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UNIVERSITE DE YAOUNDE I

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THE EFFECTIVENESS OF RULES AND REGULATIONS IN THE PRESENTATION OF GEOGRAPHY LESSONS ON THE DISTANCE LEARNING PLATEFORMS OF THE MINISTRY OF SECONDARY EDUCATION

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……..

Dr. Shaibou Abdoulai Hadji

Faculty of Education

University of Yaounde I

DEDICATION

To my son, Liam Paul ENYIH ATOGHO

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA:	Analysis of Variance
CD:	Compact Disc
CK:	Content Knowledge
CNE:	National Center for Distance Education
COVID-19:	Corona Virus 2019
CPK:	Pedagogical Content Knowledge
DL:	Distance Learning
DLC:	Distance Learning Center
GIS:	Geography Information System
IBM SPSS:	International Business Machines Corporation Statistical Package for the Social Sciences
ICT:	Information and Communication Technologies
ITU-UNESCO:	International Telecommunication Union- United Nations Educational, Scientific and Cultural Organizations
L&D:	eLearning developers
LDS:	Learning Distance Sites
LME:	Learning Management Ecosystems
LMS:	Learning Management Site
LMS:	Learning Management system
MAXQDA:	Maximum Qualitative Data Analysis
MMLT:	Multimedia Learning Theory
ODL:	Open and Distance Learning
OL:	Online Learning
PC:	Personal Computer
PCK:	Pedagogical Knowledge
PDF:	Portable Document Format
PK:	Pedagogical Knowledge
RICA:	Regulation of Interception of Communications Act
SAMR Model:	Substitution, Augmentation, Modification and Redefinition
SECTIONS:	Students, Ease of use, Costs, Teaching functions, Interaction, Organizational issues, Networking, and Security and privacy
TCK:	Technological Content Knowledge
TK:	Technological Knowledge
TPARK:	Transformation Positive Attitude Reaches Kids
TPCK:	Technological Pedagogical Content Knowledge
TPK:	Technological Pedagogical Knowledge
TV:	Television
UNESCO:	United Nations Educational, Scientific and Cultural Organizations
Web CT:	Course Tools (Blackboard Learning System)

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ABSTRACT

This study investigates the effectiveness of instructional rules and regulations in online Geography lessons and assesses teachers' adherence to Mayer's multimedia learning principles. Employing a quanti-quali methods research design, the study integrated quantitative surveys and qualitative observations to provide a comprehensive analysis. The quantitative component involved a survey questionnaire distributed to 30 Geography teachers, which assessed perceptions of instructional guidelines and adherence to Mayer's principles. Qualitative data were collected through observations of online lessons using a detailed checklist based on Mayer's multimedia principles. The analysis revealed that while teachers generally find the regulations effective for providing clarity and structure, there are concerns about their impact on interactivity and flexibility. Adherence to Mayer's principles, such as Multimedia, Spatial Contiguity, and Temporal Contiguity, was high, and showed significant differences in adherence to the Multimedia Principle across different types of institutions ($F(2, 27) = 4.25$, $p < 0.05$) though challenges were identified with the Redundancy and Personalization Principles. Institutional type significantly influenced adherence, with higher education institutions exhibiting better adherence due to more extensive resources and support compared to primary and secondary schools. The study highlights the need for revised guidelines that allow greater flexibility, targeted professional development, and ongoing support to enhance online teaching practices and improve educational outcomes.

***Keywords**: Online Education, Multimedia Learning Principles, Instructional Guidelines, Teacher Professional Development, Institutional Support*

RESUME

Cette étude examine l'efficacité des règles et règlementations pédagogiques dans les cours de géographie en ligne et évalue la conformité des enseignants aux principes d'apprentissage multimédia de Mayer. En utilisant une méthodologie de recherche quanti-quali, l'étude a combiné des enquêtes quantitatives et des observations qualitatives pour fournir une analyse complète. La composante quantitative a impliqué un questionnaire d'enquête distribué à 30 enseignants de géographie, qui a évalué les perceptions des directives pédagogiques et la conformité aux principes de Mayer. Les données qualitatives ont été collectées par des observations de cours en ligne à l'aide d'une liste de contrôle détaillée basée sur les principes multimédias de Mayer. L'analyse a révélé que, bien que les enseignants trouvent généralement les règlementations efficaces pour fournir de la clarté et de la structure, il y a des préoccupations quant à leur impact sur l'interactivité et la flexibilité. La conformité aux principes de Mayer, tels que le multimédia, la contigüité spatiale et temporelle, était élevée et ont montré des différences significatives dans l'adhésion au principe multimédia entre différents types d'institutions ($F(2, 27) = 4,25$, $p < 0,05$) , bien que des défis aient été identifiés avec les principes de redondance et de personnalisation. Le type d'établissement a influencé de manière significative la conformité, les établissements d'enseignement supérieur affichant une meilleure conformité en raison de ressources et de soutien plus étendus par rapport aux écoles primaires et secondaires. L'étude souligne la nécessité de réviser les directives pour permettre une plus grande flexibilité, de cibler le développement professionnel et d'offrir un soutien continu pour améliorer les pratiques d'enseignement en ligne et les résultats éducatifs.

Mots-clés *: Éducation en ligne, Principes d'apprentissage multimédia, Directives pédagogiques, Développement professionnel des enseignants, Soutien institutionnel*

CHAPTER ONE: INTRODUCTION

Educational providers are becoming increasingly aware of the diversity of their current and potential learners and this is demonstrated by their providing range of options for their engagement (Gillett-Swan, 2017). Increasingly flexible delivery modes, are available for students, provide multiple pathways and opportunities for those seeking further education (Boling, Hough, Krinsky, Saleem, & Stevens, 2012; Napier, Dekhane, & Smith, 2011; Schmidt, Tschida & Hodge, 2016). This could be through "traditional" face-to-face delivery (internal), online (external), or mixed (blended) modes of enrolment. Even within these enrolment modes, students often opt to undertake different subjects in different ways (Schmidt et al., 2016). As universities increasingly move towards fully online and blended teaching modes, there is much discussion as to what this means for pedagogy (Gregory & Salmon, 2013; Jaques & Salmon, 2007; Kirkwood & Price, 2014; Salmon, 2011, 2014).

While many of the practices that are used in face-to-face contact modes can be adapted and utilised in the online context, it is not simply the case of applying a "one size fits all approach" which is what teaching staff relatively unfamiliar with the online environment, tend to do. This is where either the content or delivery used in others, usually face-to-face contexts is adapted to a seemingly compatible online format and therefore deemed suitable for all learners (Gillett-Swan, 2017). Instead, scales of adaptation and differentiation within the approach should be used to better differentiate between different learners as well as different contexts of teaching via online and live modes (Gillett-Swan, 2017). Observation of school practice and many scientific studies indicate that children and adolescents have often become more proficient in the practical use of information technology tools than their teachers (Edukacja & Zdalna, 2020). Nevertheless, the teacher and the interactions between him and his students still play an important role in educational processes and this is confirmed by experiences of distance learning during the Covid-19 pandemic (Tomasik et al., 2020). This research is based on looking at the idea of rules and regulation on the presentation of lessons via online platforms for teachers and prospective teachers. It is vital for subsequent years of teaching and learning of geography.

Distance learning is defined as a process of acquiring knowledge in which the main elements include physical separation of teachers and students during instructions and the use of various

technologies to facilitate student-teacher and student-student communication (Kentnor, 2015). Khan (1998) defines online learning as a distribution model that allows for synchronically and non-synchronically use of resources in distance learning (Durdu & Durdu, 2016). It should be pointed directly from software (Web CT), rather than from a theoretical description when talking about the online learning environment (Clark, 2002). The reason of pointing directly to this software is that the efforts to be realized in the electronic environment will ultimately result in the emergence of automation tools related to the management of teaching and learning processes (Govindasamy 2002&Durdu ve Durdu 2016). Nowadays, this software is widely called Learning Management System. Moreover, lecture, discussion and question and answer are most used teaching techniques in expository instructional approach used by many teachers of geography. In the theory of effective communication, which is also a theory of distance learning, Holmberg (1985) states that these techniques have an influence on the effectiveness of instruction and the sense of belonging (Ozkul & Aydin, 2016). Despite initial concerns that distance learning might lower the quality of instruction, studies show that its benefits are clear and demonstrable and many forms of distance learning are quickly gaining acceptance (Belanger & Jordan, 2000). It is therefore, vital to look at the rules and regulations on the presentations of lessons in distance learning platforms in order to aid the teaching of geography.

From the preceding discussions, chapter one of the study will focus on, background to the study, a statement of the problem, research objectives, research questions, research hypotheses, significance of the study, scope of the study, operational definitions of terms, and chapter summary.

Background to Study

The background to this study comprised: the historical background, theoretical background, contextual background and conceptual background of the rules and regulations on the presentations of lessons in distance learning platforms: the case of geography teachers.

Historical Background

Distance learning in Cameroon began modestly with correspondence courses in the 1960s and 1970s, primarily targeting adult learners and professionals seeking additional qualifications. This period saw limited engagement due to the high cost of postal services and materials, as well as the general inaccessibility of educational resources to the rural population (Ngwa, 2012). In the 1980s and 1990s, the advent of radio and television introduced new avenues for distance education. Educational programs were broadcast to reach students in remote areas, making secondary education more accessible. This initiative was particularly beneficial for subjects like English and Mathematics, where instructional programs were aired to supplement classroom teaching (Nwana, 2014).

The early 2000s marked a significant shift with the introduction of Information and Communication Technologies (ICTs). The government, in collaboration with international organizations, began investing in ICT infrastructure to support distance learning. The establishment of the National Centre for Distance Education (CNE) in 2004 was a pivotal moment, aiming to provide secondary education through online platforms and digital resources (Tambo, 2003). The COVID-19 pandemic in 2020 accelerated the adoption of distance learning in Cameroon. With schools closed to curb the spread of the virus, the Ministry of Secondary Education launched the “eLearning Cameroon” initiative. This program utilized online platforms, mobile applications, and televised lessons to ensure the continuity of education. Teachers were trained in digital pedagogy, and partnerships with tech companies provided free or subsidized internet access to students (Mbuh, 2020).

Today, distance learning in Cameroon's secondary education continues to evolve. Hybrid models that blend online and in-person instruction are becoming more common. However, challenges such as digital divide, inadequate infrastructure, and limited access to technology in rural areas persist. Efforts are ongoing to address these issues through policies aimed at enhancing digital literacy and expanding internet coverage (Ndongmo, 2021). The evolution of distance learning in Cameroon’s secondary education reflects a gradual shift from traditional correspondence courses to modern digital platforms. Despite significant progress, ongoing efforts are required to overcome existing challenges and ensure equitable access to quality education for all students.

Theoretical Background

Theoretically, this study will be guided by A Cognitive Theory of Multimedia Learning, developed by Richard E. Mayer (1997). Multimedia Learning Theory (MMLT) was originally developed by Richard Mayer in 1997. It falls under the grand theory of Cognitivism. According to Mayer (1997), multimedia learning theory consists of three aspects that help students learn more effectively. The first one is that there are two channels, namely audio and visual, for information processing; this is also known as the multimedia principle. This principle states that students may learn better from images and words than just from words. The second aspect is that each channel has a limited capacity to process information. In other words, human beings can only process information in limited amounts, and they try to understand the information by creating mental representations from the information sources. The last aspect is that learning is an active process of filtering, selecting, organizing, and integrating information based on existing knowledge.

The theory also stated that, the process of transferring knowledge from two channels (audio and visual) could be successful when information is integrated with existing knowledge. So, when students are actively processing incoming information, they also use their existing knowledge to help the process. For example, a group of students taking a tour fieldtrip will benefit more when a tour guide is explaining what they will see around them. In other words, multimedia does not necessarily mean technology; instead, whatever involves two channels is what defines multimedia.

This theory has been adopted for this study because the topic is an educational one and deals with teaching and learning in this present contemporary digital society. The topic handlings issues on the presentations of lessons in distance learning platforms which is more of multimedia learning. Also, this study holds that since researchers have investigated the role of multimedia learning on students' achievement and many studies provide evidence that MMLT is still valid and evolving in current educational practice, it is important to use the theory in the study. Several studies have shown that students tend to have positive learning experiences using multimedia learning materials. For example, a study conducted by Ercan (2014) showed that multimedia has an important role for students' achievement

.

Contextual Background

Contextually, like elsewhere in the world, the advent of Internet in Cameroon in 1999 led to innovation in many areas of everyday life, such as society, economy, communication, politics, science, research, and education (Misse, 2004). This innovation has resulted in important changes in production and diffusion methods of information (Onguéné Essono 2006 and Tchombé, 2006). The domain of education is not immune to this trend. Besides, from a more global point of view, the adoption and the use of Information and Communication Technologies (ICT) in this context has provided substantial benefits in the field of training (Béché, 2013). While scanning the desirable perspectives for African school, it is impossible nowadays to reflect on the education and training without mention the use of ICT (Fonkoua, 2009). If their use in education requires capacities and skills from teachers and learners, it pedagogical integration should be around four major aspects: teaching with ICT, teaching through ICT, learning with ICT and learning through ICT (Béché, 2013b and Karsenti, Tchameni &Ngami, 2009). Open and Distance Learning (ODL) is what reflects the best of these pillars (Denis & Detroz 1999).

Moreover, the framework for measuring skills and engagement in the pedagogic integration of ICT has received considerable research (Rogers, 1995; Traoré, 2008; Tchombe, 2009and Béché, 2020). In this light, Rogers identifies five categories of teachers with various levels of techno pedagogic skills: innovators, premature users, advanced majority, late majority and late comers. On its part, UNESCO groups teachers into three categories of skills, namely (1) technology literacy, (2) technology deepening (3) technology creation. Teachers are required to acquire advanced skills so as to be able to use ICT tools for lesson preparation and presentation either online or on site with the help of a video projector (Anderson, 2010). Pedagogic integration means choosing and using the right applications and tools for the preparation, presentation and evaluation of learning (Tchombe, 2009).

However, in the age of unparalleled digital evolution in education, it was only in 2001 that ICT was officially launched into the school curriculum in Cameroon by the president of the republic. This saw the arrival of the cyber education project which targeted the secondary and higher education sectors (Josué, 2007). Since then, multimedia resource centers have gradually opened in almost all state universities, while secondary schools and teacher training colleges are progressively receiving funding to open these (Karsenti, 2009). Despite this, few computer

technicians have been trained, while insufficient online learning platforms have been created in schools at all levels. The level at which secondary schools in Cameroon integrates ICT in the learning process is worryingly insufficient. These writers explain that not only do schools own insufficient and obsolete computers, but that school mangers and teachers lack satisfactory practical knowledge on how to manipulate a computer, yet you find them teaching the parts of a computer and how to manipulate a computer in the classrooms simply based on textbook knowledge In this light (Karsenti, 2009). However, this lukewarm culture toward the pedagogic integration of ICTs is long old (Karsenti et al. 2011). Reasons for this include the absence of a vibrant educational technology policy non appropriation of educational technologies, lack of up-to-date computer equipment or adequate multimedia rooms, and a significantly weak telecommunication environment (absence of strong and high-speed internet connection) (Djemeni, 2010; Béché 2013, 2017 and 2020). How Distance learning succeeds under such conditions is a million-dollar question. One objective of this work will be to investigate how geography teachers present lessons in distance learning platforms in this situation.

Conceptual Background

Conceptually, E-Learning is increasingly becoming the norm around the world partly because it is driven by information technology in Cameroon. The integration of electronic technology into pedagogy is motivated by the determination of stakeholders to improve the efficiency of a hybrid educational system that combined the distance and in person learning perspectives (Fanso & Ngwa, 2022).

It is important to say that E-learning has become the protagonist for change in the educational sector (Fanso & Ngwa, 2022). Its approaches and applications, which are supported by pervasive technologies, possess potential benefits for the educational sector and the society as a whole. In order to reap maximum benefits from today's rapid technological advances (Ndongfack, 2015), Burns (2019) says that teachers need to embark on a program of professional development that is experiential, incremental, and supportive of pedagogic improvement and practice. Teachers must continually improve their strategies and methods in order to remain viable and relevant (Ndongfack, 2015). However, Murphy, Anzalone, Bosch and Moulton, (2002) highlight that progressive consideration must be given to the needs of prospective teachers who like using technology, the ways in which it will be used, the curriculum objectives, the social context and the

ways in which teaching and learning activities are organized. In order to get the most out of today's rapid technology advancements; teachers must begin a professional development program that is immersive, gradual, and supportive of pedagogical improvement and practice (Fanso & Ngwa, 2022). Ndongfack believes that in order to remain viable and relevant, teachers must constantly enhance their strategies and methods (Ndongfack, 2015). In this light, prospective teachers use technology, as well as the ways in which it will be used, the curricular objectives, the social setting, and the ways in which teaching and learning activities are arranged, must all be given careful attention.

Despite progress in understanding ICTs in governance, business, and development, there is still a lot to learn about the concept and practice of e-learning in educational institutions. E-learning, on the other hand, is difficult to define because it is multifaceted and dynamic, changing according to environment, occasion, and interest. As a result, there are various types of e-learning. E-learning basically involves use and application of information and communication technologies (ICT) at web sites, personal computers (PCs), tablet PCs, cell phones, learning management system (LMS), televisions (TVs), radios and other means to improve teaching and learning processes. E-learning is really a unifying phrase accustomed to explain the areas associated with the internet, web-based instruction and technologies directions (Oye, Salleh and Iahad, 2010).

In that respect, E-learning is substantially becoming a learning strategy in the realms of teaching, practical learning, skills training and development and many corporate functions as evidenced by massive development of web technologies. (Naidu, 2003) defines e-learning as “the systematic use of networked information and communication technology in teaching and learning”. As a result, e-learning is a broad word that encompasses computer-assisted learning as well as the use of mobile technology like PDAs and MP3 players to aid learning.

The terms e-learning and online learning have emerged to describe the use of Information and Communication Technologies (ICTs) to improve distance education, implement open learning policies, make learning activities more flexible, and distribute those learning activities across multiple learning venues (Hennessy, Onguko, Harrison, Kiforo, Namalefe, & Naseem, 2010). E-learning, online learning (OL), and distance learning (DL) all refer to the same process (Fanso & Ngwa, 2022). Agarwal wrote “Online learning or e-learning is a field of education that focuses on the dissemination of knowledge and information to different geographical locations” (Agarwal,

2013). As a formalized teaching system; specifically designed to be carried out remotely, distance learning has become a very popular learning element in all universities around the world. Facilitated through the Internet and Web portals, distance learning has been a significant trend in the repertoire of learning opportunities that will be provided by most educational institutions in the future. More than ever, it is clear that "e-learning is an important element of future education as it provides a comfortable, easy, fast, and affordable learning environment" (Agarwal, 2013).

The potential impact of E- learning on all education has been emphasized by the development of Internet-based technologies, particularly the World Wide Web. It can be described as learning involving implementation of information, computing and communications technology applications in more than one location (Webster & Hackley, 1997). Taking the huge scale of the Internet into account, the creation of mechanisms designed for effective navigation of the Internet, and the collection, analysis, exchange and distribution of information for the specific use of education is of great importance (UNESCO, 2002). The various platforms used in distance learning can be roughly divided into four categories: print, audio (voice), computer (data) and video. For example, statistical research on the use of electronic communication in distance learning identified the following types of applied telecommunication media in such programmes: telephone, fax, audio-conference, electronic mail, access to databases (Euler, Von and Berg, 1998).

The recent and evolving way of learning in the global classroom has been realized in quite a number of educational institutions, particularly in developed countries. E-learning as an emerging global network is typically used for teaching and training (Abdul Aziz & Mohammed, 2012). Given the expansion of e-learning, this study investigates the rules and regulations on the presentations of lessons in distance learning platforms.

Statement of the problem

The growing needs for continual skills upgrading, retraining and the technological advances, have led to an explosion of interest in E- learning and the development of many platforms. Also, teacher education institutions are faced with a multiplicity of challenges such as: large classroom size; insufficient infrastructure, etc. The integration of technological awareness and learning in teacher training college is today making significant strides towards the use of more interactivef E-learning strategies to effectively enhance overall performance of college teachers and their trained

personnel. With the recent advancement in technology, teachers, especially geography teachers are expected to use different platforms in presenting their lessons.

Moreover, just as the twin needs to improve the quality and the quantity of teachers become imperative, new strategies and methods of teaching and learning are becoming available thanks to the penetration of Information and Communication Technologies (ICTs) in the educational system. Despite the growth in understanding ICTs in governance, business and in the development process, there is still much not known about the practice of e-Learning in institutions of learning especially with some teacher. In addition, though there are pedagogic rules and regulations governing the teaching and learning process advocated and encouraged, less attention has been given to the presentation of lessons on different platforms in distant learning; which is very pivotal in the dissemination of geography knowledge to learners. Cognizant to the strategic role E-learning platforms contributes to teaching; especially the teaching and learning of geography, the presentation of lessons cannot be undermined. Hence, this study seeks to investigate the rules and regulations on the presentations of lessons in distance learning platforms: the case of geography teachers.

Objectives

The objectives of the study will focus on general and specific objectives

General Objective

- The general objective of this study is to investigate the effectiveness of the rules and regulations in Geography teachers' presentations of lessons in distance learning platforms.

Specific Objectives

The study will be guided by the following specific research objectives:

- To find out the rules of presentation of lessons in distance learning platforms by geography teachers.
- To examine the regulations of presentation of lessons by geography teachers the in the distance learning platforms.

- To explore the challenges that teachers of geography faced in the presentations of lessons in distance learning platforms.

Research Questions

General Research Questions

The general research question of this study is

- What is the effectiveness of the rules and regulations in Geography teachers' presentations of lessons in distance learning platforms?

Specific Research Questions

The study will be guided by the following specific research questions:

- What are the rules of presentation of lessons in distance learning platforms by geography teachers?
- What are the regulations of presentation of lessons by geography teachers the in the distance learning platforms?
- What are the challenges that geography teachers faced in the presentations of lessons in distance learning platforms?

Research hypothesis

The research hypothesis of the study is stated in the alternative null.

General Research Hypothesis

- H_a: There is a significant effect between geography teachers' presentations of lessons and distance learning platforms.
- **H_0:** There is no significant effect between geography teachers' presentations of lessons and distance learning platforms.

Specific Research Hypothesis

1. H_a**:** Geography teachers' presentation of lessons has a significant relationship with distance learning platforms.

- H_0**:** Geography teachers' presentation of lessons has no significant relationship with distance learning platforms.

2. H_a**:** There is a significant relationship between the views of geography teachers and the presenting lessons in distance learning platforms.

- H_0**:** There is no significant relationship between the views of geography teachers and the presenting lessons in distance learning platforms.

3. H_a**:** Teachers of geography face challenges in presenting lessons on distance learning platforms.

- H_0**:** Teachers of geography do not face challenges in presenting lessons on distance learning platforms.

Scope of the Study

According to Mugenda and Mugenda (as cited in Mugure, 2012), there are boundaries to any study, thus the researcher will restrict the study considering geographical, content and theoretical scope. Geographically the study was carried out in the Center region of Cameroon, specifically at the Distance Learning Center (DLC). This region is one of the French speaking regions in Cameroon, a sub-Saharan African country. The Center Region is made up of ten divisions. Content wise, the study focused on the rules and regulations on the presentations of lessons in distance learning platforms: the case of geography teachers. In this digital world, when distance learning is fast becoming popular teachers' presentations of their lessons in distance education on digital platform is pivotal as it will help students gain more research skills and discovering new knowledge by themselves at their comfort zones. Theoretically, this study focused on the Instructional Theory (Robert Gagne, 1970), Cognitive constructivism theory of Jean Piaget and the Rational Decision-Making Theory by Herbert A. Simon (1916–2001).

Significance of the Study

This study intends to find out the rules and regulations guiding the presentations of lessons in distance learning platforms**.** Thus**,** the knowledge obtained would help the government to reflect and make evaluation of distance learning education in Cameroon.

Also, the knowledge obtained will equally help the government to control and make more available platforms in distance learning education.

In any educational system, there are rules and regulation guiding it. Hence, the knowledge obtained will equally help the government to be aware of rules and regulation guiding teachers on the presentation of lessons on distance learning platforms. With that, there will be a better pedagogic inspection in this domain.

The study will also influence education planners to consider developing other methods that will be guiding teachers in presenting their lessons in distance learning platforms.

This study will be helpful to educational administrators to come up with manuals that will aid distant learning teachers in order to facilitate teaching and learning in this domain.

Also, the knowledge acquired from this study will be very important to other researchers who have interest in distant learning education and the teaching of geography.

Operational Definition of Terms

- **Distance learning:** Distance learning, E-Learning, or online learning is the process of using technology to deliver learning where the instructors and the students are not physically in the same place but rather use electronic means to deliver and participate in learning. This is a learning method whereby the learners and faculty members are at a distance, and it integrates "voice, video, networking and computer technologies" for its accomplishment (Sloan, 2017). Networks such as satellite, wireless cable, and cable modems are known to link both the students and the instructors (Sloan, 2017)
- It is a field of education that focuses on teaching methods and technology with the aim of delivering teaching, often on an individual basis, to students who are not physically present in a traditional educational setting such as a classroom. It has been described as "a process to

create and provide access to learning when the source of information and the learners are separated by time and distance, or both" (Honeyman & Miller, 1993).

- It is a process of acquiring knowledge in which the main elements include physical separation of teachers and students during instructions and the use of various technologies to facilitate student-teacher and student-student communication (Kentnor, 2015)
- Distance learning is a process to create and provide access to learning when the source of information and the learners are separated by time and distance, or both (Honeyman& Miller, 1993)
- Distance learning is a form of education in which there is normally a separation between teacher and learner and thus one in which other means—the printed and written word, the telephone, computer conferencing or teleconferencing, for example—are used to bridge the physical gap (Mugridge,1991).

In this study, distance learning will be a process of acquiring knowledge in which the main elements include physical separation of teachers and students during instructions and the use of various technologies to facilitate student-teacher and student-student communication.

- **Platforms**: it refers to the instruction that uses a variety of ways to meet individual learning styles using media and manipulative when appropriate (Cowan, (2008).

Also, it as the method of delivery which is usually interactive and includes Internet chat sessions, teleconferences, telecourses, and web conferencing (Harrison,2016).

The working definition of the study will be that according to (Sloan, 2017) which state that Distance learning, E-Learning, or online learning is the process of using technology to deliver learning where the instructors and the students are not physically in the same place but rather use electronic means to deliver and participate in learning. This is a learning method whereby the learners and faculty members are at a distance, and it integrates "voice, video, networking and computer technologies" for its accomplishment. Networks such as satellite, wireless cable, and cable modems are known to link both the students and the instructors (Sloan, 2017)

Chapter Summary

This chapter introduced the research on the rules and regulations on the presentations of lessons in distance learning platforms: the case of geography teachers. The chapter also presented the study's

background, problem statement, research objectives, questions and hypotheses, scope of the study, significance and operational definition of terms. The following chapters are as follows: chapter two will provide a review of relevant literature to the study, chapter three research methodologies, chapter four presentations of findings, and chapter five discussion, conclusion, and recommendations.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

The purpose of the study is to investigate the rules and regulations on the presentations of lessons in distance learning platforms: the case of geography teachers. The study focuses on how geography teachers present lessons in distance learning platforms, the views of geography teachers on the presentations of lessons in distance learning platforms and the examination of challenges that teachers of geography faced in the presentations of lessons in distance learning platforms. This chapter deals with the review of literature related to the study. Due to the importance of literature review, it is worthwhile to have an overview in this chapter with regards to conceptual, theoretical, and empirical reviews. The conceptual review will examine the study of fundamental concepts from various academic perspectives. Theoretical review will look at the tenet as well as how the theoretical perspective is contextually relevant to the investigation. The study objectives are considered and the relevant empirical literature.

The Conceptual Framework

This section focuses on an examination of concepts such as: distance learning, types of platforms and the presentations of lessons on the platforms.

Distance Learning

Distance learning is defined as teaching conducted without direct contact between the student and the teacher using modern communication technologies (Arkorful & Abaidoo, 2015; Basak et al., 2018; Waszek, 2010). In addition, United States Distance Learning Association (1998) posits that distance education is the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance. Distance learning is designed to meet the educational needs of the masses who live in same or different geographical locations with varying interests, abilities, ages, learning levels, working conditions (Ekici, 2003). Masses are also responsible their learning to a great extent, as distance education based on autonomous learning (Şenyuva, 2013).

Distance education offers a situation for the development of teaching-learning processes through educational platforms and their functionalities for didactic communication, mainly online forum

(Lopez, & Camilli, 2014; Guedez, & Navea, 2014; Bousbahi, & Alrazgan, 2015; Bin, 2017). One of the challenges of the Distance Education modality is to promote the advantages it offers to groups that do not have the opportunity to participate in other traditional models. This requires an adequate use of the potential of this methodology so that students can combine self-regulated and collaborative training processes, as well as training in digital competence that "become increasingly necessary to participate meaningfully in the new knowledge society and economy of the twenty-first century (INTEF, 2017). Among the aspects that require constant updating in the use of the learning platform are: pedagogical functionalities, online instructional design, and didactic interaction. Quality of content and system interactivity through LMS has a major influence of students' initial perceptions of their satisfaction (Chugh, Ledger & Shields, 2017; Altunoglu, 2017; Baleghi, Ayub, Mahmud & Daud, 2017).

Also, the impact of information and communication technology (ICT) in the knowledge society is producing a permanent revolution in the different sectors (Pavel, Fruth & Neacsu, 2015). This requires a new approach to education, focusing on the use of open content and resources (Knyazeva, 2016). It is mainly based on the possibilities of the web cloud technologies, promoting "persistent connectivity, enabling students and teachers to access and contribute to shared workspaces, anytime" (Barak, 2017; Moreira et al, 2017, Adams et al, 2017).The use of ICT by teachers to present lessons contribute to the development of the creativity, communication, collaboration and critical thinking essential in the 21st century is in combination with the reading, writing and arithmetic (Keane, Keane & Blicblau, 2016).

Nowadays, students have at their disposal a variety of ICT resources offering integrated media typologies, such as RICA (Information, Collaboration and Learning) or SECTIONS (Students, Ease of use, Costs, Teaching functions, Interaction, Organizational issues, Networking, and Security and privacy) (Cacheiro, 2011; Bates, 2015). This plurality of learning resources (apps, edublogs, social networking, and websites) (Brazuelo & Cacheiro, 2015) require an extensive use by teachers in co-involvement with students, to present a better lessons through the diverse platform in distant learning. Sometimes, students manifest more satisfaction with the Social Networking Sites (SNS) than by traditional Learning Management System (LMS) (Pilli, 2014).

Moreover, ICT development towards the knowledge-based society include three stages: ICT Readiness (level of networked infrastructure and access to ICT); ICT Intensity (level of use of ICT in the society) and ICT Impact (results/outcomes of effective and efficient ICT use) (Pavel; Fruth & Neacsu, 2015). In the full democratization of knowledge, it is necessary to promote open learning environments with the appropriate tutorial advice, which makes possible the purpose of education. Four rationales for ICT integration in education are: social (need for familiarizing students with technology), vocational (preparing students for jobs that require skills in technology), catalytic (utility of technology to improve performance and effectiveness in teaching), and pedagogical (to utilize technology in enhancing learning, flexibility and efficiency in lesson delivery) (Jain & Tyagi, 2017). .

In addition, distance learning practices focus on identifying the educational potential of technology and assume a transformative role of students towards self-regulated learning strategies, providing the foundation for new generations of learning (Zimmerman, 1990; Scoppio & Luyt, 2017). A study by Topchyan & Zhang 2014) has validated some factors that affect the perception of distance learning teachers to help students develop the competences to work in virtual learning teams which are: loyalty, integrity, conscientiousness, communication, cooperation, creativity, learning motivation, persistence, independence and intercultural communication. The plurality of web resources integrated on virtual learning platforms provides opportunities to select and adapt information, collaboration and learning resources (Topchyan & Zhang, 2014).

Furthermore, online learners pay attention to structure and leadership of effective learning environments to take a deep and meaningful approach to learning (Garrison & Cleveland, 2010). Research from different authors considers that ICT should promote interactivity favoring forms of communication in the knowledge society (Prendes & Gutierrez, 2013, ITU-UNESCO, 2014; Kebble, 2017). The time dedicated to communication activities by students has been considered as a predictor of academic performance and selection, adoption and adjustment of distant learning platform as tools promote openness a permanent change, rediscovering the most valuable goals of academia, and the continuous improvement of teachers and students (Rienties & Toetenel, 2016).

Advantages of Distant Learning

Hassenburg (2009) opines that for many, distance education is believed to have the following advantages over the traditional in class learning:

- It provided opportunities that were not possible with traditional learning, particularly for students with disabilities or those who live in rural areas. That is, such methods have reduced the importance of geographic location by being able to attend lectures without being physically present, thus, providing opportunities for people that have been disadvantaged with traditional in-class learning.
- Teacher shortage, curriculum imbalances (lack of course options) and tight budgets are challenges faced in rural areas that are less prevalent with distance methods of learning (Dachos, 2020). In other words, distant learning allows a better chance for equal and high-quality education for students across different areas.
- The benefits of distance learning are also enjoyed by students with disabilities. Whether students have visual, hearing impairment or physical disabilities, distance learning provides various tools such as Braille keyboards, voice – to – text software's and recorded lectures that allow them to have opportunities that may have been limited with other methods of learning (Barden, 2017).
- Proponents of distance education have also argued that the flexibility presented has allowed students to set their own pace of studying. Such flexibility has also contributed to better and more effective participation in discussion forums than in class. As Hawkes (2001) states, with distance learning, students have more time to provide well thought-out and reflective responses rather than in-class where they have little or no time to provide an answer.
- The possibility to save time and money when attending online/remote lectures has also been a reason which has shifted student's preferences toward distance learning (Bijeesh n.d).

Moreover, UNESCO (2002) point out that Distance learning offers a myriad of advantages which can be evaluated by technical, social and economic criteria. Also, distance learning methods have their own pedagogical merit, leading to different ways of conceiving knowledge generation and acquisition as follows;

- Distance learning increases access to learning and training opportunity,
- It provides increased opportunities for updating, retraining and personal enrichment,
- It improves cost effectiveness of educational resources, supports the quality and variety of existing educational structures, enhances and consolidates capacity.

- It is convenience because many of the technologies are easily accessible from home.
- Many forms of distance learning provide students the opportunity to participate whenever they wish, on an individual basis, because of distance learning flexibility. This kind of education is quite affordable, as many forms of distance learning involve little or no cost.
- It is also multi-sensory. There is a wide variety of materials that can meet everyone's learning preference. Infact some students learn from visual stimuli and others learn best by listening or interacting with a computer program.
- Also, distance learning can offer increased interactions with students. In particular, introverted students who are too shy to ask questions in class will often "open up" when provided an opportunity to interact via e-mail or other individualized means (Franklin, Yoakam & Warren, 1996).
- There are some other related benefits of distance learning such as: balancing inequalities between age groups, geographical expansion of education access, delivering education for large audiences, offering the combination of education with work or family life, etc.

Disadvantages of Distant Learning

While there is countless distance learning advantages, there are also various disadvantages of distance learning, that students and institutions should be aware of before starting any distance learning program. The flexibility presented in distance education may not be as beneficial as one might say, given that such benefits may be partly influenced by the individual's learning style. That is, a student who lacks self-motivation and time management skills might find distance learning less effective compared to traditional learning (Tierney 2020). Such effects then, combined with distractions in your learning environment, leading to a decline in the quality of learning provided with this method of education (Hassenburg, 2009). To boost this even for teachers, distance education has provided a decline in their teaching flexibility as they are no longer able to rely "upon verbal cues and the spontaneity of classroom discussion to serve as a catalyst for interaction" (O'Quinn & Corry, 2002). In addition, critics have argued that geography and limited infrastructure may continue to be an obstacle even for distance education, as lack of or poor internet connection in certain geographical locations may hinder the potential of distance learning (Tierney, 2020). Equally, with the evolution of distance education, access to technology has become essential in being able to participate in distance learning, thus, creating hidden costs

(of purchasing technological equipment) which may not be initially considered (Bijeesh n.d). Moreover, distance learning may directly be disadvantageous in the following ways:

- It requires advance planning. Both the instructors and students involved in distance learning will need to make sacrifices, at times, in order to get things done on time.
- Distance learning, although affordable, may come with hidden costs (for example extra shipping and handling costs of materials).
- Distance learning does not offer immediate feedback. In a traditional classroom setting, a student's performance can be immediately assessed through questions and informal testing. With distance learning, a student has to wait for feedback until the instructor has reviewed his or her work and responded to it.
- Compared with traditional course delivery method, distance learning demands a disproportionate amount of effort on the part of instructors. Namely, teaching distance courses includes not only the time required for actual delivery of course materials, but it must also involve a great deal of time dedicated to student support and preparation.
- Also, time spent on e-mail correspondence is very significant. Distance learning does not always offer all the required coursework online for every degree program**.** In fact, physical classroom attendance is mandatory for the completion of some degree programs.
- Distance learning degrees (certificates) may not be acknowledged by all employers although most employers do. Students who want to work for a specific employer upon graduation should be sure of that employer's perspective about online education.
- Distance learning does not give students the opportunity to work on oral communication skills. Students in distance learning courses do not get the experience of practicing verbal interaction with teachers and other students.
- Another disadvantage of distance learning is social isolation. Distance learners may feel isolated or miss the social-physical interaction that comes with attending a traditional classroom. However, many distance learning participants have reported that this sense of isolation has been decreasing with the use of communication technologies such as bulletin boards, threaded discussions, chats, email, and video conferencing

Although the debate in regards to distance learning and traditional learning is on-going, it can be concluded that one’s thoughts and views regarding education cannot simply fall into those

in support and against distance education as each person's view depends on their experience and personal preferences regarding learning styles. Nonetheless, such perceptions give insight into what characteristics of distance learning are preferred by students or teachers and which of them are obstacles that require further improvement.

Moreover, the most important issue regarding distance learning is instructors' preparedness and students' attitude. If students do not perceive the technology as useful, they will be not receptive to distance education (Christensen et al., 2001). Also, the inability of teachers to develop the necessary skills, to adopt a positive attitude, and to develop the needed pedagogy are other important problems affecting the creation of distance learning community. There is connection with pedagogy, personal experience, and distance learning. When a teacher is somewhat reluctant to use technology or views it in a negative way, pedagogy may suffer. Many researches proved that many educational initiatives failed because they had little impact on teacher's beliefs or practices (Niederhauser & Stoddart, 2001). The method of introducing computers to schools and department is another factor in the personal development of technological pedagogy. Schools and department may also experience other barriers such as time needed to learn the technology, frustration with malfunctioning technology, much lead time to prepare the distance learning materials, less time for research, and added monetary costs to work with technology at home and at the office (Niederhauser & Stoddart, 2001).

Distance Learning Platforms

The learning platform is a way of structuring the instruction that fosters optimal organization of content and interaction with students and it is used by most of the Universities (Gomez, 2016; Almarashdeh, 2016). Teaching must take advantage of effective environments and adapting the discourse to the uniqueness of the effective environments' complexity (Moreira, Henriques, Goulão & Barros, 2017; JuYin & Yen-Chen, 2016; Marin, Sampedro, & Vega, 2017). Learning platforms have been presented as effective scenarios that promote educational innovation and professional development with more focused on the model of educational personalization and emphasis on cooperation (Prendes & Gutierrez, 2013, Sáez, Dominguez, Ruiz & Belando, 2014).

There are different types of online learning platforms. Techno-pedagogical models like the TPACK (Technology, Pedagogy and Content Knowledge) (Mishra & Koehler, 2006) and SAMR

(Substitution, Augmentation, Modification & Redefinition) offer a structure to present lessons in order to incorporate the use of ICT as a didactic experience with the students (Puentedura, 2016).

TPACK Model: The teaching profession in the words of Shulman (2015) is "magical" and requires "embracing uncertainty" through a reciprocal commitment between the teacher and the students. This author has promoted the need to combine knowledge of content and pedagogy by coining the term PCK (Pedagogical Content Knowledge), which has been the precursor of the TPACK model (Technology, Pedagogy and Content Knowledge) from Mishra and Koehler (2006, 2008) which incorporates the technological knowledge applied to the teaching-learning process. The TPACK model) offers different combinations among the types of knowledge of the model: curricular, pedagogical, and technological, based on the application contexts. The dimensions offered by the model are seven: CK (Content Knowledge), PK (Pedagogical Knowledge), TK (Technological Knowledge), CPK (Pedagogical Content Knowledge), TCK (Technological Content Knowledge), TPK (Technological Pedagogical Knowledge) and TPCK (Technological Pedagogical Content Knowledge) (Mishra & Koehler, 2006, 2008). The TPACK model widely disseminated internationally, provides different strengths and opportunities through the questionnaires developed to analyze the level of mastery in the integration of ICT allowing the design of teaching strategies to reinforce the types of knowledge less developed (Schmidt et al., 2009; Cabero, 2014).

SAMR Model (Substitution, Augmentation, Modification and Redefinition): The SAMR model is based on different phases from substitution (initial contact with technology) to redefinition (mastery of educational technology). The first two phases correspond to the process of improvement in the way of integrating ICT and the next two phases are in the process of transformation. Each phase can be characterized by the role of technology in the teaching as (Puentedura, 2016) present below:

- Substitution. Technology acts as a direct tool substitute, without any functional change.
- Augmentation. Technology acts as a direct substitute tool, with functional improvement.
- Modification. The technology allows redesigning important task.
- **Redefinition**. Technology allows the creation of new tasks, previously inconceivable. In this context, it is favored to incorporate into the teaching-learning process resources adapted to

the objectives (from memory to creation), to the level of competence (from substitution to redefinition), and to the investigative process (from research to share). These models can be considered conceptual frameworks that offer a comprehensive vision of different relevant elements to consider when applying technologies in the educational context.

- **Learning Destination Sites:** An LDS is a site where many different course creators offer their learning material. It's sort of like Amazon, only for online education. You can choose the topics and instructors that sound appealing to you and sign up for an individual course based on your preferences. Programs offered through an LDS are typically self-paced.

- **Learning Management Systems:** An LMS is software used internally within a specific organization or institution. Every school or university may have a different LMS platform based on the type of courses they offer (the most popular probably being Blackboard). It can be accessed online like an LDS, or an application that you need to download and install on your computer.
- **Learning Management Ecosystems:** A learning ecosystem is an extensive online learning tool that encompasses several software solutions, such as adaptive learning engines, learning content management features, course authoring software, tools for assessment, and more. LMEs are usually reserved for large organizations, schools, or universities that offer many online degree programs and learning resources.
- **E-Learning Platform is** a virtual learning environment using information and communication technologies to facilitate teaching and learning**.** It consists of various tools that enable users to interact, communicate, and collaborate online**.** These tools can include discussion forums, live chat, video conferencing, online quizzes, interactive learning materials, and online assessments.
- **Learning Management System (LMS)Trends**

  Some people believe Learning Management System (LMS) are limited to the administration aspects rather than the learning itself "Learning ecosystems must be responsive enough to support the practices of the future. In using tools and platforms like LMS, teachers should have a desire to unbundle all of the components of a learning experience to remix open content and educational apps in unique and compelling ways". (Adams et al, 2017).

Communication Tools of Learning Platforms

The use of learning platform encourages the interaction of all components of a traditional didactic scenario: teacher, students and subject matter

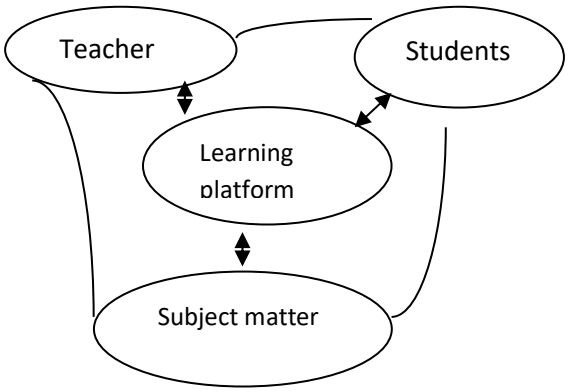

Figure 1: Components of an ICT learning situation

The interaction among the various components is essential to promote a mediated learning. The learning platform opens a new stage, which exceeds the traditional space-time to motivate and make available to students, colleagues and various groups, a set of instructional options (Bates, 2015). The most important communication features of the platforms include forums, chat and web conference.

- Forums. Effective situation for comments, reflections between teachers and students in asynchronous mode.
- Chat. Written speech involving a group of students and teachers in synchronous mode.
- Web conference. Synthesizes the keys of the oral discourse, supported on transparencies, pictures, video tutorials, etc., expanded with questions, and comments from teacher and students.

Moreover, online discussions carefully monitored by teachers promote co-constructed knowledge through activities as: sharing, negotiating, elaborating, evaluating, etc and facilitates students' higher order thinking (Ioannou, Demetriou & Mama, 2014; Kwon & Park, 2017). When teachers give importance to collaborative learning, students are more aware of their benefit (Gomez,

Barbera & Fernández, 2016). The interaction in online forums helps students to exchange different points of view of a lesson (Duran, Cornejo, & Flores, 2017). Given the importance of technology in modern distance learning, it is important to understand the strengths, weaknesses, and potential of technologies currently in use. Such comprehension will enable teachers to make more informed decisions when it comes to lesson presentation.

Print Material

According to Gunawardena & McIsaac (2004)**,** there is potential for print material to serve as either the primary source for course instruction or as a supplementary source – i.e. textbooks or other printed required readings. In this case, communication via email or other electronic means could be utilized for student questions, assignment submissions, and instructor feedback. Printed study guides have been identified as a key resource for distance education courses even if other forms of media are primarily used to deliver the content. Supplemental print materials such as these may be disseminated via regular email or even via a course website. It has the following advantages;

- Extremely portable: Print materials can be used in any location.
- High comfort level: Most students are very comfortable using print materials to learn.
- Cost effective. Print materials can be created and duplicated with little expense.
- Readily available. Many distance learning courses can take advantage of existing textbooks, thus saving the time and expense of creating custom materials.

Moreover, there are several advantages to print media that are likely related to why it has remained, and will continue to remain, an important resource for distance education. Once printed or distributed, students are able to bring these hard copies with them anywhere they go. This allows for study at any number of locations. This can be important to distance learners since many of them choose distance education due to responsibilities that prevent them from being at the same place at the same time on a regular basis. Print materials also do not require batteries or advanced technology to support their use (other than a reading light), and by the time they reach higher education most students are accustomed to using print materials for learning (Gunawardena and McIsaac, 2004). However, print materials have the following disadvantages

- No interactions: Print materials do not generally provide built-in interactions

- Additional technologies, such as e-mail, must be supplemented.
- No audio/visual elements: Print materials are static and are not appropriate for teaching languages and visual concepts.
- Require reading skills: If the learners are non-readers or language skills are required, print materials will not be effective.
- Time delay: It may take days or weeks for printed matter to travel between student and teacher.

Printed materials are limited in terms of what they can provide to a potential learner. Clearly, they do not provide the opportunity in themselves for two-way interaction with the instructor or other students. Only certain content can be delivered effectively through print – language courses that require an audio component with required additional resources. Learners also need well-developed reading skills in order to be able to utilize print successfully. The time it takes to deliver lessons to the student is something else that should be taken into consideration (A Teacher's Guide to Distance Learning, 2009).

Audio Technologies

Another cost-effective method of enhancing a distance education course is to incorporate some form of audio or voice technologies into delivery. This can be as simple as a telephone with voicemail or as sophisticated as an audio-conference (Gunawardena & McIsaac, 2004).

Voicemail

Voicemail has become a very common mode of contact when speaking or interacting directly is not possible. One resource explains that voicemail has a great deal to offer distance learning initiatives. Through voicemail students are able to leave messages for instructors regardless of the time. Advanced voicemail systems can enable instructors to leave messages for whole groups students at once. Further, this mode of communication can substitute for email for those students that do not have internet. The main advantages of voicemail are that most people in developed nations and ever-increasing numbers in less-developed countries have telephone access and voicemail messages can be checked at any point during the day (or night). However, the length of messages is usually limited and students calling from outside the local area must be provided with a toll-free number for access. Given these limitations voicemail is usually used to supplement other methods of delivery in a lesson (A Teacher's Guide to Distance Learning, 2009).

Audio Files and CDs

CDs and Audio files represent another inexpensive resource that can be combined with other implementation techniques. Entire lesson can be presented through audio files as well as panel discussions or instructions for the student. Though audio files are easy to create, duplicated and use, they are not interactive and do not provide visual elements that many students may need or want (A Teacher's Guide to Distance Learning, 2009).

Audio-conferences

As noted, telephones are one of the world's most accessible communication technologies. As such, their use can be vital in the effective delivery of distance education. Through telephone, instructors can reach a potentially large number of students – even simultaneously though a conference call. At locations with speakerphones multiple students are able to gather to interact with an instructor or each other under the instructor's guidance. Using more advanced audio-conference systems and what are called bridges, numerous individuals can call into a toll-free number and essentially attend class (audibly) or engage in discussion over the phone. Again, for students that do not have access to the internet or a computer, audio-conferences are a viable option for fostering interaction and the sense of community – something researchers have pointed to as essential elements of an effective distance lesson (Gunawardena& McIsaac,2004).

One thing to note, however, is that though audio-conferences are relatively easy to set up and conduct, it may be difficult to retain students' interest for a long period of time given the lack of visual stimulation on a phone call. Therefore, audio-conferences for distance lessons should not be too long, should be well planned, and it is important to supplement them with visual media distributed in advance.

Podcasts

Podcasts can be used to make digital audio and video files easily accessible to students with internet access and preferably their own computer. Learners are able to set their computers to automatically download new lesson that is posted online. This is very easy for them to do. They simply tell their software to subscribe to the RSS (Really Simple Syndication) feed and the new lesson (or posted files) are automatically downloaded to their computer. These files can then be transferred to more portable playback technology such as CD or an audio device, for example an iPod or PDA (the term Podcast comes from combining iPod and broadcasting). They can also be

played with any number of media programs installed on most computers (A Teacher's Guide to Distance Learning, 2009).

Advantages of Audio Technologies

- **Inexpensive:** All of the audio/voice technologies are relatively inexpensive.
- **Easily accessible:** Most people around the world have access to a telephone (either landline or mobile). In addition, most students in developed countries will have access to an audiotape player in their home or in a car.
- **Easy to use:** Almost everyone is comfortable using a telephone and an audio cassette. With voice technologies, there is no software to install and no hardware to configure (Gunawardena& McIsaac, 2004).

The main advantage of audio technologies is their cost-effectiveness. Though they are easy to use and most people around the world will have the required devices necessary to take advantage of audio, there are certainly potential students that may not have the suitable technology for access. This should be kept in mind when planning a distance lesson that will utilize audio. Costs for students and schools may increase if special accommodations need to me made.

Disadvantages of Audio Technologies

- **May require scheduling:** Some of the voice technologies (such as audio-conferences) are synchronous, meaning that they must be scheduled at a convenient time for the students and teacher.
- **Not conducive to visual information:** Many students find it hard to focus and learn strictly through audio input. In addition, audio-only format restricts the content that can be conveyed (abstract concepts are very difficult to convey through audio).
- **May be impersonal:** With audio-only interactions, there is no eye contact and no body language. Students may be "turned off" by a talking box (A Teacher's Guide to Distance Learning, 2009).

Clearly scheduling issues need to be considered for any form of synchronous delivery. One of benefit that attracts students to distance lesson is the ability to access information at one's own schedule. While podcasts, CDs, audio files, and even voicemail allow for this, audio-conferences do not. Again**,** interaction and a sense of community have been established as key determinants of student satisfaction in distance learning lessons.

Computer Technologies

As internet usage continues to increase around the world computer technologies are becoming more commonplace in the delivery of distance lessons. Much research has gone into establishing best practices and guidelines for internet-based distance education courses and programs. E-mail, online collaborations, and Web-based education have been identified as the primary computer technologies used for distance learning. Obviously, only students that have reliable computer and internet access will be able to enroll in lessons that utilize these technologies (Gunawardena &McIsaac, 2004).

E-mail

E-mail messages are a relatively simple and inexpensive way for instructors and students to communicate throughout lesson presentation. This works particularly well for students that prefer asynchronous instruction and allows students that may be too shy to speak up in a traditional face-to-face lesson to interact with the instructor. More often, e-mail is best used to supplement print, audio, or video technologies. In addition to conventional e-mail communication, bulletin boards can also be used to improve the quality of a distance lesson. Bulletin boards are online discussion groups or newsgroups where students and instructors can post messages that everyone subscribed to the group can read and reply too. Bulletin boards can be an effective way of facilitating interaction among students and with the instructor. E-mail is also a convenient way to distribute various files as attachments, such as PowerPoint presentations, spreadsheets, of PDF documents. These types of files are themselves computer technologies and for internet-based courses they can be used to supplant printed materials so long as students are comfortable with their use (Gunawardena & McIsaac, 2004).

As mentioned, e-mail is inherently asynchronous – students do not need to be logged in at the same time to receive them – and this is one of the main benefits of e-mail technology. It can be accessed any time, day or night. Furthermore, email accounts can be obtained for little or no cost. In most cases, the only cost of an email account is the cost of an internet connection. Of course, the requirement of an internet connection is also the main disadvantage of e-mail software. Students will need to learn the use of email software which includes knowing how to access and download attachments. As one resource notes, “Prior to involving students in e-mail instruction, you must

ensure they have all the hardware, software, and knowledge to make the communications successful" (A Teacher's Guide to Distance Learning, 2009).

Online Collaboration: Internet Chat and Conferencing

According to (Gunawardena & McIsaac, 2004), though email is asynchronous as most educators are aware, there are synchronous computer technologies that can be utilized for distance education lessons. These include online chat, shared white boards, and video-conferences. Online chat, also called instant messaging, can be between two people, for example instructor and student, or numerous people via a chat room. As each person types and enters a message the information is transmitted instantaneously to other individuals included in the chat session. Instant messaging allows for real-time communication. Instructors can utilize this technology to establish virtual office hours when they will be available to answer student questions or engage subjects in an online lesson discussion. Since chat is an internet-based technology students and instructors need not be concerned with phone charges for this form of communication. Chats are useful for communicating across large distances with students that have internet access (Gunawardena & McIsaac, 2004).

A shared whiteboard is also a form of internet collaboration wherein two or more people connected to the internet at the same time can communicate through graphic images. Using drawing tools, participants are able to draw arrows, circles, and other symbols in a shared space. Additionally, it is possible to paste in images or text copied from another source. More advanced versions of this software allow users at remote sites to view others' screens and even take control of their computer. For instance, an instructor could open an Excel file on his or her computer and display it on the screen of a remote student's computer. Both student and teacher have the ability to input data and make revisions. (A Teacher's Guide to Distance Learning, 2009).

The main benefit of chats and whiteboards is that through their use students are able to receive immediate feedback from the instructor – something that has been historically absent in distance education. It is necessary, however, for all participants to download and install similar software (A Teacher's Guide to Distance Learning, 2009).

Web-based Resources

The increased popularity and use of the internet has been coupled with an increasing amount of online information that students and educators alike can access to improve learning outcomes. Now, more than ever before, students can link to resources on the web that they could only find in libraries or via expensive subscriptions. Teachers can take advantage of this situation and locate relevant Websites for students to review or task learners with searching the internet for information on a specific topic (A Teacher's Guide to Distance Learning, 2009).

Advantages of Computer Technologies

- Allow self-paced instruction: Computers allow learners to proceed at their own pace, receive feedback immediately, and review as often as they like.
- May incorporate text, graphics, audio, and video: With the trend toward digital audio, digital video, and computer animations, it is easy to incorporate various media into computer programs.
- Allow high levels of interactivity: Computer technologies allow embedded questions and interactions, as well as online collaboration.
- Provide written record of discussions and instruction: Computer logs can easily be generated for computer interactions in distance learning.
- Inexpensive: With access to the Internet, it is relatively inexpensive to participate in computer technologies for distance learning.
- Worldwide access: The Internet can be accessed by millions of people throughout the world. There is no other way to reach so many people for so little money.
- Disadvantages of Computer Technologies
- Require hardware and software: At a minimum, a computer and Internet connection are required for most distance learning options that involve computers.
- Generally, rely on written communications: Although it is possible to include audio and video in computer-based distance learning, most of the communications are in the form of text.
- Require substantial planning: E-mail and other asynchronous computer technologies require a great deal of planning and preparation on the part of the instructor.
- Computer viruses: If students send assignments via a computer, there is always a risk of viruses -- especially if they send programs or attached files.

- No guaranteed performance: Computer networks are notoriously unreliable. If students wait until the last minute to check their e-mail messages or search the Web, there is always the risk the server may be down or the Websites may have moved.

How Teachers can Present Lessons in Distance Learning Platforms

According to (UNESCO 2002), the available methods of learning used in distance learning are divided into two basic groups: synchronous and asynchronous learning. The term synchronous learning is a mode of delivery where all participants are present at the same time. It resembles traditional classroom teaching methods despite the participants being located distantly. It requires a timetable to be organized. The asynchronous learning mode of presenting lessons is where participants access lesson materials on their own schedule and so is more flexible. Students are not required to be together at the same time. The two methods can be combined in order to present one lesson in the teaching of geography. Hence, these methods can be harness by geography teachers to present their lesson in the teaching of geography. In addition, various internet technologies are used for the solution of various educational tasks, namely, teaching, learning and management of the educational process. The richness of modern Internet, Web and multimedia technologies allows for unlimited creativity when it comes to electronic courseware development. Such characteristic offers new opportunities to create very interesting course material (UNESCO, 2002).

The various technologies used in distance learning can be roughly divided into four categories: print, audio (voice), computer (data) and video. For example, statistical research on the use of electronic communication in distance learning identified the following types of applied telecommunication media in such programs: telephone, fax, audio-conference, electronic mail, access to databases (Euler, Von, Berg, 1998). Print materials may serve as the primary source of instruction, or they may be supplemental. As a primary source, distance students might use a textbook and read various units on a specific timetable. Other technologies, such as e-mail, could then be used to ask questions and send assignments back to the teacher. As a supplement to instruction, text materials may take the form of worksheets or study guides that are used in conjunction with video or voice technologies. It is important to note that the supplemental print materials may be disseminated via regular mail or over the Internet. In addition, fax machines are often used to transmit the print materials back and forth between the students and the teachers.

Moreover, there are many advantages and disadvantages to incorporating print materials. Some advantages of print materials are: extremely portable (can be used in any location), high comfort level (most students are very comfortable using print materials to learn), cost effective (can be created and duplicated with little expense), readily available (many distance learning lessons can take advantage of exiting textbooks, thus saving the time and expense of creating new materials). Thus, this method can be use by geography teachers to present lessons in the teaching of geography.

Also, Audio or voice technologies offer cost-effective ways to enhance distance learning lessons. The audio component of a distance learning lesson can be as simple as a telephone with voicemail, or it can be as complex as an audio-conference with microphones, telephone bridges and speakers. Voicemail is becoming extremely common. It allows students to leave messages for instructors regardless the time and allows instructors to leave messages for individual groups. Voicemail can be used to administer quizzes (an option which requires programming) and it also serves as an alternative to e-mail for those students who do not have a computer. Audio files and CDs are inexpensive, easily duplicated and very flexible. They can be used to deliver lectures, panel discussions, or instructions for the distant learners in geography. Thus, this means can be use by geography teachers to present lessons in the teaching of geography.

Equally, Telephone conversations can be used to monitor individual students or to reach numerous students simultaneously via a conference call (audio-conference). Podcast is a method for making digital audio and video files available on the Internet in such a way that others can set their computers to automatically download new episodes in a series as they are posted online. With the increased popularity of the Internet, computer technologies are receiving more and more attention as a means of delivering distance learning lessons. The primary computer technologies used for distance learning include e-mail, online collaborations, and Web-based learning.

Garrison & Anderson (2005) synthesizes that the processes of presenting quality lessons in online environments can be made explicit by evaluating: the cognitive, social and teaching as presented on the table below:

Table 1: Processes of Presenting Quality Lessons in Online Environments

Elements	Categories	Indicators
Cognitive presence	Triggering event: • Exploration. • Integration. • Resolution	• Feeling of perplexity. • Exchange of information. • Association of ideas.
Social presence	• Affective dimension. • Open communication. • Cohesion of the group	• Expressing emotions. • Express themselves freely. • Promote cooperation.
Teaching presence	• Design and organization. • Discursive elaboration. • Explicit guidance.	• Establish the program content and methodology. • Construct meaning together • Focus the debate.

The information found on the table above, shows that, there are three elements and their interactions offer a landscape to analyze educational interaction inside online learning environments. It is necessary to find a synthesis between innovation and research practices in Distance learning. Evidence in this respect is provided that designing appropriate tasks and assessment procedure are determinants for engaging students with the Learning Management System (Zanjani, Edwards, Nykvist, & Geva 2016). Hence, online learning environments must have: quality, certification and affordability which is based on the rigor of institutions.

Also, (Mirriahi et al., 2015) opine that the principles in designing online lesson programs should be based on Principle which involves: Active engagement with implications for design being (the teaching staff can engage in an active process and become aware of new ideas or experiences), extract of the practice and the previous knowledge in authentic environments with implication for design being(the teaching staff can reflect and draw from their own practice, their work and their colleagues the most valuable), understanding expectations with implication for design being (Program facilitators present and provide new guidelines for action) and respect and satisfaction with the diverse apprentices, with implications for design being(The program models influence

learning environments where staff feel valued and respected). Mirriahi et al. (2015) however indicates that the presentation of lessons online must consider the principles of flexibility, b-learning modeling, flipped classroom, inclusivity, scalability, efficiency and cost-effectiveness. It is intended that the lesson design on the learning platform is intuitive and that students understand and properly use links and possible scenarios that must work and interact with school and all participants.

The learning platform in distance learning must be adapted to the knowledge and practices of virtual environments (e-Learning and b-Learning), promoting usefulness (Moreno, Cavazotte & Alves, 2017), autonomous learning (Cho, 2011, Zhu, Au & Yates, 2016), and interaction with teachers throughout learning tasks and communication tools (Ma, Han, Yang & Cheng, 2015; Gharmallah, 2017). In this line, Benedetti (2015) presents a map to know the student's navigation processes, following the cognitive style to understand and take better decisions to advance in the domain of the effective lesson.

- Process: Understanding visible.
- Description: Overview of the course structure and all parts/areas of the lesson are
- Process: Instructional
- Description: Organization logical course and easy access to components of the lesson
- Process: Functional
- Description: The course links operate correctly and the lesson content levels are accurate.

Communicative competence of teachers have impact on the development of educational processes, making progress in achieving to harmonize the instructive-creative design to be worked on virtual environments (Medina, Sánchez & Campos, 2014; Medina & Dominguez 2015; Medina, Cacheiro & MedinaMedina, 2015). The educational use of learning platforms, respond to the challenges of distance higher education, customizing tasks, and adapting content presentation to the virtual support, combining with traditional materials (Medina & Dominguez, 2015; Oproiu, 2015).

Gunawardena & McIsaac (2004) posits that, in using print materials in the presentation of lessons, the following should be considered;

i. Distribute print materials well in advance: Although the mail system is generally quite reliable, issues may arise if the print materials are not distributed well enough in advance.

ii. Include clear directions for use: Students need to know exactly which print materials they are responsible for reading and the specified timeline.

iii. Require interactions: Print materials are inherently non-interactive. Therefore, you must design for the required interactions. In some cases, this may mean a specified timeline for e-mail messages, or a required number of postings to a listserve.

iv. Specify a timeline: Distribute a timeline for students to help them organize their study learning activities.

Furthermore, Gunawardena & McIsaac, (2004) stated that, in incorporating audio technologies for lesson presentation, the following should be considered;

- Distribute visual materials in advance: If an audio-conference is scheduled, handouts or other visual materials that might be of value during the presentation should be distributed well in advance.
- Set communication protocols**:** Since the participants will not be able to see each other, it is important to agree on protocols to help identify the speaker in an audio-conference.
- Encourage interaction**:** In an audio-conference, interactions should be built into the format. For example, instructors should call on specific students, instruct students to take turns asking questions, and make sure that one student is not allowed to monopolize the conversation. With both audio-conferences and audiotape delivery, students should be required to use email, fax, or voicemail to engage in further interactions with each other and the instructor.
- Record audio-conferences on audiotapes**:** It is very easy to record an audio-conference. That way, you can distribute the tapes for students who were unable to participate in the conference and for those who would like to review the content.
- Get to know the students: If possible, seek ways to get to know the students, such as visiting the remote sites, gathering the students together in one place, or exchanging photographs or videotapes.

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Moreover, but if Incorporating Computer Technologies Provide adequate structure and guidelines (i.e. the most successful asynchronous projects include deadlines and a structure), Provide timely feedback to participants(Since the communications in computer-based distance learning are more impersonal than video-based delivery, it is extremely important to provide quick and relevant feedback to students.), get to know the students **(**i.e. if possible, try to meet the students, either in person or through video. In some cases, the students may be able to meet once or twice; if not, videotapes can be sent to students to increase personal communications) and ensure sufficient technical support- it is very important to provide sufficient technical support so that the students can get help when they need it (Gunawardena& McIsaac, 2004).

Incorporating Video Technologies, the teacher has to Avoid the "talking head." **(**Talking head refers to simply videotaping the instructor while she or he is talking. Instead, try to vary the camera angle, include still images of appropriate graphics, and encourage student interactions.), Practice with the cameras and the crew before the lesson -It is important to plan practice time for the instructor and the camera crew by working together, they can anticipate each other's needs and provide the best possible transmissions. Encourage interactions (i.e. interactions can be added to video-based delivery in many ways. If the lessons are two-way, questions and other types of interactions can be included. If they are one-way video, interactions can be added through e-mail messages or the telephone), use the best cameras possible so that the very best possible quality equipment should be used and ensure quality audio because losses in audio quality will be noticeable long before losses in video quality. Always ensure good recording, playback, and speaker quality (A Teacher's Guide to Distance Learning, 2009).

Views of Teachers on the Presentations of Lessons in Distance Learning Platforms

According to (Kılınç & Medeni. 2023) teachers view on the presentations of lessons in distance learning platforms could be looked at from the distance learning practices and the effectiveness of distance learning. They posit that in practice, the presentation of lesson in distance learning platform provides advantages in terms of communication, flexibility in place and space, flexibility in time, high number of participants, economy, recoding and re-watching, technology integration to education, sustainability in education, easy information flow, and eliminating geographical differences. They further stated that, the presentations of lessons in distance learning platforms prevent the students from completely becoming distant from the process. While it has advantages such as saving time and appealing to a wider audience, it is the biggest advantage of the students not to break away from the education environment and learning habits in extraordinary situations (such as pandemics). Less costly and technological elements can be used simultaneously. Independent of time and place, the number of students to attend is high, it can be watched again, the cost is low are among the advantages of distance education.

However, some teachers view the presentations of lessons in distance learning platforms as being disadvantageous stating technological reasons such as not using technology effectively, lack of infrastructure, encouraging technology addiction. They further revealed that communication has element as both an advantage and a disadvantage. The reason why the participants stated it as a disadvantage is explained that although distance learning provides the opportunity to communicate with people, it does not provide an effective communication as face-to-face communication does. In addition, distance learning has limitations such as limiting active learning, socio-economic problems, difficulty in getting instant feedback, supervision and control, social interaction, motivation problem, cost, disadvantaged groups are unable to benefit (Kılınç & Medeni, 2023).

Moreover, in effectiveness of distance learning the effectiveness of the courses in the distance learning process is discussed in two dimensions. These are Academic Effectiveness and Effectiveness in Disadvantaged Groups. In the academic effectiveness dimension, the effectiveness of the courses is mostly unsuccessful and partially successful. In the sub-dimension of effectiveness in disadvantaged groups, distance education is not effective especially for the students who need special education or the students whose academic success is low as their short

attention span and their inability to focus, the students are not in the classroom environment and there are too many distractors at home. The effectiveness decreases as the process takes longer because teachers do not care about the effectiveness of their academic success. It is very important for children to communicate with their teachers, share their feelings, and communicate with their friends. In addition, it is ineffective because some students make excuses and to break down the lesson in distance learning (Kılınç & Medeni, 2023).

Research on the educational process using new technologies, focuses on theoretical foundations, access to students' and teachers' tools, teachers' competences and their practical use in lessons (Siemieniecki, 2008; Demirci et al., 2018). Much of the research work was created during the widespread introduction of distance learning related to the Covid-19 pandemic. Most of studies have concerned among others, legal provisions and the course of distance learning, the approach to this form of educating students and teachers, the techniques and forms of distance teaching used, the possibility of achieving educational goals and learning outcomes (Jaskulska & Jankowiak, 2020; Plebańska et al., 2020; Ptaszek et al., 2020; Radha et al., 2020; Sindiani et al., 2020; Soni, 2020; UNESCO, 2020; Nicola et al., 2020; Hibszer &Tracz, 2021; Palermo, 2022; Palmentie, 2022; Hanson, 2023; Piotrowska et al., 2023). These studies most often covered one country or region. Researchers have highlighted the existing limitations in remote online learning due to the lack of, among others, access to the Internet, electronic media in highly developed and developing countries (Edge Foundation, 2020; Dawadi et al., 2020; Săgeată et al., 2023). Many researchers have also shown that both teachers and students were not prepared for the transition to distance learning due to low digital competences and methodological and organizational problems (Oneyma et al., 2020; Wunong et al., 2020). Moreover, teachers express their views on the lack of consistent messages from the school administration regarding the use of communication techniques with students and the different levels of teachers' competences in organizing distance learning, additionally hampered its effectiveness (Bagoly-Simó et al., 2020; Jaskulska & Jankowiak, 2020). In turn, students (especially younger ones) had trouble finding messages sent to them via e-mail, on the distant learning platform, and with completing tasks within the specified deadline (Zahorska, 2020).

According to Edukacja Zdalna (2020) teachers most often indicated difficulties in falling asleep, lack of energy, nervousness, and a bad mood. In the case of students, they experienced: increased

irritability and an inability to focus, feelings of isolation, and many teenagers also developed sleep disorders and had nightmares. To some relatively little attention was paid to didactic problems in teaching individual school subjects. It can be assumed that this type of information will appear successively. One of the first reflections on the difficulties of teaching geography during the Lockdown was the study by (Bagoly-Simó et al. 2020). Using a relatively small sample of respondents (18 people), the teachers indicated the difficulties encountered by German teachers implementing distance learning.

Challenges that Teachers of Geography Faced in the Presentations of Lessons in Distance Learning Platforms

One of the challenges facing teachers in distant learning platform is the challenge of teacher Presence. The physical separation between students and instructors is claimed to result in a psychological-communication gap or lead to transactional distance creating a sense of danger, frustration, or students' misunderstandings about themselves and about the learning process According to (Moore, 1993 cited in Zilka, Cohen & Rahimi, 2018). In addition, teacher's social presence can encourage meaningful communication; create a climate of cooperation and public discourse through feedback (Zilka et al., 2018). More so, an individual's social presence within the learning environment may not only promote a more engaging and supportive educational experience but also motivate students (Poth, 2018). Thus, social presence is a "critical affective component" and "one of the more important constructs in determining the level of interaction and effectiveness of learning in an online environment" (Mykota, 2017). Dialogue between students and teachers as well as support for the learners and their needs may increase students' sense of social presence. This requires teachers to actively partake in the discussion to encourage student participation (Zilka et al., 2018). However, establishing and maintaining a 'presence' online is not easy when lockdowns are in place as much of the learning is completed asynchronously, for example pre-recorded lessons or lectures (Garrison, 2017). Most importantly, students participating in asynchronous learning environments have to be extremely self-motivated and have a high level of self-discipline as teachers are not virtually present (Ferraro et al., 2020).

Equally, there is a challenge of lack of preparedness of teachers. In order to learn about teachers' experiences in the rapid transition to online teaching, it is essential to examine how prepared

teachers are for online teaching. Social distancing and lockdowns have significantly disturbed traditional educational practices, but teachers are continuing to rely on traditional teaching pedagogies when delivering instruction in the distance learning environment (Pokhrel & Chhetri, 2021; Armstrong-Mensah et al., 2020). Some of the challenges facing teachers are spending a considerable amount of time on familiarizing with the online teaching environment, using new approaches, for example organizing virtual teaching related activities, virtual meetings, and group discussions, to engage with students (Cavanaugh & DeWeese, 2020; Scull et al., 2020). This suggests that teacher preparedness continues to be an issue across most contexts (Howard et al., 2020). In addition, one of the requirements for teachers in the situation they are in today is to adapt to the new teaching environment. Adaptability here refers to the potential of the teachers to adjust their psycho-behavioural mechanism to cope with the changes and uncertainties (Collie & Martin, 2017). It is claimed to comprise three dimensions, namely behaviour adjustment, emotional adaptation, and change in mindset (Collie et al., 2018). Adaptability is different from teachers' resilience or having the perseverance to deal with challenges. The quick move to emergency remote teaching has frustrated teachers who were unable to decipher how to use digital tools, online resources, and apps for distance education. In other words, the educators were used to conventional teaching delivery and were obliged to embrace technology although they were not prepared for this sudden shift to teaching remotely (Barrot, Llenares, & del Rosario, 2021; Winter et al., 2021). Skills, knowledge, and competencies are required for online teaching and teachers must know how and when to use technology appropriately (Winter et al., 2021). Previous studies have highlighted that teachers must believe in the use of technology and be willing to use it in their daily practice (Ertmer, 2005; Tondeur et al., 2017). Overall, the technological challenges are mainly related to teacher digital competence (Ferri et al., 2020).

Furthermore, teachers' pedagogical orientation is another challenge. Researchers have argued that shaping a teachers' pedagogical orientation involves fundamentally changing the role of the teacher from that of a sage-on the-stage to that of a guide-on-the-side (Tarling & Ng'ambi, 2016). However, in distance learning environments, teachers' pedagogical orientation must align with their technological competence (Carmo & Franco, 2019). The pedagogical challenges are principally associated with teachers' lack of digital skills and lack of social and cognitive presence or the ability to construct meaning through sustained communication within a community of inquiry (Ferri et al., 2020). Technology is increasingly being used not only to deliver instruction,

but also to support and assist learners and to assess students in innovative ways, for example using analytics to assess the quality and practicality of online resources and track student involvement in online activities (Martin & Ndoye, 2016). However, aligning pedagogy, content, assessment, and appropriate use of technologies, and online strategies is a challenge especially in distance education (Zhang et al., 2020).

Moreover, lack of support/adequate professional development the challenge. Teachers' frustration and the reliance on conventional pedagogies indicate that there is the need for thoughtfully planning distance learning and engaging teachers in online professional development programmes (Richter & Idleman, 2017). Professional development opportunities are required so that teachers can adapt to distance education more easily (Hebebci et al., 2020). Workshops or training for teachers can improve their technological and pedagogical competencies in online learning, for example to develop interactive learning approaches, improve communication, and mitigate challenges associated with student motivation and engagement (Cardullo et al., 2021; Ferri et al., 2020). This suggests that a lack of support from policy makers may result in poor participation in distance learning. Ditzler, Hong & Strudler (2016) stated that the knowledge, unfamiliarity, and comfort level affecting teachers' use of technology have an impact on how they are used in the classroom. As such, teachers need time to learn, experience, and reflect on the technical and pedagogical uses of technology. Natia & Alhassan (2015) investigated the extent to which school administrations promote teaching and learning through the use of technology in Ghanaian Basic Schools. They found that while Ghana public schools already had a technology policy in place, the challenges were the lack of adequate infrastructure and teacher training on integrating technology in schools. Given that teachers have access to technology; however, what they do with the technology to improve their instructional practices and pedagogies remains to be seen.

Challenges in education systems include the absence of leadership visions, teacher training on technology, and classroom support for teachers (Dinc, 2019; Sheppard & Brown, 2014; Tosuntas, Cubukcu, & Inci, 2019). Access to the Internet and lack of instructional devices limit teachers from using technology in the classroom while good teaching goes beyond merely presenting information to students, support from leadership is essential to the success of the technology programs (Barbera, Gros, & Krischner, 2015).

Theoretical Framework

This study will be guided by A Cognitive Theory of Multimedia Learning, developed by Richard E. Mayer (1997). Multimedia Learning Theory (MMLT) was originally developed by Richard Mayer in 1997. It falls under the grand theory of Cognitivism. According to Mayer (1997), multimedia learning theory consists of three aspects that help students learn more effectively. The first one is that there are two channels, namely audio and visual, for information processing; this is also known as the multimedia principle. This principle states that students may learn better from images and words than just from words. The second aspect is that each channel has a limited capacity to process information. In other words, human beings can only process information in limited amounts, and they try to understand the information by creating mental representations from the information sources. The last aspect is that learning is an active process of filtering, selecting, organizing, and integrating information based on existing knowledge.

The theory also stated that, the process of transferring knowledge from two channels (audio and visual) could be successful when information is integrated with existing knowledge. So, when students are actively processing incoming information, they also use their existing knowledge to help the process. For example, a group of students taking a tour fieldtrip will benefit more when a tour guide is explaining what they will see around them. In other words, multimedia does not necessarily mean technology; instead, whatever involves two channels is what defines multimedia. Mayer's multimedia learning theory is based on three assumptions:

- Dual-channel assumption: According to Mayer, people have two separate channels for processing auditory and visual information.
- Limited-capacity assumption: The theory recognises that individuals have a limited ability to absorb information at any one time.
- Active-processing assumption: The multimedia learning theory suggests that people should be actively engaged in the learning process rather than passive receivers of information.

From these assumptions, Mayer goes on to identify 12 principles of multimedia learning and these principles provide an invaluable checklist for designers wanting to optimise learning with multimedia. The principles are grounded in cognitive science and how people process information.

They provide a checklist on how to structure multimedia learning experiences. The priniciple include;

Multimedia Principle

What it means: People learn best from a combination of words and pictures. Instructional designers should use words (text or narration) and visuals (images, animations, or videos) rather than only one channel. Presenting information in multiple formats helps learners process and integrate information more effectively.

How to apply the multimedia principle:

- Use a mix of text and images.
- Incorporate visuals to illustrate key points in the eLearning program.
- Instead of using images for the sake of it, double-check that the visuals clarify meaning or enhance comprehension.

Coherence Principle

What it means: Learning is more effective if unnecessary information is excluded rather than included. E-Learning developers should ensure that words and visuals are closely aligned and complement each other. Do away with irrelevant information or fluff that might distract learners from the main message.

How to apply the coherence principle:

- Only include graphics, text or narratives if they are on point and support the learning goals.
- Avoid using background music.
- Use simple diagrams and infographics.

Signaling Principle

What it means: Learning is enhanced when cues are added to draw attention to vital information. Online learning designers should make it easy for students by highlighting what's important. Too much information on the screen confuses the learner, making it harder to work out the most critical elements.

How to apply the signaling principle is that that it emphasize key points with arrows, callouts, highlights or bold text.

Redundancy Principle

What it means: The redundancy principle suggests that we learn best from a combination of spoken words and graphics. Add on-screen text, and you risk overwhelming students. Therefore, designers should avoid presenting the same information in multiple formats simultaneously. Redundant information can create overload and gets in the way of learning.

How to apply the redundancy principle:

- Use either graphics or text to complement spoken presentations. Never use both at the same time.
- Minimize the use of on-screen text in narrated presentations. Instead, focus on images or graphics.

Spatial Contiguity Principle

What it means: Mayer says text and visuals should be presented close together on the screen to maximize learning. L&D professionals should align visuals and text, so learners can more easily understand the relationships between them. Avoid spatially separating text from related graphics or animations.

How to apply the spatial contiguity principle:

- Keep text and visuals close to each other in the frame.
- Place any feedback next to the relevant questions or answers.
- Ensure directions are presented on the same screen as an ac

Temporal Contiguity Principle

What it means: This principle suggests that students learn best when words and pictures are presented at the same time rather than sequentially. Simultaneous presentation allows learners to process the information together and build meaningful connections. For example, students shouldn't learn about a process and then watch an animation about it afterwards. Instead, designers should ensure the voiceover plays along with the animation.

How to apply the temporal contiguity principle:

- Ensure voiceovers are timed with visuals or animations.
- Place related text and pictures on the same screen.

7. Segmenting Principle

What it means: Mayer found that better learning outcomes are achieved when information is segmented, and students have control over the pace. For developers, this means breaking down complex information into smaller, manageable chunks. Present the information in a step-by-step approach, allowing learners to process each segment independently and build understanding gradually.

How to apply the segmenting principle:

- Organize content in manageable, coherent bite-sized chunks.
- Ensure no one lesson, module, or slide has too much information packed in.
- Allow users to control the pace of instruction with next buttons or speed controls.

Pre-training Principle

What it means: When it comes to multimedia learning, this principle states that people learn better when they already know the basics. Often, this means understanding definitions, terms or critical concepts before diving into the details. For example, you can't expect a student to complete a task using Excel if they have no experience in the software.

Instructional designers should give learners an overview of key concepts before presenting the main content. Pre-training activates prior knowledge and primes learners to understand better and retain new information. How to apply the pre-training principle is to;

- Develop an introductory module to explain key concepts before starting the main program.
- Consider preparing a cheat sheet of terms and definitions to accompany the course.
- Ensure students know how to use any tools needed to complete tasks within the course.

Modality Principle

What it means: The modality principle says that students experience deeper learning from visuals and spoken words than text and visuals. This doesn't mean you shouldn't have text on the screen. It's more about ensuring a balance, as too much text can overwhelm students.

Designers should use visual and auditory channels based on the content and the learner's preferences. Consider using animations or images to illustrate dynamic processes and narration to explain complex concepts. How to apply the modality principle is to;

- Try to limit your use of text. Instead, rely on visuals, images and voice overs.
- During a narrated presentation with visuals, only use text to list steps or provide directions.

Voice Principle

What it means: This principle is straightforward. People learn better when real presenters rather than machines make voice overs. Although we are all used to Siri and Alexa, it seems we still prefer a friendly, human touch. How to apply the voice principle is to;

- Narrate your own audio content or use a voiceover professional.
- If doing it yourself, ensure you have a high-quality microphone and use audio editing software.

Personalization Principle

What it means: The personalization principle is another common sense one. Learning with multimedia works best when it's personalized and focused on the user. For designers, this means speaking in the first person (I, you, we, our). Avoid formal language and instead use a conversational tone to engage learners. Imagine you are in the room speaking with students.

How to apply the personalization principle is to;

- Use accessible, everyday language in your content.
- Consider the demographics of your target audience and tailor your language accordingly.

Image Principle

Mayer points out that the research is still in its early stages. However, the image principle suggests people may not learn better from talking head videos. High-quality, complementary visuals can often be more effective than having a speaker's image.

- Consider using talking head videos initially to develop connections and build trust only.
- After that, select relevant and meaningful images that align with the instructional content.

Richard Mayer's multimedia learning theory is a must-read for instructional designers, eLearning developers and L&D professionals everywhere. Mayer's principles of multimedia learning provide a blueprint for how to structure multimedia elements to maximize learning outcomes. In addition, the principles he developed after several years of research are just as relevant today. From images

and video to AR and VR, multimedia is now integral to digital education and learners find it a more engaging and enjoyable way to learn.

This theory is applicable to this study because the topic is an educational one and deals with teaching and learning in this present contemporary digital society. The topic handlings issues on the presentations of lessons in distance learning platforms which is more of multimedia learning. Also, this study holds that since researchers have investigated the role of multimedia learning on students' achievement and many studies provide evidence that MMLT is still valid and evolving in current educational practice, it is important to use the theory in the study. Several studies have shown that students tend to have positive learning experiences using multimedia learning materials. For example, a study conducted by Ercan (2014) showed that multimedia has an important role for students' achievement.

Empirical Review

A study was conducted by Kılınç, and Medeni, (2023) on the Views of Teachers on Distance Education, Which Is Carried Out Using Various Platforms Due To The Pandemic In Turkey. The case study design, one of the qualitative research methods, was used in the research. Convenience sampling method was used in the selection of the participants. The participants were selected on the criteria that they conducted live lessons through distance education platforms and worked at a public school during the pandemic. The data of the study were collected through an interview form prepared by the researchers. The data collection instrument consists of two parts. The first part consisted of questions related to demographic information of the participants. The second part of the form included questions to determine teachers' views on distance education. The data of the study were analyzed with a computer assisted qualitative data analysis program. The participants stated that distance education has the advantages in terms of communication, flexibility in time and place, high number of participants, and economy. On the other hand, they stated that distance education has limitations in terms of technological reasons, limited active learning, socio-economic reasons, receiving instant feedback, supervision and control, and disadvantaged groups' inability to benefit. Although it was concluded that the participants considered themselves sufficient to manage the distance education process effectively, it was determined that the teachers did not receive any in-service training in order to plan, implement and evaluate the distance

education processes. In this context, the participants stated that they want to receive in-service training on the use of Web 2.0 tools, live lesson management, distance education planning training, infrastructure training, presentation techniques.

Şanlı et.al (2016) carried out a study on perceptions and practices of geography teachers towards integrating technology to teaching geography. In 5 different types of schools within Nevşehir (Turkey) city center, a total of 22 geography teachers volunteering to participate in the research were included in this study in which data were collected via semi-structured interview form during 2015-2016 academic year. Descriptive analysis method was employed to analyze obtained data. Integrating Technology to Teaching approach developed by Maddux & Johnson (2006) was adopted in the analysis of technology practices of interviewed teachers. The finding evidenced that, not the integration of technology to geography teaching but using technology in geography teaching was more popular. The evidences supporting this conclusion are that The high level of competency among participating geography teachers in using computer programs or preparing presentations during geography teaching process is perceived by teachers themselves as their higher competency in using teaching technologies and materials. In their lessons participating geography teachers utilized smart board, maps and geographical sphere as visual aids during knowledge transfer.

Martin & Bolliger (2018) carried a study and focused on learner-to-learner, learner-to-instructor and learner-to-content engagement. Based on 155 responses from eight universities in the United States, it was found that the interaction between learners and online materials occur when they are watching instructional videos, searching for information and also have interaction with multimedia (Abrami et al., 2011). Furthermore, the findings of the study indicated that online course materials such as instructional materials, web resources, book chapters and other multimedia and instructional videos are very helpful to enhance learners' understanding in distant learning.

Additionally, a recent study was conducted to investigate the learner-content interaction during the pandemic COVID-19 (Kumar et al., 2021). This study was done to assess the satisfaction of learners by examining the impact of online learning quality during the pandemic in Indian Universities. 435 responses from graduate and undergraduate students were gathered through structured questionnaires. The findings of this study indicated that in order to gain learners' satisfaction, the university should enhance the quality of their e-learning content. This study

recommended that instructors, web designers and content designers should work together to provide quality materials to the learners that contain infographics, video clips and effective websites that can attract the students' attention during presentation of lesson in distant learning.

Maboe (2017) conducted a quantitative study on distance learning using a sample of 410 students from health services management backgrounds. The study suggested that the instructor should increase the interaction and provide support to learners both during and outside the class sessions. Another later study was conducted by Mathew and Chung (2021) on university students' perspectives on open and distance learning (ODL) during the COVID-19. The sample data were collected from diploma and bachelor's degree students in Malaysia. The study used close and open-ended questionnaires to explore students' perceptions toward the ODL. The result showed that students really enjoyed the instructor's flexibility on using different online platforms. In addition, the interaction between learners and teachers was found to be the most important factor that scored the highest percentage. In fact, the learners were happy when the teacers engaged with them and guided them during the ODL. These findings are in line with Cohen's (2004) social support theory that explains social support such as material and psychological help enhance engagement among learners and instructors. In ODL, social support is believed to be more crucial as there is no face-to-face session and learners are at their own place which limits their communication with peers.

The study by Hastuti et al. (2021), conducted among geography students of Lambung Mangkurat University, confirmed existing limitations with the widespread implementation of e-learning in academic education, resulting from financial costs (e.g., Internet access fees) and the lack of an Internet network (especially in rural areas). An equally important research issue was identifying the physical and mental consequences of pupils/ students being isolated and working for many hours with a computer. Spending many hours and the computer caused physical and mental difficulties for both teachers and students. Teachers most often indicated difficulties in falling asleep, lack of energy, nervousness, and a bad mood. In the case of students, they experienced: increased irritability and an inability to focus, feelings of isolation, and many teenagers also developed sleep disorders and had nightmares (Edukacja Zdalna, 2020).

As research conducted in Western Balkan universities shows, around 70% of them have developed and utilized LMS to aid in-class learning (Chaushi et al 2015). Although digital resources were being utilized, there was not much attention put to implementing /adapting distance learning. In 2018, with the establishment of *EdTech Center Western Balkans*, in Belgrade (Serbia), countries in Western Balkans were presented with the opportunity to expand their experience with utilizing digital resources for teaching. The aim with this organization was to present teachers and professors with training opportunities regarding technological tools that could improve the quality of education in Western Balkans.

Ebrahim et al. (2022) investigated challenges facing teachers in distance education programmes during the COVID-19 pandemic. Participants in this study are teachers from 8 intermediate schools in Kuwait. A convergent parallel mixed methods research design was used to collect survey and interview data. The study generates survey data from 215 teachers and interview data from 8 teachers to determine teachers' perceptions of the challenges they face. The findings of the study suggest that teachers are willing to use technology but lacked technological and pedagogical knowledge and were not prepared for making the sudden shift to distance education. The study highlights the importance of teachers' professional development in distance education. This study has implications for schools and policy makers who are forced to suddenly revert to distance learning during a pandemic.

Yıldırım (2021) conducted a study on the views of geography teacher students on the GIS course conducted with screencasts during the distance learning lesson. Furthermore, the study reveals, along with the reasons, how the process of capturing and sharing screencasts with students can assist instructors. At the end of the term, 27 students studying in the second year of the geography teaching undergraduate program were asked about their opinions of the lesson. The data were collected through a structured evaluation form consisting of open-ended questions to evaluate the course. In the analysis of the comments obtained, MAXQDA software, which is frequently used in qualitative data analysis, was applied. The expressions in the answers were analyzed using the content analysis technique. Overall, the results prove that the beneficial aspects of the GIS course, which consists of applications and is conducted with screencast, outweigh the theory. Thanks to the screencast model, students can use their time efficiently and watch the videos repeatedly whenever and wherever they want. Nevertheless, the results reveal that extra methods are required

to motivate students to transfer theoretical information and that screen-casts have some disadvantages.

Summary

To conclude, cognizant to the evidences from empirical and theoretical frameworks which have been reviewed in this chapter and with respect to distant learning education in Cameroon, one will infer that, the rules and regulations on the presentations of lessons in distance learning platforms the case of geography teachers is inevitable to talk about if teachers have to produce students with quality knowledge in digital era. From the above, it is thus clear that the presentations of lessons in distance learning and technological platform cannot be separated from a teaching and learning environment in this digital era. It can be reasonably hoped that this research will lead to a better use of digital platform in distant learning education in the teaching and learning process of geography. The following chapter (chapter three) will explore the methodology used for the study.

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter delineates the research methodology employed to evaluate the effectiveness of rules and regulations in Geography teachers' presentations on distance learning platforms. The study's methodology included the research design, population and sample, data collection methods, data analysis techniques, and ethical considerations. The approach aimed to assess adherence to Richard Mayer's multimedia learning principles and the impact of instructional regulations on lesson effectiveness. By integrating both quantitative and qualitative methods, this study sought to provide a nuanced understanding of instructional practices in distance learning environments.

Research Design

Mixed-Methods Research Design

The research design for this study was mixed methods, integrating both quantitative and qualitative approaches. This design allowed for a comprehensive analysis of the effectiveness of rules and regulations in Geography teachers' presentations. According to Creswell and Plano Clark (2018), a mixed-methods approach combines the strengths of both quantitative and qualitative research, providing a fuller understanding of the research problem.

The mixed-methods approach was particularly suited for this study due to its ability to combine statistical analysis with in-depth qualitative insights. Quantitative methods provided measurable data on teachers' perceptions and adherence to Mayer’s principles, while qualitative methods offered contextual understanding and detailed descriptions of instructional practices. This approach is supported by Tashakkori and Teddlie (2010), who argue that mixed-methods research provides a more comprehensive view of the research problem by integrating numerical data with qualitative narratives.

Area of Study

The Distance Education Centre of the Cameroon Ministry of Secondary Education plays a crucial role in expanding educational access and opportunities to students across Cameroon, particularly those in remote and underserved areas. Established in response to the growing need for flexible and accessible education solutions, the Centre is designed to offer high-quality education through various distance learning platforms. This initiative aligns with the global trend towards digital education and aims to bridge the educational divide within the country.

The Distance Education Centre was established as part of Cameroon's broader educational reforms aimed at leveraging technology to enhance learning outcomes. Recognizing the challenges faced by students in rural and remote areas, where access to quality education is often limited by geographical and infrastructural barriers, the Ministry of Secondary Education embarked on this initiative to provide an alternative mode of learning. The Centre was launched with the vision of offering a comprehensive and flexible education that meets the needs of all students, irrespective of their location.

The Distance Education Centre operates under the auspices of the Cameroon Ministry of Secondary Education, which oversees its strategic direction, curriculum development, and overall management. The Centre is structured to include various departments responsible for different aspects of distance education, including content development, technology integration, student support services, and teacher training.

Content Development: This department is tasked with creating and curating high-quality educational materials that align with the national curriculum. The materials are designed to be engaging and interactive, incorporating multimedia elements to enhance learning.

Technology Integration: This team focuses on the technical aspects of delivering distance education, including the development and maintenance of the online learning platform, ensuring robust IT infrastructure, and integrating innovative technologies to facilitate teaching and learning.

Student Support Services: Recognizing the unique needs of distance learners, this department provides comprehensive support services, including academic advising, counseling, and technical assistance to help students navigate the online learning environment.

Teacher Training: To ensure the effectiveness of distance education, the Centre provides continuous professional development for teachers, equipping them with the skills and knowledge to deliver online lessons effectively. This includes training on instructional design, digital pedagogy, and the use of educational technologies.

The Distance Education Centre offers a wide range of courses covering the secondary education curriculum. These courses are delivered through an online learning management system (LMS) that supports various forms of media, including video lectures, interactive simulations, and digital textbooks. The platform is designed to be user-friendly and accessible, ensuring that students can easily engage with the content and track their progress.

The Centre also utilizes other distance learning methods, such as radio and television broadcasts, to reach students who may not have reliable internet access. These broadcasts are scheduled at convenient times and cover key subjects, providing an alternative way for students to access their education. Since its inception, the Distance Education Centre has made significant strides in improving educational access and quality in Cameroon. It has enabled thousands of students from diverse backgrounds to continue their education despite logistical challenges. The Centre's flexible learning model has been particularly beneficial during crises, such as the COVID-19 pandemic, ensuring that learning continuity is maintained.

While the Distance Education Centre has achieved considerable success, it faces challenges such as ensuring consistent internet access, addressing technical issues, and providing adequate training for all teachers. Moving forward, the Centre aims to enhance its infrastructure, expand its course offerings, and further integrate advanced technologies like artificial intelligence and virtual reality to enrich the learning experience. The Distance Education Centre of the Cameroon Ministry of Secondary Education is a pivotal institution in the country's educational landscape. By providing flexible and accessible learning opportunities, it plays a vital role in promoting educational equity and preparing students for the future.

Population

The population for this study comprised Geography teachers currently delivering lessons via distance learning platforms across various educational institutions in Cameroon. This population was specifically chosen due to the significant influence instructional rules and regulations have on their teaching practices and the necessity for these educators to implement Mayer's multimedia learning principles effectively in an online environment.

Geography, as a subject, presents unique challenges and opportunities in a distance learning context. Teachers need to convey complex spatial relationships and environmental processes effectively, which can be significantly enhanced by multimedia resources. Therefore, the study targeted Geography teachers to explore how well they incorporate these principles and adhere to instructional guidelines.

Characteristics of the Population

The population included teachers from diverse backgrounds, with varying levels of experience, educational qualifications, and geographic locations. This diversity was crucial for obtaining a

comprehensive understanding of how different factors influence the effectiveness of distance education.

Years of Experience: Teachers ranged from novice educators with less than five years of experience to seasoned professionals with over two decades in the field. This variation allowed for the analysis of how teaching experience impacts the implementation of multimedia principles and adherence to rules.

Educational Qualifications: The population included teachers with different levels of academic achievement, from bachelor's degrees to doctoral qualifications. This range provided insights into how academic training influences teaching practices in a distance learning environment.

Institution Types: Teachers from primary, secondary, and higher education institutions were included. This stratification helped in understanding the differences in distance learning practices and challenges across various educational levels.

Geographic Locations: The study included teachers from urban, suburban, and rural areas to capture a wide spectrum of challenges and opportunities related to distance learning infrastructure and access.

Sampling Technique and Sample Size

A stratified random sampling technique was employed to select a representative sample from the population. Stratified sampling involves dividing the population into distinct subgroups (strata) and then randomly selecting samples from each subgroup. This method ensures that different subgroups within the population are adequately represented, enhancing the generalizability of the findings (Creswell, 2014).

The sample size for this study was approximately 30 Geography teachers. This size was deemed adequate for providing reliable statistical results and rich qualitative data. According to Field (2018), a sample size of 30 is often considered sufficient for initial analyses in qualitative research and is large enough to ensure the reliability of quantitative findings.

The decision to select 30 participants was based on several considerations:

Statistical Power: A sample of 30 allows for the detection of significant differences and relationships within the data, ensuring that the study's findings are robust and reliable.

Practical Feasibility: Given the resources and time constraints, a sample of 30 was manageable for in-depth data collection and analysis.

Richness of Data: Qualitative data collection methods, such as open-ended survey questions and lesson observations, require detailed analysis. A sample of 30 provides a balance between depth and manageability.

Data Collection Methods

Survey Questionnaire

The survey questionnaire was meticulously designed to gather quantitative data on the effectiveness of rules and regulations and the application of Mayer's principles. The survey was structured into several sections:

Demographic Information: This section included questions about the respondents' age, gender, educational level, years of teaching experience, and the type of institution they taught in. This information was essential for understanding the background of the respondents and for stratifying the data during analysis.

Effectiveness of Rules and Regulations: This section aimed to evaluate teachers' perceptions of the clarity, organization, and impact of instructional guidelines. Questions were designed to measure how well teachers understood and implemented these guidelines in their distance learning practices.

Mayer's Principles: This section assessed adherence to Mayer's multimedia learning principles. Questions were crafted to evaluate the extent to which teachers incorporated principles such as multimedia, spatial contiguity, temporal contiguity, coherence, modality, redundancy, segmenting, pre-training, signaling, and personalization in their lesson presentations.

Open-Ended Questions: This section gathered qualitative insights into the challenges teachers faced in implementing these principles and regulations, as well as their suggestions for improvement. These open-ended questions allowed teachers to express their experiences and opinions in their own words, providing valuable context and depth to the quantitative data.

The survey questions were carefully crafted to ensure clarity and relevance. Likert scale questions were used to measure the extent of agreement or disagreement with statements related to the effectiveness of rules and regulations and adherence to Mayer's principles. Open-ended questions provided an opportunity for teachers to express their experiences and opinions in their own words, which was invaluable for qualitative analysis.

Administration

The survey was administered online using a survey platform such as SurveyMonkey or Google Forms. Online administration allowed for easy distribution and collection, reaching a diverse sample efficiently (Dillman et al., 2014). Respondents received an email invitation with a link to the survey and instructions for completion. This method ensured that participants could complete the survey at their convenience, which was particularly important given the busy schedules of teachers.

The survey platform also provided tools for tracking responses, sending reminders, and exporting data for analysis. These features enhanced the efficiency and effectiveness of the data collection process.

Observation Checklist

The observation checklist was used to evaluate sample online Geography lessons. The checklist assessed two main areas:

Clarity and Adherence to Rules: This section evaluated whether lessons followed the provided regulations. Criteria included the organization of content, clarity of instructions, and adherence to prescribed lesson structures.

Application of Mayer's Principles: This section assessed the integration of Mayer's multimedia principles in the lesson presentation. The checklist included criteria based on Mayer's principles, such as multimedia, spatial contiguity, temporal contiguity, coherence, modality, redundancy, segmenting, pre-training, signalling, and personalization (Mayer, 2009). Each criterion was clearly defined, and examples were provided to ensure that observers had a consistent understanding of what to look for in the lessons.

The checklist was designed to be comprehensive yet easy to use, allowing observers to systematically evaluate each lesson. The criteria were developed based on a thorough review of the literature on multimedia learning and instructional design, ensuring that the checklist was both valid and reliable.

Sample Lessons

A sample of 5-10 recorded lessons was randomly selected for observation. Each lesson was evaluated by trained observers using the checklist. Random selection minimized bias and ensured a representative sample of online lessons (Yin, 2018).

The observation process involved the following steps:

Training Observers: Observers were trained on how to use the checklist and what to look for during the observations. This training included examples and practice sessions to ensure consistency and reliability in the evaluations.

Conducting Observations: Observers watched each recorded lesson and completed the checklist based on their observations. The lessons were viewed independently by multiple observers to assess inter-rater reliability.

Analysing Observation Data: The completed checklists were analysed to identify patterns and trends in the clarity and adherence to rules and the application of Mayer's principles.

Data Analysis Techniques

Quantitative Data Analysis

Descriptive statistics, including frequency distributions, mean scores, and standard deviations, were calculated to summarize the survey data. This approach provided a clear overview of respondents' perceptions and adherence to Mayer's principles (Pallant, 2020). Descriptive statistics helped in understanding the general trends and central tendencies within the data, offering a foundational analysis of how Geography teachers perceived and implemented the instructional guidelines and multimedia principles.

Inferential statistics, such as t-tests or ANOVA, were used to determine significant differences based on demographic variables (e.g., years of experience, type of institution). These analyses helped identify patterns and relationships within the data (Field, 2018). For instance, t-tests were conducted to compare the mean scores of different groups (e.g., novice vs. experienced teachers) on their adherence to Mayer's principles. ANOVA was used to compare the mean scores across multiple groups (e.g., teachers from primary, secondary, and higher education institutions). These statistical tests helped in identifying significant differences and understanding the impact of various factors on the implementation of multimedia principles and instructional regulations.

Qualitative Data Analysis

Thematic Analysis

Thematic analysis was used to analyze responses to open-ended questions. This method involved identifying and analyzing themes or patterns within the qualitative data (Braun & Clarke, 2006). Themes related to the implementation and effectiveness of rules and regulations were identified and described.

Thematic analysis followed these steps:

Familiarization with Data: Reading and re-reading the responses to become deeply familiar with the content.

Generating Initial Codes: Coding the data based on key concepts and patterns observed in the responses.

Searching for Themes: Grouping similar codes together to form overarching themes.

Reviewing Themes: Refining the themes to ensure they accurately represented the data.

Defining and Naming Themes: Providing clear definitions and names for each theme.

Writing Up*:* Integrating the themes into a coherent narrative, supported by direct quotes from the data.

This approach allowed for a detailed and nuanced understanding of the qualitative data, providing insights into teachers' experiences, challenges, and suggestions related to distance learning.

Content Analysis

Content analysis was used to evaluate the observation checklist data. This method involved quantifying and analysing the presence, meanings, and relationships of certain words, themes, or concepts within the observed lessons (Krippendorff, 2013).

Content analysis followed these steps:

Coding the Data: Coding the observation checklists based on the predefined criteria related to Mayer's principles and instructional regulations.

Quantifying Data: Counting the frequency of each criterion's occurrence in the observed lessons.

Analyzing Relationships: Examining how different criteria were related to each other and to the overall effectiveness of the lessons.

Interpreting Findings: Drawing conclusions about the adherence to Mayer's principles and the clarity and effectiveness of instructional regulations.

Content analysis provided a systematic way to analyze the observation data, offering quantitative insights into the implementation of multimedia principles in online Geography lessons.

Validity and Reliability

Validity

Validity refers to the extent to which an instrument measures what it is supposed to measure. Ensuring the validity of the research instruments is crucial for obtaining accurate and trustworthy results.

Content Validity: To ensure content validity, the survey and observation checklist were reviewed by experts in education and multimedia learning. Content validity refers to the degree to which the instruments comprehensively cover all relevant aspects of the constructs being measured (Haynes et al., 1995). The expert review process involved the following steps:

Selection of Experts: Experts with extensive experience in education, multimedia learning, and instructional design were selected to review the instruments. Their expertise ensured that the survey and checklist were evaluated against the highest academic and professional standards.

Review Process: The experts reviewed the survey and checklist items for clarity, relevance, and comprehensiveness. They assessed whether the questions adequately covered the intended constructs, such as the effectiveness of instructional rules and the application of Mayer's multimedia learning principles.

Feedback and Revisions: The experts provided detailed feedback on each item, highlighting areas that needed improvement or clarification. This feedback was used to make necessary revisions, ensuring that the final instruments were comprehensive and accurately reflected the constructs being measured.

The expert review helped ensure that the survey and checklist were not only valid but also practical and user-friendly for the participants.

Construct Validity

Construct validity was assessed through pilot testing of the instruments. Construct validity refers to the extent to which an instrument accurately measures the theoretical construct it is intended to measure (Creswell, 2014). The pilot testing process involved:

Selection of Pilot Participants: A small, representative sample of Geography teachers was selected to participate in the pilot test. This sample included teachers with varying levels of experience and from different types of institutions to ensure a diverse range of feedback.

Administration of Instruments: The survey and observation checklist were administered to the pilot participants under conditions similar to those of the actual study. Participants were asked to complete the survey and engage in an online lesson that was evaluated using the checklist.

Feedback Collection: After completing the instruments, participants provided feedback on the clarity, relevance, and difficulty of the questions. They highlighted any ambiguities or issues they encountered.

Revisions Based on Feedback: The feedback from the pilot testing was used to refine the instruments. Ambiguous questions were clarified, irrelevant items were removed, and necessary adjustments were made to ensure that the final instruments were clear, comprehensive, and easy to use.

The pilot test helped identify potential issues and refine the instruments, enhancing their construct validity.

Reliability

Reliability refers to the consistency of an instrument in measuring a construct. Ensuring the reliability of the research instruments is crucial for obtaining consistent and repeatable results.

Internal Consistency

Internal consistency was assessed using Cronbach's alpha, a measure of the reliability of survey items. Cronbach's alpha indicates how well the items within a scale measure the same underlying construct (Pallant, 2020). The steps involved in assessing internal consistency included:

Calculation of Cronbach's Alpha: The survey data were analyzed to calculate Cronbach's alpha for each scale within the survey. A high Cronbach's alpha value (generally above 0.70) indicates good internal consistency.

Interpretation of Results: The Cronbach's alpha values were interpreted to assess the reliability of each scale. Scales with high alpha values were deemed reliable, indicating that the items consistently measured the intended constructs.

Refinement of Scales: If any scale had a low Cronbach's alpha value, the items were reviewed and revised. Items that did not contribute to the reliability of the scale were modified or removed to improve internal consistency.

The calculation of Cronbach's alpha ensured that the survey items were reliable and consistently measured the intended constructs.

Inter-Rater Reliability

Inter-rater reliability was assessed by having multiple observers evaluate the same lessons using the observation checklist. Inter-rater reliability measures the extent to which different observers consistently apply the same criteria in their evaluations (Landis & Koch, 1977). The steps involved in assessing inter-rater reliability included:

Training Observers: Observers were trained on how to use the observation checklist consistently. This training included examples and practice sessions to ensure that all observers had a clear and uniform understanding of the criteria.

Evaluation of Lessons: Multiple observers independently evaluated a sample of recorded online Geography lessons using the checklist. Each observer completed the checklist based on their observations.

Calculation of Cohen's Kappa: The inter-rater reliability was calculated using Cohen's kappa, a statistical measure that accounts for agreement between observers beyond chance. A high kappa value (generally above 0.60) indicates good inter-rater reliability.

Refinement of Checklist: If the kappa value was low, the checklist items were reviewed and revised to ensure that they were clear and easy to apply consistently. Observers were retrained as necessary to improve consistency.

Assessing inter-rater reliability ensured that the observation checklist was applied consistently by different observers, enhancing the reliability of the evaluations.

Ethical Considerations

Participants were provided with detailed information about the study's purpose, procedures, and potential risks. Informed consent was obtained prior to participation. This ensured that participants were fully aware of their involvement and had voluntarily agreed to participate (Fowler, 2014). The consent form included information about the study's objectives, the procedures involved, potential risks and benefits, and the rights of the participants, including the right to withdraw at any time.

All data collected was kept confidential and anonymized. Personal identifiers were removed from survey responses and observation notes to protect participants' privacy (Wiles et al., 2008). Data was stored securely, and only the research team had access to it. The confidentiality of the participants was maintained throughout the study, and findings were reported in a way that did not reveal individual identities.

Participation in the study was voluntary, and participants had the right to withdraw at any time without any negative consequences. Ensuring voluntary participation upheld ethical standards and respected participants' autonomy (Creswell, 2014). Participants were informed that their decision to participate or withdraw would not affect their professional standing or relationships.

Summary

This chapter outlined the research methodology for evaluating the effectiveness of rules and regulations in Geography teachers' presentations on distance learning platforms. The mixed-methods approach integrated quantitative surveys and qualitative observations to provide a comprehensive assessment of adherence to Mayer's principles and the impact of instructional guidelines. The subsequent chapters will present and analyze the collected data to address the research questions and provide insights into improving online Geography education. The research design, population and sample, data collection methods, data analysis techniques, and ethical considerations were carefully planned and executed to ensure the validity, reliability, and ethical integrity of the study.

CHAPTER FOUR: FINDINGS

This chapter presents the findings from the study on the effectiveness of rules and regulations in Geography teachers' presentations of lessons on distance learning platforms. The findings are based on data collected through a survey questionnaire and observational checklists. The chapter is divided into sections that cover demographic information, quantitative results, qualitative insights, and a detailed interpretation of the findings.

Demographic Information

Survey Respondent Demographics

The survey questionnaire yielded responses from 30 Geography teachers. The demographic profile of the respondents is summarized as follows:

Table 2: Survey Respondent Demographics

Demographic Variable	Category	Frequency (n)	Percentage (%)
Age	20-30	8	26.7
	31-40	12	40.0
	41-50	6	20.0
	51-60	3	10.0
	Above 60	1	3.3
Gender	Male	12	40.0
	Female	18	60.0
Highest Level of Education	Bachelor’s Degree	10	33.3
	Master’s Degree	15	50.0
	PhD	5	16.7
Years of Teaching Experience	0-5 years	5	16.7
	6-10 years	8	26.7
	11-15 years	7	23.3
	16-20 years	5	16.7
	Above 20 years	5	16.7
Years of Teaching Geography	0-5 years	6	20.0
	6-10 years	10	33.3
	11-15 years	8	26.7
	16-20 years	4	13.3

Demographic Variable	Category	Frequency (n)	Percentage (%)
	Above 20 years	2	6.7

Observational Sample

The observational checklist was used to evaluate 8 sample lessons from the selected Geography teachers. The sample was chosen to represent a range of teaching experiences and institutional types.

Quantitative Results

Effectiveness of Rules and Regulations

The survey data on the effectiveness of rules and regulations in online Geography lessons were analysed using descriptive and inferential statistics.

Descriptive Statistics

Table 3: Descriptive statistics for the effectiveness of rules and regulations

Item	Mean	Standard Deviation
Rules are clear and easy to understand	4.20	0.65
Guidelines are helpful for lesson delivery	4.10	0.70
Regulations encourage interactive lessons	3.85	0.80
Lessons are well-organized and coherent	4.05	0.60
Regulations improve overall lesson quality	4.00	0.75

Inferential Statistics

T-tests and ANOVA were conducted to explore significant differences based on demographic variables.

Gender Differences: T-tests revealed no significant differences in perceptions of rule effectiveness between male and female teachers ($p > 0.05$).

Experience Level: ANOVA indicated significant differences in how regulations impact lesson quality based on years of teaching experience ($F(4, 25) = 3.67$, $p < 0.05$). Teachers with 6-10 years of experience reported higher satisfaction with regulations than those with less experience.

Adherence to Mayer's Principles

The survey also assessed adherence to Mayer's principles of multimedia learning. The results are summarized in the table below

Table 4: Adherence to Mayer's principles of multimedia learning

Principle	Mean	Standard Deviation
Multimedia Principle	4.15	0.60
Spatial Contiguity Principle	4.05	0.65
Temporal Contiguity Principle	4.00	0.70
Coherence Principle	3.90	0.75
Modality Principle	3.80	0.80
Redundancy Principle	3.85	0.85
Segmenting Principle	4.10	0.70
Pre-training Principle	3.95	0.75
Signaling Principle	4.00	0.65
Personalization Principle	3.85	0.80

Statistical Analysis

Inferential statistics were used to explore differences in adherence to Mayer's principles based on demographic factors.

Institution Type: ANOVA showed significant differences in adherence to the Multimedia Principle across different types of institutions ($F(2, 27) = 4.25$, $p < 0.05$). Teachers from secondary education institutions reported better adherence compared to those from primary and secondary schools.

Qualitative Insights

Challenges and Benefits of Rules and Regulations

Responses to open-ended questions revealed several themes:

Clarity and Communication: Many teachers highlighted that clear and well-communicated rules are essential for effective online teaching. However, some teachers felt that regulations were too rigid and did not accommodate diverse teaching styles.

Impact on Lesson Quality: Teachers generally agreed that regulations have improved lesson quality by providing structure and guidelines. However, there were concerns about the lack of flexibility in adapting regulations to different teaching contexts.

Implementation of Mayer's Principles

Qualitative responses provided insights into how Mayer's principles were applied in practice:

Multimedia and Modality: Teachers reported using multimedia elements effectively but struggled with the Redundancy Principle, often repeating information verbally and in text form.

Personalization and Engagement: Teachers who applied the Personalization Principle noted improved student engagement and interaction. However, some found it challenging to maintain a conversational tone in formal online settings.

Interpretation of Findings

Effectiveness of Rules and Regulations

The findings suggest that Geography teachers generally find the rules and regulations for online lessons to be effective in providing clarity and structure. Teachers with moderate to extensive experience reported higher satisfaction with the regulations, indicating that experienced teachers may better navigate and utilize the guidelines to enhance lesson quality.

The positive impact of regulations on lesson organization and coherence aligns with findings by Boud and Falchikov (2007), who emphasize the importance of clear guidelines in improving instructional effectiveness. However, the variability in perceptions of interactivity suggests that while some regulations foster engagement, others may need refinement to address diverse teaching methods.

Adherence to Mayer's Principles

The adherence to Mayer's multimedia learning principles was generally high, with notable exceptions in the Redundancy and Modality Principles. The positive adherence to the Multimedia and Spatial Contiguity Principles reflects a strong alignment with Mayer's recommendations for integrating text and visuals (Mayer, 2009).

The challenges with the Redundancy Principle suggest that teachers may need additional training or resources to avoid unnecessary repetition in online content. This finding is consistent with research by Moreno and Mayer (2007), which highlights the importance of minimizing redundant information to enhance learning outcomes.

Impact of Institutional Type

The differences in adherence to Mayer's principles based on institutional type indicate that teachers in higher education institutions may have more resources or training to effectively apply multimedia principles. This finding supports the notion that institutional context can influence instructional practices (Biggs, 2003).

Qualitative Insights on Implementation

Qualitative data revealed that while teachers recognize the benefits of following Mayer's principles, there are practical challenges in implementing them consistently. The feedback underscores the need for ongoing professional development and support to help teachers effectively apply multimedia principles in diverse online teaching contexts.

Summary

This chapter presented the findings from the study on the effectiveness of rules and regulations in Geography teachers' online lesson presentations. The quantitative analysis highlighted the overall positive impact of regulations and adherence to Mayer's principles, with some variations based on demographic and institutional factors. The qualitative insights provided additional context, revealing challenges and benefits associated with implementing regulations and multimedia principles. The next chapter will discuss these findings in relation to existing literature and provide recommendations for improving online Geography education.

CHAPTER FIVE: DISCUSSIONS OF FINDINGS, RECOMMENDATIONS, AND CONCLUSIONS

This chapter offers an extensive discussion of the findings from the study on the effectiveness of rules and regulations in Geography teachers' online lesson presentations, with a focus on adherence to Mayer's multimedia learning principles. It delves deeply into the implications of the findings, providing a detailed interpretation of how regulations impact teaching practices and learning outcomes. The chapter also presents comprehensive recommendations for improving online instruction and concludes with a summary of the study's contributions, limitations, and directions for future research.

Discussion of Findings

Effectiveness of Rules and Regulations

The study's findings reveal that the rules and regulations governing online lessons are generally perceived as effective by Geography teachers. However, the effectiveness varies based on several factors, including the clarity of the guidelines, their impact on lesson organization, and the challenges teachers face in maintaining interactivity.

Clarity and Communication

The high mean scores for clarity and helpfulness indicate that well-defined regulations are essential for guiding lesson planning and delivery. Clear guidelines help teachers structure their lessons more effectively, ensuring that content is presented in a coherent and organized manner. This finding aligns with Boud and Falchikov (2007), who argue that clarity in instructional guidelines enhances teaching effectiveness by providing a structured framework for educators.

For instance, a guideline that specifies the format for presenting key concepts and integrating multimedia elements can help teachers create more engaging and structured lessons. Teachers reported that such guidelines reduced ambiguity and allowed them to focus on delivering high-quality instruction. One teacher noted, "Having clear guidelines on how to present key concepts with multimedia support made my lessons more coherent and engaging for students." This reflects the importance of clarity in reducing cognitive load and improving lesson delivery (Sweller, Ayres, & Kalyuga, 2011).

The study found that regulations positively influenced lesson delivery by providing a framework for content organization. Structured guidelines help teachers plan their lessons more

systematically, which can lead to improved instructional quality. This is consistent with Meyer's (2009) findings, which suggest that structured instructional frameworks contribute to more effective lesson delivery by helping teachers maintain a logical flow of information. An example is the use of standardized formats for lesson plans that include specific sections for objectives, content, activities, and assessments. This format ensures that all essential components are covered and helps teachers maintain consistency across lessons. A teacher highlighted, "The standardized lesson plan format has made it easier to ensure all important aspects of the lesson are covered, leading to more thorough and effective teaching." This structured approach aligns with instructional design principles that emphasize clear objectives and organized content delivery (Reigeluth & Carr-Chellman, 2009).

Challenges with Interactivity

Despite the overall positive feedback, some teachers expressed concerns about the rigidity of regulations, which they felt constrained their ability to engage students interactively. This tension between structure and flexibility is a critical issue in online education. While regulations provide necessary structure, they can also limit teachers' ability to adapt their teaching methods to meet students' needs and preferences. Pellegrino et al. (2001) highlight the importance of balancing structured guidelines with flexibility to support diverse teaching approaches.

Teachers reported challenges in incorporating interactive elements, such as discussions and group activities, within the constraints of rigid guidelines. For example, a regulation that requires teachers to follow a specific sequence of content delivery may limit their ability to respond to students' questions and facilitate spontaneous discussions. One teacher mentioned, "The strict sequence of content delivery sometimes prevents me from addressing students' questions and fostering interactive discussions." This highlights the need for flexibility in guidelines to accommodate interactive teaching methods (Laurillard, 2012).

Adherence to Mayer's Principles

The adherence to Mayer's multimedia learning principles was generally high among Geography teachers, with some notable exceptions. The study provides insights into how well teachers implement these principles and highlights areas for improvement.

Multimedia Principle

The high scores for the Multimedia Principle indicate that teachers effectively use a combination of text and visuals in their lessons. This principle suggests that presenting information in both

verbal and visual formats can enhance learning by providing multiple channels for information processing (Mayer, 2009). Teachers reported using multimedia elements, such as images, videos, and diagrams, to complement their verbal explanations.

Examples of effective use include incorporating videos that demonstrate geographic phenomena and using diagrams to illustrate complex concepts. These practices align with Mayer's (2009) recommendation to integrate multimedia elements to support learning. One teacher noted, "Using videos and diagrams has made it easier for students to understand complex geographic processes." This illustrates the importance of multimedia in enhancing comprehension and retention (Clark & Mayer, 2016).

Spatial and Temporal Contiguity Principles

High adherence to the Spatial and Temporal Contiguity Principles reflects that teachers place related information close together in space and time. This approach helps reduce cognitive load by aligning visual and verbal information, making it easier for students to integrate and understand the content (Mayer, 2009). Teachers reported using techniques such as placing captions directly below images and synchronizing verbal explanations with visual elements.

An example is presenting a map with labels and explanations that appear simultaneously, rather than showing the map first and providing explanations afterward. This approach helps students make connections between different pieces of information more effectively. A teacher shared, "Synchronizing labels with explanations on maps has significantly improved students' understanding of spatial relationships." This supports the efficacy of spatial and temporal contiguity in enhancing learning (Sweller et al., 2011).

Challenges with the Redundancy Principle

The study identified lower adherence to the Redundancy Principle, indicating that teachers often presented redundant information in both text and verbal formats. Redundant information can overwhelm students and detract from the learning experience (Moreno & Mayer, 2007). Teachers may repeat key points verbally and in written form, leading to cognitive overload.

For instance, a lesson might include a slide with a detailed text explanation of a geographic concept followed by a verbal repetition of the same content. Reducing redundancy involves streamlining content to avoid unnecessary repetition and focusing on presenting information in a concise and engaging manner. One teacher admitted, "I often find myself repeating information in both text

and speech, which can be overwhelming for students." This highlights the need for training on effective content delivery strategies to minimize redundancy (Clark & Mayer, 2016).

Modality Principle

The study found moderate adherence to the Modality Principle, which emphasizes using auditory and visual modes of instruction to enhance learning. Teachers reported using both modes but faced challenges in balancing them effectively. Research suggests that combining auditory and visual information can improve learning if managed correctly (Mayer, 2009).

Examples include using voice-over narration to explain visual content and incorporating interactive elements, such as quizzes or simulations, that engage multiple senses. Teachers should aim to balance these modes to avoid overwhelming students with too much information at once. A teacher remarked, "Incorporating voice-over narration with visual aids has been effective, but balancing the amount of information presented is challenging." This underscores the importance of managing cognitive load in multimedia learning environments (Sweller et al., 2011).

Personalization Principle

Adherence to the Personalization Principle was lower, suggesting that teachers may struggle to maintain a conversational tone in formal online settings. This principle highlights the importance of engaging students with a conversational style to enhance learning (Mayer, 2009). Teachers reported finding it challenging to strike a balance between formal instruction and a conversational approach.

Recommendations for Improvement

Training on effective communication strategies and techniques for engaging students in online environments can help teachers adopt a more personalized approach. For example, using informal language and addressing students directly can make lessons more engaging and relatable. One teacher noted, "It's difficult to maintain a conversational tone in an online setting, but using informal language and directly addressing students helps." This highlights the need for professional development in effective online communication strategies (Garrison & Vaughan, 2008).

The study's findings suggest that while rules and regulations are generally effective in guiding Geography teachers' online lessons, there are areas where improvements can be made to enhance interactivity and adherence to Mayer’s multimedia learning principles. The clear and structured guidelines positively impact lesson planning and delivery, helping teachers present content

coherently. However, the rigidity of some regulations may hinder interactive teaching methods, suggesting a need for more flexible guidelines that allow for spontaneous student engagement. Teachers effectively use multimedia elements to enhance learning, but challenges with redundancy and modality balance indicate a need for training on optimizing multimedia use. Reducing redundant information and balancing auditory and visual content can improve the learning experience.

The struggle to maintain a conversational tone highlights the need for professional development in personalized online teaching strategies. Engaging students with a conversational style can enhance their learning experience and make lessons more relatable and effective. The findings have several implications for practice. First, educational authorities should consider revising guidelines to allow more flexibility for interactive teaching methods. Second, professional development programs should focus on training teachers to optimize multimedia use and maintain a conversational tone in online lessons. Finally, ongoing support and feedback mechanisms can help teachers continually improve their online teaching practices.

Recommendations

Based on the findings, several recommendations can be made to enhance the effectiveness of online Geography lessons. These recommendations are aimed at addressing the identified challenges and leveraging the strengths observed in the current instructional practices.

1. Revise Guidelines for Flexibility

Educational authorities should revise instructional guidelines to allow more flexibility, enabling teachers to incorporate interactive elements and respond to students' needs effectively. The study highlighted that while structured guidelines provide essential direction, their rigidity can sometimes stifle teacher creativity and adaptability. Pellegrino et al. (2001) emphasized the importance of balancing structured guidelines with flexibility to support diverse teaching approaches. By allowing teachers the flexibility to modify lesson plans and incorporate interactive elements such as discussions, group work, and real-time feedback, educators can create more engaging and responsive learning environments.

For instance, guidelines could be revised to include a range of suggested activities rather than a prescribed sequence, giving teachers the autonomy to choose the most appropriate methods for their students. This approach not only respects teachers' professional judgment but also encourages innovation in instructional design. Additionally, incorporating periodic reviews and updates to the

guidelines based on teacher feedback and emerging educational research can ensure that they remain relevant and effective.

2. Professional Development

Training programs should focus on optimizing multimedia use, reducing redundancy, and balancing auditory and visual content to enhance learning outcomes. The study found that while teachers are generally adept at using multimedia elements, there is room for improvement in adhering to Mayer's principles, particularly concerning the Redundancy Principle. Moreno and Mayer (2007) suggest that redundant information can overwhelm students and detract from the learning experience. Therefore, professional development should include training on how to present information concisely and avoid unnecessary repetition.

Moreover, workshops and seminars could provide teachers with hands-on experience in using various multimedia tools and techniques effectively. For example, training on creating interactive videos, using digital storytelling, and integrating simulations can enhance teachers' skills in delivering dynamic and engaging lessons. These programs should also cover best practices for balancing auditory and visual content to prevent cognitive overload and enhance comprehension.

Furthermore, ongoing professional development opportunities, such as online courses and webinars, can help teachers stay updated with the latest advancements in educational technology and multimedia learning. These initiatives can be supplemented with resources such as instructional guides, video tutorials, and exemplar lesson plans that demonstrate effective multimedia integration.

3. Personalization Strategies

Professional development should also include strategies for maintaining a conversational tone and engaging students in online environments, making lessons more relatable and effective. The study found lower adherence to the Personalization Principle, indicating a need for teachers to adopt a more conversational and engaging instructional style. Mayer (2009) emphasizes that a conversational tone can make learning more personal and engaging, which is particularly important in online education where face-to-face interaction is limited.

Training sessions could focus on communication techniques that foster a conversational and interactive classroom environment. For instance, teachers can be trained to use informal language, ask open-ended questions, and encourage student participation through discussions and interactive

activities. Role-playing exercises and peer feedback can help teachers practice and refine these strategies in a supportive setting.

Additionally, incorporating personalization tools such as adaptive learning platforms, personalized feedback, and student-centered activities can enhance engagement and learning outcomes. These tools can help teachers tailor their instruction to individual student needs, preferences, and learning styles, thereby making lessons more effective and meaningful.

4. Ongoing Support

Establish support mechanisms, such as peer review and feedback, to help teachers continually improve their online teaching practices and adapt to changing educational needs. The study underscored the importance of continuous improvement and adaptation in online education. Boud and Falchikov (2007) highlight that ongoing support and feedback are crucial for professional growth and development.

Peer review systems can provide teachers with constructive feedback on their instructional practices, helping them identify strengths and areas for improvement. For example, teachers could participate in regular peer observation sessions where they observe each other's lessons and provide feedback based on predefined criteria. This collaborative approach fosters a culture of continuous learning and professional development.

Mentorship programs can also be established to support novice teachers and help them navigate the complexities of online teaching. Experienced educators can provide guidance, share best practices, and offer practical advice on overcoming common challenges. This support can be particularly valuable for teachers who are new to online education and may require additional assistance in adapting their teaching methods.

Moreover, creating online communities of practice where teachers can share resources, discuss challenges, and collaborate on innovative teaching strategies can further enhance professional development. These communities can serve as a platform for teachers to exchange ideas, seek advice, and celebrate successes, thereby fostering a supportive and collaborative professional network.

Detailed Implementation Plan

To effectively implement these recommendations, a detailed plan is essential. The following steps outline a structured approach to enhancing the effectiveness of online Geography lessons:

1. **Review and Revise Guidelines**:
   - Form a committee of experienced Geography teachers, instructional designers, and educational policymakers to review the current guidelines.
   - Conduct surveys and focus group discussions with teachers to gather feedback on the existing guidelines and identify areas for improvement.
   - Revise the guidelines to incorporate flexibility, allowing teachers to choose from a range of suggested activities and modify lesson plans as needed.
   - Pilot the revised guidelines in a few schools and gather feedback to make further refinements before a broader rollout.
2. **Design and Deliver Professional Development Programs**:
   - Collaborate with educational technology experts to design training modules on optimizing multimedia use, reducing redundancy, and balancing auditory and visual content.
   - Schedule regular workshops, webinars, and online courses to deliver these training modules to Geography teachers.
   - Provide teachers with access to a repository of resources, including instructional guides, video tutorials, and exemplar lesson plans.
   - Encourage teachers to participate in hands-on training sessions where they can practice using multimedia tools and receive feedback from trainers.
3. **Promote Personalization Strategies**:
   - Develop training sessions focused on communication techniques that foster a conversational and engaging online classroom environment.
   - Incorporate role-playing exercises and peer feedback activities in the training sessions to help teachers practice and refine personalization strategies.
   - Introduce teachers to adaptive learning platforms and other personalization tools that can help tailor instruction to individual student needs.
   - Provide ongoing support and resources to help teachers integrate these strategies into their online lessons.
4. **Establish Ongoing Support Mechanisms**:
   - Create a peer review system where teachers can observe each other's lessons and provide constructive feedback.

- Develop mentorship programs to support novice teachers and provide guidance from experienced educators.
- Set up online communities of practice where teachers can share resources, discuss challenges, and collaborate on innovative teaching strategies.
- Encourage teachers to participate in regular professional development activities and provide recognition for their efforts in continuous improvement.

By implementing these recommendations, educational authorities can enhance the effectiveness of online Geography lessons, ensuring that teachers are well-equipped to deliver high-quality instruction that meets the diverse needs of their students. The focus on flexibility, professional development, personalization, and ongoing support will help create a dynamic and responsive online learning environment that fosters student engagement and achievement.

Monitoring and Evaluation

To ensure the success of these initiatives, it is essential to establish a robust monitoring and evaluation framework. The following steps outline a structured approach to assessing the impact of the recommendations:

1. **Set Clear Objectives and Indicators**:
   - Define specific objectives for each recommendation, such as improving teacher flexibility, enhancing multimedia use, and increasing student engagement.
   - Develop key performance indicators (KPIs) to measure progress toward these objectives, such as the number of teachers trained, the frequency of peer review sessions, and student feedback on lesson quality.
2. **Collect and Analyze Data**:
   - Use surveys, interviews, and focus groups to gather feedback from teachers, students, and educational administrators on the implementation of the recommendations.
   - Analyze the data to identify trends, strengths, and areas for improvement. For example, examine changes in teacher confidence and competence in using multimedia tools, as well as student engagement and learning outcomes.
3. **Provide Feedback and Make Adjustments**:
   - Share the findings with stakeholders, including teachers, educational authorities, and policymakers, to inform decision-making and continuous improvement.

- Make adjustments to the recommendations and implementation strategies based on the feedback received. For instance, if teachers report challenges in using certain multimedia tools, additional training and support can be provided.

4. **Document and Disseminate Best Practices**:

- Document successful strategies and best practices identified through the monitoring and evaluation process.
- Disseminate these best practices through workshops, publications, and online platforms to encourage widespread adoption and replication.

By establishing a comprehensive monitoring and evaluation framework, educational authorities can ensure that the recommendations are effectively implemented and continuously refined to meet the evolving needs of teachers and students.

The study's findings underscore the importance of revising guidelines for flexibility, providing targeted professional development, promoting personalization strategies, and establishing ongoing support mechanisms. These recommendations, supported by detailed implementation plans and robust monitoring and evaluation processes, can significantly enhance the effectiveness of online Geography lessons. By adopting these strategies, educational authorities can empower teachers to deliver high-quality, engaging, and responsive instruction that meets the diverse needs of their students.

Conclusions

This study aimed to evaluate the effectiveness of rules and regulations governing Geography teachers' online lesson presentations and their adherence to Mayer’s multimedia learning principles. The findings underscore the positive perception of regulations among teachers, highlighting that these guidelines provide much-needed clarity and structure in lesson planning and delivery. Teachers reported that well-defined regulations assist in organizing their lessons more effectively, ensuring a coherent presentation of content. This aligns with Boud and Falchikov's (2007) assertion that clarity in instructional guidelines enhances teaching effectiveness. However, there is a notable concern regarding the impact of these regulations on interactivity. Teachers expressed that while structured guidelines are beneficial for lesson organization, they can sometimes be overly rigid, limiting their ability to incorporate interactive elements and respond to students' immediate needs. This tension between maintaining structure

and fostering interactivity indicates the necessity for more flexible guidelines that allow for adaptability in teaching methods, as emphasized by Pellegrino et al. (2001).

The study also found a high adherence to several of Mayer's multimedia learning principles among Geography teachers. Principles such as Multimedia, Spatial Contiguity, and Temporal Contiguity were well-implemented, suggesting that teachers effectively use a combination of text and visuals, and align related information closely in space and time. This effective implementation helps reduce cognitive load and enhances students' understanding, supporting Mayer's (2009) theories on multimedia learning. However, challenges were observed with the Redundancy and Personalization Principles. Teachers often presented redundant information in both text and verbal formats, which can overwhelm students and detract from the learning experience (Moreno & Mayer, 2007). Additionally, maintaining a conversational tone, crucial for the Personalization Principle, proved difficult in the formal setting of online education. This suggests a need for professional development focused on reducing redundancy and adopting more engaging communication strategies. Training programs that emphasize balancing auditory and visual content, and maintaining a conversational style can help teachers create more effective and relatable online lessons.

The impact of institutional type on adherence to Mayer's principles revealed significant differences between higher education institutions and primary and secondary schools. Teachers in higher education institutions demonstrated better adherence to multimedia principles, likely due to greater access to resources, professional development opportunities, and technological support. Institutions with dedicated instructional design teams and technology support services facilitate the application of these principles more effectively (Biggs, 2003). In contrast, teachers in primary and secondary schools face more challenges, often due to limited resources and less frequent access to professional development. (Mbangwana, 2008). Introduction of ICT in Schools and Classrooms in Cameroon, this disparity highlights the need for targeted support for teachers in these settings. Providing tailored professional development and resources can help improve adherence to multimedia principles in primary and secondary schools. Moreover, qualitative insights from the study indicate that teachers face practical challenges in balancing multimedia elements and maintaining a conversational tone. To address these challenges, it is recommended

that educational authorities revise instructional guidelines for flexibility, design professional development programs focused on multimedia optimization and personalization strategies, and establish ongoing support mechanisms such as peer review and feedback systems. By implementing these recommendations, educational authorities can enhance the effectiveness of online Geography education and support teachers in delivering high-quality, engaging lessons that meet diverse student needs.

Contributions to the Field

This study contributes to the field of online education by providing empirical evidence on the effectiveness of instructional regulations and adherence to multimedia learning principles. The findings offer valuable insights into how rules and regulations impact online teaching practices and highlight areas for improvement.

Theoretical Contributions: The study extends Mayer's multimedia learning theory by applying it to the context of online education and exploring its practical implications for Geography teachers. The findings provide a deeper understanding of how multimedia principles are implemented in online lessons.

Practical Contributions: The study offers actionable recommendations for improving online teaching practices and institutional support. By addressing the challenges identified in the study, institutions can enhance the quality of online instruction and better support teachers in applying multimedia principles.

Implications for Practice

The study's findings have several implications for practice:

Revise Guidelines: Educational institutions should revise guidelines to provide more flexibility and support diverse teaching methods. Flexible guidelines can accommodate diverse teaching styles and adapt to different learning contexts.

Provide Targeted Training: Professional development programs should focus on practical applications of multimedia learning principles and strategies for avoiding redundancy. Training should be tailored to the specific needs of teachers and include interactive components.

Invest in Resources: Institutions should invest in technology and resources that support effective online teaching and provide ongoing support for teachers. This includes allocating funds for multimedia tools and offering technical support.

Suggestions for Future Research

Future research should explore the long-term effects of instructional regulations and professional development on teaching practices and student outcomes. Investigating the effectiveness of specific multimedia elements and evaluating diverse teaching contexts can provide further insights into optimizing online learning environments.

Longitudinal Studies: Conduct longitudinal studies to track changes in teaching practices and student performance over time. This research can provide valuable insights into the effectiveness of interventions and guide future improvements.

Investigate Specific Multimedia Elements: Explore the effectiveness of different multimedia elements and their impact on student learning. This research can inform instructional design and help educators select the most effective multimedia tools.

Evaluate Diverse Teaching Contexts: Analyze how different teaching contexts influence the application of multimedia principles. This research can help identify specific challenges and opportunities for improving online instruction.

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APPENDICES

Research Authorization

REPUBLIQUE DU CAMEROUN
*****
Paix – Travail – Patrie
*****
UNIVERSITE DE YAOUNDE I
*****
FACULTE DES SCIENCES DE L'EDUCATION
*****
DEPARTEMENT CURRICULA ET EVALUATION
*****

REPUBLIC OF CAMEROON
*****
Peace – Work – Fatherland
*****
UNIVERSITY OF YAOUNDE I
*****
FACULTY OF EDUCATION
*****
DEPARTMENT OF CURRICULUM AND EVALUATION
*****

Le Doyen
The Dean

N°_____/24/UYI/CD

AUTORISATION DE RECHERCHE

Je soussigné, **Professeur BELA Cyrille Bienvenu**, Doyen de la Faculté des Sciences de l'Education de l'Université de Yaoundé I, certifie que l'étudiante **EWAH Marie-Claire,** Matricule **22W3517** est inscrit en Master II à la Faculté des Sciences de l'Education, Département : ***CURRICULA ET EVALUATION,*** filière ***: MANAGEMENT DE L'EDUCATION,*** Spécialité : ***ADMINISTRATION ET INSPECTION EN EDUCATION.***

L'intéressée doit effectuer des travaux de recherche en vue de la préparation de son diplôme de Master. Elle travaille sous la direction du **Dr SHAIBOU Abdoulai HAJI.** Son sujet est intitulé: « ***The rules and regulations on the presentation of lessons in distance learning platforms: the case of geography teachers.*** ».

Je vous saurai gré de bien vouloir la recevoir et de mettre à sa disposition toutes les informations susceptibles de l'aider à conduire ses travaux de recherches.

En foi de quoi, cette autorisation de recherche lui est délivrée pour servir et valoir ce que de droit /.

Fait à Yaoundé, le 26/01/2024

Pour le Doyen et P.O.

UNIVERSITE DE YAOUNDE I * THE UNIVERSITY OF YAOUNDE I * FACULTE DES SCIENCES DE L'EDUCATION * FACULTY OF EDUCATION
Le Vice-Doyen

DONGO Etienne
Professeur

Research Instrument: Survey Questionnaire

UNIVERSITE DE YAOUNDE I
******
FACULTE DES SCIENCES DE L'EDUCATION
******
CENTRE DE RECHERCHE EN SCIENCES SOCIALES ET EDUCATIVES

THE UNIVERSITY OF YAOUNDE I
******
FACULTY OF SCIENCES OF EDUCATION
******
POST GRADUATE SCHOOL FOR SOCIAL AND EDUCATIONAL SCIENCES
******

Section A: Demographic Information	**Options**
1. What is your age?	20-30
	31-40
	41-50
	51-60
	Above 60
2. What is your gender?	Male
	Female
	Prefer not to say
3. What is your highest level of education?	Bachelor's Degree
	Master's Degree
	PhD
	Other (please specify)
4. How many years of teaching experience do you have?	0-5 years
	6-10 years
	11-15 years
	16-20 years
	Above 20 years
5. How many years of experience do you have teaching Geography?	0-5 years
	6-10 years
	11-15 years
	16-20 years
	Above 20 years

Section B: Effectiveness of Rules and Regulations	1	2	3	4	5
1. The rules and regulations provided for online Geography lessons are clear and easy to understand.					
2. I find the guidelines for structuring online Geography lessons helpful in delivering content effectively.					
3. The rules and regulations encourage interactive and engaging Geography lessons.					
4. The regulations ensure that the online Geography lessons are well-organized and coherent.					
5. The rules and regulations have improved the overall quality of my Geography lesson presentations.					

Section C: Mayer's Principles of Multimedia Learning	1	2	3	4	5
1. Multimedia Principle: My online Geography lessons effectively combine spoken/written words with relevant images.					
2. Spatial Contiguity Principle: I ensure that text and corresponding images are displayed near each other on the screen.					
3. Temporal Contiguity Principle: I present spoken or written words at the same time as the related images.					
4. Coherence Principle: My lessons avoid adding unnecessary content that may distract students from the main material.					
5. Modality Principle: I use audio narration instead of on-screen text whenever possible to explain images and animations.					
6. Redundancy Principle: I avoid reading the text displayed on the screen verbatim in my Geography lessons.					
7. Segmenting Principle: My Geography lessons are divided into manageable segments that students can navigate at their own pace.					
8. Pre-training Principle: I introduce key geographical concepts before diving into more complex materials.					
9. Signaling Principle: I use visual or verbal cues to highlight important information in my lessons.					
10. Personalization Principle: I present my lessons in a conversational style rather than a formal, academic tone.					

Section D: Open-ended Questions	
1. What specific challenges do you face when adhering to the rules and regulations for online Geography lessons?	[Text box]
2. In what ways have the rules and regulations positively impacted your lesson presentations?	[Text box]
3. How do you ensure that your online Geography lessons are engaging and effective for students?	[Text box]
4. What improvements would you suggest for the current rules and regulations to enhance the effectiveness of online Geography lessons?	[Text box]
5. Please share any additional comments or experiences regarding the implementation of Mayer's principles in your Geography lessons.	[Text box]

Observation Checklist for Sample Lessons

Criteria	Observed (Yes/No)	Comments
1. Clarity of Rules and Regulations		
The lesson follows clearly stated rules and regulations for online delivery.		
The objectives and expectations of the lesson are clearly communicated to students.		
2. Lesson Structure and Organization		
The lesson is well-organized and follows a logical sequence.		
The lesson includes an introduction, body, and conclusion.		
3. Engagement and Interactivity		
The lesson includes interactive elements (e.g., quizzes, polls, discussions).		
The teacher encourages student participation and interaction.		
4. Use of Multimedia Principle		
The lesson effectively combines spoken/written words with relevant images.		
5. Spatial Contiguity Principle		
Text and corresponding images are displayed near each other on the screen.		
6. Temporal Contiguity Principle		
Spoken or written words are presented at the same time as the related images.		
7. Coherence Principle		
The lesson avoids adding unnecessary content that may distract students.		
8. Modality Principle		
The teacher uses audio narration instead of on-screen text whenever possible.		
9. Redundancy Principle		
The teacher avoids reading the text displayed on the screen verbatim.		
10. Segmenting Principle		
The lesson is divided into manageable segments that students can navigate at their own pace.		
11. Pre-training Principle		

Criteria	Observed (Yes/No)	Comments
Key geographical concepts are introduced before diving into more complex materials.		
12. Signaling Principle		
Visual or verbal cues are used to highlight important information.		
13. Personalization Principle		
The lesson is presented in a conversational style rather than a formal, academic tone.		
14. Technical Quality		
The audio and video quality of the lesson are clear and professional.		
The lesson materials are easily accessible to students.		
15. Student Feedback and Interaction		
The teacher provides opportunities for students to give feedback.		
The teacher responds to student questions and comments in a timely manner.		

Instructions for Observers

1. **Watch the entire lesson** and fill out the checklist based on your observations.
2. **For each criterion, mark "Yes" or "No"** in the "Observed" column based on whether the criterion is met.
3. **Provide comments** to elaborate on observations, especially if marking "No." Describe specific instances and suggestions for improvement.
4. **Submit the completed checklist** to the research coordinator for analysis.

DISTANCE EDUCATION-ANALYSIS SHEET OF LESSON

I. IDENTIFICATION OF THE LESSON

1.1. Subject/discipline: _____GEOGRAPHY_____

1.2. Title of the lesson: LOCATION OF REGIONAL AND DIVISIONAL HEADQUARTERS OF CAMEROON

1.3. Class: ____TWO_____

1.4. Inspectorate: _____SOCIAL SCIENCES

1.5. Section: _____GEOGRAPHY_____

II. PEDAGOGIC ASPECT

N°	APPLICATION OF TEACHING AND LEARNING ACTIVITIES	VALIDATION CRITERIA	YES +	NO ---	OBSERVATIONS
1.	LESSON OBJECTIVE	Compliance with the teaching syllabus	+		
		Adherence to the rules of formulation: observable and measurable behaviour with an action verb.	+		
2.	PREREQUISITES CONTROL	Link (necessary) with the targetted teaching.	+		
3.	REAL LIFE SITUATION (IN CASE OF NEED)	Relevance (correlation with the lesson, source of motivation for the student)	+		Possibility to start a lesson with a phase of exploration/discovery (of the concept or problem to be addressed).

4.	TEACHING AND LEARNING ACTIVITES . (systematization Phase)	• Analysis ; • Structuring (formulation of the rule or logical conclusions).	+		
5.	FINAL EVALUATION(S)	• Application exercises ; • Reinvestment/transfer exercises.	+		Application Exercise: automation of certain know-how
6.	PEDAGOGICAL SUPPORTS/AUXILIARIES	Effectiveness and relevance.	+		

III. TECHNICAL CONTENT

N°	QUALITY OF THE TECHNICAL CONTENT	EVALUATION CRITERIA	YES/ +	NO / ---	OBSERVATIONS
	KNOWLEDGE TRANSMITTED	• Scientific accuracy ; • Precision ; • Coherence.	+		

IV. PHYSICAL ASPECT OF THE LESSON

N°	TEXT	EVALUATION CRITERIA	YES/+	NO/ ---	OBSERVATIONS
1.	TEXT WRITTING	Respect of font type : Times New Roman	+		
		Respect of the font size (text: 24; title : 28, etc.)	+		
		Alignment of bullets, numbers, text.	+		
		Margins (top, bottom, left, right).	+		
		PowerPoint :	+		

		• Compliance with the proposed model, restriction on most powerful ideas ; • Comment in compliance with the slides			
2.	LINGUISTIC CORRECTION OF THE TEXT	spelling/use of words.	+		
		Sentences building (syntactic rules).	+		
		Conjugation (tenses).	+		
		Punctuation.	+		

V. THE PRESENTER

N°	PRESENTATION	EVALUATION CRITERIA	YES /+	NO /--	OBSERVATIONS
1.	Dressing	• Sobriety ; • Correction ; • Cleanliness .	+		
2.	GESTURE (body movment)	• Self confidence ; • Assurance (without exageration) ; • Expressiveness	+		
3.	ELOCUTION (oral expression)	(Quality of the flow) sequencing of sentences.	+		
		Elocution /articulation.	+		
		Choice of words.	+		