ISSN 2730-2431 (Print) ISSN 2821-952X (Online)
JEL Vol. 3 No.1 (January-June) 2022
Journal of English Language and Linguistics

Focus on Sustainable Development Goals: Teacher Belief and Technology Integration

Practice of EFL Classrooms

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APA Citation:

Hlaing, N.N. (2022). Focus on sustainable development goals: Teacher belief and technology integration practice of EFL classrooms. *Journal of English Language and Linguistics*, *3*(1), 1-17.

Received Date: May 9, 2022
Accepted Date: June 10, 2022

Abstract

The purpose of this research was to describe teachers' beliefs about technology in the EFL classrooms and identify the barriers they faced when integrating technology at universities in Myanmar. The critical need everywhere in the world is for education to prepare students to lead successful, fulfilling lives. In today's world, this means providing them with relevant educational experiences that nurture their passions, problem-solving abilities, and higher-level thinking skills, including critical thinking and creativity. The best solutions involve teachers, students, universities, and whole communities. Additionally, online learning has become a viable option for students, and the novel Coronavirus forced many teachers and students into this environment during the 2020 academic year. Despite increased access to technology, higher-level uses have not followed, and

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 ISSN 2730-2431 (Print) ISSN 2821-952X (Online)

many teachers at the universities continue to struggle integrating technology in their classrooms. Quantitative data were collected through a questionnaire survey administered to English language teachers at selected universities in order to gain descriptive information about how technology was being used throughout the university. From this sample, 26 participants were selected for follow-up interviews. Qualitative data was collected from these participants through interviews in order to provide additional descriptive data to answer the research questions. It has been found that Myanmar EFL teachers encounter both first-order barriers and second-order barriers when trying to integrate technology. However, second order barriers play a significant role in technology integration. Additionally, steps to reduce first-order barriers identified in the study are suggested.

Keywords: Barriers, Classroom practices, EFL Classrooms, Myanmar Teachers' beliefs, Technology integration

Introduction

A primary goal of education is to prepare students for success in adult life, and while our 21st century world has seen changes that no one would have predicted even 20 years ago, the classroom and curriculum that evolved with mass education have not adapted. Methodologies that worked when routine jobs were in high demand still dominate. In Myanmar, the past three decades have seen a tremendous increase in the technology available in universities. The National Education Strategic Plan (NESP) in Myanmar specifies technology should be used to provide transformative learning experiences that equip students with 21st century skills to be competitive and engaged participants in a global society (Myanmar Ministry of Education, 2017). The work plans of National Education Strategic Plan (2021-2030) in implementing the education reforms aim to meet the 21st century skills for all the students to become decent citizens with full of responsibilities and creative mind, the increase of government budget in education reforms, capacity building for teachers, improving technology and infrastructure, as well as in technical and vocational training for giving priority to ethnic regions. Despite this vision, many Myanmar universities are not using

technology in ways that enhance learning. According to Lei and Zhao, (2007), research has shown that using technology in student-centered ways can produce positive impacts on performance. A survey conducted in 2022 found teachers' most common uses of technology in the classroom were word processing tasks, managing student records, and making presentations.

Literature Review

1. Effectiveness of Technology Use in the Language Classroom

Quality technology integration helps teachers meet learning goals that they would not be able to accomplish otherwise (Cifuentes et al., 2011). Technology provides ample opportunities for students to construct knowledge and develop the skills necessary to participate in an ever-increasing global society. However, if technology is going to provide meaningful, authentic learning experiences, a pedagogical shift must occur (Ertmer & Ottenbreit-Leftwich, 2012). Additionally, teachers are motivated to integrate technology in order to improve professionally (Ottenbreit-Leftwich et al., 2010). In addition, teachers must be able to use multiple communication tools to reach their online learners (Archambault & Larson, 2015). Teaching online requires the coordination of teachers' pedagogical skills, technological knowledge, content knowledge, and an understanding of their students (DiPietro, 2010). Teachers employ different pedagogical strategies when teaching online because their role is different than teaching face-to-face. The shift will take place in pedagogical approaches when teaching in an online environment is challenging for some teachers. Teaching online requires the use of technology. Therefore, teachers need to possess strong technological skills in order to present content through technology. They must possess basic skills relating to technology but also continue to expand their technological knowledge by exploring new technologies for the virtual environment (DiPietro et al., 2010). In fact, teachers identified training on technology tools as the most valuable training to prepare teachers for online instruction (Archambault & Larson, 2015). Effective communication is essential in online learning environments. Online teachers build relationships with their students through their methods of communication (DePietro, 2010). Teachers need to provide students with

ISSN 2730-2431 (Print) ISSN 2821-952X (Online)

clear instructions to prevent misinterpretations and give students opportunities to ask questions (DiPietro, 2010). DiPietro (2010) found communication was a central component of the teacher-student relationship, which helped support student motivation and success.

2. Barriers to Technology Integration

Technology integration is a complex process involving many factors which can affect integration. Some teachers are motivated to use technology because they believe it is important for teaching (Miranda & Russell, 2012), while others are motivated to improve student learning through technology use (Ertmer et al., 2006). Conversely, some teachers face obstacles that prevent them from integrating technology. These obstacles may be intrinsic to the teacher or extrinsic and out of his or her control (Ertmer, 1999). Teachers may encounter factors that influence them to implement technology in their classrooms, but they may also encounter barriers that hinder technology integration. Research into barriers deterring technology integration stretches back more than two decades with Ertmer (1999) being one of the first to classify barriers as first-order and second order. Her seminal work identified first-order barriers as "extrinsic to teachers and include lack of access to computers and software, insufficient time to plan instruction, and inadequate technical and administrative support" (Ertmer, 1999, p. 2). In other words, first-order barriers are those factors that are external to teachers but impact their teaching practices. By contrast, second-order barriers are "intrinsic to teachers and include beliefs about teaching, beliefs about computers, established classroom practices, and unwillingness to change" (Ertmer, 1999, p. 2). These barriers are specific to each teacher and originate internally.

2.1 First-order Barriers

Evidence of first-order barriers impacting technology integration is well-documented in the literature (Francom, 2016). Not having access to technology or technology resources has been noted as a significant barrier to integration (Petko, 2012). Lack of access may occur when teachers share devices among classrooms or when technology is in central locations, such

as lab settings or media centres. However, Hsu (2016) argued that access to technology was less of a barrier than teachers' knowledge and skills to implement technology, lack of time to plan, and lack of training. Other studies offer evidence to support these barriers.

2.2 Second-order Barriers

While first-order barriers still present challenges to integration, second-order barriers are also at play. Ertmer et al. (2012) noted the significant role of internal factors in helping shape classroom teachers' practices involving technology. For example, the knowledge and skills required to integrate technology can prevent teachers from using it in their classrooms (Hew & Brush, 2007; Hsu, 2016; Jones et al., 2017; Wachira & Keengwe, 2010). This includes knowledge of specific technology as well as ways technology can be used to support pedagogical practices. Teachers' fear of maintaining control in the classroom while using technology is another internal factor affecting integration (Hew & Brush, 2007; Vareberg & Platt, 2018). Perhaps the strongest internal barrier to integration is teachers' beliefs.

3. Overcoming Barriers

Teachers may encounter both first- and second-order barriers when trying to integrate technology. Despite these challenges, some teachers are able to overcome barriers to integration. Researchers have offered a variety of suggestions for how best to overcome barriers (Ertmer, 1999; Ertmer et al., 2015; Heath, 2017). Professional development is publicized by many as a means to help teachers achieve technology integration (Ertmer, 1999; Ertmer et al., 2012; Hew & Brush, 2007). Hew and Brush (2007) suggested creating a shared vision and technology integration plan, reconsidering assessments, and changing attitudes and beliefs to address barriers to technology integration.

ISSN 2730-2431 (Print) ISSN 2821-952X (Online)

Research Objective

The objective of this research was to explore the teacher beliefs and technology integration practices of EFL classrooms in Myanmar. Thus, this study addressed the following research questions:
RQ 1: What are Myanmar EFL teachers' perceived common barriers to technology integration in the English language classrooms?
RQ 2: What are the first-order barriers faced by Myanmar EFL teachers to technology integration in the English language classrooms?
RQ 3: What are the second-order barriers faced by Myanmar EFL teachers to technology integration in the English language classrooms?
RQ 4: How do Myanmar EFL teachers' observed classroom practices align with their stated beliefs about technology?

Methodology

The purpose of this action research was to describe teachers' beliefs about technology integration at university. This study sought to identify teachers' beliefs about technology in order to create an action plan to improve technology use throughout the classrooms.

1. Research Design

This study sought to understand the beliefs that teachers held toward technology for learning and their experiences with integrating technology in order to identify the factors that kept teachers from fully utilizing the tools available. This is achieved through three steps: (i) identifying an area of focus, (ii) collecting data, (iii) analysing and interpreting data. Additionally, reflecting is a critical part of the action research process where researchers examine their actions, interactions, and results in order to improve their professional practice and identify future research topics. In this study, quantitative data was collected in order to describe how teachers are integrating technology at university. Furthermore, this data was used to identify participants for follow-up interviews and classroom observations. Therefore, a qualitative approach allowed me to study in-depth the phenomenon of technology 55 integration at my school and develop

meaning from participants' responses and actions. Ultimately, findings from two sources of data collection were converged to develop a comprehensive understanding of teachers' beliefs about technology and barriers in their practices of integrating technology. Interviews and classroom observations allowed the research to build rich descriptions of the context and participants' perceptions toward technology use in the classroom.

2. Participants

The sample population for the quantitative phase of this study included 26 participants. Participants were identified as either experienced technology integrators (n=15), intermediate technology integrators (n=9), or novice technology integrators (n=2). Teachers ranged in age from 23 years old to 54 years old. Participants chosen for follow-up interviews and classroom observations were selected using a purposeful sampling method (Merriam, 1998) based on their responses to the survey questions.

Results

Before data collection began, approval was sought from the Institutional Review Board (IRB) at the University to conduct research involving human subjects. This mixed methods study collected quantitative and qualitative data to develop an in-depth understanding of participants' beliefs and practices of integrating technology into their classrooms. Quantitative data was collected through a survey in order to understand teachers' uses of technology throughout the school, teachers' beliefs about the role of technology in instruction, and barriers they have experienced when integrating technology. Survey data was used to inform the types of participants selected for the qualitative phase. Qualitative data was collected through interviews and classroom observations on the selected participants. In the end, findings from qualitative data were combined with the quantitative survey data to answer the research questions. Thus, the use of quantitative and qualitative data provided a more complete understanding of technology integration through rich descriptions of teachers' beliefs and experiences.

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1. Common Barriers

Common barriers identified include access to technology, lack of knowledge and skills relating to technology, time to plan and implement technology-rich lessons, and teachers' beliefs about the importance of technology use for learning. Researcher has separated these barriers into two categories: first order and second order barriers. First-order barriers consist of more extrinsic resources, such as lack of access to technology, lack of time to plan or implement, and inadequate technical support. However, second-order barriers are those more intrinsic to teachers and address teaching beliefs, beliefs about computers, established classroom practices, and unwillingness to change. As technology has become more available in universities, it appears second order barriers play a significant role in technology integration. Several studies have found that teachers' beliefs about technology use in the classroom are one of the strongest barriers to integration.

2. Quantitative Findings (Questionnaire)

The data were analysed using the Statistical Package for Social Science (SPSS 20).

Table 1

Common Barriers (n=26)

SN	Common barriers	Responses			Calculation		Interpretation
		Disagree	Not Decided	Agree	M	SD	
1	Access to technology	33%	24%	43%	2.10	0.87	Considered of moderate barrier
2	Lack of knowledge and skills relating to technology	32%	13%	55%	2.23	0.90	Considered of moderate barrier
3	Time to plan and implement technology-rich lessons	25%	12%	63%	2.38	0.86	Considered of high barrier

Table 1 (Continued)

SN	Common barriers	Responses			Calculation		Interpretation
		Disagree	Not Decided	Agree	M	SD	
4	Teachers' beliefs about the importance of technology use for learning	14%	7%	79%	2.65	0.71	Considered of high barrier
	Average	26.0%	14.0%	60.0%	2.34	0.86	Considered of high barrier

Note. 1.00-1.66 = Considered of low barrier; 1.67-2.33 = Considered of moderate barrier; 2.34-3.00 = Considered of high barrier

Research findings offer the common barriers due to the lack of teachers' beliefs about the importance of technology use for learning (Mean=2.68) as well as lack of time to plan and implement technology-rich lessons (Mean=2.38) and lack of knowledge and skills relating to technology (Mean=2.23) that can negatively impact technology use in classroom. The teacher participants considered that they have high barriers. Recent survey indicated that teachers experienced many of these same barriers to integration.

Table 2

Descriptive Statistics for First-order Barriers (n=26)

SN	First-order barriers	Responses			Calculation		Interpretation
		Disagree	Not Decided	Agree	M	SD	
1	Lack of access to technology	46%	25%	29%	1.83	0.85	Considered of moderate barrier
2	Lack of time to plan or implement	22%	33%	45%	2.23	0.79	Considered of moderate barrier
3	Inadequate technical support	24%	33%	43%	2.19	0.80	Considered of moderate barrier
	Average	30.7%	30.3%	39.0%	2.08	0.83	Considered of moderate barrier

ISSN 2730-2431 (Print) ISSN 2821-952X (Online)

Note. 1.00-1.66=Considered of low barrier; 1.67-2.33=Considered of moderate barrier; 2.34-3.00=Considered of high barrier

According to the data, teachers report not having time to plan lessons that incorporate technology prevents them from using it in their classrooms (Mean=2.23). When teachers lack resources, such as technical support, they are deterred from using technology tools. Support from leadership is also necessary for successful integration as findings reveal a lack of administrative support in schools' hampers integration (Mean=2.19). It is evident that teachers encounter first-order barriers moderately that can hinder their efforts to implement technology (Average Mean=2.08).

Table 3

Descriptive Statistics for Second-order Barriers (n=26)

SN	Second-order barriers	Responses			Calculation		Interpretation
		Disagree	Not Decided	Agree	M	SD	
1	Teaching beliefs	24%	23%	53%	2.29	0.83	Considered of moderate barrier
2	Beliefs about computers	42%	23%	35%	1.93	0.87	Considered of moderate barrier
3	Established classroom practices	15%	22%	63%	2.48	0.74	Considered of high barrier
4	Unwillingness to change	17%	16%	67%	2.50	0.77	Considered of high barrier
	Average	24.5%	21.0%	54.5%	2.30	0.84	Considered of moderate barrier

Note. 1.00-1.66=Considered of low barrier; 1.67-2.33=Considered of moderate barrier; 2.34-3.00=Considered of high barrier

Mean scores for the statements "Unwillingness to change" (M=2.50, SD=0.77) and "Established classroom practices" (M=2.48, SD=0.74) revealed that learning technology and teaching it to students was a barrier to integration. Teachers indicate access to technology was a significant barrier to change and to establish classroom practices for the teachers.

According to the data in Tables 1,2 and 3, teacher beliefs are complex. When teachers perceive technology to have value in the teaching and learning process, they are more likely to use it. Furthermore, researchers have found a connection between constructivist teaching beliefs and technology use. Teachers who possessed more learner-centred beliefs about teaching were found to have more seamless integration of technology into lessons. In fact, teachers' beliefs may affect their ability to overcome other barriers due to the relative weight they place on each barrier. Additionally, second-order barriers are more difficult to change (Average Mean=2.30) and require teachers to redefine what teaching means to them. There is some research to support teachers' adopted beliefs aligning with their classroom practices (Kim et al., 2013).

3. Qualitative Findings and Interview Interpretations

This mixed-methods study utilized quantitative and qualitative data to identify teachers' beliefs about technology integration at universities for students. Quantitative analysis collected via a survey provided an overall understanding of technology integration at universities and identified 26 teachers who represented three varying levels of integration: (a) experienced, (b) intermediate, and (c) novice. Qualitative data was collected from the six participants through interviews and classroom observations. Interview data analysis revealed six themes: (a) teachers' beliefs about the role of technology are influenced by their level of technology integration, (b) teachers believe technology use should be balanced with multisensory methods (c) teachers are motivated to use tools that are easy for them and their students, (d) teachers' beliefs are dynamic, (e) distance learning influenced teachers' perceptions of technological knowledge, and (f) teachers experienced more first-order barriers during distance learning.

ISSN 2730-2431 (Print) ISSN 2821-952X (Online)

Quantitative and qualitative findings were integrated to provide a complete understanding of teachers' beliefs, practices, and barriers related to technology integration.

4. Qualitative Findings and Interpretations (Classroom Observation)

Qualitative data were collected through interviews and classroom observations with the six participants. Interview data allowed me to elicit participants' beliefs about the use of technology for teaching and identify barriers they encountered when integrating technology. Observations gave me an opportunity to witness teachers' experiences using technology and their classroom practices. These observations were compared with participants' stated beliefs to determine if they aligned. Participants were interviewed a semi-structured protocol and observed twice. Therefore, exploring the beliefs that underlie classroom practices can bring about the change necessary to enhance student learning through transformative, technology-rich lessons.

Discussion

The purpose of this action research was to describe teachers' beliefs about technology in the EFL classroom and identify the barriers they faced when integrating technology at universities in Myanmar. The amount of technology available in universities has increased steadily over the past two decades. Additionally, online learning has become a viable option for students, and the novel Coronavirus forced many teachers and students into this environment during the 2020 academic year. Despite increased access to technology, higher-level uses have not followed, and many teachers at the universities continue to struggle integrating technology in their classrooms. This study followed a mixed methods design to address the research questions. Quantitative data were collected through a questionnaire survey administered to 26 English language teachers at selected universities in order to gain descriptive information about how technology was being used throughout the university. The data were analysed using the Statistical Package for Social Science (SPSS 20). From this sample, 26 participants were selected for follow-up interviews. Participants were identified as either

experienced technology integrators (n=15), intermediate technology integrators (n=9), or novice technology integrators (n=2). Qualitative data was collected from these participants through interviews and classroom observations in order to provide additional descriptive data to answer the research questions. As technology has become more available in Myanmar universities, it has been found that Myanmar EFL teachers encounter both first-order barriers and second-order barriers when trying to integrate technology. However, second order barriers play a significant role in technology integration. Myanmar EFL teachers' beliefs about technology use in the classroom are one of the strongest barriers to integration. Barriers to technology integration were identified by all participants. First-order barriers identified included time, access, and co-teacher's beliefs. Most integrators experienced second-order barriers, specifically lack of technological knowledge and teacher's beliefs. However, qualitative data on classroom observation revealed more teacher-centered beliefs and practices of teachers at the universities. Qualitative interview findings showed teachers with more student-centred beliefs integrated technology more in their classrooms. Findings from interview data also revealed external factors, namely the university culture and distance learning influenced teachers' beliefs about the role of technology. Implications from this study include providing professional development adapted to teachers' levels of technology integration. Additionally, steps to reduce first-order barriers identified in the study are suggested. As with many educational institutions in 2020, there is a transition to distance learning due to the COVID-19 pandemic. Teachers were required to quickly shift from in-person instruction to online instruction within a short period of time. Distance learning required teachers to integrate technology in order to reach their students. As researchers have cited, understanding teachers' beliefs is a crucial step to effectively integrating technology (Tondeur et al., 2017). How teachers view the role of technology in teaching and learning, as well as the value it could bring to their classrooms, affects their teaching practices (Ertmer et al., 2012; Ertmer & Ottenbreit-Leftwich, 2010). Therefore, in order to enact change regarding the use of technology to enhance learning, teachers' underlying beliefs must be understood. Therefore, understanding teachers' beliefs is a necessary step to achieving successful technology

ISSN 2730-2431 (Print) ISSN 2821-952X (Online)

integration. Through this research, understanding the perceptions of EFL teachers at universities hold about technology use in teaching and learning has been interested in. Understanding teachers' views regarding technology provided direction to create action steps toward successful integration. Interviews and classroom observations allowed the research to build rich descriptions of the context and participants' perceptions toward technology use in the classroom. The researcher was that of an insider who engaged with other insiders to understand the effect teachers' beliefs had on technology integration.

Recommendations

Recommendations included acquiring more devices for student use and providing professional development related to technology for faculty. Furthermore, teachers should be encouraged to use technology for project-based learning units and discouraged from using devices for rewards or free-time entertainment. Following this report, several recommendations were put in place. Additional tablet computers and laptop computers were acquired to increase the ratio of one student to one device in every grade. Professional development was addressed through several measures.

Limitations

As with the majority of research studies, the current study is subject to limitations. The action research methodology was selected to study a problem within a specific context to promote improvement of practice (Mertler, 2017). Therefore, the results of this study may not be generalizable to other contexts. While findings from this research support previous research on the role teachers' beliefs play in technology integration and barriers they faced when integrating technology, the results should be considered in light of these limitations.

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