PERCEIVED COMPETENCIES ON TPACK AMONG LANGUAGE TEACHERS IN EGYPT

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Abstract: In the developing world, instructional technology possesses a unique allure of not just improving schools but also speeding up modernisation. Mere presence of technologies in schools will not suffice to motivate teachers to utilize them effectively in instruction since teachers' attitudes, beliefs, and knowledge are more influential in the integration process. Current study which aimed to investigate EFL teachers' perceived competencies in terms of the technological pedagogical and content knowledge model (TPACK) within private education institutes in Egypt, is an integral part of a larger comprehensive study. Within this component of study, quantitative data was collected on an EFL-TPACK survey. Descriptive statistics were employed to understand these data. As anticipated, findings indicated that teachers' ratings on their skills and knowledge were significantly high. However, they had some concerns about aspects of their CK, PK, and PK. Teachers also expressed their doubt of critically employing ICT in their language classrooms. This study contributes to new knowledge by exploring CALL in a region and a language learning stage where little is known. It also adds to the understanding of TPACK as a framework. The study could be a basis for a curriculum and/or a professional development strategy. The moderate sample size, and the unsettled measurability of the TPACK may limit the generalizability of the findings. Adopted common practices as well as the correlation of these perceptions and practices in classroom require investigation.

Keywords: Perceived Competencies, EFL TPACK in Egypt, Private Education

INTRODUCTION

A plethora of studies has suggested that information and communication technology (ICT) provides substantial contributions to education, mainly in terms of access, because it allows learning to take place at any time and from any location (e.g.Mathipa & Mukhari, 2014; Tedla, 2012). Smith (2008) found modern ICT providing immediate feedback, authentic learning, and collaborative instruction. With the aid of ICT teachers were able to employ a variety of pedagogical approaches such as dialogic, and constructionist approaches to allow learners in their English class to construct their own digital stories, engage in dialogues and exchanges through comments posted in discussion blogs (Tay et al., 2012). Teachers with varied pedagogical beliefs can utilize computers and technology with their students in a variety of ways that are compatible with their own beliefs (Tondeur et al., 2013). Since 1990, the Egyptian Ministry of Education and Technical Education (MOETE) has advocated for the use of technology to address a number of issues that have resulted in a decline in teaching and learning quality (Pouezvara, 2014). These difficulties include rote learning reinforcement, traditional educational techniques, and out-of-date materials and curriculum content that are largely employed for the express goal of passing tests (Co-operation & Development, 2015; Loveluck, 2012; Zaalouk, 2013). MOETE implemented technology as part of a larger education reform initiative supported by the World Bank [WB] in 2017, with two simultaneous tracks: Education 1.01 and Education 2.02. (WB, 2017). This reform was implemented in the academic year 2018–2019 (WB, 2019) and focused on five components: (1) early childhood, (2) building the capacity of teachers and leaders, (3) changing assessment and examination systems, (4) service delivery through connected systems, and (5) management, communication, monitoring, and evaluation(Saavedra, 2019).Component 4 is referred to as "an ICT revolution" and is viewed as a principal element that connects the other four with the purpose of linking and learning (WB, 2018). To reach the long-term project's impact of "increased learning outcomes," Component 4 initial results can be categorized as an ICT reform that includes the subcomponents of "creating an educational technology platform," "establishing the education decision support dashboard," "digital learning resources," as well as "establishing of a computer-based assessment management and delivery platform" (WB, 2018, pp.11-12).

Advocates of technology integration in teaching and learning opine that teachers are the major barrier to achieve seamless integration (Chandra & Mills, 2014; Hu & McGrath, 2011). Copriady (2015) proposed that mere presence of technological tools in the classrooms alone is not enough to make teachers use them; teachers' attitudes, beliefs,

and knowledge are more influential for whether or not teachers will incorporate these technologies into their instruction. Tondeur et al. (2013) discovered that teacher beliefs not only influence and lead teacher technology usage in the classroom, but that teachers who score high in both constructivist and teacher-directed (traditionalist views) beliefs are more likely to utilise technology with their students. Beliefs often form teacher perceptions of what constitutes teaching and are related to their practices as students as well as the context in which they operate (Löfström & Poom-Valickis, 2013). Beliefs act as filters that control teachers during instructional and curriculum-decision-making (Cantu, 2001; Pajares, 1992).This suggests that it is worthwhile to investigate teachers' beliefs. And present study aims to ascertain the perceptions of the Egyptian language teachers on their competencies in ICT.

PURPOSE OF STUDY

The purpose of this study was to examine the perceptions of competencies language teachers in Egypt held about their technological, pedagogical, and content knowledge (TPACK). The study was carried out in order to answer the following research question:

> *What are language teachers in Egypt perceived competencies in terms of the application of technological pedagogical content knowledge model (TPACK)?*

LITERATURE REVIEW

Theoretical Framework

Technological Pedagogical Content Knowledge (TPACK)

TPACK which is attributed to Mishra and Koehler (2006) is a comprehensive framework for assessing what teachers need to possess to teach effectively using technology. It is based on the pedagogical content knowledge (PCK) model suggested by Shulman (1987). It requires three types of core knowledge: content, pedagogy, and technology, as well as the interactions between and among these types of knowledge. Hence, TPACK consists of seven constructs: the content knowledge (CK), pedagogical knowledge (PK), technological knowledge (TK), pedagogical content knowledge (PCK), technological content knowledge (TCK), technological pedagogical knowledge (TPK), and technological pedagogical content knowledge (TPACK). TPACK is used as a framework or a theory to guide or assess technology integration in instruction.

ICT and Education in Egypt

Interest in the instructional technology in developing countries has a special appeal as it is expected to not only enhance education but also participate in the process of community modernity (UNESCO, 2015, 2018), and Egypt, the setting of the current study, is an obvious example of a country on the edge between underdevelopment and modernity (Warschauer, 2003) with an educational system which is the largest in the Middle East and North Africa (MENA) region and is one of the largest in the world in terms of the number of the students (Baradei & Amin, 2010).

Available studies that address ICT in the Egyptian context are rare and are primarily conducted on university education. For instance, Warschauer (2003) noted incongruity between claims of reform of education by the official circles about the use of ICT and the real practices of the schools. England (2007) noticed some tools of technology were applied in the EFL classrooms and online in Egyptian universities. Bakr (2011)found positive attitudes of Egyptian public schools teachers. He recommended further research of teachers' attitudes towards computers in terms of other variables such as subject matters, self-efficacy, etc. El-Gamal (2014) examined various stockholders' perspectives concerning the readiness, adoption, and execution of e-learning programmes in Higher Education. Badran et al., (2021) investigated secondary school teachers' perceptions on the ICT component of the 2017 education reform. According to the findings, the majority of participants had positive viewpoints on the relative advantage of ICT integration, average attitudes on its complexity, and negative perspectives on its compatibility with Egypt's education goals and core aims. The findings also emphasised the presence of several barriers that may influence teachers' decisions to accept or reject the ICT reform, such as human and technological infrastructures, as well as communication.

As noted earlier, available studies that target language teachers in Egypt are few and mostly achieved in Higher Education institutions. Hence, current study adds to the world research on Computer Assisted Language Learning (CALL) by exploring a novel context.

RESEARCH DESIGN

Current study is a component of a detailed research. In the original research, a sequential mixed methods approach was employed, as quantitative data were gathered and analyzed in the first phase, then qualitative data was collected and analysed in the second phase, and eventually both methods were integrated in the interpretation phase of the study (Creswell & Creswell, 2017).Current component of the study displays quantitative data about the EFL teachers' perceptions of competencies about their TPACK collected on a survey adapted for this purpose.

Research Sample and Context
Sampling Procedures and Samples

As the piloting phase unfolded, it was not possible to employ the systematic random sampling technique, since it was difficult to obtain a comprehensive list of the target population. Since the primary criterion relates to the ease of obtaining a sample (Bryman, 2016), therefore, the researcher turned to a more convenient, a nonrandom sampling technique, i.e. the purposive sample. The researcher used one's experience and knowledge of the group to be sampled to select a sample which is believed to represent the given population. The pool of participants includes EFL in-service teachers from preparatory private education. The researcher contacted the institutes' principals initially to propose the study and receive their approval before approaching the potential participants.

Context of the study

Private education schools are reported to have much interest in providing high quality education service including adopting technologies in instruction more than their counterparts in public schools, and in most cases, the available resources are utilized (El-Fiki, 2012). The sample of this study was selected from Fayoum, due to its geographical location, diversified composition, and it was more convenient for the researcher. The questionnaire was administered to six different private K-12 schools.

Research Instrument

After gaining approval, the researcher adapted the instrument developed by Bostancıoğlu and Handley (2018) to measure the EFL teachers' TPACK. Teachers' responses were measured on a five-point Likert: 1= Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree which meant that higher scores indicated higher perceptions and the opposite was true. The instrument comprises of 35 items in all, each subscale consists of 5 items for measuring TPACK seven domains. Validity procedures included establishing the I-CVI and S-CVI, and more than 10 % negatively worded items. Internal consistency for each of the subscales as well as for the total TPACK scale was established (see Table 1).

Table 1
Cronbach's Alpha and Inter-Item Correlation Values of the Scales

Scales	Cronbach's Alpha	Number of Items
TK	.687	5
CK	.844	5
PK	.750	5
PCK	.759	5
TCK	.681	5
TPK	.807	5
TPACK	.900	5
Total TPACK	.952	35

[33]

Data Analyzing Instruments
Descriptive Statistics

Due to the fact that descriptive statistics allow for a straightforward explanation and a more significant presentation of data, they were employed in current component of the study. They included frequencies, percentages, means, minimums, maximums, and standard deviations of teachers' responses to the items of the survey on each subscale.

FINDINGS AND DISCUSSION

Current study aimed to examine the perceptions of competency English language teachers held about their technological, pedagogical, and content knowledge (TPACK).

Demographical Profile of Respondents

Part A of the survey collected demographic data for each of the research participants. Respondent female teachers outnumbered the males (53.3 % females, 46.7 males). The majority (90%) of the teachers were over 26 years of age. Forty-five percent had been teachers for 1 to 5 years, and 16.7 % had been in the industry for over 16 years. The vast majority of the teachers were either BA or B.Ed. qualified, and only 1 teacher had an MA. All the teachers had access to technology. Over 76% of the respondents had in-service CALL training. Quite a number (71.7%) worked in private ordinary schools; 16.7% in private language schools, and 11.7% in private Azhar schools.

Participants' Responses on their TPACK

Part B of the survey gathered teachers' responses on their competencies perceptions about their TPACK. In general, findings indicated that teachers' ratings on their skills and knowledge were significantly high. Below are instances of their responses on the items.

Regarding teachers' TK, 40 % agreed or strongly agreed that they were familiar with computer technical terms and their functions, one third of them are unfamiliar. Maybe teachers are interested in ICT uses rather than its technical issues. Fifty percent of them knew how to use common office applications, e.g. MS Word. The participants' majority (80 %) rejected the notion that learning technology is not easy for them (see Table 2). Still, there seems to exist a problem with creating their own multimedia files.

Table 2
Technology Knowledge (TK) Scale Frequency by Percentages

Survey Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1 I am familiar with computer technical terms, e.g. RAM, HD, and their functions.	15.0	18.3	26.7	36.7	3.3
2 I know how to use common office software, e.g. MS Word, MS PowerPoint, etc.	5.0	25.0	20.0	36.7	13.3
3 I know how to use Web 2.0 tools, e.g. social media, wikis, email.	5.0	13.3	28.3	31.7	21.7
4 I can create multimedia files using sound, video, picture and text.	5.0	31.7	18.3	35.0	10.0
5 I do not learn technology easily.	25.0	55.0	10.0	3.3	6.7

As for CK, in general, participants perceived themselves as competent in English language skills. For instance, 60 % of the respondents expressed their knowledge of the English language levels (see Table 3). This is quite understandable as they all had degrees in English. However, more than 40% of the teachers doubted their speaking fluency. I think this a common problem, as official speaking assessment of the teachers is neglected.

Table 3
Content Knowledge (CK) Scale Frequency by Percentages

Survey Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
6　　I know about the English language levels	8.3	15.0	16.7	25.0	35.0

[34]

	(i.e. phonology, morphology, lexis, etc.).					
7	I can understand spoken English well.	5.0	15.0	20.0	43.3	16.7
8	I can understand English texts well.	0.0	20.0	10.0	46.7	23.3
9	I can speak English fluently.	5.0	18.3	35.0	33.3	8.3
10	I can write extensively in English on different topics.	8.3	15.0	30.0	33.3	13.3

It was clear that teachers perceived themselves knowledgeable about pedagogy. For instance, while 46.6 % agreed that they knew about the common learning theories, a tiny minority strongly disagreed. At the time more than 56.5 % of the teachers thought that they knew a wide range of teaching approaches, around one third of them responded in the negative. A decent number (70 %) knew how to manage the classroom. Around 46 % rejected the idea that they did not know different styles of students' assessment, and they knew how to adapt their teaching style according to their students learning styles (see Table 4).

Table 4
Pedagogical Knowledge (PK) Scale Frequency by Percentages

	Survey Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
11	I know about the common learning theories, e.g. behaviourism.	8.3	13.3	31.7	23.3	23.3
12	I know a wide range of teaching approaches, e.g. communicative approach.	5.0	26.7	11.7	51.7	5.0
13	I know how to manage the classroom.	5.0	10.0	15.0	18.3	51.7
14	I do not know how to assess students in different ways.	16.7	23.7	46.7	3.3	10.0
15	I know how to adapt my teaching style according to students learning styles.	5.0	21.7	21.7	21.7	30.0

While one fifth of the participants refused that they could plan when and how to use the target language in classroom, 65% of them agreed it. Of the total respondents, 56.7 % agreed, 38.3 % remained neutral, and only 5 % disagreed that they could identify the linguistic problems experienced by learners. More than 58% of the respondents thought that they could react to their students supportively. Whereas 45% of the teachers refused being unaware of the factors that could inhibit or promote language teaching and learning, a similar percentage (43.3%) of them took a neutral position on it. This is quite a significant number.

Table 5
Pedagogical Content Knowledge (PCK) Scale Frequency by Percentages

	Survey Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
16	I can plan when and how to use the target language in my classroom.	5.0	15.0	15.0	23.3	41.7
17	I can identify the linguistic problems experienced by learners.	5.0	0.0	38.3	35.0	21.7
18	I can design language courses around the requirements of the curriculum.	0.0	21.7	33.3	31.7	13.3
19	I can react supportively to students' interaction.	5.0	15.0	21.7	20.0	38.3
20	I am unaware of the contextual factors that could inhibit/promote English teaching.	16.7	28.3	43.3	11.7	0.0

As Table 6 underneath displays, fair numbers of the teachers considered themselves to know about appropriate technologies to teach English listening, speaking, reading, and English pronunciation (60 %, 63.3 %, 65 %, and 60% respectively). Half of the respondents rejected the thought that they had issues with appropriate technologies for English writing teaching.

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Table 6

Technological Content Knowledge (TCK) Scale Frequency by Percentages

	Survey Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
21	I know about appropriate technologies to teach English listening.	5.0	15.0	20.0	20.0	40.0
22	I know about appropriate technologies to teach English speaking.	0.0	20.0	16.7	25.0	38.3
23	I know about appropriate technologies to teach English reading.	0.0	15.0	20.0	21.7	43.3
24	I do not know about appropriate technologies to teach English writing.	0.0	50.0	8.3	26.7	15.0
25	I know about appropriate technologies to teach English pronunciation.	5.0	10.0	25.0	30.0	30.0

Table 7 shows the responses to TPK. More than 76 % believed that they could choose technologies that improved the teaching and learning process, and 76.3 % could use technologies that assist in classroom management. Of interest, only a tiny minority (11.6 %) of the teachers agreed that they could not think critically about how to use technology in classroom, and at the same time, around one third opposed that statement.

Table 7

Technological Pedagogical Knowledge (TPK) Scale Frequency by Percentages

	Survey Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
26	I can choose technologies that improve the teaching and learning process.	5.0	15.0	3.3	31.7	45.0
27	I can use technologies that assist in classroom management.	5.0	15.0	6.7	65.0	8.3
28	I cannot think critically about how to use technology in my classroom.	8.3	26.7	53.3	8.3	3.3
29	I can choose relevant technologies that involve the students in the lesson.	0.0	15.0	25.0	25.0	35.0
30	I can choose appropriate technologies for assessing students.	0.0	10.0	31.7	30.0	28.3

Surprisingly, the percentages of those who (strongly) disagreed any item on this subscale did not exceed 20 % li On the contrary, more than 50% of the respondents (strongly) agreed all items on this subscale. Noticea respondents thought that they could use technology effectively to communicate information to students and p (see Table 8). This is may be due to the generic nature of the scale items.

Table 8

Technological Pedagogical and Content Knowledge (TPACK) Scale Frequency by Percentages

	Survey Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
31	I can use a range of technologies that enable students to participate actively.	3.3	20.0	23.3	18.3	35.0
32	I can use technology effectively to communicate information to students and peers.	0.0	15.0	15.0	41.7	28.3
33	I can use technology to engage students with different cultures.	0.0	15.0	11.7	40.0	33.3
34	I can select technologies that improve what I teach, and what students learn.	0.0	20.0	21.0	16.7	41.7
35	I can use technologies that help students overcome their linguistic problems.	0.0	15.0	25.0	28.3	31.7

Table 9
Descriptive Statistics for Scales of TPACK

	N	Minimum	Maximum	Mean	Std. Deviation
TK	60	1.80	4.60	3.35	1.115
CK	60	1.20	4.80	3.48	1.122
PK	60	1.80	4.80	3.50	1.183
PCK	60	2.00	5.00	3.62	1.080
TCK	60	2.40	4.80	3.63	1.181
TPK	60	2.20	4.80	3.68	1.039
TPACK	60	2.00	5.00	3.79	1.109

Teachers' scores varied as they ranged from 1.8 to 5. Surprisingly, CK recorded the lowest scores, and highest scores were recorded on TPACK. In general, teachers perceived themselves as competent on their TPACK domains, as they scored better on average as scales scores means ranged from 3.35 to 3.79. No significant differences between the means of the scales was recorded. Responses data on the different scales spread out virtually equally as standard deviations values indicate that there was consistency of responses data. Standard deviations ranged from 1.03 to 1.18.

Research Implication

From study findings we can conclude that the majority of respondents claimed to be technologically savvy. Nonetheless, teachers had concerns over their abilities. As for their technological knowledge, quite a number of the teachers seemed to have issues with creating their own multimedia. They might rely on available teaching materials. Teachers expressed their understanding spoken and written English, however, they thought they might have problems with speaking fluency and writing in English extensively. This drawback might be ascribed to language assessment which focuses mostly on grammar and vocabulary tests. Besides a minority who accepted the notion that they were not skillful at assessing their students in different ways, just below half of them were doubtful about having such skills. In addition, teachers were not confident about their theoretical background in learning theories and language teaching approaches. The factors that impact language learning and teaching are not that clear in most of teachers' minds either.

To tackle these concerns, teachers may need workshops or training to model how to create and edit media so as to be able to tailor or create media or to think critically about available resources. Professional development programs (PDPs) can prove beneficial to enhance teachers' language skills, develop and update their theoretical knowledge.

This study adds to the body of knowledge by examining Computer-Assisted Language learning (CALL) in a nation and at a level of language learning where little is known. Studies on TPACK as a framework for ICT integration in instruction are frequently restricted to highly rated educational systems, despite repeated appeals for further research from diverse locations to better understand cultural variations. As such, this study helps in filling this academic gap and explain TPACK as a framework.

The findings of the study are expected to provide stakeholders with insight into how EFL teachers understand their professional reality. Thus, the research might serve as the foundation for any curriculum and/or professional development strategies.

EFL Teachers were found to generally provide above average ratings, but interviews and/or interviews revealled they employed technology for content delivery and to a lesser extent to stimulate students' participation (Wu & Wang, 2015). Thus, a future study is needed to investigate real practices in classroom. Techniques such as observations, teachers' artifacts analysis, or interviews, or a combination of all, would prove useful to reveal teachers' real practices. Or still, the primary data collected in this study can be exploited to investigate any relationship between these perceptions and practices in the classrooms.

CONCLUSION

To draw a conclusion, teachers' evaluations of their abilities and knowledge were found to be very high. The study solicited perceptions on a questionnaire, where the researcher depended upon respondents' sincerity in their responses. The status quo of perceptions of competencies on CALL in a cultural and educational setting was

investigated. Policymakers and educationalists are equipped with insights that may guide them to execute any professional or curriculum development. Future research can benefit from these data to further investigate practice and its link with perceptions.

REFERENCES

Badran, A., Eid, L., Abozaied, H., & Nagy, N. (2021). Egypt's ICT Reform: Adoption Decisions and Perspectives of Secondary School Teachers During COVID-19. *AERA Open, 7*, 23328584211042866. https://doi.org/10.1177/23328584211042866

Bakr, S. M. (2011). Attitudes of Egyptian Teachers towards Computers. *Contemporary Educational Technology, 2*(4), 308-318. https://doi.org/10.30935/cedtech/6061

Baradei, L. E., & Amin, K. Z. (2010). Community participation in education: A case study of the Boards of Trustees' experience in the Fayoum governorate in Egypt. *Africa Education Review, 7*(1), 107-138. https://doi.org/10.1080/18146627.2010.485816

Bostancıoğlu, A., & Handley, Z. (2018). Developing and validating a questionnaire for evaluating the EFL 'Total PACKage': Technological Pedagogical Content Knowledge (TPACK) for English as a Foreign Language (EFL). *Computer Assisted Language Learning*, 1-27. https://doi.org/10.1080/09588221.2017.1422524

Bryman, A. (2016). *Social research methods*: Oxford university press.

Cantu, D. A. (2001). *An investigation of the relationship between social studies teachers' beliefs and practice* (Vol. 59): Edwin Mellen Press.

Chandra, V., & Mills, K. A. (2014). Transforming the core business of teaching and learning in classrooms through ICT. *Technology, Pedagogy and Education, 24*(3), 285-301. https://doi.org/10.1080/1475939x.2014.975737

Co-operation, O. f. E., & Development. (2015). *Schools for skills: a new learning agenda for Egypt*. https://www.oecd.org/countries/egypt/Schools-for-skills-a-new-learning-agenda-for-Egypt.pdf

Copriady, J. (2015). Self-motivation as a Mediator for Teachers' Readiness in Applying ICT in Teaching and Learning. *Procedia - Social and Behavioral Sciences, 176*, 699-708. https://doi.org/10.1016/j.sbspro.2015.01.529

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*: Sage publications.

El-Fiki, H. A. (2012). *Teaching English as a foreign language and using English as a medium of instruction in Egypt: Teachers' perceptions of teaching approaches and sources of change*. https://www.mobt3ath.com/uplode/book/book-18372.pdf

El-Gamal, S. (2014). *An investigation of electronic learning in higher education: The Egyptian context.* Northumbria University,

England, L. (2007). Technology applications in English language teaching in Egyptian universities: A developing relationship. *Calico Journal*, 381-406. https://www.jstor.org/stable/24147917?seq=1#page_scan_tab_contents

Gay, L. R., Mills, G. E., & Airasian, P. W. (2011). *Educational research: Competencies for analysis and applications*: Pearson Higher Ed.

Hu, Z., & McGrath, I. (2011). Innovation in higher education in China: are teachers ready to integrate ICT in English language teaching? *Technology, Pedagogy and Education, 20*(1), 41-59. https://doi.org/10.1080/1475939x.2011.554014

Löfström, E., & Poom-Valickis, K. (2013). Beliefs about teaching: Persistent or malleable? A longitudinal study of prospective student teachers' beliefs. *Teaching and Teacher Education, 35*, 104-113. https://doi.org/10.1016/j.tate.2013.06.004

Loveluck, L. (2012). *Education in egypt: Key challenges*: Universitäts-und Landesbibliothek Sachsen-Anhalt.

Mathipa, E. R., & Mukhari, S. S. (2014). Teacher Factors Influencing the Use of Ict in Teaching and Learning in South African Urban Schools. *Mediterranean journal of social sciences, 5*, 1213. https://doi.org/10.5901/mjss.2014.v5n23p1213

Mishra, P., & Koehler, M. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054. https://www.learntechlib.org/p/99246/

Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62*(3), 307-332. https://doi.org/10.3102%2F00346543062003307

Pouezevara, S., Mekhael, S., & Darcy, N. (2014). Planning and Evaluating ICT in Education Programs Using the Four Dimensions of Sustainability: A Program Evaluation from Egypt. *International Journal of Education and Development using ICT, 10*(2), 120-141. https://www.learntechlib.org/p/147458/

Saavedra, J. (2019). Shaking up Egypt's public education system. *World Bank Blogs*. Retrieved from https://blogs.worldbank.org/education/shaking-egypts-public-education-system

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard educational review, 57*(1), 1-23. https://doi.org/10.17763/haer.57.1.j463w79r56455411

Smith, B. (2008). Methodological hurdles in capturing CMC data: The case of the missing self-repair. https://scholarspace.manoa.hawaii.edu/bitstream/10125/44132/1/12_01_smith.pdf

Tay, L. Y., Lim, S. K., Lim, C. P., & Koh, J. H.-L. (2012). Pedagogical approaches for ICT integration into primary school English and mathematics: A Singapore case study. *Australasian journal of educational technology, 28*(4). https://doi.org/10.14742/ajet.838

Tedla, B. A. (2012). Understanding the importance, impacts and barriers of ICT on Teaching and Learning in East African Countries. *International journal on e-learning, 2*, 199-207. http://infonomics-society.org/wp-content/uploads/ijels/published-papers/volume-2-2012/Understanding-the-importance-impacts-and-barriers-of-ICT-on-Teaching-and-Learning-in-East-African-Countries.pdf

Tondeur, J., Hermans, R., van Braak, J., & Valcke, M. (2013). Exploring the link between teachers' educational belief profiles and different types of computer use in the classroom. *Computers in Human Behavior*, 2541-2553. https://doi.org/10.1016/j.chb.2008.02.020

UNESCO. (2015). World education forum 2015: Final report. Retrieved http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/ED_new/pdf/WEF_report_E.pdf

UNESCO. (2018). ICT competency framework for teach ers (Version 3). https://www.open.edu/openlearncreate/pluginfile.php/306820/mod_resource/content/2/UNESCO%20ICT%20Competency%20Framework%20V3.pdf

Warschauer, M. (2003). The allures and illusions of modernity: Technology and educational reform in Egypt. *education policy analysis archives, 11*, 38. https://epaa.asu.edu/ojs/article/view/266

Wu, Y.-T., & Wang, A. Y. (2015). Technological, Pedagogical, and Content Knowledge in Teaching English as a Foreign Language: Representation of Primary Teachers of English in Taiwan. *The Asia-Pacific Education Researcher, 24*(3), 525-533. https://doi.org/10.1007/s40299-015-0240-7

Zaalouk, M. (2013). Globalization and educational reform: What choices for teachers. *T. Seddon and JS Levin, Educators, Professionalism and Politics: Global Transitions, National Spaces and Professional Projects*, 201-219. https://www.taylorfrancis.com/chapters/edit/10.4324/9780203073940-22/globalization-educational-reform-choices-teachers-teachers-malak-zaalouk