

## Information and Communication Technologies in A Postgraduate TESOL Program: A Human Capital Investment

**Manal AlMarwani**

Department of Curricula and Instruction, School of Education  
Taibah University, Saudi Arabia  
Email: [almarwani.manal@gmail.com](mailto:almarwani.manal@gmail.com)

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### Abstract

With the global advancements in Information and Communication Technology (ICT) and the national and international demand for well-developed ICT skills and competencies, academic programs at higher education institutions need to make necessary adjustments to content and processes. This study reports on the current ICT integration practices in a TESOL postgraduate program at a Saudi Arabian university, addressing viewpoints at administrative, faculty, and postgraduate student levels. Three different questionnaires were used to answer the following questions: What are the TESOL postgraduate students' practices of ICT integration, and how do they perceive their professors' practices? What ICT integration practices do faculty members use, and how do they perceive the merit and desirability of their practices? And 'How is ICT integration tackled at the administrative level with respect to policy and procedures, infrastructure, training, and technical support? The findings indicate that ICT integration practices in this program are lagging expectations. This is not a matter of attitude, potential, and challenges in the current situation, but is related to understanding the national ICT policy and developing sustainable strategies at an institutional level to guide and support faculty members' practices. Since the impact of such changes will go beyond higher education to the broader national education system, much more attention needs to be dedicated to teacher education and professional development programs, including TESOL postgraduate programs.

**Keywords:** Information and Communication Technology (ICT), educational policy, postgraduate TESOL (Teaching English to Speakers of Other Languages) program, Saudi Arabia

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## Introduction

Saudi Arabia's (Saudi Vision 2030, n.d.) reform plan affects public and private sectors across the Kingdom. The Human Capital Development Program (Saudi Vision 2030, n.d.)—aimed at improving educational outputs and reforming the education sector to stimulate growth—is vital in these reforms. Officially, 'the program contributes to the development of all components of the education and training system, including teachers, trainers, faculty members, governance, evaluation systems, quality, curricula, educational and vocational paths, and training environments for all stages of education and training to cope with modern and innovative trends in the fields of education and training' (Saudi Vision 2030, n.d.).

Internationally, the World Bank's (2019) World Development Report has also urged developing countries to invest in their citizens—especially in the education field—to equip them to cope with new technology and innovation, and compete in the economy of the future. Not only does education play a critical role in preparing people for the knowledge economy (Laurillard, Oliver, Wasson, & Hoppe, 2009), in a fast-paced and knowledge-focused world, nations that can integrate dynamic information and communication technologies in all spheres of life, are key players in economic development (United Nations, 2020). Nationally, digital transformation, in particular, was identified as pivotal in reaching Vision 2030 initiatives. Therefore, the Ministry of Communications and Information Technology (2019) had aligned its strategic plan with the Vision, and launched 24 initiatives, of which some are aimed at enhancing the Kingdom's education system to develop digital talent and literacy. These initiatives are in accordance with the issues raised at the United Nations Forum on Sustainable Development's virtual meeting in July 2020, organized by the International Telecommunication Union and United Nations Institute for Training and Research. They discussed the availability of technology and the use of digital tools that contribute to the UN's 17 Sustainable Development Goals. Digital skills are critical in attaining these goals. Given the international and national concern, higher education institutions have been pressured to implement policies and programs to raise the digital skills levels in developing countries. In Saudi Arabia, the government's policies and strategic plans are ambitious, and the educational sector has been compelled to adjust faster by preparing people to play a role in boosting the changing economy. In accordance with the above, many higher education institutions are investing in technology and digital transformation. Multiple educational programs have been developed to integrate information and communication technology (ICT) into learning area content and utilize technology for teaching and learning. However, there is an urgent need to identify the gap between those policies and strategic plans and the actual practices of ICT integration in higher education; therefore, this study aims to determine the current situations at three different levels: students, faculty, and administration.

## Literature Review

ICTs are a diverse set of technological tools and resources (including computers, the internet, live and recorded broadcasting technologies, and telephony) used to transmit, store, create, share, or exchange information (UNESCO, 2009). These technologies are developing at an unprecedented pace, but education systems are relatively slow to adapt (OECD, 2020).

Many studies (Bhattacharjee & Deb 2016; Islam, Mok, Gu, Spector, & Hai-Leng, 2019; Tran, Phan, Le, & Nguyen, 2020; Wali & Popal 2020; Zhang & Nielsen, 2018) have revealed the

important opportunities offered by integrating ICT into teacher and higher education. Nationally, the Ministry of Education has also had a special interest in teacher education programs, in particular, quality English and EFL (English as a Foreign Language) teacher education to keep up with global innovation, technology, and best practice. In this regard, Education First (2019) showed a positive correlation between a country's level of human development and its English proficiency.



Source: World Bank, 2017

Figure 1. English skills enable economies to maintain a competitive edge (EF EPI Report, 2019)

However, the Education First English Proficiency Index (EF EPI) Report (2019) ranked Saudi Arabia 98th (very low proficiency) among 100 countries, based on test data from over 2,300,000 EF Standard English Test (EF SET) test-takers in 2018.

Relating to language acquisition, research has indicated that ICT can enhance the effectiveness of EFL teaching and learning (Abdel-Gawad & Woollard, 2015; Alhaj & Albahiri, 2020; Hafifah & Sulistyono 2020; Nguyen 2020). Nguyen (2020) proposed that: “in teaching and learning language, the application of ICT makes positive changes in knowledge acquisition and teaching methodology” (p. 224). Similarly, Wilson, Walsh, and Kirby (2007) agreed that technology-based instructional activities would enhance the efficiency of foreign language learning and teaching in the 21st century.

As mentioned, government and private sectors are under pressure to play a significant role in the ambitious Vision 2030 strategy, earnestly exploring the forces that shape the future while they develop action plans. The Saudi government has also allocated a sizable budget to support these initiatives and projects (including various salient elements such as ICT) for the advancement of education. Despite this generous governmental spending, students' poor results in international tests are not reflecting the Kingdom's investment. This poses a threat to the Kingdom's competitiveness; economic competitiveness relies on human capital as evidenced by the knowledge, skills, and values gained through education.

Considering the above and research that indicated the quality of education is a significant factor in economic growth (Ministry of Education n.d.), the Ministry of Education's (n.d.) second

strategic objective is to enhance the recruitment, preparation, qualification, and professional development of teachers, while the seventh objective highlights the necessity to strengthen the education system's capacity to meet developmental requirements. In light of this, the Ministry has launched a project to reform teacher preparation programs in collaboration with local universities. To enable a paradigm shift in the design of teacher education programs, the general framework reflects four main principles. One of these is the role of advanced ICTs in facilitating teaching and learning across disciplines: the programs should empower teachers with several competencies that employ ICT in the educational process (Ministry of Education n.d.). Laurillard (2010) highlighted that teachers need to learn about a very different approach to teaching and learning and develop new digital materials and online activities in order to incorporate new technologies into their teaching. As an example, the Teaching English to Speakers of Other Languages (TESOL) postgraduate course at the Saudi university in this study is an educational program designed to prepare EFL teachers and supervisors or professionally develop current ones. Therefore, the program should demonstrate a coordinated approach to developing digital capabilities and optimize the quality, flexibility, and accessibility of learning and teaching EFL.

Despite these programs at the university level, there remains a gap between the Saudi government's plans and concerns, and the results of EFL teacher education programs in terms of the English language proficiency among the youth, who are the building blocks of the economy. This means that expert EFL teachers are in high demand. Furthermore, despite the rapid expansion of ICT and the functional role it can play in teaching and learning, it remains unclear how teacher education programs in the national context are preparing teachers to use it effectively in teaching and learning in the 21st century; especially that "teachers' ability to establish a relationship between content, pedagogy, and technology depends largely on how they are taught to integrate technology in teaching" (Tran et al., 2020, p. 21). Internationally, Bhattacharjee and Deb (2016) highlighted the gap between societal technological progress and the instructional methodology used by teachers. Also, until very recently, the accessibility and integration of ICT in teacher education programs in six pedagogical higher education institutions in Vietnam were still found lacking (Tran et al., 2020). According to Tomczyk (2020), the lack of such integration leads to the failure to meet the acceptable standards of teaching and learning in a society where knowledge is expanding rapidly and technologies provided new possibilities to cope with the rapid changes in society.

Therefore, this study aimed to identify the gap between educational policy and the actual implementation of these education programs in practice in a Saudi Arabian context. To do so, the researcher examined the faculty and student experiences of ICT integration in teaching and learning, as well as the university's School of Education policy and procedures for the implementation of ICT; with a focus on the practices employed in a postgraduate TESOL program to qualify students to teach EFL and be part of Saudi Arabia's foreign language pedagogy goals. Such reliable data obtained from specific academic program-based surveys can produce informative inferences. Findings can contribute to the reform and redesign of such educational programs, the reconsideration of training and technical support, and activation of optimal ICT infrastructure use at higher education institutions in Saudi Arabia.

## Methods

The researcher used a case study approach to investigate ICT integration in a TESOL postgraduate program at the Faculty of Education of a newly established, large public Saudi Arabian university. A case study is an “in-depth study of one or more instances of a phenomenon in its real-life context that reflects the perspective of the participants involved in the phenomenon” (Gall, Gall, & Borg, 2007, 447). Qualitative and quantitative data were collected using three different questionnaires to explore the perspectives of students, faculty, and administration.

### *Participants*

The participants were Saudi nationals and included all the students (N=15; Saudi nationals) enrolled in the TESOL postgraduate program (female = 100%; age: 27 to 39 years; Mean = 31), all faculty members teaching the program (N=5; male = 40%, female = 60%), and the Faculty Head (to obtain an administrative perspective). Most students (60%) had prior experience of teaching EFL. Of the faculty members, 60% were associate and 40% assistant professors.

### *Instruments*

The researcher developed three open- and closed-ended questionnaires to collect qualitative and quantitative data. A five-point Likert scale (Excellent, Very Good, Good, Fair, and Poor) was used to evaluate faculty members' perception of their skills necessary for ICT integration in teaching. Moreover, their perception of the relative advantage of ICT integration in the TESOL postgraduate program was also assessed with a five-point Likert scale – they had to indicate their level of agreement with the following statements:

Statement 1: I find ICT useful in teaching the TESOL postgraduate program.

Statement 2: Using ICT enables me to prepare for my class more quickly.

Statement 3: Using ICT increases my chances to provide better TESOL instruction.

Statement 4: Using ICT helps me act as a role model for pre-service and in-service teachers joining the TESOL postgraduate program.

Statement 5: Using ICT helps me communicate effectively in an English language environment with other academics.

Statement 6: Using ICT, in general, contributes to my career at the university.

Statement 7: Using ICT is not all about teaching, as I am learning too.

The students' responses to a closed-ended question revealed their familiarity and competency in handling ICT integration in their learning practices based on a five-point Likert scale (Excellent, Very Good, Good, Fair, and Poor).

From an ethical perspective, the cover page of the questionnaires informed the participants of the following: the study's purpose and the importance of their participation, their right to participate voluntarily, the anonymity and confidentiality of data processing, and a declaration regarding the data sorting method.

### ***Procedures***

Qualitative and quantitative data were obtained from the participants to answer the following questions: ‘What are the TESOL postgraduate students’ practices of ICT integration and how do they perceive their professors’ practices?’, ‘What ICT integration practices do faculty members use, and how do they perceive the merit and desirability of their practices?’, and ‘How is ICT integration tackled at the administrative level with respect to policy and procedures, infrastructure, training, and technical support?’

The data collected from the open-ended questions were examined and sorted to answer the research questions (Gall et al., 2007). Descriptive statistics were used (including frequencies, percentages, and means) to describe and summarize the data from the closed-ended questions.

### **Results**

The findings of this case study highlight the intensive and holistic practices of ICT integration in one of the postgraduate programs (Master in TESOL) at a recognized higher education institution in Saudi Arabia. Different perspectives (students, admin head and instructors) are going to be presented.

#### ***ICT Integration: An Administrative Perspective***

Despite the absence of specific policy and procedure documents or an assigned budget for ICT integration at the Faculty of Education, there is good ICT infrastructure. The faculty is equipped with appropriate hardware (including internet, computers, and projectors), software, applications, a learning management system (Blackboard), and educational resources via an e-library.

The Faculty Head revealed that there was no official plan to transform the traditional approaches to teaching and learning into more interactive, engaging ones through ICT integration. However, he added that the Faculty’s Skills Development Unit had organized some practices related to training and support for faculty members, including training sessions, workshops, and technical support. This was not available to postgraduate students.

The Faculty Head's opinion regarding the current ICT integration and faculty members' practices in teacher education programs—including the Master in TESOL—indirectly reflected his dissatisfaction: 'The trend for ICT integration is not a problem-solving procedure. It is a strategic transformation in the educational context; therefore, it should be reflected in all educational programs provided by the Faculty of Education. He asserted the importance of transforming teaching and learning practices as well as course specifications, training, and technical support. From an administrative perspective, this highlights the urgent need for institutional and pedagogical shifts toward successful technology integration.

#### ***ICT Integration: Faculty Members’ Perspectives***

Faculty members of the TESOL postgraduate program recognized the potential of ICT integration to enhance their teaching practices since 100% of them had integrated technology into their practice. The specific educational activities where they had done this were: pre-class

planning, in-class teaching, assessment, providing feedback, sharing resources, and communicating and interacting with students.

Furthermore, only 60% of faculty members (FM) confirmed the availability of ICT tools and hardware (internet, computers, and projectors) in their classrooms. However, the availability did not affect their teaching practices since they still used their own personal devices and equipment, as demonstrated in the following excerpts:

FM1: 'I bring all necessary equipment with me, like a laptop, projector, pointer, and mobile broadband modem.'

FM2: 'I believe that using ICT impacts student achievement and motivation. Unfortunately, ICT tools are not provided, but I bring my own equipment.'

FM3: 'It is either unavailable or available and not working. I have my own equipment.'

Interestingly, all of the FM had integrated ICT into their teaching and communication practices outside the classroom, including social networks, mobile applications (such as WhatsApp and Telegram), a learning management system for arranging and archiving teaching materials (Blackboard), and providing online testing and assessment tools. Most of them (80%) rated their skills in ICT integration in teaching as 'Excellent,' and some (20%), 'Very Good.' Despite the latter, 67% and 40% of the FM rated their training experience at the education faculty as 'Poor' and 'Fair', respectively. Furthermore, although all FM were provided with training to utilize the ICTs and the technical support that was available, they were dissatisfied with several aspects of the training they received. Notably, they reported some common factors that hindered their use of ICT, including technical (limited hard- and software, and knowledge of ICT use), self-efficacy (including limited awareness of ICT's significance, technophobia, and low confidence), and time-related factors. The FM perceived lack of time as a barrier to planning the use of ICT tools and setting it up at the beginning of each class.

We also investigated FMs' perception of the relative advantages of ICT integration in the TESOL postgraduate program (Table One).

Table 1. *Perceived relative advantage of ICT integration*

Statement	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
Statement 1	4 (80%)	1 (20%)	-	-	-
Statement 2	3 (60%)	1 (20%)	1 (20%)	-	-
Statement 3	3 (60%)	2 (40%)	-	-	-
Statement 4	3 (60%)	2 (40%)	-	-	-
Statement 5	2 (40%)	3 (60%)	-	-	-
Statement 6	3 (60%)	2 (40%)	-	-	-
Statement 7	2 (40%)	3 (60%)	-	-	-

The data in Table one shows that almost all FMs were aware of ICT's usefulness in teaching, and their academic career in general.

From a pedagogical perspective, the findings indicate that the availability of technology, training on how to use it, and on-demand technical support does not guarantee effective ICT integration in the educational context, in general, and TESOL postgraduate programs, specifically. In fact, FMs' ICT attributes (including their ICT capabilities, Vision, perceptions, and actual use) are interrelated with other dimensions of ICT integration in TESOL postgraduate programs, including program design and learning outcomes, and open educational resources. These factors might negatively influence ICT integration in an educational context. However, this should not be the case in an EFL postgraduate context as the widespread use of English digital content can facilitate and accelerate the successful implementation of ICT in teaching and learning.

### ***ICT Integration: Postgraduate TESOL Students' Perspective***

All postgraduate TESOL students declared some level of knowledge regarding ICT and its uses in learning. They listed various practices, which included browsing EFL learning websites for digital content, searching online resources, downloading and reading e-books and articles, designing and administering research tools, and using social networks to communicate, interact, and share their thoughts with classmates, TESOL professors, and researchers.

The students' responses to a closed-ended question revealed their familiarity and competency in handling ICT integration in their learning practices. Most students (73.3%) and some others (26%) rated their skills necessary for ICT integration in learning as 'Very Good,' and 'Good', respectively. However, the students also raised some concerns regarding their ICT skills, indicating that they may have overrated them. Moreover, they stressed their sparse ICT knowledge, training, time, budget, and technical support, as shown in the following excerpts (PS = Post Graduate TESOL Students):

PS1: 'I'm busy, some ICT tools take time to use.'

PS2: 'We should be trained on how to use ICT tools.'

PS3: 'We need more training to overcome obstacles.'

PS4: 'I'm using ICT tools to do my assignments, but I don't think I'm professional.'

PS5: 'I understand that it is essential for effective learning, but some important ICT tools are costly.'

PS6: 'I don't use ICT because of a lack of experience, lack of training, and lack of time.'

PS7: 'I use ICT tools, but I don't know what to do when they are not working.'

PS8: 'I can't get access to educational resources. I'm frustrated'.

PS9: 'We know the basic things about ICT; we need more training.'

When asked what kind of ICT their professors used in their teaching practices inside and outside the classroom, the students expressed their disappointment. Lecturers only employed PowerPoint presentations and WhatsApp in- and outside the classroom, respectively. However, as a result of the COVID-19 pandemic, the students had experienced online learning through a learning management system (Blackboard) recently.

These findings indicated that the postgraduate TESOL students were aware of their poor ICT competency as they all raised the issue of unprofessional ICT integration. Based on their teaching experience (60% were in-service teachers), they noted facing obstacles when it came to integrating ICT into their teaching practices. This impact extended to their knowledge of the ICT skills

necessary for scientific research activities, including research software and tools and web resources. The students believed it was essential to enhance their ICT skills throughout the postgraduate program.

### Discussion

Despite the Saudi government's strategic and focused investment in ICT in education, there is no clear evidence that reflects a return on the substantial investment in the form of pedagogical and practical impact on education. Our findings signify the gap between the global advancements and governmental policies of ICT integration, and the actual practices in higher education programs in Saudi Arabia.

Although the Ministry of Education implemented an ICT policy that resulted in the establishment of the National Centre for E-Learning and Distance Learning in 2005 and the Saudi Digital Library, successful integration of ICT into teaching and learning in TESOL postgraduate programs requires a multi-faceted intervention. At an institutional level, adequate infrastructure and technical support are needed, as well as an effective policy outlining what is expected of faculties to facilitate ICT integration. Our findings revealed the presence of some ICT integration practices; however, FMs were unable to master the latest advancements in ICT in education. Islam et al. (2019) stated that university professors' intention to use ICT is positively affected by what the institution provides. Moreover, Tran et al. (2020) postulated that the ICT skills of FMs are in relation to ICT integration opportunities provided by an institution, including ICT infrastructure—hardware, software, and educational resources—technical support, and professional development.

At the program level, it is important to rethink curricula and course design. In this study, the course specifications of the TESOL program indicated that 20% to 40% of the instruction would take place in a blended environment. However, the learning outcomes did not reflect this, although the national qualification framework clearly requires that ICT skills be addressed. In some courses, ICT learning outcomes were limited to the successful use of internet resources throughout the course. For example, the course 'Topics in Second Language Study,' specifies the ICT learning outcomes to be covered in each of the topics. However, these outcomes were limited to developing PowerPoint presentations and one web-based unit. Furthermore, these elements represented requirements or assessment methods, not the main learning outcomes. Therefore, there is an urgent need to review the curriculum design of this program.

Given that this was an English language program, and English is the medium of instruction in 10 of the 16 courses (the rest are taught in Arabic), it is particularly conducive to the smooth integration of ICT, since knowledge about technology, pedagogy, and content and educational resources are extensively available in English. Consequently, ICT can be implemented effortlessly and at minimal cost (Yang & Chen, 2007). Table two presents the 10 English medium courses based on the topics they covered, and the learning outcomes detailed in the course specifications.

It seems that the EFL courses were not designed to reflect the 20% to 40% blended learning mode of instruction or the pedagogical uses of ICT. Moreover, the course topics rarely covered ICT knowledge. Therefore, FM cannot be blamed for not implementing instructional innovations. Most ICT integration practices are personal efforts, and do not guarantee the TESOL students'

acquisition of ICT skills. Furthermore, these practices may demonstrate ICT skills but fail to implement them in a manner that would enhance students' learning and their teaching skills. Tomczyk (2020), assumes that "effective use of ICT depends on knowledge of technology - digital literacy, knowledge about the given area – and subject and pedagogical competencies. When integrated, these three areas create an ecosystem which facilitates the proper realization of the didactic and education processes" (p. 201). Thus, a strict compulsory ICT policy is needed to create an effective EFL learning and teaching environment, and implement a successful pedagogical shift (Nguyen 2020; Hafifah & Sulisty, 2020) which includes changes in content, teaching strategies, learning activities, and assessment.

Table 2. *English courses in the TESOL postgraduate program*

Course	ICT Topics	Contact hours dedicated to the topic	Learning outcomes related to the ICT domain
Contemporary Trends in Teaching Methods	Technology and ELT	Six out of 45	-
Topics in Second Language Study	Using technology	Three out of 45	Develop PowerPoint presentations Develop a web-based unit
Second Language Learner	-	-	-
Researching the Second Language Classroom	-	-	-
Language Assessment	-	-	Use Internet resources successfully to meet course requirements
Seminar in TEFL	-	-	-
Evaluation of EFL Curricula	-	-	-
Principles of Language Learning & Teaching	-	-	Develop PowerPoint presentations Develop a web-based unit
TEFL Theory & Practice	-	-	Develop PowerPoint presentations Develop a web-based unit
Research Project	-	-	-

Both FMs and postgraduate TESOL students were concerned about training. The training provided by the institution, in general, and the Faculty of Education, specifically, was based on developing technical skills. However, there is a need for proper pedagogical use of ICT in these programs, reflected in FMs' practices and eventually transferred to the postgraduate students. Hafifah and Sulisty (2020) stated that enhanced governmental policy support and institutional operational training focused on how to use ICT facilities, will promote ICT integration into education and solve related problems. The training should be extended to the postgraduate students in the TESOL and other teacher training programs of the education faculty at this university. They need to be trained on how to integrate ICT in their subject areas by learning how to use it efficiently (Laurillard, 2010).

To address the issue of ICT competencies among TESOL postgraduate students who are already in-service teachers or prospective teachers, reforming their preparation and professional development is crucial. The third version of UNESCO's (2018) ICT Competency Framework for Teachers states that: "teachers who have competencies to use ICT in their professional practice will deliver quality education and ultimately be able to effectively guide the development of

students' ICT competencies" (p. 8). However, the studied TESOL postgraduate program does not seem to provide opportunities to that end.

It is important to note that this does not solely relate to training; it is a complex process that requires continuous development on program design, which should be part of a holistic approach to creating policies and institutional strategies to streamline ICT integration in all academic programs at the institution. Once institutional policies are initiated, FM can shape practices to correspond to both institutional and national ICT policies. We propose that, in the absence of ICT integration strategies, policies and specific plans, it is questionable whether higher education institutions can cope with Saudi Arabia's national reform plan.

In terms of limitations, firstly, our study's scope was limited to one higher education institution. However, results, to some extent, can be generalized to the national context. Secondly, although all the enrolled students and teaching staff of the program have participated in the study, the sample was still small. Further research can be conducted at another institution for comparison purposes. In addition, our study investigated the actual practices and experience of ICT integration. Further research could expand on our findings and introduce an ICT integration framework into the TESOL postgraduate program.

## Conclusions

Saudi Arabia is experiencing sustained economic growth; its labor market has gained new perspective, and there is a great demand for higher education institutions to produce a more technically skilled workforce. Therefore, the higher education institution in this study has adopted a transformation strategy to design academic programs and reform the current curricula across disciplines to incorporate the needs of the national transformation plan toward a thriving economy. The study examined the ICT integration practices at three different levels: students, faculty, and administration. The TESOL postgraduate program in this study reflects actual ICT integration practices and scenarios. Like most academic programs, this program involves a rigorous academic curriculum. However, it is still addressing ICT at a finite level and does not deepen the knowledge and expertise of ICT integration in foreign language research and pedagogical practices. Furthermore, the findings call for a holistic review of academic programs at both undergraduate and postgraduate levels, which should be guided by a clear strategy and policy developed at the institutional level.

## About the author:

**Dr. Manal AlMarwani** is an assistant professor at Taibah University specialising in Educational Research and Development, with a focus on mobile learning, e-learning and ICT. Combines expertise in English education with a commitment to on-going development, including accreditation as a Prince2 Project Management Practitioner. Keen to share expertise and contribute to international educational projects. ORCID ID: <https://orcid.org/0000-0003-0844-4485>

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