

Utilizing Information, Communication and Technology as a Strategy to Engage Students in Effectively Learning English Practical Phonetics and Morphology Course at the University of Nouakchott Al-Asriya

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Abstract: *The need to adopt innovative teaching methods in higher education has driven educators to think about information, communication and technology (Hereafter ICT) integration into education from the perspective that it has become the knowledge transfer highway in most countries (Ghavifekr & Rosdy, 2015). In Mauritania, such an integration strategy is highly required not only to overcome issues such as overcrowding, but also to facilitate learning process. From this perspective, as a lecturer in practical phonetics and morphology course, I have integrated digital projector and Telegram as complementary supports to the face-to-face method in order to provide my students with a dynamic learning environment. Thus, the aim here is to evaluate the whole process of such an integration, taking into account students' attitudes towards it. These objectives led to adopting a quantitative method of data collection through the use of questionnaire and the participating students were 161. The results showed that students held positive attitudes. According to them, integration of these ICT tools alongside the interactive, face-to-face teaching method deepened their knowledge, increased their understanding, improved their engagement in class discussions and activities, and promoted their interpersonal interactions. They even suggested further improvement to make it easier and more enjoyable.*

Keywords: EFL, Face-To-Face Teaching Method, Morphology, ICT Tools, Practical Phonetics

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Introduction

The endeavor to benefit from ICT in the domain of education has drawn attention of educators and researchers from all around the world in the 21st century as it has invaded all aspects of lives and turns things upside down. This requires hard work to adopt new innovative teaching strategies which adapt the traditional methods to new practices integrating ICT in the different stages of education. This new theory guarantees students access to knowledge in different formats. However, in order for this to be promoted smoothly, teachers are required to change their behavior and mindset. Herawati (2011) suggests that the 21st century teachers and lecturers' key technological and pedagogical competencies related to learning content and content knowledge must be developed (as cited in Albatti, 2023). Therefore, as a lecturer in Practical Phonetics and Morphology (Hereafter PPM) at the English department, University of Nouakchott Al-Asriya, I see that there is a necessity to change the way this course is taught for the sake of promoting the acquisition process of the English phonological component.

Problem Statement

Mauritanian English as a foreign language (hereafter EFL) students consider phonetics and phonology as the most difficult course in the first semester. This is not without reasons: First, they are native speakers of phonetic languages (Hassania, Pulaar, Wolof and Soninke), where there is a substantial resemblance between letters and sounds; whereas, English has very little correspondence between the letters and sounds. Hence, while speaking English, they mispronounce words due to the first language (hereafter L1) or second language (hereafter L2) negative transfer. Second, not all English sounds exist in their L1 or L2 respectively. For example, the English sounds such as [ʃ], [p], [dʒ], [ŋ] do not exist in Hassania (Taine-Cheikh, 2007). Neither do the following sounds in Pulaar: [ʃ], [dʒ], [ŋ], [z], [θ], [ð], [v], [z] (Ba, 2013). Therefore, students tend to substitute the absent English sounds with the similar ones existing in their L1s respectively, and this affects the semantical meaning of words (Richards, 2015).

To deal with students who have these linguistic barriers and whose English language proficiency level ranges from A2 (Elementary basic level) to B1 (pre-intermediate) according to the Common European Framework of Reference for languages (CEFR), lecturers must overcome the following obstacles: First, overcrowded classes. This obstacle makes the implementation of the intended course contents based on traditional learning methods challenging because not all students have the same opportunity to participate actively in the classroom activities. This leads to the failure of students to attain the course objectives. Second, time allocated to this course is not adequate. Its shortness is considered one of the challenges before lecturers' effectiveness in teaching (Zohrabi, 2011 & Al-Abrawi, 2017). To cope with these complications, introduction of ICT is highly required to replace traditional teaching methods with technology-based teaching and learning tools and facilities. This enables EFL lecturers and students to communicate, share and work collaboratively anywhere and at any time (Dung, 2022). Taking into consideration these advantages, ICT tools were integrated in teaching PPM for the sake of bringing about changes in the instructional delivery method.

Research Objectives

This research paper aims at:

1. Describing the integration process of such ICTs as digital projector and Telegram in teaching PPM;
2. Exploring students' attitudes towards this integration.

Interest of the Study

This research is beneficial to the university as it is provided with enough information about how ICTs are integrated in teaching the intended course. It also reveals the extent to which the use of technology-based teaching and learning influences students' output, without forgetting that this research is expected to deepen the understanding and knowledge of teachers and raise their awareness about the opportunities in hand to revolutionize their teaching methods.

Literature Review

Key Second Language Learning Theories

Like other language components, the acquisition process of L2 phonetic and phonological components has drawn attention of scholars in the domain of second language acquisition. The behaviorist approach, which was widely influential in the 1950s and 1960s, believed that both L1 and L2 learners acquire the appropriate language behaviors (or habits) through repetition and reinforcement (Mackey, 2006). The advocates of this approach attributed the errors made during such a process to L1 interference. They argued that existing L1 knowledge that differs from those of the L2 causes some difficulties in the use of L2 (Lado, 1957; Ellis, 1997; Corder, 1967, Mackey, 2006).

This view inspired other researchers to look at language learning as a more complex interaction of internal and external factors. Stephen Krashen (Mackey, idem) believed that L2 learners need to be exposed to the so-called comprehensible input in the target language that is understandable in a particular context of use but to some extent more advanced than the learner's current level of ability. According to this approach, L2 acquisition can progress automatically and in the same manner as L1 acquisition, but only if the learner does not hold negative attitudes towards it, its speakers or the learning context (Mackey, idem).

However, such a progress needs to be guided through feedback on problematic input and drawing attention to the importance of producing modified output. Interactionists such as Michael Long and Susan Gass (Mackey, idem) developed this opinion. They adopted the interaction hypothesis, which posits that "second language development can be facilitated when learners attempt to communicate with other speakers in the L2, experience difficulties and engage in further interaction with their interlocutors to solve their problems" (Mackey, p.438).

The socioculturalists furthered this perception. They focused on the impact of interpersonal and social aspects of interaction on language learning. They argued that all cognitive development (including language) stems from

interactions between individuals (Mackey, idem). In this frame, interaction between a less skilled L2 learner and a more expert (e.g. teacher, tutor, or more proficient fellow learner) has received much attention. This is from the perspective that “the expert can provide the learner with the opportunity to develop and practice a particular linguistic skill, enabling the learner to accomplish more in collaboration with others than they could by themselves” (Mackey, p.440).

In contrast to the interactionist and socioculturalist approaches, universal grammar theory, which originates in Noam Chomsky’s work, suggested that the only logical explanation for children’s language acquisition is that there is an innate language endowment guiding the process, a language acquisition device (LAD) in the brain (Mackey, idem). In other words, “all languages are comparable in their basic structures, with specific fundamental rules that let users innately acquire a language and allow them to use it rationally and productively” (Aljumah, 2020:202). However, the opportunity to benefit from the universal grammar is not always available since it is claimed that universal grammar is confined to critical period for language acquisition, where after such a period, learners must depend on general learning mechanisms such as memorization to progress in the learning process (Mackey, idem).

Unlike this claim, proponents of frequency-based approach consider the innate endowment as an emergent, bottom-up result of frequencies and regular patterns of actions, events and objects (both linguistic and nonlinguistic) that language learners perceive in their environment (Mackey, idem). According to these proponents, unconsciously learning that particular speech sounds occur together isn’t due to innate linguistic knowledge but frequencies and regular exposure to these phonemes.

Regardless of the differences between these theories, they all converge on the same goal, which is to explain the issue of second language learning for the sake of providing the learner with an emerging, innovative view of the L2 learning process.

ICT and its conceptual framework

Over the years, several definitions of ICT have emerged from different scholars. Online Oxford sees the term as an extended synonym for information technology (IT) (Igboechesi, Dang & Angulu, 2023), but it is broadly used to refer to a diverse set of technological tools and resources used to communicate, create, disseminate, store and manage information (Igboechesi, Dang & Angulu, 2023; Dung, 2022 and Tinio, n.d.). These include all kinds of technologies used for communication and information storage and processing such as computers, the internet, broadcasting technologies and telephony.

In L2 learning, ICTs are mainly categorized into technology for instructional preparation, technology for instructional delivery and technology as a learning tool (Dung, 2022; Inan & Lowther, 2010). Teachers’ professional use of technology involves preparation for a wide range of classroom activities, such as, preparing instructional materials, communicating or collaborating with peers, students and their parents, locating digital resources, and creating lesson plans. When technology is integrated for instructional delivery, both the teacher and students can use it. The teacher can deliver their lectures through the use of a projector, and students can use computers-assisted learning applications, such as, drills and practice, interactive tutorials, and simulations. As for technology as a learning tool, it stands for activities, such as word processing, animations, visuals, PowerPoints, emails and telegrams, through which students use basic software applications to extend their abilities to deal with difficulties, create products, communicate and share perspectives with each other.

Integration of these technology-based teaching and learning processes stands for a break from the traditional educational paradigms and a redefinition of teachers and students’ roles who are thus required to develop skills in using digital technologies that allow them to implement this innovative teaching and learning approach. In this frame, Prensky (2001:1) adopts the term “digital natives” to designate those who have an innate facility to intuitively manage these resources because “they have spent their entire lives surrounded by and using computers, video games, digital music players, video cams, cell phones, and all other toys and tools of the digital age”. He carries on proclaiming that “today’s students think and process information fundamentally differently

from their predecessors” (Prensky, p.1). According to him, “They are all ‘native speakers’ of the digital language of computers, video games and the internet” (Prensky, idem). In contrast to “digital natives”, Prensky uses “digital immigrants” to refer to those of us who were not born into the digital world but have, later, become fascinated by its aspects. Generally, most of us, as teachers, are from this last category. We learn to adapt to the technology-based environment in order to guide our students in the process of knowledge acquisition in a flexible environment, that is, their digital environment (Waasaf & Leanez, 2015). Without making efforts to reduce the intergenerational gap, we will be viruses that unconsciously gradually damage education. Prensky (p.2) declares in this frame that the single biggest issue encountering education today is that “our digital immigrant instructors, who speak an outdated language (that of the pre-digital age), are struggling to teach a population that speaks an entirely different language”.

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According to Mishra and Koehler (2006), in order for teachers to overcome such difficulties in appropriately integrating digital technology, they are required to develop a dynamic relationship between three primarily bodies of knowledge: content (C), pedagogy (P) and technology (T), which constitute a central model for developing good teaching, which requires an understanding of how technology relates to pedagogy and content. Therefore, rather than treating them as separate forms of knowledge, this model, technological pedagogical content knowledge (hereafter TPCK) advocates believed that they are best regarded as interrelated in education (Waasaf & Leanez, 2015).

The Use of ICT in the Context of Mauritania

Like many African countries, Mauritania has remained very much behind the world in adopting new education reform, which guarantees technology integration (Adam, 2003). It has also lacked research on what ICT means to the reform process, students, teachers, and to evolving organizational structures. More recently, it has recognized that without ICT introduction, education reforms will hardly take place. Therefore, the country starts paying attention to ICT, particularly to applications in education management and administration and access to knowledge in support of teaching, research, and lifelong learning (Njoya, 2024). The objective here is to reform the education system, with a firm commitment to digital integration in the different stages of education. Steps forward have been taken in secondary education. Mauritanian students and teachers now have access to digital textbooks, thanks to a new initiative by the national pedagogical institutes (NPI). According to its director Cheikh Sidi Abdellah, in addition to availability of hard copies, this initiative offers an opportunity for school stakeholders, e.g. teachers, students and their parents to download soft copies through “Koutoubi” (my book) app in order to ease their access to modern educational materials (Njoya, 2024). To strengthen this step, the ministry of education has adopted one-to-one computing initiative, where it provided teachers with tablets to ensure that they can at least have access to such digital resources while teaching in the classrooms. This initiative is part of a new national strategy, emphasizing the importance of digital technology in education.

In higher education, the fast growth and convergence of ICT have forced the University of Nouakchott Al-Asriya to react to the new way of knowledge creation, management and distribution for enhancing the usage of these technologies in the youth and administration in future (Agyeman, 2007). As the main higher institution in the country, it is the responsible for providing the leadership, plans, training and management of the entire technology integration process. Although it has made some progress in using computers, projectors, and networks, it is still striving to improve its ICT infrastructure, content, and skills, and make resources available to meet the growing needs of students.

Research Methods

This research was, on the one hand, conducted to describe the process of integrating ICT as a strategy, on the other hand, investigate students’ attitudes towards such a delivery method. The participants were all the students of the first semester who regularly attended the classes, and they were only 161 students out of 522 enrolled ones for the English studies program.

To collect data, a survey questionnaire with a total of 12 items was used as the main instrument in the study. It consisted of two sections: The first section attempted to determine the students' interest in the course while the second was the one examining students' responses towards ICT integration into the course.

The measurement scales in this questionnaire were based on 5-point Likert scale, one of the most famous rating scales in behavioural sciences (Tezbaşaran, 1997). This scale consists of a number of statements which express either a favourable or unfavourable attitude towards the given object to which the respondent is asked to react (Kothari, 1990). They are as follows: (1) *very dissatisfied*, (2) *dissatisfied*, (3) *unsure*, (4) *satisfied*, and (5) *very satisfied* (Kothari, idem).

To assure the validity and credibility of the information provided by my students, the data were collected in the last class of the first semester. They were first asked to be honest and objective while expressing themselves. To help them in this process, they were given an anonymous survey form, which didn't require personally identifiable information. Such a process encourages authentic responses and permits students to express their thoughts and opinions without restrictions as it removes the fear of repercussion for opinions which can be perceived as provocative.

After collection, the data were quantitatively analyzed depending on the categorization proposed by Nyutu et al. (2021), wherein the means were interpreted as follows: very dissatisfied in the point range of 1.00-1.80, dissatisfied 1.81-2.60, Unsure 2.60-3.40, satisfied 3.41-4.20, and very satisfied 4.21-5.00:

Likert Scale Description	Likert-Scale	Likert Scale Interval
very dissatisfied	1	1.00 - 1.80
dissatisfied	2	1.81 - 2.60
Unsure	3	2.61 - 3.40
satisfied	4	3.41 - 4.20
very satisfied	5	4.21 - 5.00

Table 1: Qualitative interpretation of 5-Likert Scale Measurements

My Delivery Method

The delivery strategy mainly required the physical presence of learners. It consisted of a mixture of lecturing and classroom discussions, activities and exercises from the perspective that "students do not learn language by absorbing transmitted knowledge but they need to practice and produce language in meaningful context in order to acquire it" (Zohrabi, 2011:70). In addition, interaction-based approach, which promotes communication among students and between students and teachers, was highly considered to solve problems that students might encounter while receiving input or producing output. This is at the heart of Michael Long's and Susan Gass's interaction hypothesis (see p.4).

My Guiding Principle

While planning my lectures, I took into account students' needs, their language proficiency levels and the most appropriate technological tools which could facilitate their learning process. Such principles are the starting points which should be considered before, during and after the course in order to determine the course's outline, materials and resources according to Zohrabi (2011). This implied the extent to which attention was paid to students while designing my lectures, where the main objective was to promote their self-determination and engagement in their own learning process.

ICT Integration in the Delivery Method

The adoption of the traditional face-to-face teaching model to deliver the content of this course was reinforced by the use of digital projector and telegram app to deal with such difficulties as overcrowding and shortness of the time devoted to the course, which is limited to two hours per week. These issues have made implementation of the PPM contents challenging because not all learners have the same opportunities to participate actively in the classroom.

Regardless of these motives, it is not expected to make our students enjoy the learning process without taking into account their native language (i.e. digital technology). This is in addition to the fact that such an integration facilitates their learning process through promoting collaboration and interaction.

How Is Digital Projector Integrated?

Using a digital projector in place of the traditional blackboard is of high importance in order to make the learned content very likely to be seen clearly. Such a tool is regarded as a flexible, low-cost digital technology, which not only supports clear and seamless instructions but also raises the level of interactivity in classrooms (Liu & Cheng, 2015). Its use also allows instructors and students to remotely control all objects displayed from a distance, with no need to change classroom settings.

As far as its integration is concerned, the starting point was the organization of the learned content in PowerPoint template in such a way that it drew students' attention and kept them focused for longer. In this context, as a lecturer, I made sure that the information was well edited, and images, graphics or shapes illustrating it were carefully selected and inserted. This process paid attention to students' English language proficiency levels so as to guarantee their engagement, interest and understanding of the content delivered.

Once the PowerPoint document was ready, it was eventually displayed through the projector onto a surface, allowing students to visually see the contents and interact with me, share ideas and negotiate meaning.

Figure 1: How is digital projector used?

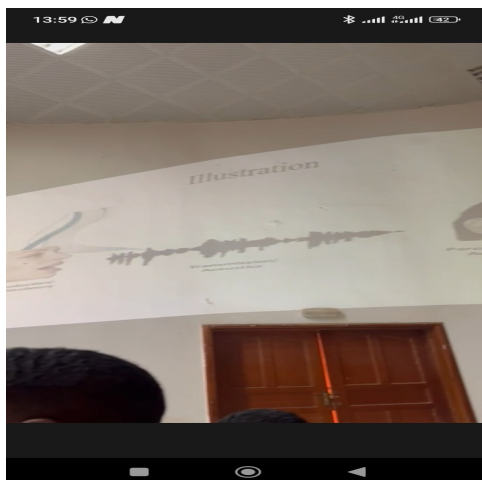


Figure 1

At the end, students were also given some controlled practice activities in order to check their understanding and then encouraged to join the telegram group.

How Is Telegram App Integrated?

Telegram is a cloud-based application that has contributions in different fields such as advertisement, business, education, etc (Syifa, 2022). In education, it is perceived that instructors utilize Telegram as a complementary tool for the conventional model to teaching and learning. Many studies proved its effectiveness in teaching and learning the English language in the sense that it ameliorates different angles of EFL learners' English language skills, such as reading, comprehension ability, vocabulary, writing skill, and speaking skill (as cited in Abu-Ayfeh, 2020, Syifa, 2022 & Akhter et al., 2022).

Its integration in delivering the content of PPM is due to our endeavor to benefit from its distinctive features. According to many researchers, it is a better choice than its competitors among users when it comes to sharing images, videos, and audios messages, marketing, connecting to web-based resources, sending files and messages to individuals or groups of up to 5000 users for broadcasting to limitless audiences (Akhter et al., 2022).

From this perspective, my first step in the process of its integration was to create a group and then invite students to join it via the group's link. To make sure that all the students would join it, the reasons behind its use were clearly explained during the first face-to-face meeting. Throughout the semester, lecturer-student interactions had the priority. This opportunity allowed students to interact with me after the class if they had questions, or needed more explanations of some information, which had already been presented in the face-to-face classes.

Figure 2: Lecturer-Student Interactions



Figure 2

Student-student interactions were also promoted and encouraged since they were given opportunities to provide feedback on each other's queries before that of the lecturer. This strategy developed their self-confidence and interest in the course.

Figure 3: Student-Student Interactions

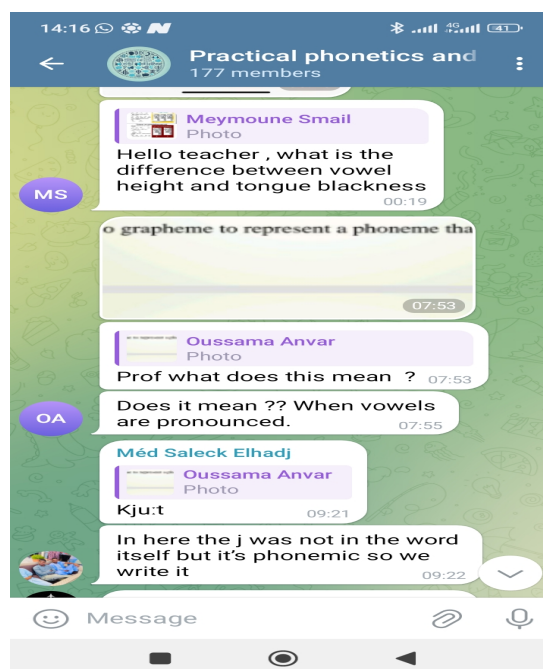


Figure 3

This platform was also an occasion via which the course materials could easily be sent to the students. This strengthened their understanding and inspired them to communicate their queries about the attached information.

Messaging	Course materials attachment
Lecturer-student interactions	Course description document
Students-student interactions	Course textbooks
Corrective feedback	Lectures presented in PDF format
Posting audio files	Videos as supplementary materials
Announcement	Links as supplementary materials

Table 2: The process of using the Telegram app

Data Analysis and Findings

Students' opinions about PPP course

The Table below illustrated that students considered PPM as being an interesting course. Without it, acquisition of a good pronunciation was challenging. EFL students generally need it to increase their knowledge about segmental and suprasegmental features of English for guaranteeing an understandable communication. Despite this fact, they were unsure when it came to measuring the affective dimension of their attitudes.

Measurement of favourable or unfavourable attitudes			
N.	Statements	Weighted average	Level
1	Practical phonetics and phonology is an interesting course.	3.52	Satisfied
2	Learning PPM is fun. I like it.	2.98	Unsure
3	Without learning phonetics and phonology, acquisition of a good pronunciation is not guaranteed.	3.80	Satisfied

Table 3: Students' attitudes towards practical phonetics and phonology course

Students' Opinions About ICT Integration in Teaching PPP Course

As far as ICT integration is concerned, students went along with the integration of digital devices and social networking sites, such as *projector* and *telegram app* in the process of delivering the contents of this course. Such an integration increased their understanding as it was the medium through which they received the course materials, resources and assignments. It also promoted their interpersonal interactions inside and outside classroom and developed their ability to produce speech sounds correctly and transcribe them in IPA.

In addition to these favorable attitudes, they hesitantly highlighted that they were given opportunities to interact with the lecturer outside classroom via Telegram app as a complementary tool to the face-to-face teaching model. During the face-to-face meetings, digital projector integration improved such interactions from time to time and sometimes kept students focused for longer. This teaching strategy irresolutely provided students with self-confidence and increased their interest in the course. Such a neutral position and uncertainty led them to believing in the need for further improvement in order to make this course easier and more enjoyable.

Measurement of favourable or unfavourable attitudes			
N.	Statements	Weighted average	Level
4	I interact with the lecturer outside the classroom via Telegram.	3.06	Unsure
5	The use of such a social networking site increases my understanding of the lectures.	3.75	Satisfied
6	Interactions with classmates inside and outside the classroom were greatly improved because of such an integration.	3.52	Satisfied
7	Interactions with the lecturer were greatly improved inside the classroom due to the use of projector.	3.26	Unsure
8	The use of digital projector keeps me focused for longer.	3.22	Unsure
9	Due to the use of projector and telegram, I am able to produce speech sounds correctly and transcribe them in IPA.	3.42	Satisfied

10	The lecturer's method provides me with self-confidence.	3.10	Unsure
11	The lecturer's delivery method increased my interest in the course.	3.33	Unsure
12	To this course easier, I suggest further improvement.	3.74	Satisfied

Table 4: Students' opinions about ICT integration in teaching PPP course

Discussion

Based on the literature review, the findings of this study went well with many works in various parts of the world (Darmi & Albion, 2014, Liu & Cheng, 2015, Akhter et al., 2022, etc.), indicating that students are more involved and motivated while ICT is present (Liu & Cheng, 2015). As being digital natives (see p.6), the integration of such technologies as *telegram app* and *projector* drew their attention and facilitated their learning process, developed their understanding and increased the level of their interpersonal interactions. In addition, the high presence of *smartphones*, which include free and inexpensive applications like Telegram app, in their daily life was regarded as an opportunity for engagement in learning regardless of connection to the internet as confirmed by Darmi & Albion (2014).

Conclusion

This study resulted in showing that students considered PPM as an interesting course regardless of the difficulties they encounter in its learning (see p.2). Integration of ICT tools in its teaching and learning process strengthened such an importance and allowed students to increase their knowledge about the English speech sounds and patterns. In this frame, students emphasized that this new delivery strategy motivated their learning, increased their understanding of the course, strengthened their relationship with the lecturer, and provided them with favorable environment to express their thoughts and share academic work.

These findings represent a starting point to further studies aiming at improving and reforming the education system in the era of technology. Within this framework, students saw this experience as a step forward in order to make it the cornerstone in any acquisition process of language components.

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