# Teacher Perceptions Toward Closing the Procedural Knowledge Gap among Teachers in Implementing Smart Learning

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**Abstract:** The research objective was to discern teachers' competence in implementing smart learning tools, identify any present gaps, and make recommendations toward closing the procedural knowledge gap among teachers. This study employed a mixed-method approach that utilized quantitative and qualitative data collection and analysis, utilizing three tools: questionnaires, semi-structured interviews, and school-related documentation. A total of 63 male teachers participated in an online, four-point, forced-choice Likert scale questionnaire, and seven male teachers participated in semi-structured interviews. The results of this study reveal positive perceptions among teachers about integrating technology into their classrooms. The results indicate that the most effective smart learning tools are learning platforms and that teachers' acquisition of their digital skills reflects positively on their students' digital skills, enabling them to reach higher levels of electronic maturity.

## 1. Introduction

The United Arab Emirates (UAE) has integrated ICT and smart learning programs across its educational system (Galil, 2014). Smart learning is a new concept of technology-enhanced learning that uses technological resources and electronic tools to enhance the process of teaching and learning (Al-Awidi, & Alghazo, 2012; Galil, 2014). At this time, smart learning is based on the tight employment of information technology for its role in learning and education in Emirati schools. This integration aims to shape a new learning environment and culture in the schools through the launch of smart classes (Zhu, Yu, & Riezebos, 2016).

In addition to providing high-level networks and working on curriculum computerization to make it electronic curricula, the educational system also supports teachers with intelligent learning tools. The tools help improve student motivation toward learning and facilitate differentiating the reception of course content to meet the varying needs of learners. Digital technology has fostered a new vision of learning, so teachers can use technology to put the student at the heart of the educational process and develop and improve the student's level and raise awareness to take advantage of smart learning technology. According to Sharman and Bado (2015), the integration of smart learning tools has positively reflected learners' academic achievement.

In traditional classes, a teacher would merely share information with students, leading to lesser chances for self-guidance or active participation in the meaning-making process. With the rapid development of information technologies, particularly in education, technology can be used in the teaching and learning process simultaneously and asynchronously to access the content at any time. This improved access means that learners more actively engage with course content, potentially leading to more meaningful and enthusiastic participation in their coursework (Selama, 2010). Galil (2014) suggests that learners construct knowledge for themselves as they individually construct meaning as they learn. E-Learning is also strongly linked with constructivism, as it is learner-centered rather than teacher-centered. Bada and Olusegun (2015) likewise suggest that students learn by fitting new information together with what they already know. Developments in smart learning have become a new trend in the global educational field, as it may situate students in authentic learning environments, improve active engagement, and provide a pathway to increased motivation (Zhu, Yu, & Riezebos, 2016).

Conversely, not implementing smart learning tools could lead to consequences that negatively influence the learning process's effectiveness. Domingo and Garganté (2016) discovered in their analysis of technical readiness in schools that without adequate ICT structures, schools will be unable to provide teachers with an atmosphere that supplements the needs of today's learners, both in formal and informal settings where 21st-century skills can be acquired. A failure to properly integrate technology into the curriculum and a mode of instruction could leave learners without having obtained the necessary digital skills they are required for success in the 21st century.

Researchers argue that smart learning tools are sometimes overlooked in classes because teachers lack confidence in their ability to employ technology, and the space for training may not be either satisfactory or appropriate (Al-Awidi & Alghazo, 2012; Galil, 2014; Herlo, 2016). This is likely due to a saturated direct

curriculum and regulations that schools impose on teachers, resulting in some teachers feeling overly stressed even if they are not opposed to smart learning tools. Teachers also assert that they do not have sufficient experience to integrate smart learning tools and need training on incorporating technology more effectively (Almekhlafi, & Almeqdadi, 2010). Alzahmi and Imroz (2012) agree on the importance of teacher training as a critical investment to the country's economic growth and citizens' investment and emphasized that the new curricula should focus on technical skills, collaboration, and critical thinking. In the UAE context, this is especially important, as the nation aims to transform education for the 21st century. Understanding how teachers can acquire and implement digital skills is critical for success in reaching this goal.

## 2. Literature Review

Schools and teachers need to design learning and evaluation activities that develop students' digital competencies (Porat, Blau & Barak, 2018). Effective education for digital knowledge could prepare youth with suitable expertise and capabilities for lifelong learning, successful functioning in future workplaces, and active work environment involvement. E-Learning and Learning Management Systems influence how digital skills are implemented by educators and acquired by students.

### 2.1 E-Learning and Learning Management Systems
E-Learning is a complex construct of teaching strategies. It refers to any form of teaching that is considered to meet the needs of learners of different ages and abilities through electronic multimedia resources, the internet, computers, mobile phones, and any other existing technology considered e-learning (Galil, 2014). E-learning differs from traditional learning in that the focus is on varying degrees, differentiated access to course content by the learner. The growth of e-learning has also influenced the way people learn and communicate in a learning environment (Ninoriya, Chawan, & Meshram, 2011).

To assist learners in accessing e-learning materials, various Learning Management Systems have been designed.  An LMS addresses three primary applications: learning applications, screening applications, and support applications (Galil, 2014). Moreover, an accessible and user-friendly LMS provides a web-based resource that is easily accessible and integrates the most common e-learning functions into a single application. It also provides a centralized, organizational approach to administering education in scheduling courses, registering learners, and assessing their learning outcomes (Ninoriya, Chawan, & Meshram, 2011).

According to Andersen & Henriksen (2006), e-maturity is often used to characterize the state of a given level in the continuous development of digital competence. The term is used relative to their objects (e.g., e-government is still in a maturity). This term is also applicable to a school in its continuous development to integrating a whole-school approach to technology integration.

### 2.2 E-Learning in the UAE
Education in the UAE is often characterized by its robust infrastructure, rapid integration, and the latest technology and communication technology. As a result, several studies lend great insight into the progress the country's education sector is making towards meeting the needs of an increasingly digital and connected world.

Almekhlafi and Almeqdadi (2010) interviewed male teachers and found the majority favored using technology in their lessons, as they reported flexibility in creating interactive learning environments for students. However, the participants in the study also indicated the need for professional development through training courses, workshop symbiosis, and external experiences. Retalis et al. (2018) explained that technologies support students to more meaningfully engage in learning experiences for acquiring a solid understanding of core subjects and, as such, makes learning more enjoyable. It also facilitates the learning process by developing twenty-first century skills. However, they did mention that parents are not fervent supporters of technology used in the learning process and remain skeptical about its effectiveness. While parents are guardians may be skeptical, Herlo (2016) explained that we live in an era of rapid technological development, which expands the use of technology in academic educational activities, making it possible to convert information into knowledge. He stressed that increasing motivation for students to participate in integrated interactive activities using information technology contributes to the student's personal development. Correspondingly, this is because students take on greater responsibility for learning and greater ownership of their performance outcomes. Sharman and Bado (2015) also stressed the importance of using technology to raise student achievement. They argue that e-learning provides a valuable way of differentiating instruction by examining Mathematics education to meet learners' differing needs. This more personalized instruction, coupled with greater individualized responsibility toward learning, resulted in improved performance outcomes.

Other research studies have demonstrated a link between the labor market's success and the development of the workforce with developments in technical and vocational education. Alzahmi and Imroz (2012) emphasized that the utilization of modern technologies in schooling results in better-prepared individuals with extensive technical skills required in the labor market. With the labor market in the UAE increasing its integration of

technology, there is a growing demand for highly skilled workers who promote creativity and innovation in the work environment. As such, educators and school leaders should work to ensure students are highly prepared for the workforce. Similarly, Uluyol and ahin (2016) proposed that using ICT in lessons has many advantages, including better preparing students for 21st-century skills. However, they cautioned that excessive use of ready-to-use e-materials and stand-alone presentation tools might make teaching and learning passive instead of active, rendering the individualized facet of e-learning moot (Uluyol & Şahin, 2016).

Voogt et al. (2013) and Domingo and Garganté (2016) agreed that integrating ICT literacy into the curriculum is not easily managed, as this differing content does not seamlessly merge into current educational practices. They suggest that though teachers may use many e-learning applications and tools, the most frequently used have a negligible impact on student performance outcomes. These studies emphasize the need for a whole-school approach to e-learning and further demonstrate the need to prepare better teachers to integrate e-learning practices into their instruction meaningfully.

Gil-Flores, Rodríguez-Santero, and Torres-Gordillo (2017) and Svendsen (2020) suggest that teacher characteristics and goal orientation are important indicators of successful e-learning. Gil-Flores, Rodríguez-Santero, and Torres-Gordillo (2017) indicate a relationship between classroom ICT use and teacher characteristics. Notably, they discuss the perception of value for ICT training and collaborating with other teachers in working toward a common goal. They indicate an increase in the probability of frequent ICT use when teachers adopt these ideas. When teachers and schools effectively implement these skills in the classroom, students benefit.

Doiron (2012) found that young Emirati men and women are entering UAE universities with various sets of advanced knowledge and skills in ICT, resulting from being provided with those pre-college skills at school. These skills provided them with increased opportunities to practice and promote basic applications such as word processing and presentation software. Zhu, Yu, and Riezebos (2016) found that UAE schools are focused on developing the education system by applying science and modern technologies. Schools integrate formal and informal learning and personal and social learning, aiming to realize the continuity of learning experience for the learner. Schools also encourage the learner to develop creativity, analytic thinking, and innovation. These approaches enable the learner to participate in interactive learning environments. Moreover, these empower students to have 21st-century knowledge and skills to meet the needs and challenges of society (Doiron, 2012; Zhu, Yu, & Riezebos, 2016)

Finally, Galil (2014) investigated both teacher's and student's awareness of smart learning in the UAE, finding that students' and teachers' perceptions of the usefulness of the program applications, software, and educational content increased their awareness of the Smart Learning Environments (SLE). While teachers did report feeling a reasonable level of discomfort over the capacity to manage smart classroom tools, this study also found that teachers were willing to take training courses to provide smart learning tools in their teaching practices more efficiently. As a result of this SLE, students communicated, discussed, and interacted with smart tools more readily. Both teachers and students increased their interest and understanding of these smart tools.

In sum, a few studies have addressed e-learning in the UAE, and even fewer directly address the knowledge gap teachers possess in effectively integrating smart learning tools into their teaching practices. The UAE educational infrastructure strongly supports integrating advanced ICT skills and focusing on digital competence in schooling. As such, this study seeks to build upon earlier research to more specifically address the teacher's role in integrating smart learning tools. Given the limited amount of research addressing teacher readiness for distance learning in the UAE, this study aims to contribute to this gap in the literature. This research is also an essential contribution to practice, as closing the procedural knowledge gap among teachers may significantly improve the level of electronic maturity and 21st-century digital skills of our students.

### 3. Methodology

This study implemented an explanatory-sequential approach, which adopted both qualitative and quantitative components. In this approach, quantitative data is supported by qualitative data to interpret the result (Maxwell, 2013). This study used a structured questionnaire in quantitative data collection and semi-structured interviews to collect qualitative data. This approach was selected as it provided a more holistic means of collecting and analyzing pertinent and relevant data related to this particular research question. Given the nuanced space and multiple stakeholders involved in education, the researchers chose a mixed-methods approach to provide a more comprehensive analysis and triangulating data. Three Cycle-Two, public boys' schools located in Ras Al Khaimah were used as study sites for this study.

In this mixed-methods approach, the researchers began with a quantitative component in the form of a four-point, closed-choice questionnaire. The quantitative component utilized random sampling of Cycle Two male teachers across UAE public schools. This component examined the impact of applying SLT on the performance of teachers. Moreover, it sought to elicit responses concerning (1) their self-efficacy in implementing and (2) how the application of SLT may facilitate growth in the students' acquisition of digital skills. The questionnaire was distributed online and through Microsoft forms. The questionnaire was used as a preliminary tool to measure participants' self-competence in the use of SLT and distributed to the participants at the beginning of the research period. A four-point, forced-choice Likert scale was used: strongly agree-4, agree-3, disagree-2, strongly disagree-1. These numerical data were input into the Statistical Package for the Social Sciences (SPSS) to analyze the quantitative data to answer the study questions according to the participants' responses. An Exploratory Factor Analysis (EFA) was conducted to determine the factors that influence the variables and analyze which variables relate to each other. According to Yong and Pearce (2013), EFA is a technique within factor analysis to summarize data and identify the relationship between measured variables so that they can be easily construed. After analyzing the questionnaire results, the researcher identified a subset of the population and developed an interview protocol to follow up interviews.

Following the data analysis of this first component, the researchers designed an interview protocol to ascertain additional, detailed data in the form of in-depth, semi-structured interviews. Research that seeks to study perceptions of lived experiences often utilizes qualitative methods. In this phase of the study, participants were selected using purposeful sampling (Maxwell, 2013) according to the following criteria: (1) Gender: the participants in this study were male teachers. As this study sought to ascertain the impact of efficient use of smart learning tools on teacher performance in male schools, participants needed to be male teachers; (2) Full-time employment: The participants in this study were male teachers who worked full-time in a public school cycle two. This study seeks to understand the views and perspectives of teachers currently employed in Cycle Two male schools. Fulltime employment was of vital importance; and (3) Experience: as the study seeks to reset the response of full-time teachers, experience within the school system is extremely important. Participants in this study were required to have a minimum of 5 years of experience in the public school system to be eligible for the study. The researchers sought to extract data from the target group identified about the completion of the quantitative analysis. As Van Nes, Amp, Obama, Johnson and Digg (2010) discussed, linguistic differences create additional challenges that may hinder the transmission of meaning and lead to loss of meaning and, thus, loss of quality of health study. As such, the researcher conducted all interviews in Arabic to help ensure participants may freely express themselves. The data was the first to be transcribed verbatim in Arabic. Similarly, open coding was also carried out in Arabic. Throughout the interview, the researcher took low-inference notes to be used in data analysis (Van Nes, Amp, Obama, Johnson & Digg, 2010).

All the interviews were audio-recorded with the interviewees and transcribed verbatim for the analysis. The researcher continued collecting data until a point of saturation was attained. The interviews took approximately 40-45 minutes on average and were conducted in a comfortable and quiet room. Once the interviews were transcribed verbatim, data was analyzed using a thematic analysis that applied multiple stages of coding: open, axial, and selective. The open coding process, as described by Elliot (2018), was being applied. Semi-structured interviews were conducted by the researchers who took low-inference notes throughout the interviews to be used in data analysis (Van Nes, Amp, Obama, Johnson & Digg, 2010). Data analysis commenced while undergoing data collection. Open codes were identified as those items which related to the research question guiding the study. Axial coding occurs whereby the researcher identifies similarities between the open codes and, subsequently, categorizes them into groups. Axial codes were first set in Arabic and then translated into English. Two experts in the field cross-checked these translations. The researchers continued to code in English after reaching a consensus on the translated meaning of the axial codes. This process is necessary to collect data in one language and later publish it in English to improve the quality and credibility of the results and reduce them (Regmi, Naidoo, & Pilkington, 2010; Van Nes, Amp, Obama, Johnson & Digg, 2010). Finally, axial codes were interpreted into themes that were explained and described through a narrative form. During this stage, axial codes with similar attributes were grouped to address the research question. A narrative was then composed to articulate these findings.

The researchers began establishing a trust-based relationship with the participants and maintained this relationship by demonstrating ethical integrity by safeguarding participant anonymity, confidentiality and remaining empathically neutral throughout data collection. The researchers triangulated the data using three primary means: member checking, artifacts, and cross-checking findings (Creswell, 2014). Artifacts, such as documents, were used to demonstrate the teacher's competency based on the attending training to triangulate the researcher's findings. The qualitative component also functioned as a means by which the researcher may confirm confidence in the quantitative data collection and analysis process.

### 4. Results

The results of this study are presented in two parts. First, the researchers will discuss the findings from the quantitative component; then, the authors will discuss the qualitative findings. Subsequently, the authors will relate both sets of findings in the discussion.

#### 4.1 Quantitative Results

The Kaiser-Meyer-Olkin (KMO) and Bartlett's Test Sphericity were computed to answer the research hypotheses. A significant level of Bartlett's Test of Sphericity result should be less than $0.05 (p< 0.5)$ to reject the null hypothesis. Indeed, these tests show that there are patterned relationships amongst the variables $(p<.001)$, as shown in table 4. This means that the significance level is small enough to reject the null hypothesis and confirm strong correlations between the factors.

**Table 1: KMO and Bartlett's Test**

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .778 |
|---|---|---|
| Bartlett's Test of Sphericity | Approximate Chi-Square | 191.474 |
| | Df | 45 |
| | Sig. | <.001 |

The rotated component matrix below helps reduce the number of factors on which the variables under investigation have high loading (Chetty, 2015). Also, it helps in determining what each component represents. The table below demonstrates that the first and third components are most highly correlated with questions related to teachers' perceptions of self-evaluation digital skills. The second component is highly connected with questions related to developing students' digital skills. The fourth component is highly correlated with a question related to the most effective Smart Learning Tools in the classroom environment. These factors can be used as variables for further analysis, so the researcher used these variables to design the interview protocol to gain in-depth and intensive data about the effectiveness of implementing applying smart learning tools in three Cycle Two Boys' Schools in Ras al Khaimah.

**Table 2: Rotated Component Matrix**
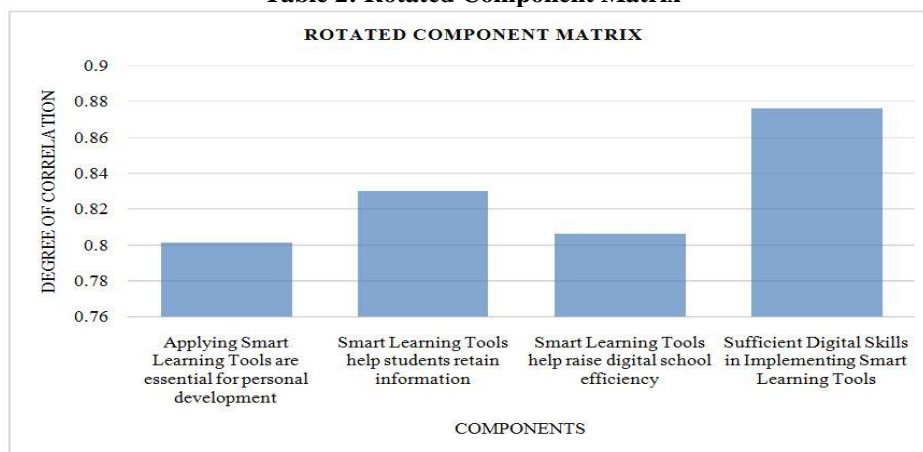


#### 4.1.1 Most effective Smart Learning Tools in the classroom environment

The first questions of the study focused on the effective smart tools employed by teachers in the classroom. It is clear from Table 4.2 that the teachers' responses were represented by their agreement to a large extent on all items. Also, the sum of the mean of those who agree and strongly agree had a mean of about 3.138.

Table 1: Teachers' Perceptions About SLT

| Item related to effective SLT | Percentage | Mean | Teachers' General Perceptions About SLT |
|---|---|---|---|
| The Platforms is the most effective SLT in the classroom environment. | 78 | 3.333333 | Agree or strongly agree |
| I have enough background in using Smart Learning Tools. | 95 | 3.101449 | Agree or strongly agree |

| | | | |
|---|---|---|---|
| I need some training to apply Smart Learning Tools effectively in my classroom. | 72 | 3.066667 | Agree or strongly agree |
| I face some challenges when I teach my students. | 54 | 3.058824 | Agree or strongly agree |

The table above demonstrates that the teachers perceive the Platforms as the most effective tool, with a mean of 3.33. The item "I have enough background in using Smart Learning Tools" had the mean of 3.10. The other most prominent perceptions of boys' cycle 2 schools were as follows: 72 percent of teachers need some training to apply Smart Learning Tools effectively in the classroom, whereas 45 percent faced some challenges when they teach their students.

### 4.1.2 Developing students' digital skills

| Item related to student engagement | Percentage | Mean | Teachers' General Perceptions About SLT |
|---|---|---|---|
| It is easy to apply and use the tools in the classroom. | 89 | 3.178571 | Agree or strongly agree |
| Smart Learning Tools helps students to retention information better. | 89 | 3.267857 | Agree or strongly agree |
| My students focus strongly while I am using Smart Learning Tools | 90 | 3.245614 | Agree or strongly agree |
| Applying Smart Learning Tools (SLT) engages students more in learning. | 95 | 3.35 | Agree or strongly agree |

As shown in the table above, teachers' responses to the questionnaire confirmed the positive impact of intelligent learning tools on students and their interaction with the learning process for most items, noting that the general sum of the mean was 3.26. This indicates teachers' agreement on the possibility of the positive impact of SLT on student's learning. It can be noticed that applying SLT engages students more in education is at the top with the mean of 3.35, followed by both SLT's role in helping students to retain information better and focusing strongly in the classroom with the mean of 3.2. Easy application and use of tools in the recorded a lower mean of 3.1, as indicated in the table above.

### 4.1.3 Teachers perceptions on self-evaluation digital skills competence

| Item related to student engagement | Percentage | Mean | Teachers' General Perceptions About SLT |
|---|---|---|---|
| Smart Learning Tools help raise digital school efficiency | 93 | 3.45 | Agree or strongly agree |
| Applying Smart Learning Tools (SLT) is essential for personal development. | 92 | 3.303571 | Agree or strongly agree |

As shown in table 4.1.3, teachers' responses to this part of the questionnaire showed a positive difference between effective self-performance and school efficiency. It should be noted that the more efficient teachers and students are in digital skills, the higher the school efficiency. This shows that teachers have agreed in their perceptions of the importance of using ICT in the teaching and learning process and the school's performance each year. Also, teachers agreed on the importance of activating SLT in the order specified in the table with an average of 3.4. The item "Smart Learning Tools help raise digital school efficiency", ranked as the highest benefit, followed by "Applying Smart Learning Tools (SLT) is essential for personal development".

### 4.2 Qualitative Results

Each school included approximately 18 teachers who teach the following target subjects: Islamic education, Arabic language, social studies, mathematics, science, and English language, whose experience in teaching ranges from 5-25 years, full-time. Seven of them agreed to participate in the study. In this study, the number determined the qualitative level of saturation. Every participant was assigned an alias to the demographics and basic information of the participants described in the next section.

Semi-structured interviews were conducted with seven male teachers who teach in a government school in Ras Al Khaimah, UAE, to share their perspectives and lived experiences. Walter (2013) stated that in-depth interviews are among the most common research methods used within the social sciences. This study determined that employing smart learning tools contributes significantly to raising the efficiency of digital teachers, with the availability of continuous training. The study also confirmed that teachers with high digital skills could increase students' digital competence to reach higher levels of electronic maturity, leading the school in self-evaluation to good digital competence levels.

All of the respondents who participated in this study were male. They all worked as teachers for more than five years and are all full-time instructors in Public School Second Episode. Participants provided their background previous interview information, which is displayed in the table below. All of them were assigned a pseudonym in order to safeguard their anonymity.

The researchers used a thematic analysis (TA) approach (Braun & Clarke, 2006) to analyze the data gathered through the interviews. The interview consisted of eleven questions that served the aims of the study. The qualitative data were then analyzed using multiple stages of coding: open coding, axial coding, and thematic coding. Upon completing the analysis, the following themes emerged:
1.    An engaging Learning Management System and the Madrasa Platform are the most effective tools employed by Cycle Two teachers in a classroom environment.
2.    The development of teachers' digital skills reflects positively on the ability of students to use their digital skills.
3.    The digital skills of teachers and students gained from training may influence a school's self-assessment.

**4.2.1 Theme One: LMS and Madrasa Platform are the most effective tools employed by cycle 2 teachers in the classroom environment.**

The teachers who participated in this study suggest that smart learning tools positively affect the teaching and learning process, which is an essential element in supporting the scientific content of the material. They also indicated their perception that a lack of employing these tools could be a significant obstacle to achieving this progress.

The first question focused on the most effective tools used by the teachers of the second cycle. It presents teachers' interpretation of smart platforms' importance and their impact on both teachers and learners. Here are examples of texts that support the above topics. All of the interviewees agreed that the platforms are the best tools for intelligent learning, and Ahmed began confidently: "The smart learning portal we use permanently as well as a school platform is a foundation and rule on which we walk, and in my opinion, the most effective is LMS through which we can assign duties to students, engage in discussions, and share a variety of file also strongly supported that the smart learning portal is a link between three main pillars: teacher, student, and guardian, and added an important point here: "The time plan of the curriculum is designed on LMS within the ministerial plan and is easy to access and follow periodically."

Abdulrahman added that students could return to the scientific material on the platform because it is available, enriches their experiences, and saves time and effort. "When designing any questions, I can put them according to their importance in problem-solving and brainstorming, for example, and then categorize them according to different levels of students and their skills, and I also bring much creativity," says Omar. He said: "I have my fingerprint in the smart learning portal, choose the questions and their level and how to direct them and feed them with anything from the other platforms in addition to developing a plan for the discussion. Mohammed, Abdulrahman, Ali and Omar stressed that the Smart Learning Portal is a very successful platform that positively impacts students if it is properly employed.

Ali and Abdelrahman, two teachers studying Arabic, also supported the platform Nahla and Nahal as a rich and valuable platform that enriches the student's reading skills, and praised its importance, saying: "Nahla and Nahal platform is effective for students of Cycle 2 because this platform helps present content and gives students a golden opportunity to enrich their skills and experience". Ali has a unique point of view on the Swift Assess platform

where he said: "Swift Assess is a single exam platform - speaking in his colloquial language - not everyone knows about it and there are some complications if the person does not practice it continuously and will never be able to use it".

Abdullah also differed from the other teachers in that he considers Edushare to be one of the active platforms following the smart learning portal and stated, "This platform presents the scientific material in a clear sequence and simple steps as it contains a lot of interactive activities and can the student implement and deal with them with ease and ease," and mentioned the team.

There is an addition from Abdulrahman, Ahmed, Mohammed and Ali about the effectiveness of the application of Microsoft Teams, as it is a supporting tool that saved them time and effort and provided them with a wide variety in the field of student evaluation, as well as available at any time and place without restrictions. Ahmed added: "Another useful thing about the MS Teams program is the possibility of publishing the weekly plan for students with ease and flexibility."

All the teachers interviewed confirmed that they received appropriate training to employ some educational platforms, which helped them to pass on this experience to students, as Ali supported this, saying that "The Sheikh Mohammed bin Rashid program is one of the first to conduct training courses on these platforms, including the smart learning portal." In addition, all teachers stressed that they needed to be trained in the latest developments in educational platforms. However, the teacher, Omar, did not strongly support the idea of training, stating that "in the battle of distance learning, I look to learn and employ what I have learned, and then I go into training with the teacher, and training is important only if it is for the qualitative and new thing, and the type of training is not a problem in the type of direct training."

Mohammed, Abdalaziz, Abdullah and Abdalrahman supported that they needed edited training on Swift Assess because it is a slightly complex platform. Mohammed said: "We need training on the Swift Assess platform, being a little complicated and not easy to deal with, although it is a very effective platform for evaluating students" and added Abdalaziz, "I do not have a sufficient background in the employment of the Swift Assess platform, hahaha, laughing in a low voice, because I have not hired it for a long time except to see the results of the students, and I do not have full confidence in the possibility of employing it."

In summary, all teachers agreed that the educational platforms facilitated their mission as teachers, saving them considerable time and effort. Ali evidences this: "Since we are employing modern strategies, we have to support them by employing modern learning tools, and the teacher in the Corona pandemic that we have passed through has more opportunities to research, train, and experiment than ever before." Abdalrahman, likewise agrees, "Let me say that the way I teach 180 degrees varied because of the ease of preparing and following up in the class using platforms and support programs, and there is a diversification in the methods of evaluation." Mohammed, Abdullah, Abdalaziz and Omar also stated that the training they received on the platforms enabled them to transfer this skill and experience to their students in the class and also helped them to diversify the use of motivation methods and expand strategies and classroom activities, which is a key factor to break the boredom and daily routine of the student.

### 4.2.2 Theme Two: The development of teachers' digital skills reflects positively on the ability of students to use their digital skills.

It is crucial to enhance the teaching and learning process. Therefore, the key role of teachers is to help learners understand the course content and use technology to enhance learning and not just use technology for the sake of technology (Choudhury, 2015; Porat, Blau & Barak, 2018). When technology is instilled in the lesson's content effectively and appropriately, it becomes stimulating and essential for most students. (Granito & Chernobilsky, 2017; Heafner, 2004).

The participants report that when the teacher possesses all the technical skills and is able to deal with programs, platforms and electronic applications with confidence and flexibility, he can transfer that skill to his students. Moreover, most of the participants indicated that students need constant direction and guidance to employ these technologies to serve their continuous learning process properly. They also point out that the students with the least use of technology are those who have technical problems with their devices or their internet connection. On the other hand, all participants confirm that the Covid-19 pandemic has benefited the educational process from a technical perspective. While many other aspects of life have been affected by the outbreak of the Covid-19 pandemic, education has witnessed a remarkable and rapid development in transferring students and teachers from real learning to virtual learning that depends entirely on modern technology. Moreover, this paradigm shift

encouraged teachers and students to activate and employ available technologies and educational platforms with high efficiency.

Two teachers, Ahmed and Abdulrahman, suggested that learning based on modern technology is highly effective. At the same time, Omar, Abdulrahman, Abdulaziz and Ali stress that students still need more training, while one of the participants, Muhammad, believes that these technologies have automatically developed students' abilities with time. Abdul Rahman said that the use of technology has a positive impact on students.

Most students have become like [they love] to work on programs and applications and some platforms, and this has led to an increase in their academic achievement and an increase in their participation in discussions and the regularity of most of them doing homework. I have a student who did not want to do any of his duties, but now it employs many platforms and is proficient in solving duties and assignments.

Ahmed echoed similar feelings. "Student interaction has become more and more and more than before, they have become more able to communicate when using electronic devices correctly. There is great digital growth for students in their dealings with platforms, their interaction with websites and with the process. Research and how this research is largely safe. My colleague once told me, "I think some students have outperformed my digital skills." While Ahmed and Abdulrahman reported on student discrimination, they both also suggested that the teacher has a significant impact on student performance and is an influencing factor in their lives. They also emphasized teachers' vital role in this process to ensure students have these technical skills and competencies. Educators must also possess these skills to prepare and implement technology lessons and scientific content. As Bitner and Betner (2002) mentioned, teachers' attitudes and knowledge determine the effectiveness of integrating technology into the curriculum.

Mohammad, an experienced teacher, shared his insights related to the use of smart learning tools and the development of students' abilities over time.

When I pose a problem to students on the platform [LMS] so that the student searches for solutions and thinks outside the box, I simply help him to develop his abilities and intellectual skills, in addition to developing the skills of the 21st century that he needs widely when he reaches the advanced stages of the study stages. In addition, the smart learning tools [platforms] contribute greatly to student interaction and response in addition to saving time and effort. There is difficulty communicating with the new students coming from the first to the second cycle. The teacher may be shocked by the presence of students [of people of determination] at this stage who have not yet been discovered, as the teacher in realistic education contacts the student in a direct way that enables him to identify students' needs and their personalities in an easier and faster way, but in distance learning he can not This is because the student sits behind the device without noticeable and direct contact with the teacher and his colleagues. On the other hand, I noticed an increase in the level of achievement since we employ educational platforms. Perhaps the reason is that the student has more support in the content and there is a great diversity in the way the educational material is presented.

Mohammad reflects on his experience as a teacher who lived a period of distance learning and has experienced developments in the field of education for 17 years. He admitted that teachers face the problem of recognizing the personalities and abilities of new students. He did, however, recognize that teachers could help students develop their "digital skills and capabilities."He suggested that employing educational platforms helped raise the level of students' achievement, stressing that teachers are now more supportive of students than they were previously.

Omar, Abdulrahman, Abdulaziz and Ali argue that students need constant teacher support to be able to possess the digital skills needed to keep up with developments in the educational process. Omar suggests, "Once the teacher uses digital tools, students respond to him. Personally, I direct the student to use reliable practical websites, to research and explore, which contribute to the development of his skills. In my opinion, students gain knowledge through research. The student must search for five minutes a day for vocabulary so that the student acquires information, is self-learning, helps him gain knowledge and develop his technical skills. In addition, Omar refers to other positive things that students gain from employing these platforms. I noticed that in the field of achievement, the more diverse activities on the educational platforms increase, and the student feels their importance, and their achievement increases at different levels for students."

Ali expresses a similar feeling: "In the section of students, they did not deal with the educational platforms sufficiently and we are trying to help them within their capabilities. Therefore, when [the student] employs these platforms, he will return to the scientific material on the platform at any time he wants, and his experiences will

be enriched and deepened. The idea is on his mind more than before. And I really like that there is a group of students who participate with us and support the learning of the rest of their colleagues in the event that they falter".

Abdulaziz supports his colleagues and shares their feelings with them by saying: "The fact that the teacher employs modern technologies from platforms, programs and applications, he enters the student from his favorite side. The student in this age group is naturally passionate, loves exploration and is always looking for everything new. Educational platforms digital skills for students through the research process that the teacher feeds them with, so he, in turn, contributes to increasing their interaction [students] through electronic reinforcement, presentation of products, and appropriate feedback."

Abdulaziz raised an essential point in the importance of parent interaction, saying: "The platform [LMS] is considered a highly effective way to communicate with parents and students at any time and place without barriers and restrictions. The guardian can easily obtain the feedback he requires and follow up on his son's learning, which has reflected on the students' achievement, which has increased. Compared to previous years, the parent played the role of mentor, mentor and observer of the student's performance and behavior".

Abdullah adds: "I am with the idea that the student needs to support his digital skills from the teacher, especially in the field of cyber security and how to use search engines and reliable websites. After the student receives training and support, he will be able to access the platforms without guidance and use them easily". And he adds, "These platforms and programs help students to be independent and self-reliant. Critical thinking skills. It also shows where the student made a mistake, and the student himself evaluates the work and corrects the mistakes he made and corrects them, and this matter increased some of the students', such as the evaluation skill, which led to an increase in the students' motivation to compete positively among themselves to reach the best results".

Teachers in the sample collectively indicate that tutors are the main driver of the educational currency. He is the one who supports his students and is able to guide them to advance their digital skills positively. Moreover, the respondents emphasized that employing these platforms, programs, and applications helped develop the 21st-century skills of students and helped them in self-learning and evaluating their learning. Several teachers in the sample expressed a feeling that the interaction has increased with students, and their participation is better than before. Educational platforms and support applications have become the appropriate place to quench students' thirst, passion, and love of exploration and learning. According to Ahmed and Ali, using these tools helped reduce the percentage of behavioral problems they were experiencing in the past, and student dropout from the class is no longer the same.

### 4.2.3 Theme Three: The digital skills of teachers and students gained from training may influence a school's self-assessment.

Participants in this sample expressed, to varying degrees, their desire to engage in imparting knowledge and skill to their students and fellow teachers. Moreover, the school administration encourages them to do so and provides them with the necessary support in addition to the feedback that contributes to the development of their skills and abilities. Thus, they overcame the barriers that may exist on the way to achieving their goals and convictions towards the transition to a digital school. Most of the teachers reported that they received support from their administration and colleagues, while some discussed their personal challenges in overcoming some of the obstacles. For example, Ahmed is the least experienced teacher in this study. He emphasizes the importance of spreading digital culture among the administrative and faculty and students and the importance of training and feedback in rebuilding the missing skills. He shares his perspective, "Everyone in the school is influential in evaluating the school and the teacher with his digital skills improves the skills of the student and his colleagues as well, because digital culture is very important in my opinion and affects the performance of the school. Moreover, there is an important point which is the process of digital technologies. It is no longer a point of luxury, but rather has become the basis on which the digital school is based. Improving his performance thanks to management follow-up and providing him with appropriate feedback."

Ahmed sees his school, colleagues and students as an integrated support system. He wants the dominant thought to be the digital one that simulates the digital information revolution in our time, and he uses phrases such as "the common vision ... my school and my students. Achieving goals? Yes we can." Ahmed has a clear attitude and active beliefs about his abilities and the abilities of those in his school. It also confirms that training is the basis and is a guide to the continuity of learning and progress towards the desired goals.

Ali, like Ahmed, believes that training is what develops skills and reflects positively on the performance of individuals and the school. Ali added, "Sheikh Mohammed bin Rashid's program from the beginning was one of

the first [who] conducted training courses on the mechanism of employing the supporting platforms and applications. With the onset of the Corona crisis, especially in the first months of the start of distance learning, there were problems. With most students and teachers being unaccustomed to this rapid and urgent transformation, this problem was avoided with training. He, like the rest of the participants in the study, is confident that the transfer of experience and feedback is one of the factors for success and achieving the vision, "Every qualified person transfers his experience and gains his experience from others, and [when] everyone is scientifically and digitally qualified, it positively affects school achievement, and digital culture is in the first place.

Abdulrahman has a view that closely matches the opinion of both Ahmed and Ali, as he explained that the method of teaching differed greatly in terms of ease of preparation and follow-up in the class, and there was a diversification in evaluation methods. He emphasized that the teacher's culture depends on his technical skills and the extent of his practice of techniques, "The teacher's performance certainly affects the school's evaluation. If the teacher lacks digital skills and the ability to use smart platforms, his students' digital level will be low and they will be unable to understand the content as required, affecting the school and its performance in comparison to other schools. Therefore, research and training are the two most important reasons for [teachers and students] acquiring knowledge. As a teacher, I am keen on raising the students' efficiency and reaching them to higher levels of electronic maturity, and I am also keen on exchanging experiences and transferring experience to colleagues, which contributes to raising the school's efficiency."

Abdulrahman supported Ahmed and Ali's idea that the transfer of experience and knowledge from the teacher to the student will affect the school's performance as a whole, and students will eventually reach higher levels of electronic maturity after receiving feedback and improving the level of performance. Moreover, he discussed the work-related challenges that are the pressures that prevent the teacher from flying his mind and being creative in his field. Omar comes here with his enthusiasm and his starting idea to support all these ideas with support as he states, "The current time, the teacher has a high level in the technical side, based on circumstances that we are going through, where the teacher is forced to employ technology and self-learning, and sometimes the teacher may dive into the technical side and educate himself through courses such as Microsoft courses and Cyber C3. It leads to nurturing students' digital skills and reaching high levels of electronic maturity." Omar appears to be eager to raise the level of his school and teachers, and he is fully convinced that the only way for the student to learn and achieve the highest levels of electronic maturity is for him to take charge of matters and assign him to tasks that he works on, design, present to the audience, and then receive feedback on it to reproduce the works with greater quality. Mohammad adds to the four participants a point related to enhancing and supporting students' performance, and his role in raising their skills, "If the teacher has high skills, then the performance is great in the lesson. It inspires enthusiasm in the student and has a role in promoting positive behavior, as the teacher is a role model, and this affects the school evaluation positively. Also, students of this age have more background than teachers due to digital openness." The five previous participants debated the issue of disseminating practices and digital culture among colleagues and students within the school. They also support the idea of the teacher and students participating outside the school to develop their skills and abilities, learn from others' experiences, and transfer these experiences to members within the school.

## 5. Conclusion

The main results of this study, which explain the effects of employing smart learning tools on the performance of each teacher, the student, and the school as a whole, reveal the perceptions of male teachers about the importance of employing platforms in raising the efficiency of learning and learners to keep pace with continuous changes. Figure 1 represents the results of this study in terms of how the subjects relate to each other.

Figure 1: Results of the Study
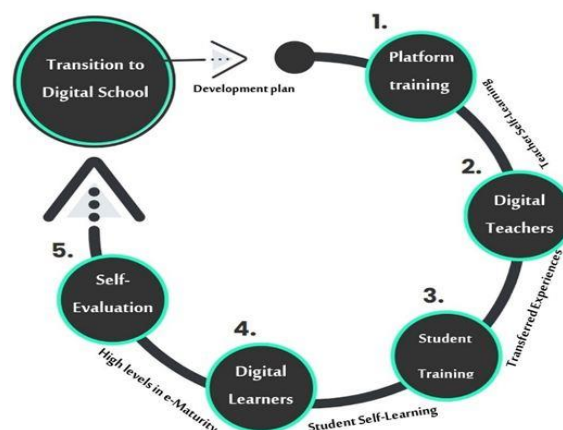


When interpreting the data obtained from the study, the results indicate that the relevant data, as the teacher's possession of adequate digital skills and their continuous development through continuous training, whether on his own or with his peers, helps the teacher overcome the obstacle of the rapid transformation of digital learning. Correspondingly, this is because it enables teachers to transfer that knowledge and digital skill to students by feeding scientific content and helping students to reach their full potential by assigning them some tasks, duties, and presentations. As a result, students are able to reproduce knowledge in a better way than before, and thus, they become more capable of self-learning from supportive platforms, educational programs, and apps that have been fed and supported by scientific content.

The second element is empowering students with digital skills that lead them to higher levels of online maturity. As mentioned previously, the teacher's digital skills are transferred with training and practice directly to the student, who carries out self-learning and the production and presentation of knowledge for evaluation. The teachers in this sample discussed, in great detail, the value of the training they received intensively and richly. They described it as more than just training, i.e., a process that enabled them to develop their students' digital skills in a short period, which helped them reach higher levels of electronic maturity compared to previous school years, where reliance was on the teacher's skills and scientific content in the book only.

The third component of the process is the school's self-evaluation. These teachers attributed their success to the school's high digital learning rating and smart transformation to digital schools. They were willing to work hard, overcome obstacles, and communicate effectively to achieve their own goals and vision. Furthermore, their preachers supported the idea of participating outside of the school walls in order to gain more knowledge developments and disseminate them among the active members on the school campus. They engage and communicate with external support institutions and prominent individuals who can facilitate their school's digital access. They also stressed their keenness to receive feedback that would enable them to rebuild and build a new plan with immediate goals. This advanced digital environment can facilitate increased possibilities for teachers and students to obtain more significant opportunities in knowledge and career advancement, with the requirements of the current labor market, in light of the urgent changes that require quick and direct interventions from all institutions and their employees. It is an interesting and realistic challenge, and if students and teachers are qualified and ready to take on any challenge or new experience, there will be more incredible pioneering achievements.

### 6. Limitations

This study faced various types of limitations that made its results difficult to generalize. The first limitation of this study is the small number of teachers participating in this study, as only 63 teachers participated in the research. Also, this study is restricted to public schools for males, and the target population does not represent all teachers. The second limitation is that the study focused on the teachers' perceptions without considering the views of other stakeholders, such as principals or their representatives. The third limitation is that it was conducted in a specific geographical area (Ras Al-Khaimah). The fourth limitation relates to the time assigned for completing the questionnaire and the interviews conducted during the first semester of the academic year 2020-2021 in public schools, which resulted in inadequate survey responses and few interview responses.

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