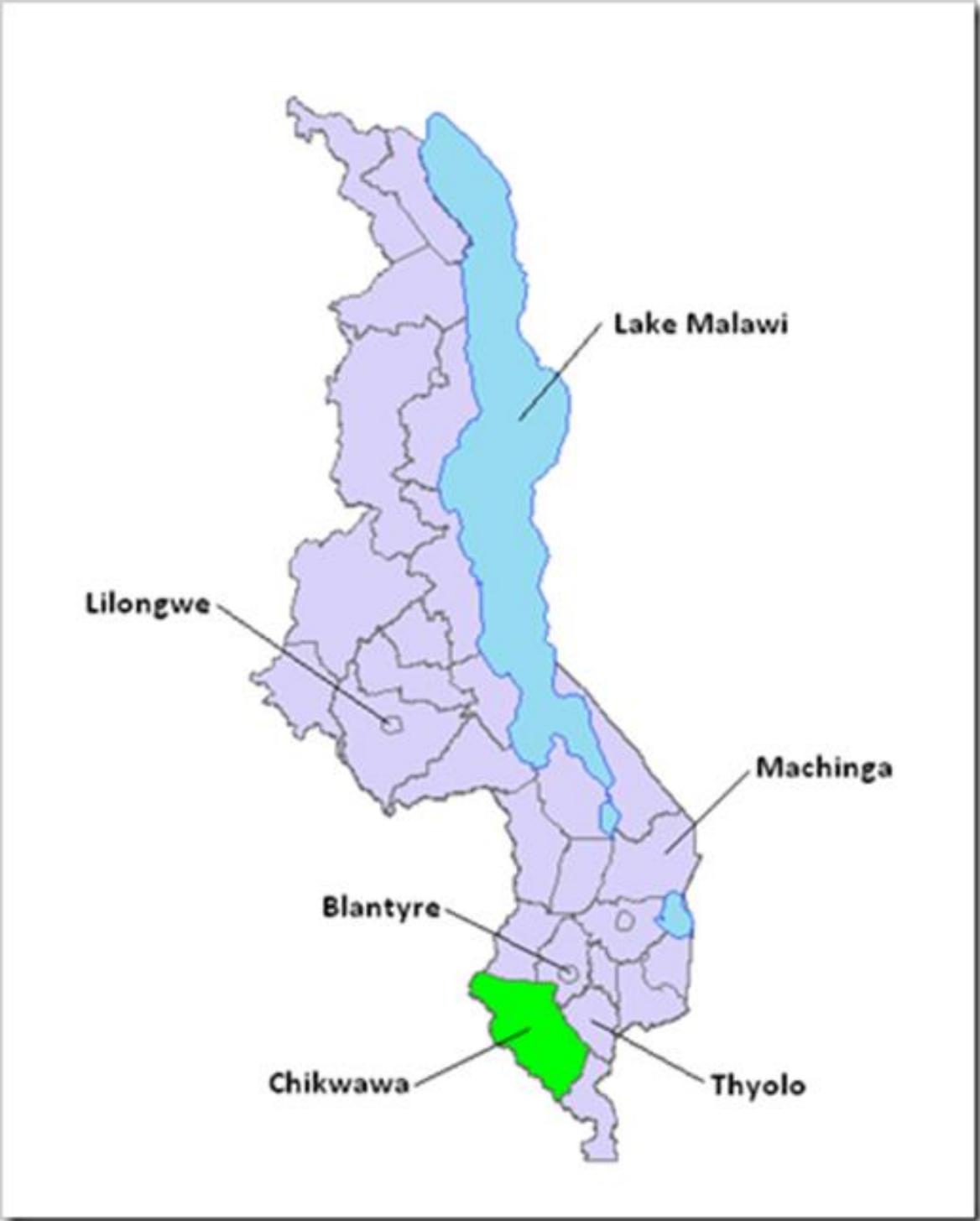**End of questionnaire. Thank you for completing.**

Appendix B. Map of Machinga in Malawi.

Appendix C: Map of Amherst in Massachusetts.

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