

## Exploring Teacher Perceptions of Using E-portfolios in Public Schools in the United Arab Emirates

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### ABSTRACT

This study explores e-portfolio practices among K-12 teachers and investigates their perceptions, attitudes and skills towards the potentials of e-portfolios to enhance the required 21<sup>st</sup> century competencies. Both qualitative and quantitative methods were used to investigate teachers' perceptions of the use of e-portfolios in both public and private sectors in the seven Emirates of the UAE. In addition, 10 school leaders were interviewed to explore how willing and able they were in supporting a hypothetical change in the practice of documentation by using e-portfolios. A survey was conducted with over 400 teachers responding to 54 questions via an online questionnaire supported by the Survey Monkey web service tool. Data analysis results revealed that a substantial proportion of participants felt positively towards the possibility of using e-portfolios. However, the survey also revealed that the majority of teachers in the field need to acquire knowledge, associated skills, and competencies, through professional developmental training programs to cultivate and improve reflective, selective, organizational, constructive feedback skills, along with familiarity and proficiency in using online collaborative and professional networking tools. The study concludes with implications for policy-makers and stakeholders to consider before introducing requirements and regulations on e-portfolios.

**Key words:** Attitude, Competency, E-portfolio, Information and Communication Technology (ICT), Perception, Teachers, UAE

### INTRODUCTION

The vision of the Ministry of Education (MoE) in the United Arab Emirates focuses on: 'Pioneering in student preparation in the K-12 education system for a productive life in a dynamic world to ensure sustainable development for the UAE society' (United Arab Emirates Ministry of Education, n.d.). This vision is clearly reflected in the MOE strategy 2010-2020. In order to achieve this strategic objective, the MOE formulates it into sub-domain 'Competencies,' which represents an educational element that includes a number of initiatives to support professional development for teachers, and leads to licensing of the educational staff in public and private schools. Moreover, teachers in the UAE should demonstrate their mastery of specific competencies, according to the Federal Authority for Government Human Resources (FAHR), which 'undertook the responsibility of preparing the Employee Performance Management System (EPMS) based on modern managerial concepts in accordance with the UAE Federal Decree (11, 2008)' (United Arab Emirates, Federal Authority for Government Human Resources, n.d.).

It is important that a teacher should reflect and record proof of competencies and individual objectives.

According to EPMS, teachers should present evidence of any professional activities undertaken during the academic year to document and support any incentives. Formerly, it had been optional for a teacher to provide evidence of work achievement. Now it has become critically important for the teachers and the evaluators to prove mastery of each competency. Therefore, most school principals request teachers to develop their own professional portfolios to collect evidence and samples of their work. This showcase portfolio is used to facilitate the evaluation process between the teacher, principal, or any other assessors and inspectors from the ministry. However, from the authors' experience, observations, and discussions with colleagues, developing a traditional format portfolio has become a challenging task, as it adds to the administrative burden of teachers. Therefore, this study investigates teachers' perceptions of using e-portfolios. The results are expected to represent a potential solution and enhance teachers' professional development profiles.

### Theoretical Framework

Historically, e-portfolios were used as tools in the arts field to highlight the best works. The use of e-portfolios first

emerged in the educational contexts, in the USA and in the UK (Alcaraz, 2016), not to showcase but to collect experiences and reflect on them (Hartnell-Young, Harrison, Crook, Pemberton, Joyes, Fisher et al., 2007) as well as to organise, design and assess students' learning processes (Bahous, 2008). In Europe, it was not until the 90s that the portfolio arose in educational contexts (Alcaraz, 2016). Many innovations took place in the field with e-portfolios and at later stage e-portfolios then began to be considered as learning and assessment tools (Alcaraz, 2016). E-Portfolio have been used since the beginning of the 21<sup>st</sup> century in teaching and learning to promote metacognitive development and to widen learning experiences (Scully, O'Leary, & Brown, 2018). In fact, the use of e-portfolios is becoming much more common in higher education (Soto, Barquín, & Fernández, 2016).

Many programs utilize digital portfolios for students to archive assignments as means of fostering student learning, reflection, and subsequently develop portfolios to satisfy both comprehensive exam and student employment goals (Cleveland, 2018). The use of electronic portfolios in higher education for student assessment and program evaluation continues to be essential. It advances the quality of the student learning, technology and discourse experiences and program quality (Forawi & Mitchell, 2012). An e-portfolio is a dynamic website with databases of student program-related experiences that offer flexible, socially networked, and indexed repositories of e-learning evidence (Hopper, Sanford, Hong, & Monk, 2016). In higher education, the primary goal is to transform the traditional model of university education to increase student engagement, success, retention, and graduation rates (Glaze, 2018).

Klenowski (2011) states that e-portfolio can be used in five different ways: (i) summative Assessment; (ii) competence certification and candidate selection; (iii) promotional use, (iv) Teaching and learning support; and (v) professional growth. In connection with the fourth use e-portfolio for teaching and learning support—some authors (Scully et al., 2018) rename the e-portfolio as the learning portfolio because of the fact that learning and assessment could be fostered by its meaningful use.

Gambino (2014) indicates that the e-portfolios are pivotal in enabling us to transform our high impact practices into a holistic, integrative learning environment for students. E-portfolios also serve as the primary vehicle for assessment at universities, using authentic student work to create a culture of learning and continuous improvement. Many researchers and institutions have realized the value of using technology in teaching and learning. Advanced technology provides educators with an important teaching platform. It has become widely recognized as a good approach to enhancing learning outcomes (Lin, Yang, & Lai, 2013).

As far as Learning e-portfolios are concerned, Scully et al. (2018) differentiate between three types: 1) as process which is valuable for students to reflect on their learning development; 2) as product where students could showcase their learning process; and 3) as dual goal orientation which encompasses the previous two by including drafts and

artefacts related to learning processes together with finished products.

It is not possible to envision a learning process without taking into account its assessment approach. Nowadays, there are many competing assessment approaches as Siarova, Sternadel, and Masidlauskaite (2017) state: “summative assessment or assessment of learning, formative assessment or assessment for learning and assessment as learning among others” (p. 34). Hayward (2015) goes even further when stating that assessment is learning. Reflection and continuous feedback are considered significant elements of learning processes (Siarova et al., 2017). Siarova et al. (2017, p. 63) conclude, “providing feedback to pupils brings positive results in supporting learning, teaching and assessment, and that it also brings useful evidence for [...] formative assessment purposes”. In addition, the latter is precisely related to the general objective of the e-portfolio is “to facilitate and document learning and development over time” (Scully et al., 2018, p. 2). This is why the e-Portfolio has gained importance as an assessment system in higher education (López-Fernández, 2008). As the author states, the e-portfolio arises as a new way to conceive the assessment that offers the opportunity to design a different system, with a new tool, which facilitates the acquisition and pursuit of learning, through the new roles assigned for teachers and students (López-Fernández, 2008).

Nonetheless, further research is needed according to various research studies (Aris & Fuentes, 2016; Scully et al., 2018). More specifically, as Parker, Ndoye and Ritzhaupt (2012, p. 105) stress, studies of Learning e-portfolios in “[...] teacher preparation programs is an open-ended realm of research”. In this line, the main aim of this study is to open new insights into students and teachers' perceptions about the use of the Learning e-Portfolio as the main learning and assessment tool in Early Years Education.

E-portfolios have become an important and prominent component of teaching and learning in higher education (Alcaraz, 2016). E-portfolios are used to organise, design, and assess students learning processes (Bahous, 2008) as well as a strategy to collate and record student and teacher experiences and reflect on them (Hartnell-Young et al., 2007). The use of e-portfolios have also acquired relevance as an assessment system in higher education (López, 2008). Lopez (2008) explains that e-portfolios emerge “as a new way to conceive the assessment that offers the opportunity to design a different system, with a new tool, which facilitates the acquisition and pursuit of learning, through the new roles assigned for teachers and students” (p. 55). In addition, innovation carried out with e-portfolios is related to learning and assessment (Alcaraz, 2016). Scully et al. (2018) conceptualise e-portfolios as learning e-portfolios. They identify three different types of learning e-portfolios. The first is the learning portfolio as a process which is useful for students to reflect on their competences and development. The second is the learning portfolio as a product where “the primary purpose [...] may simply be to showcase examples of work and/or achievements” (Scully et al., 2018, p. 2) and carry out summative assessment. The third is one that “leads to the most

favourable outcomes” (Scully et al., 2018, p. 19), combining the previous two and termed as the dual goal orientation learning portfolio. In the latter, the student “may include drafts and ‘unpolished’ work, with the focus broadened to include the process of compiling the portfolio, as well as the finish product” (Scully et al., 2018, p. 2).

According to the literature, e-portfolios are considered significant tools for students to foster self-reflection about learning (Alcaraz, 2016; Scully et al., 2018). The teachers in this study believe that the e-portfolio is an important tool to know students in more detail. The teachers believe that more training is needed for both them and the students. Through e-portfolios, teachers are able to better mentor the learning processes and how to transfer it to their students (Gallardo et al., 2016); therefore, it is essential to ensure that teachers and students know the use and the aims of the e-portfolio in advance (Gallardo et al., 2016; Scully et al., 2018).

### **An Administrative Requirement**

The teacher appraisal system in UAE government schools requires teachers to provide evidence of their achievements during the academic year to prove their competencies and fulfil the teaching standards determined by the MOE in the UAE. Teachers vary in their compliance to provide such evidence for school principals, supervisors or advisors. While some teachers prefer to introduce the work verbally with some electronic material, others prefer to collect documentation as a case to be presented on request to assessors. Some supervisors and administrators encourage teachers to develop their portfolios to allow teachers the opportunity to reflect on their own practices and develop their performance. The portfolio approach is recommended as an authentic and formative assessment for teachers, as well as a learning tool and professional developmental procedure.

### **Paper-based Portfolio**

Although teachers develop their portfolios differently, they still do not have a clear rationale behind developing such portfolios. From the second author’s experience as a teacher, she has known many teachers who oppose the idea and the practice of the paper portfolio because it adds to their already heavy workload. In addition to their regular paperwork, they must add more reports, pictures, documents, files, appendices, etc. This also has resource implication as it costs more money, effort and time. The current federal appraisal system for employees’ performance in the UAE strictly requires each employee to document and evidence their practice according to employees’ federal guidance. However, from experience of being a teacher involved in this whole process, I believe that many of my colleagues struggle to develop their own paper portfolios and provide sufficient evidence of performance during the academic year. Moreover, teachers resist the idea of creating portfolios due to the additional workload, and the main rationale of the professional development goal of portfolios has become inapplicable. In other words, portfolios have become undesired practices, despite the benefits for the teacher’s own professional development.

### **Computerized Portfolio**

Despite the challenges mentioned above, some teachers have attempted to overcome the difficulties of developing paper portfolios by creating their own electronic portfolio where they can easily store more documented evidence of their activities. Those teachers have been using different software programs to develop their own e- portfolios at an individual level. It has been observed that these teachers were more aware of reflective teaching, and took more appropriate steps towards desired professional development, both as teachers and MOE employees.

To summarise the research problem, the MOE aims at improving teachers’ professional development by implementing a new appraisal performance management system. Teachers use portfolios in different formats as tools for assessment and evaluation processes only. They pay more attention to their portfolio development than to their actual professional development. We are interested in investigating teachers’ preference for the use of digital portfolios to develop their competencies, and whether they have the digital capability and infrastructure to create their own electronic portfolios and benefit from the technological facilities. In other words, this study investigates teachers’ readiness, attitudes, and familiarity with the use of e-portfolios to enhance their professional development profiles. Finally, we believe that any change in teachers’ professional practices is highly affected by the support they receive from school leaders, and mainly from school principals. It is important to know how far principals accept the idea, are ready to encourage their teachers to use e-portfolios in professional development practices, and what kind of support they actually provide for them. We strongly believe principals are the leaders of change, and that the transformation to e-portfolio practices in UAE public schools requires much more support than software applications can provide. It depends on the vision and beliefs of individuals in the school community to reinforce the importance of such transformation to the use of smart digital tools.

### **Objectives and Research Questions**

Teachers are expected to develop their own e-portfolios in order to enhance their professional developmental profiles. Based on my own experience, I have noticed that teachers who used e-portfolios showed better awareness of the importance of professional development. They also demonstrated better understanding and performance in their behavioural and technical competencies. As the UAE educational policy is moving towards implementing many smart initiatives in public schools, teachers need to be ahead with their digital skills, and integrate technology into their professional practices. Using electronic portfolios as a showcase, reflective or developmental tools can enhance teachers’ competencies. I also believe that the more support school principals give for digital transformation practices, the better and faster teachers will move towards creating their own e-portfolios and developing their professional profiles. This study has accomplished the following objectives:

1. Explore teachers' understanding of the use of e-portfolios in UAE public schools.
2. Examine teachers' readiness and familiarity with using e-portfolios to enhance their professional development profiles.
3. Identify the role of school principals as leaders of change as far as e-portfolio practice transformation is concerned.

The study addresses four key questions:

1. Are teachers in the public sector currently using e-portfolios to enhance their professional development?
2. How prepared and equipped are teachers to using e-portfolios to enhance their own professional development profiles?
3. Can the use of e-portfolios help support teachers to meet the Ministry of Education expectations for 21<sup>st</sup> century competencies and skills?
4. Are school principals supporting the move to e-portfolios? And if so, how?

### Significance of the Study

The significance of the study is to:

1. Seek organizations that support and fund branch campus programs with the quality assurance tools needed to work collectively with these institutions to emphasize the importance of strategic planning.
2. Enable existing or prospective international branch campuses to explore the possible importance of adapting to some degree their policies, programs or service delivery to meet the specific and unique cultural and social aspects of the region.
3. Explore possible valid reasons that contribute to the closing, struggles or success of international branch campuses, with the need to understand whether in reality challenges faced by these campuses are solely related to the Emirate they are located in, the number of students recruited, or the current economic crisis, as these are the three most-frequently cited reasons.

### METHODS

This study looks at teachers' perceptions, attitudes, and familiarity with the use of e-portfolios in UAE schools in all seven Emirates in the UAE: Abu Dhabi, Dubai, Sharjah, Ajman, Um Al Quwain, Ras Al Khaimah, and Al Fujairah, in the fall of academic year 2013-2014. This study aimed at reaching the highest possible number of participants by using the online Survey Monkey tool, and 400 teachers managed to participate in the study. Additionally, the researchers interviewed 10 principals from different schools in four cities. Teachers were targeted for this study, as they are the key employees in the MOE who should demonstrate professional development due to their direct impact on students' learning experience. Moreover, principals as leaders of change have a similar indirect impact on students' school life and teachers' performance. Therefore, we decided to focus on these two groups of participants because they are the most important key players. The sample schools were randomly selected to

cover all Specialized Programs in the MOE. They include H.H. Mohammed Bin Rashid's Smart Learning Initiatives, the Madares Al Ghad (MAG) program, and the Model School Initiative in all Emirates.

Data collection instruments include interviews and questionnaire, which were validated, powered by Survey Monkey to design the questionnaire, collect responses, and analyse data as well. The survey link is: <https://www.surveymonkey.com/s/DKF8MRH>. The research methods used were both qualitative and quantitative which were selected to address the research questions and investigate the objectives. A quota sampling method was used for the qualitative study according to the time limit, while the cluster sampling method was used for the quantitative study. The instruments used were interviews and questionnaires based on a Likert scale. The data was analysed using the strategy of collated data for the interviews, and Survey Monkey software for the questionnaires.

### RESULTS AND DISCUSSION

#### Training Needs Analysis

A possible explanation for the unfamiliarity of e-portfolios among the group of teachers who responded to the survey might be the lack of adequate training programs offered to teachers by stakeholders. Their responses toward training needs are summarized in below. As far as smart initiatives finding their way to schools in the UAE, a large number of teachers show strong agreement, readiness, and interest to be a part of any future training programs organized by their schools, educational zones, or by the Ministry of Education to develop their skills and competencies in the use of e-portfolios and online forums and platforms.

#### E-portfolio Common Understanding

In order to investigate teachers' perceptions of the use of electronic portfolios as reflected in the research title, the researchers asked participants to briefly, in few sentences, describe what they understood by the term 'electronic portfolio.' In response, 247 teachers wrote their own definitions, reflecting their understanding and experiences using portfolios in their career. The researchers then categorized these statements according to frequency.

The result was 74.90% described electronic portfolios as 'a documentation process to retain evidence of all [their] work.' On the other hand, 2% stated it was a selection process of samples of their best work, 3% for evaluation and appraisal purposes, 3% mentioned it aimed at professional development, 1% for job-seeking and promotion, and 7% stated it was for keeping students' work records. While most described electronic portfolios as a computerized format of documents, a few mentioned the sharing aspect among teachers, and/or publishing it on the web.

These qualitative descriptions were also supported by teachers' responses to quantitative questions about their understanding of the purpose of e-portfolios and their personal reasoning supporting their view. The points below show a

significant number of teachers, 92%, understood why they should create their own e-portfolios. Furthermore, they responded to a specific selection of e-portfolio purposes on another survey. The result showed 88% would like to create an e-portfolio as a record of their teaching career, and 73% would like to show evidence for the purpose of their appraisal. Less concern was focused on the use of e-portfolios for professional networking, reflective learning purposes, and job seeking.

### Motivation and Encouragement

In addition to selecting responses as offered in the survey, 50 teachers then further justified their positions, totalling 171 participants who stated their opinions of e-portfolios. The researchers summarized their feedback and opinions on the use of e-portfolio as follows:

#### List 1: Feedback themes on the use of e-portfolios

- It helps to achieve the UAE and the MoE initiatives of smart government.
- It is a 21<sup>st</sup> century requirement for all teachers and students.
- It is a way to save our environment from the huge consumption of paper.
- It can store a huge amount of documentation in minimal space for a long time.
- It has the potential and makes it easier to share teachers' experience and best practices with other experienced and novice teachers.
- It is easier and faster to prepare, to store, and to restore. It is easy to amend.
- It is more attractive in presentation, and more flexible to edit, delete, and add to it.
- It helps to improve methods, use more and different creative tools, and avoids repetition and routine.

Finally, from our own perspective as teachers, the authors could read the enthusiasm in those particular participants' words and remarks. They all showed a significant and positive attitude towards the use of electronic materials in general, and towards the use of e-portfolio in particular. This was supported by the fact that some had been encouraged to use e-portfolios by their principals, administration, colleagues, university, educational awards institutions, and/or family members, or through their own initiative. We wish to highlight teachers' comments on the importance of educational awards and incentives to motivate the change to e-portfolios and start documenting their artefacts electronically.

### Issues and Challenges in the use of E-portfolios

Despite the fact that the majority of participants tended to use e-portfolios to process documentation, 163 teachers discussed possible drawbacks of the use of e-portfolios. Although some clearly stated e-portfolios do not have any disadvantages or limitations, others raised a number of issues to be taken into consideration when adopting e-portfolios. By analysing their responses, the following segments were identified:

#### List 2: List of challenges in the use of e-portfolios

- Copyright issues: it is not secure to share teachers' materials as far as plagiarism is concerned.
- Soft copies are not always sufficient, and paper-based portfolios are still required by many parties. So why should teachers bother to develop both portfolios?
- There may be some adverse health effects regarding the over-use of technology.
- Soft copies alone are not always secure or sufficient as they can be easily lost, damaged, broken, or hacked, and hyperlinks can be corrupted unlike hard copies. Soft copies always require back-up copies.
- Privacy and security issues.
- Accidental or regular internet interruption, computer technical problems, and changing software and operating systems.
- Lack of technological skills and competencies.
- It is time-consuming to document teachers' work and design a portfolio. It is better to use this time for teaching or preparing student-learning activities.
- It needs good writing skills.
- It may not be reliable, as others may question the source of the information and images provided.
- Assessors can use it in inappropriately.
- It requires a lot of photo for documenting all work achieved.
- The cost of computer and internet availability at school and at home, maintenance, upkeep and upgrading costs.
- Sharing knowledge with others!
- Teachers cannot complete tasks because of downloading or uploading problems.
- It may have problems regarding document navigation and accessibility.
- It may increase isolation and family problems due to the overuse of technology.
- The appropriate layout and formats.
- It may be a lengthy process to change teachers' practices.
- Teachers may be interested only in accumulating files, videos, etc., without properly implementing them for teaching effectiveness.
- The misuse of e-portfolios and not knowing the actual purpose of them.

A teacher commented that: 'The only limitations we can see are those related to people who have been used to hard copy portfolios. They are hesitant, and it would be extremely difficult for them to begin online practices for the first time. Even scanning can be time-consuming for them. However, we believe starting either as a veteran or a neophyte could both work. It is all beneficial in the end.' We quote this teacher's statement because it summarizes the real issue, which relates to a change resistance factor. An effective and successful change management plan is necessary to address teachers' perceptions of e-portfolios. Lorenzo and Ittelso (2005, p.5) discussed these issues of 'information overload, technology training, copyright, privacy and adoption.' Teachers' concerns are common problems, which other institutions and teachers have overcome to make best use of e-portfolios instead of rejecting the entire initiative.

### School Support of E-portfolio Practices

Despite of teachers' recognition of the advantages and disadvantages of e-portfolios, the issues raised by 169 teachers, who believe certain factors make it difficult for their schools and/or ministry to implement the e-portfolios system, need to be considered. While some teachers thought they would find no difficulty applying e-portfolios in their schools and had been encouraged to use it for a long time, others listed the following issues according to their experiences and backgrounds.

*List 3: List of common challenges in implementing the use of e-portfolios*

- Technical issues and infrastructures problems
- Lack of regulations from the Ministry of Education related to the use of e-portfolios; only personal initiatives from teachers
- Time management: insufficient time allocated for teachers to develop their portfolios during school hours
- Infrastructure issues
- Shortage of technological resources available at schools for teachers' use
- Digital illiteracy
- Teachers overwhelmed by too many administrative demands and teaching workload
- School principals and inspectors' demands for traditional documented portfolios
- Not difficult to implement e-portfolios, but rather a matter of priorities
- Administrative and change management issues
- Training issues.

### Soft Documentation vs. Printed Documentation

It should be noted that teachers use hard printed copies for their portfolio documentation at the same rate they use soft copy documentation. Teachers always or usually using printed documentation were 81%, and at the same time, 66% always or usually used soft documentation. On the other hand, 5% rarely or never used printed documentation for their work, and only 9% made use of soft copies, which is quite a surprising result. However, some teachers commented that although they tended to use electronic records of their work, they were often asked to print out these soft documents for administrators and supervisors. They raised the issue that most of the time they were asked to keep both printed and electronic versions of their portfolios, which added to their workload, decreased teaching time and increased paper consumption. Moreover, some feedback stated that 'only 2% of these printed documents are reviewed, while most of the other paper documents are rarely used at all, which a waste of time, effort and money.'

It is clear that teacher attitudes toward the electronic portfolio are somewhat promising, as it allows them more variety in documenting artefacts. As one teacher commented: 'E-portfolios can document all of your work electronically; your worksheets, images, videos and links to websites, however, they don't have a clear idea on how to professionally tackle the electronic portfolio, and most of the time the focus is on producing a work achievements collection.' As

Barrett summarized in her article (2009), there is always a need to balance portfolios as a product, and portfolios as a process.

### Teachers' Attitudes and Skills Towards the Use of E-portfolios

In order to explore the second research question concerning how teachers are prepared and equipped to use e-portfolios to enhance their own professional development profile, the researchers surveyed the participating teachers' practices, attitudes and skills for specific aspects that were believed to be important when starting the discussion about their readiness to use e-portfolios.

These aspects included the following categories:

*List 4: Common skills highlighted for the effective use of e-portfolios*

- Attitudes towards the use of e-portfolios
- Time consumption
- Effectiveness & convenience
- Creativity
- Student engagement
- Portfolio development skills
- Writing goals and educational philosophy
- Selection
- Organization
- Reflection
- Attitude & skills
- Giving & receiving feedback
- Face-to-face & online
- Technical competencies & infrastructure
- ICT Infrastructure
- Digital knowledge and skills
- Online activities
- Storage and cloud computing
- Social media practices, attitudes and skills investigations
- Frequency of use
- Tools used
- Community interaction
- Privacy issues.

### Using E-portfolios to Develop Teachers' Skills & Competencies

The third research question is to find how far teachers think e-portfolios will help them to meet the MoE expectations for competencies and skills. A significant number of respondents demonstrated either strong agreement or agreement regarding the benefits that e-portfolios can offer them in these seven particular categories:

*List 5: Common benefits in using e-portfolios*

- Developing employee technical competencies
- Developing employee behavioural competencies
- Web searching, joining more physical or online courses or workshops
- More electronic readings about contemporary issues in education
- Better professional development planning

- Having their own web space to share and reflect about their teaching
- More opportunities to use technology in the classroom.

### Current E-Portfolio Practices from the Principals' Perspectives

All nine principals agreed on using the same techniques of annual performance reviews, according to the new Federal EPMS (Employee Performance Management System) framework, requiring teachers to meet specific expectations, and classified into levels according to years of experience. At the beginning of each school year, principals discuss with each teacher the five individual objectives they plan to achieve during the academic year, for which the teacher should provide evidence of attainment, plus the usual follow up. Secondly, the four technical competencies listed on the performance review forms are mostly evaluated via classroom visits and student results. Thirdly, behavioural competencies are evaluated by observing teachers' regular conduct within the school community and reporting any unacceptable performance. The principals interviewed for this study agreed that teachers should provide evidence and documentation of achievement of the three main performance categories and sub-categories. They stressed the fact that the new system now requires more documentation than previously to justify the score given to each teacher, which in turn will influence their incentives afterwards. As for the current practice of portfolio keeping, the principals agreed they are essential for annual teacher review purposes.

The principals also agreed a portfolio is essential for applying for educational awards that oblige teachers to keep records and reports to prove they have met award criteria. Therefore, public school teachers who are interested in applying for the distinguished teacher category have started switching to electronic documentation to meet the latest changes in awards application requirements. Most UAE educational awards ask teachers to submit evidence of their work electronically, unlike the previous practices that required applicants to submit seven or more showcase paper folders.

It seems, however, that the annual review system for teachers in private schools differs from public school procedures. The only private school principal that we managed to interview stated that the EMPS is not applied in private schools, and that teacher appraisals mainly depended on the feedback of students and parents. Newly appointed teachers needed to complete three months training to prove their capability to join the staff, and additionally, follow-ups by academic coordinators and peer evaluations were considered.

A few differences in teacher appraisals aside, both public and private sector schools must meet the same documentation processes of the School Accreditation Program. Principals from both sectors mentioned that providing paper evidence of teachers' activities and students' achievements were required to provide inspection teams with necessary proof for the school accreditation reports. This also has a great impact on the use of portfolios by teachers and the administration as organized sets of documentation. The principals' comments

were consistent with the majority of teachers' responses to the questionnaire, as they all stressed the importance of documentation. It is clear that portfolio practices are used most of the time at different school levels, as well as systems for keeping track of achievements for summative appraisal purposes. In addition, the impact of the educational awards standards on teachers' practices was emphasized by most school principals. All principals agreed they asked teachers to create their own portfolios especially for the EPMS requirements. Three out of 10 principals stated that they encourage teachers to develop the traditional paper-based portfolio, but the other seven principals did not mind accepting the electronic portfolio along with the paper version, as long as teachers did not completely rely on e-portfolios. One stated that 'it depends on the teachers' preference to choose the format of his/her portfolio, as it depends on each teacher's individual technological competencies.' Another principal stressed the fact that he did not pay attention to 'the format of teachers' portfolios, since a teacher can provide evidence whether electronic or paper, it does not matter for me.' They added that, whereas before teachers' portfolios were organized according to teachers' preference, it is now more common to have standardized formats where all teachers follow the same structure of the EPMS portfolio.

When asked, the principals also gave their thoughts and ideas about other purposes for e-portfolio creation. They mentioned that e-portfolios were forcing fast transformation in our technological practices. They also stated some other reasons, from an administrative perspective, such as:

*List 6: Common reasons for encouraging the use of e-portfolios*

- Making correspondence easier
- Less paper consumption
- To achieve smart government and school initiatives, goals and objectives
- Easier to adapt, share and store
- Durable and long lasting
- Effective use of environment resources
- Saving the cost of paper and printing materials
- Easier to apply for educational awards and electronic competitions.

When asked if they would encourage teachers to completely replace traditional portfolios with the electronic version, the principals all agreed on the benefits and dominance of technology in our lives, as well as the Government and Ministry's support to increase the use of smart solutions. Although they believed technology provided many advantages to improve teaching and learning acquisition, a third of the principals felt that this should be kept an 'optional choice,' and not made obligatory for all teachers. Another third of the principals interviewed stated: 'it should be both,' and the rest felt it was difficult to maintain only electronic copies, as school inspectors, follow-up committees, accreditation committees, educational zones, and EMPS always required paper documentation, and 'so they need to keep a paper version of any work.' One of the principals said that although electronic portfolios would be beneficial, the students' record and documents relating to student work and performance

should be kept in paper versions, to keep their records safe from being lost, misplaced or changed. Three other principals believed that this change to electronic documentation should happen, but only slowly and gradually, and that they had already started asking teachers to keep electronic documents as well. One principal mentioned that there must be 'priorities in applying such initiatives,' and she added that 'I cannot ask teachers to start learning the e-portfolio requirement while they are overwhelmed with other initiatives that they are still learning too, (for example) some new student assessment system or the Question Bank initiatives, which take their effort and time. Other teachers may be too busy to have the time to learn this now.' This brings us to consider the challenges that principals may face when they begin encouraging teachers to use e-portfolios.

### Challenges and Support

As far as challenges concerning the implementation of e-portfolios, all the principals interviewed discussed some important issues to be considered from their point of view as leaders in the schools. First of all, the technological infrastructure may not be available or at the same level in all schools, as the Ministry and the Government's initiative for technologically capable schools is still in progress. Although there are excellent teachers who have the technological expertise and who have already started developing their own e-portfolios a long time ago with the principal's support, other teachers may not meet, have the technological skills needed and they require time to be ready to transition. Based on the results of the survey on the teachers, the majority of teachers in most schools have adequate technological competencies, and so the principals encourage those who are able to teach and guide their peers through workshops and training. As one principal recommended, teachers need first to be informed via specialized training of how much work, time and which skills are required to create e-portfolios, before mandating their usage.

Several other school systems are slowly migrating into the electronic format under Ministry requirements. For example, the student assessment system (SIS) is now electronic. Parents can review their children's marks through the electronic portal of the Ministry of Education. However, migration takes time, and administrations find that parents still come to schools to ask about the paper report, as not all of them have the facilities and competencies to access or understand the electronic report. This indicates that teachers need to support and be supported by other school community members, such as parents, students, and inspection teams.

All the principals interviewed agreed that the Ministry of Education encourages the move to smart and electronic use of resources, however, most felt practices were not completely efficient in their electronic form yet. One principal suggested that if the new EPMS had been computerized or adapted to electronic form and connected to a Ministry portal, then 'this would be more effective and make teachers' jobs easier, and our jobs to follow up and evaluate them would be much better.' It is possible that full electronic accessibility and efficiency will be achieved within a short time, as the

Ministry of Education is constantly working on improving its role in the community, and they have already created a Moodle LMS pilot project portal to grade seven and eight for both teachers and students. While conducting interviews for this study, we have come across teachers who joined this Moodle program and received positive feedback from their experiences using it thus far. One of the teachers interviewed in a smart program school explained that 'before the smart program, it was hard to get all students to bring their books or get their homework done, but now with the smart technology given to them and equipped in the classroom, students are very keen to open their electronic interactive books and upload their homework on time via their portal space using their own tablets that the Ministry has provided them.' Evidence of the success of the smart program has been recorded and shared publicly on the web, which gives a compilation of the progress made in Sheikh Mohammed Bin Rashid Smart Learning Initiative.

A principal in a Madares Al Ghad school said that all the teachers in the MAG program were equipped with laptops that they could use at home and at school. The MAG program also provides individuals in each school, who are titled Teacher Development Specialists (TDS), to work closely as teacher mentors to teachers, to develop their skills and support them in planning, teaching and student assessment. The MAG program also established the portfolio practice since the program started in 2007 and all teachers and TDS's were encouraged to develop their own portfolios according to the program standards framework.

### Interconnectivity

In response to the question about whether principals would encourage teachers to add hyperlinks and interactive tools such as discussion forums, social media, videos, or any educational websites links to their e-portfolios, the principals interviewed were significantly positive to letting teachers do so. If this attitude is consistent across all schools, and school leaders are fully aware of the requirements of the information and communication technology (ICT), then the switch to e-portfolios will be relatively easy and successful. In one example, a school principal has chosen to begin communicating regularly with the school's teachers via social media, in particular using Twitter, Instagram, WhatsApp and even SMSs.

This particular principal had created many groups over social media to encourage the entire school community to interact together. Another principal stated that she had created a Dropbox account for schoolwork, to be used by all teachers to share documents easily among themselves and with the administration. She added, 'It was difficult at the beginning to convince some teachers to change their ways of sharing documents via emails, which sometimes was ineffective, but now they are fans of such cloud computing services when they experience its features.' Other principals who were interviewed emphasized the same point of view regarding the challenges, and one said that 'it can enrich the curriculum by sharing different learning resources among teachers in an easy and flexible way.' Another commented that 'this will add another dimension to teachers' profession-

al development opportunities by giving and receiving feedback from each other.

### Teachers' Competencies

As principals alone have the responsibility to rank the performance of teachers for the summative appraisal of the EMPS, they were asked whether e-portfolios would help teachers develop their competencies and enhance their professional development. In summary, the principals all noted some of the advantages of e-portfolios, such as how e-portfolios allow more learning and reflecting opportunities for teachers because they can share resources and techniques, and also include a variety of documents, such as audio, video, and other media files, as opposed to traditional portfolios. Some principals thought it was also easier to keep records of teachers' communication and intrapersonal competencies, and other competencies that meet the MoE expectations.

When asked about the components of e-portfolios, principals believed that there were not many differences between the contents of e-portfolio and traditional paper portfolios. They preferred that teachers included all relevant documents to prove mastery in key skills and competencies. Other documents to be included were the teachers' resumes, developmental plans, professional development activities, student records, student sample works, remedial and enrichment plans, school activities, school events, statistics, assessments, presentations, learning and teachers' results, certificates, initiatives, lesson plans, etc. Almost all of the principals interviewed suggested that teachers not only use computer-based portfolios, but also the web-based ones where they could connect with other professionals in the educational community and have features of public and private versions.

The findings of this study support the notion that any change needs change leadership to make it happen. School principals play an important role as leaders of change, and by interviewing them to find out how motivated they are to support and facilitate the implementation of e-portfolios, the success of a school's IT infrastructure can be somewhat predicted. All the principals interviewed agreed on the several potential benefits of e-portfolios when compared to traditional paper ones. Accordingly, they supported and praised all successful transitions to smart solutions by the UAE MoE. Any solution that does not take human behaviour into account is apt to fail. Consequently, we will reflect on the research findings, and highlight a number of implications, with recommendations to policy makers, further research, and best practices in the use e-portfolios in public schools.

## REFLECTIONS AND IMPLICATIONS

Here we explore several implications and reflections of the findings in the current study. Recommendations have been made to support these reflections and implications.

### Implications to Further Research

The current research is merely a step towards encouraging a shift in the paradigms of education and personal/profes-

sional development in the UAE. The movement towards establishing a smart Government, especially in the Education sector, requires researchers the opportunity to closely review all current practices of teaching and learning, infer standards and expectations, identify gaps and strengths, and thus effectively plan to utilize smart technology and bridge any gaps in education and research in the Gulf and Arab world. There is still much research left to be done in order to identify basic training needs for teachers, administrators and principals, let alone training required for technological competence. There is also a need to examine the impact of social networks on whole school community practices over time, and ensuring that protective measures are taken to preserve the integrity of each individual as well as the essence of education. It is also of some importance to follow up on investigations on learning e-portfolios and institutional e-portfolios in the UAE schools in order to combine the benefits of the teaching e-portfolio in a comprehensive e-portfolio initiative. Additionally, m-portfolios should not be overlooked when considering the challenges and opportunities of implementations. As more data is collected on the effects of e-learning in UAE schools, appropriate feedback and recommendations can be accumulated and developed regarding the e-components, e-practices and the effectiveness to the use of learning platforms in the context of UAE to help policy makers constantly review possibilities for further learning enhancement. There already appears to be a trend for distance learning and online education considering the culture and geographical spacing of populations in the UAE, and more studies should be done to contribute to achieving the goals and outcomes to benefit of the students and future leaders of the UAE.

### Implications for Higher Education Institutions

Since the use of e-portfolios is a relatively new practice in the Gulf countries, successful e-portfolio initiatives for teaching, learning and schools need collaborative work between institutions of higher education and the UAE Ministry of Education. Technical colleges teaching Information and Communication Technology can be asked to provide institutions with research based project to support the transition to e-portfolios and provide knowledgeable and specialized trainers to inform e-portfolio users of the links between theory and practice in the field of e-portfolio development for K-12 teachers and students. Future cooperation in e-portfolio projects between Hamdan Bin Mohammad Smart University (HBMSU) and the Ministry of Education is also highly recommended, considering the pioneering role of HBMSU in online education in the UAE.

### Implications for the Environment & Social Cooperate Responsibility: Paperless Schools

From my observations of daily routines at schools over 12 years, I can safely say that using e-portfolios will significantly reduce the cost on paper and ink used for collecting huge amounts of paper in hundreds of "traditional portfolios". This not only has an impact on the budget of schools but also on the balance of the environment. With the global aver-

age being 60KG per capita of paper usage, the UAE's plans for a green living will remain impeded if paper use remains unchecked, says Precious de Leon (2011). According to the Gulf News, the UAE registers one of the highest rates of paper consumption in the world at an alarming 200kg per capita where it hardly reaches a 100KG in most other developed countries. Not only is the UAE consuming gigantic amounts of paper already, but the rate is increasing at up to 6 percent a year, when a country the size and population density of India registers only 9kg. Leon (2011) comments:

So what can be done? Recycle. It's not just for hippies anymore. It's serious business to recycle. Everyone needs to get involved. And, lastly, for the people who already have the intention of saving on paper, unfortunately, systems just aren't in place yet to allow them to live a paperless life. But we're sure someone is thinking about this. Hopefully things will be implemented soon. With Kipp being a digital-only title, you can bet our paper consumption is down to a minimum. No printing, most everything in digital. Don't you think this is a concern? What do you think your office can do to lessen their paper consumption?

### **Implications to Teacher Education: ICT Teacher Trainees**

Two main points should be considered when reflecting on teacher education and e-portfolios. Firstly, teacher education programs at many universities in the UAE are effectively using e-portfolios in their study program already. I have supervised several trainee teachers that were sent to schools for real-world experience during their university training, and observed that most of the new graduates are proficient at keeping e-portfolios. These new graduate teachers are knowledgeable enough in the methods and practices of e-portfolios to perhaps coach other teachers in schools to begin adapting themselves to the use of e-portfolios. I recommend that even newly qualified IT teachers who are unable to find full time teaching jobs can be recruited to work as co-assistants or IT trainers to develop the technological competencies and skills that teachers need to facilitate their creation and maintenance of e-portfolios both as a process and as product of learning. Also, I would like to stress how important it is that institutions of higher education, especially high schools in the UAE, should prepare separate courses or modules to study e-portfolio theories and approaches to encourage potential teachers to initiate national e-portfolios with features that suit the needs and requirements of teachers in the UAE. Users of e-portfolios should be made aware by the project that an e-portfolio should link theory and practice, and avoid commercial aspects of other available portfolios.

### **Implications for the Educational Technology Industry**

As many successful initiatives around the world have proved the effectiveness and benefits of students learning to use e-portfolios, these students can in turn help teachers of other subjects develop their e-portfolios skills and hopefully allow them to use the technology effectively in their instruction. It may in

turn encourage students to plan for more online activities to fulfil their learning needs and promote global student interaction and communication for educational purposes as well. This would ideally work hand in hand to inspire teachers with the confidence to support other less-capable and perhaps younger students in creating their own e-portfolios for their learning process. It can be considered essential that teachers are constantly up to date with contemporary issues in educational technology, especially the advances that enhance both teaching and learning processes which "ensure excellent learning environment and tools, to ensure that students needs are met" (MoE strategy, n.d). E-portfolio has the potential to help teachers to improve their planning, teaching and assessment skills as well. As long as teachers choose to do so, being constantly equipped with the latest technological solutions will provide them with opportunities to perform better and more efficiently, hopefully saving time, making more learning interactive activities available to students, and allowing their work to be shared and viewed by peers. For example, although the use of the latest cloud computing technology is still not as widespread among UAE, it has the potential to be very effective in improving storing, sharing, file management and social construction skills (Leslie, 2013) as discussed in previous sections of this paper.

### **Implications for the Private Sector**

As EPMS is a federal system, private schools should consider the standards of annual teacher reviews in public schools and implement more professional development initiatives for private school teachers to meet these standards as well. Private schools and public schools should work collaboratively and exchange teaching experiences and resources via online training sessions and perhaps even virtual classroom visits to benefit both sectors and students in return. This will "ensure an affordable, high quality standard of Public and Private Education is accessible to all" as aligned in the MoE strategic plan 2010-2020. E-portfolios will allow this process by allowing all MoE school teachers in private and public sectors to access a common portal and online platform where they can share and discuss their best practices in e-learning and smart technology.

### **CONCLUSION**

Results in this study show that teachers are prepared and equipped with the right skills and tools to begin using e-portfolios, as long as an effective action plan is created and in place with a SWOT strengths, Weaknesses, Opportunities, and Threats – SWOT analysis to achieve the e-portfolios goals and objectives. The teachers and principals who have participated in this study displayed positive attitudes, and welcomed the transition into using e-portfolios if it was made mandatory. Significantly, as principals are the leaders facilitating any change in the schools, they responded positively to being supportive of the hypothetical change. However, it appeared that the private sector schools are not obliged to follow the federal standards and policies of the public schools, and so change should be gradually initiated into developmental processes in order to enhance the regulation of their performance.

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