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Exploring the needs of teachers in a Middle East university using TPACK: A case study

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Abstract

From the researcher's experience as an experienced trainer in a Middle East university, teachers are still resistant towards integrating technology in teaching. In order to know the reasons behind such resistance, a case study using the technological pedagogical and content knowledge framework (TPACK) was conducted to: 1) explore the needs of teachers in a Middle East university who are resistant to integrate technology in their teaching, and 2) make recommendations that could be taken into consideration for encouraging teachers to integrate technology in their teaching. The findings showed that perceived knowledge of content is a key determinant of how much teachers want to engage with given members of support staff (trainers). In additions, it was found that teachers recognise the need for a variety of different support stakeholders, but wish to relate to such people in different ways—whether in training courses, one-off workshops and/or ad hoc approaches to fill 'gaps' in their knowledge. The findings of this study could benefit technology-training designers by taking into consideration teachers' needs before conducting any training in order to have effective outcomes. In addition, policy makers in higher education could also benefit from this study by knowing that the trainers' knowledge about the subject domain of teachers is essential for having effective technology-trainings and therefore change their policies in order to reach better outcomes. Finally, implications for future research are provided.

1. Introduction and rationale

From the researcher's experience as a practitioner in providing training sessions for teachers in a Middle East university on how to integrate technology in teaching, it was found that teachers are still resistant towards integrating technology in teaching. That resistance still exists although the role of technology is highlighted as being prominent in today's education since it is used as a tool for building students' knowledge in an innovative way (Ansyari, 2015).

In order to know the reasons behind teachers' resistance, it is important to know their needs first and in this study the researcher is focusing only on the needs related to the expertise that teachers perceive by those who support them in integrating technology in teaching. Accordingly, the research question that this study focuses on is:

1. What forms of knowledge do teachers prefer their trainers to have in order to help them integrate technology effectively in their teaching? Why?

2. Literature review

In this section, the researcher is focusing on three main themes: 1) teachers' resistance towards integrating technology in teaching; 2) teachers' attitudes towards technology-training programmes; and 3) recommendations for enhancing technology-training programmes. The researcher focused on these themes because she wanted to know whether the literature focused on the trainers' knowledge while evaluating the technology-training programmes from the vantage point of teachers or not since this is the aim of this study.

2.1 Teachers' resistance towards integrating technology in teaching

Researchers highlighted different reasons behind teachers' resistance as follows:

- Avalos (2011) and Ham (2010) stated that teachers' different needs and objectives are not taken into consideration while designing the professional development programmes.
- There is a disconnection between what is taught in these programmes and what is done in practice (Garet, Porter, Desimone, Birman, & Yoon, 2001).
- Dysart and Weckerle (2015) highlighted that most of the professional development trainers lack the pedagogy that enable them to train those teachers

effectively since they focus only on the technical aspects (Muwanga-zake, 2008).

- The professional development programmes in higher education focused on trainings related to basic technologies (Dysart & Weckerle, 2015).
- Dahlstrom (2015) highlighted that teachers' resistance could be the result of having student technology assistants (STAs) who are hired temporarily by the centralised technology units in the university as teachers do not feel comfortable sharing their lack of knowledge with students.
- Chai, Chin, Koh, and Tan (2013) highlighted that there is a lack in policy related educational technology research that target the use of technology in a pedagogical way for teaching specific content.

Based on the above, the resistance of teachers falls into two strands. Firstly, the focus of many professional development programmes was limited to either technology only or technology and pedagogy independent of the content those teachers (trainees) teach. Secondly, teachers' needs related to the pedagogical use of technology in teaching certain subjects are not taken into consideration prior to designing the setting of any technology-training programmes.

In fact, any technology-training programme includes the trainer, the trainees, the learning objectives, the digital technologies, the training room, the software, and the hardware. Most of the research done so far concentrated on some of the previous elements and neglected the trainer, who plays an essential role in the training process as s/he is in direct contact with the trainees. Consequently, it is expected that his/her knowledge will affect how trainees integrate technology in their teaching.

2.2 Teachers' attitudes towards technology-training programmes

Many researchers were interested in exploring teachers' attitudes towards technology-training programmes and they found a number of factors that affected their effectiveness. Some of these factors are: 1) deficiency in organizational support (Uslu & Bumen, 2012); 2) disconnection between technology workshops and the teacher preparation programme (Sutton, 2011); 3) lack of support (Gronseth et al., 2010); 4) lack of motivation (Abuhmaid, 2011); 5) lack of confidence (Moore-Hayes, 2011); and 6) lack of knowing teachers' needs prior to designing the programme (Avalos, 2011).

Based on the above, none of the studies focused on the technology trainers and how teachers perceived them. Accordingly, the researcher can infer that the data collection tools used for triggering teachers' opinions towards the technology-training programmes did not focus on the trainers and therefore, there is lack of research in this area that needs to be tackled.

2.3 Recommendations for enhancing technology-training programmes

In addition to the researchers who were interested in knowing teachers' attitudes towards technology-training programmes, others were also interested in providing recommendations for enhancement. Some of these recommendations are 1) having effective programme with certain learning outcomes related to real life practices (Ham, 2010); 2) having student-centred collaborative environment (Matzen & Edmunds, 2007); 3) having programme that involve emotional and cognitive factors for increasing teachers' motivation (Avalos, 2011); and 4) having enough time for teachers to practice (Ansyari, 2015). Based on that, none of them focused on the knowledge of the trainer that can enable him/her to train teachers on the use of technology effectively. In addition, they did not include in their recommendations anything related to the knowledge this

trainer should have in order to help teachers in integrating technology in teaching.

3. Theoretical framework

The researcher chose to use TPACK as a theoretical framework for this study because it will be useful in exploring the knowledge/expertise of teaching support staff that was both complex but capable of being grasped by teachers. TPACK is an extension of Shulman's (1986) framework and it consists of three types of knowledge in addition to the interrelation between them such as: 1) technology knowledge; 2) content knowledge; 3) pedagogy knowledge; 4) pedagogical content knowledge; 5) technological pedagogical knowledge; 6) technological content knowledge; and finally 7) technological pedagogical and content knowledge. Table 1 shows the definition of each knowledge with examples as explained by Mishra and Koehler (2006).

4. Research Design

The researcher is positing this work as a case study using TPACK framework for exploring teachers' needs for integrating technology in their teaching and eventually decrease their technology resistance.

Table 1. Definition of different types of knowledge in the TPACK

Knowledge	Definition	Examples
CK	It focuses on the subject matter. (Mishra & Koehler, 2006)	Science, Math, English, etc.
PK	It focuses on methods of teaching and learning in general. (Mishra & Koehler, 2006)	Collaborative learning, problem-based learning, etc.
TK	It focuses on both basic technologies and advanced technologies. (Mishra & Koehler, 2006)	Blackboard, internet, computers etc.
PCK	It is similar to Shulman's (1986) idea, which focuses on the knowledge of pedagogical approaches used for teaching specific content. (Mishra & Koehler, 2006)	Problem-based learning in Science teaching.
TCK	It is the knowledge of how the subject matter changes when used with a certain technology. (Mishra & Koehler, 2006)	Data analysis tools for presenting the most frequent words in a poem taught in a poetry course.
TPK	It is the knowledge of how technology addresses pedagogical objectives. (Mishra & Koehler, 2006)	Online discussions for enhancing collaborative learning.
TPCK	It is the knowledge of how technology is used pedagogically for teaching a certain subject domain. (Mishra & Koehler, 2006)	Online discussions for enhancing collaborative learning in literature.

4.1 Research Context

Context is an essential part in any educational technology research (Rosenberg & Koehler, 2015). Therefore, in this section, the researcher is describing the target context and its culture in detail. The study is conducted in an Arabic Language Instruction (ALI) department in a Middle East university. The department targets teaching Arabic as a foreign language (AFL) to non-Arabic speakers from all over the world. Teachers have long years of teaching experience in that department ranging from 20 to 30 years.

In the target university, technology trainings are offered to teachers through different sources as highlighted in Table 2.

As highlighted, there are many sources of technology trainings and there is still resistance in integrating it in AFL teaching. Therefore, there is a need to explore teachers' needs with respect to the technology trainer they prefer to have in order to help them integrate technology in their teaching.

From the definitions highlighted previously in Table 1, the knowledge of the previously mentioned technology trainers falls into the different types of knowledge provided by the TPACK framework. For example, the "Lab assistants" fall into the TCK since they are experts in the technology that support the content area that teachers teach in specific. The "CALL director" falls into the TPCK since she is a teacher who is an expert in the technology related to teaching the same content which the other teachers teach in a pedagogical way. The "CLT" falls into the TPK and the PK since this unit shows teachers how to use technology in a pedagogical way without focusing on the subject they teach. In addition, it introduces teachers to new pedagogies used in teaching in general. The "STAs" fall into the TK since they help teachers with the technical problems they might face while using the digital technology tools in their teaching. The "AFL teachers" fall into the CK only if they have little experience in the content area they teach and they can fall into the PCK if they have more experience in teaching the target content. Finally, the "Other teachers" from different disciplines fall into the CK and the PCK except that the content can be anything but the content which teachers teach.

Table 2. Source of training and the typical forms of engagement

Source of training	Typical forms of engagement
Lab assistants	They work in the ALI and they have a technical background and they are aware of the digital technologies that support Arabic language. They can help teachers in choosing the technology that support Arabic. Therefore, the institution positions them as experts in technology (T) related to a certain content (C) which is Arabic.
Computer aided language learning (CALL) director	The CALL director is a teacher in the ALI department and has a computer science background. She updates teachers with the latest technologies used in teaching AFL pedagogically and is aware of the technologies that support the content they teach. Therefore, the institution positions her as an expert in T, C, and pedagogy (P).
Centre for learning and teaching (CLT)	The CLT is a centralised unit that serves the entire university without targeting a specific discipline. This unit updates teachers with the latest pedagogies used in teaching in general without focusing on technology. It also focuses on the latest technologies used in teaching. Therefore, the institution positions this unit as expert in P in addition to T and P together.
Student technology assistants (STA)	The STAs are either graduate or undergraduate students working with the CLT. They assist teachers in fixing any technical problem they might face while using the digital technology tools, which the CLT introduced before. Therefore, the institution positions them as experts in T only.
AFL teachers	They are teachers who used technology in their teaching and wanted to share their experiences with their colleagues in the ALI. Therefore, the institution positions them as experts in C if they are teachers with little experience and CP if they are teachers with high experience.
Other teachers	They are teachers from different disciplines who want to share their experiences in using technology with other colleagues from the entire university. Therefore, the institution positions them the same as the above but the content is anything but Arabic.

4.2 Researcher position in context

The researcher is considered an insider in the target context and that helped in: 1) recruiting teachers (participants) and 2) eliciting longer accounts and interpret nuanced responses.

4.3 Participants and sampling technique

The researcher used convenience sampling technique for recruiting the ten participants. According to Johnson and Christensen (2014), this technique is used when participants are willing to participate voluntarily in a research study and it is important to describe the characteristics of participants accordingly. All participants are: 1) practising teachers in a Middle East university who have long years of experience; 2) attended many workshops for integrating technology in teaching; and 3) do not integrate technology in their teaching.

4.4 Data collection

The researcher used an interactive software called Articulate Storyline in order to create visuals for prompting participants' responses in the semi-structured interviews. According to Cousin (2009), the visuals can prompt responses easily especially when the researcher is asking about something complicated, so it is used in order to: 1) simplify the understanding of the questions to make it easy for participants to understand and 2) facilitate participants' responses to make them express their views freely as that is more culturally appropriate since the visuals are not personalised.

The researcher created several hypothetical identities for participants to reflect on when looking at the visual tool. Therefore, the presentation included the seven trainers with the types of knowledge s/he embraces in reference to the TPACK framework as indicated by Mishra and Koehler (2006). Each trainer is represented in the form of an avatar with a written text referring to his/her knowledge. With each trainer, an example of what that trainer can do is illustrated by visual examples for ease of understanding. The visuals used in the semi-structured interviews are in line with both the TPACK framework and the sources of training as shown in Table 3.

It is worth highlighting that the researcher piloted the instrument with: 1) a professor from another department; 2) a teacher from the same department; and 3) an outside researcher for content related validity. They all confirmed that the instrument is user friendly, attractive, simple, and

can be easily understood. In addition, the outside researcher confirmed that it is suitable for answering the research question. For illustration, the following section shows the visuals used to prompt teachers' reflections in the semi-structured interviews.

Table 3. Avatars, TPACK, and the source of training

Avatars	TPACK	Source of training
Trainer 1	TK	STAs
Trainer 2	CK	Teachers with little experience in the target content they teach
Trainer 3	PK	Other teachers or CLT
Trainer 4	PCK	Experienced teachers in the target content they teach
Trainer 5	TCK	CALL lab assistants
Trainer 6	TPK	CLT
Trainer 7	TPACK	CALL director

4.5 The visual tool

The researcher took into consideration certain aspects while designing this visual tool such as:

- Representing technology trainers in the form of avatars so that teachers can reflect on freely without relating them to actual trainers. That is culturally appropriate because teachers might get embarrassed and not express their views freely if details related to the training sessions and trainers are mentioned clearly.
- Transforming complex concepts into examples to make it easier for the teachers to understand.
- Adding an example button to the same screen that presents the trainer's knowledge in order to make it easy for the teacher to relate the example to what the trainer can do with that knowledge.
- Showing the examples in another pop up screen in order make the teachers focus on either the trainer's knowledge or the example related to that knowledge in order to attract their attention at one thing at a time without providing them with an excessive amount of information.
- Showing all trainers in one screen for the ease of navigation.

Having highlighted some of the design principles that the researcher used in the visual tool, the next section focuses

on describing the different screens of that tool.

4.5.1 Choose your trainer

A snap shot of the first page of the visual tool is shown in Figure 1. Through this page, participants can click on any button to explore the knowledge of each trainer.

Figure 1. Choose your trainer

4.5.2 Trainer 1 (TK)

Trainer 1 in Figure 2 represents the TK and by clicking on the example button, the teacher can see what the trainer can do with that knowledge. Same technical features are replicated with all trainers.

4.5.3 Trainer 2 (PK)

Trainer 2 in Figure 3 represents the PK.

4.5.4 Trainer 3 (CK)

Trainer 3 in Figure 4 represents the CK.

4.5.5 Trainer 4 (PCK)

Trainer 4 in Figure 5 represents the PCK.

4.5.6 Trainer 5 (TPK)

Trainer 5 in Figure 6 represents the TPK.

4.5.7 Trainer 6 (TCK)

Trainer 6 in Figure 7 represents the TCK.

4.5.8 Trainer 7 (TPCK)

Trainer 7 in Figure 8 represents the TPCK.

4.6 Data analysis technique

The researcher followed this process for analysing the data:

- Listened to the ten interviews two times and transcribed them accordingly. Each interview lasted between 20 and 30 minutes. The total number of words after transcribing the interviews was 6641.
- Read the transcripts four times and coded the parts that are relevant to the research question.
- Used data reduction technique that consists of three phases (Ansyari, 2015): 1) transcribing, 2) generating categories through coding, and 3) interpreting data.

For consistency, the researcher gave the transcript to another researcher in order to make sure that they both agree on the same themes for answering the research question.

4.7 Study Procedure

Firstly, the researcher asked the teachers three open-ended questions in order to prepare them for the second part. The three questions are:

1. What courses do you teach this semester?
2. How do you teach these courses to your students?
3. What kind of technology do you use in these courses and why?

Secondly, the researcher asked the teachers to look at the visual tool described in section 4.5 in order to prompt their responses. The researcher then asked each teacher separately to imagine that she is reading about the expertise of the trainer, and then reflect on how the knowledge of each can help in integrating technology in her teaching and why.

Figure 2. Trainer 1

Figure 3. Trainer 2

Figure 4. Trainer 3

Figure 5. Trainer 4

Figure 6. Trainer 5

Figure 7. Trainer 6

Figure 8. Trainer 7

5. Findings

The results are organised according to the themes that emerged from the transcribed interviews. By synthesising the findings of this study and connecting them to the research question, three main themes were found.

5.1 Preference for choosing a certain trainer

In response to the research question, Figure 9 shows teachers' preference with respect to the technology trainer they prefer to have as follows:

Figure 9. Chosen trainers

As the graph shows, AFL teachers prefer trainer seven who represents TPCK and trainer five who represents TC to trainers six and one who represent TP and T. In addition, they did not prefer the other trainers who are not experts in technology at all such as trainers two, three, and four who represent C, P, and PC.

Therefore, it can be inferred that aside from technology, content plays a significant role in choosing the trainer who

can help them in integrating technology in their teaching. Accordingly, we can say that although technology is an important knowledge, which teachers prefer their trainers to have, it is still not enough solely. For illustration, as shown from the above graph, teachers prefer trainers who have knowledge in technology and content to trainers who have knowledge in technology only. In addition, they prefer trainers who have knowledge in technology and pedagogy to trainers who have knowledge in technology only. Therefore, technology alone is not effective without having knowledge mainly in content and pedagogy followed by content and finally pedagogy.

Based on the above, teachers preferred trainer seven who has knowledge in: 1) their content area, 2) pedagogies used for teaching that content area, and 3) the technologies used to meet the needs of both content area and pedagogies used for teaching it. Having highlighted the trainers they prefer to have the most and the least, the next sections focus on the reasons behind that preference.

5.2 Reasons for preferring certain trainers

In response to the second part of the research question, this section presents the reasons behind preferring certain trainers in line with the TPACK framework.

5.2.1 Content knowledge plays a significant role in choosing to engage with the trainer

The ten teachers preferred trainer seven with the TPCK the most because of different reasons. They said that she could save them time and effort, because they do not have to explain everything related to teaching their subject again. As

described by one teacher: 'she knows how to do the job, so we are not reinventing the wheel.' In addition, they indicated that this trainer could show them which technology tool works with "Arabic language", the subject they teach, since Arabic has special features unlike other languages such as script and direction. For example, one teacher said: 'There are some programs that do not work with Arabic so if she doesn't know that, then she might teach me technology that does not apply to Arabic, so it will be like a waste of time and it happened to me. Teaching is something and teaching Arabic is something totally different.'

Furthermore, they mentioned that this trainer can help them in choosing the suitable technology tool that is appropriate to the material and the methodology used for teaching that material. That trainer can also help in choosing the technology used for fostering languages in specific because she has a background in linguistics especially with respect to Arabic. Moreover, they highlighted that that trainer can guide them in designing interactive activities that work with different skills such as listening, speaking, writing, and reading. Finally, they said that they could benefit from this trainer because she can share with them real examples of how technology was used in her classes, what worked, and what did not work. For example, one teacher said: 'Of course, this is great. I need this trainer. I will discuss with her everything about the class, the students, the material, and ways of teaching, so it will be easy to discuss everything with her. We are in harmony together.'

5.2.2 Knowledge of technology used for teaching specific content helps in choosing to engage with the trainer

The ten teachers chose trainer five with the TCK because this trainer can tell them which digital technology tool supports the content they teach. However, they indicated that they could attend one or two sessions only. For illustration, one teacher said 'A general instructor but I cannot accept her to be my trainer through the semester. I can take with her a session or two but not more than that.' That shows that they only need this trainer for a limited time in order to ask certain technical questions related to the content they teach but not to train them on how to use technology in a pedagogical way.

5.2.3 Knowledge of both technology and pedagogy help in choosing to engage with the trainer

Seven teachers chose trainer six with the TPK because she can give them general ideas that they might apply in the classrooms but they need to work with them in order to fill in the gaps of knowledge. For example, a teacher said: 'I

would attend this and see what goes with Arabic and I will manage, but I will exert effort from my part.'

5.2.4 Knowledge of technology only is not enough for choosing to engage with the trainer

Four teachers only chose trainer one with the TK because they all agreed that this trainer can help them in fixing technical troubleshooting problems related to hardware or software only but not more than that. For illustration, one teacher said: 'She can help me in dealing with technical problems if something is not working. She can help me to an extent. That requires that I know the software and know how I want to use it and then if something is not clear to me, I can use her help.' That shows that they cannot depend on that trainer for helping them integrate technology in a pedagogical way for teaching AFL but only use her as a reference whenever they have a technical problem.

5.3 Reasons for not choosing certain trainers

This section highlights the reasons behind not choosing certain trainers and that is presented in line with the TPACK framework.

5.3.1 Lack of trainer's pedagogical experience

Four teachers highlighted that trainer six with the TPK will not help them because they attend certain workshops and after starting to use the technology tool, they find that it does not work with the content they teach. At that time, they feel frustrated as their time and effort are wasted. For example, one teacher said: 'No that will waste my time because sometimes we choose the tool and after we choose it, it does not work with Arabic.'

5.3.2 Lack of trainer's knowledge in content and pedagogy

Almost all teachers rejected trainers two, three, and four who represent CK, PK, and PCK saying that they are not experts in technology, so they would not be able to help them because they might have the same level of knowledge they already have or maybe less. For illustration, one teacher said: 'I do not want this trainer. I know what she knows, so no benefit added.'

5.3.3 Technological knowledge only is not enough

For trainer one who represents the TK, they all agreed that technology is not an end in itself and since that trainer know nothing about the Arabic language or the teaching methodologies used in teaching it, then it will be a waste

of time and effort to participate in a training like that. For illustration, a teacher said: 'No because technology helps us in teaching so the call is teaching not technology.'

6. Discussion

It is worth mentioning that the use of TPACK framework in research studies that mainly target needs analysis has been recognised as a need for future research studies (Voogt, Fisser, Pareja Roblin, Tondeur, & van Braakt, 2013). Therefore, in the researcher's point of view, by exploring teacher's needs, future technology-training programmes can be designed accordingly. In addition, policy makers in the university can be notified by the findings in order to cooperate with the department to meet teachers' needs and eventually encourage them to integrate technology in their teaching.

This study is also considered an expansion to the TPACK framework as it showed originality with respect to how it can be used. For example, according to Voogt, Fisser, Pareja Roblin, Tondeur, and Van Braakt (2013), the TPACK framework was used in previous research studies in order to: 1) measure teachers' beliefs; 2) measure pre-service teachers' use of TPACK; and 3) develop teachers' use of TPACK. Therefore, it was not used for designing data collection tools that aim to elicit teachers' needs with respect to the technology trainer they prefer to have in order to help them integrate technology in their teaching. Accordingly, the researcher considers this study a contribution to the TPACK framework.

Secondly, the findings showed that content knowledge plays a significant role in influencing teachers to prefer some particular trainers. The main reasons behind that are: 1) saving them time and effort since they are already aware of teaching AFL; 2) providing them with the technology tools that support Arabic language; and 3) helping them in designing interactive activities that work with different skills such as listening, speaking, writing, and reading.

Thirdly, this study is considered a contribution to the body of literature because it emphasizes a need for considering the technology-trainer knowledge while designing professional development programmes for teachers. This need was not tackled in previous research studies since they were mainly concentrating on general aspects such as lack of support (Gronseth et al., 2010); lack of motivation (Abuhmaid, 2011); and lack of confidence (Moore-Hayes, 2011), but they did not focus on anything related to the trainers' knowledge. Moreover, the recommendations made for enhancing the technology-training programmes did

not mention anything related to the trainers' knowledge. However, they only concentrated on closing the gap between theory and practice (Ham, 2010) and providing an environment that foster collaborative learning (Matzen & Edmunds, 2007) that increases teachers' motivation.

Fourthly, this study highlighted certain design principles that could be taken into consideration during the design of future professional development programmes that was not highlighted in previous literature before such as:

- Content knowledge plays a significant role in choosing to engage with the trainer.
- Knowledge of technology used for teaching specific content helps in choosing to engage with the trainer.
- Knowledge of both technology and pedagogy help in choosing to engage with the trainer.
- Knowledge of technology only is not enough for choosing to engage with the trainer.

Fifthly, this study highlighted different reasons for not choosing certain trainers to engage in during professional development programmes as that was not highlighted in previous literature before such as:

- Lack of trainer's pedagogical experience.
- Lack of trainer's knowledge in content and pedagogy.
- Technological knowledge only is not enough.

7. Conclusion and future implications

This case study explored the needs of teachers in a Middle East university who are resistant to integrate technology in their teaching through using the TPACK framework. The TPACK succeeded through the visual tool that the researcher designed to elicit teachers' needs in exploring the knowledge/expertise of teaching support staff that was both complex but capable of being grasped by teachers. By taking teachers' needs into consideration, better outcomes might be achieved leading to a decrease in technology resistance and an increase in technology integration. Based on that, follow-up research can focus on: 1) using the same visual tool designed by the researcher in other contexts to elicit teachers' perceptions regarding their needs and compare them to the findings of this study to see the similarities and differences, and 2) applying teachers' needs as highlighted in this study in the design and development of professional development programmes to see whether the technology resistance decreased and the technology integration increased or not.

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About the author

Rasha Essam graduated with a PhD in E-Research and Technology Enhanced Learning in 2019. She is a former faculty member and technology enhanced learning director at the American University in Cairo for almost 10 years and now she is a self-employed educational technology consultant and e-learning service provider with different learning organisations both inside and outside Egypt. In addition, she has long years of experience in training teachers of different age groups on how to use technology in learning, educational leadership, research, analysis, curriculum design, and instructional design. Her research expertise is in 1) design-based research; 2) learning design; 3) teachers' training; 4) designing, developing, and implementing professional development programmes; 5) foreign language teaching and learning; 6) technology affordances; 7) programmes' evaluation; 8) online, blended, and flipped classroom teaching and learning; 9) computer supported collaborative learning; 10) Web 2.0 technologies; and 11) data visualisation and representation. Rasha has a solid background in computer science and information system (B.Sc.); educational leadership (MA); and teaching Arabic as a foreign language (MA). Her educational and professional backgrounds enable her to be deeply aware of how to use technology effectively in the field of education since she wears more than one hat that allows her to integrate technology into any learning organization taking into consideration their context and needs. Rasha's website can be found at www.rashaedutech.com

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