Assessment the Digital Skills Gap and Training Needs for Tourism and Hospitality: The Case of Egypt

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Abstract

Tourism and hospitality sectors operate in a dynamic, fiercely competitive, and quickly evolving environment on a national and worldwide scale. Nonetheless, it is clear that academic research is needed to address the primary problems and challenges facing the hospitality and tourism sectors. However, it is less clear how the two sectors are collaborating. In addition, tourism and hospitality business will have numerous difficulties in the future. It is evident that employees in the tourism and hospitality industries now more than ever need to maintain supplementary skills beyond core competencies. Furthermore, there are still disparities in skills between what employers require and what employee have. Therefore, this paper aims to identify the digital skills gaps and training needs in Egyptian tourism and hospitality industry. This study's methodology is built around a quantitative approach to meet its objectives and validate the research hypotheses. In order to gather data from five-star hotels and tourism companies (category A) in Cairo, a convenience sample approach was used. Data are gathered for the current study using questionnaire forms. Out of the 400 copies of the questionnaire that were issued, only 300 were returned, representing a 75% response rate. The findings indicated that there are significant knowledge and skill gaps pertaining to digital skills challenges. Furthermore, training has a major impact on both the current and future competency levels in digital skills. The conceptual model was used tested and offered for academics to highlight the relationship between the contextual factors (type of sector, and job level), training delivery and the current/future level of digital skills proficiency.

Keywords: Digitalization, Skills gaps, Training needs, Tourism, Hospitality, Egypt.

Introduction

Today, tourism and hospitality sectors work in a dynamic, fiercely competitive, and quickly evolving environment on a national and worldwide scale (King et al., 2011). Nonetheless, it is clear that academic research is needed to address the primary problems and challenges facing the tourist and hospitality sectors, but it is less clear how the two sectors are collaborating (Khan, 2019). Also, Khan (2019) reported that academic research is essential for examining intriguing future topics pertaining to the hospitality sector. After several decades of studying hospitality and tourism, there are a little of research has focused on how these findings may be applied to real-world situations. The study of King et al. (2011) reported that research on tourism and hospitality is expanding globally, but it doesn't meet the industry needs.

According to Khan (2019), academic research in tourism and hospitality sectors needs to be in line with and supported by the industry. Furthermore, there is a lack of research on digital skills at universities to provide industry practitioners with the knowledge they need to grow their business, in addition to the wider divide that exists between Egyptian universities and the hospitality sector (Sobaih & Jones, 2015). Because the tourism and hospitality sectors must be able to successfully address current concerns for digital futures, academia has a chance to enable such an effective response by doing methodical, theoretically grounded research (King et al., 2010). Despite the necessity of industry-academia collaboration to grow and strengthen Egypt's economy and to provide competitive advantages for the country's travel and hospitality sectors, there is a little indication of this cooperation (Sobaih & Jones, 2015).

The literature review revealed that while many industries have embraced digital practices, the tourism and hospitality sectors in Egypt have not given these challenges greater attention (Eldemerdash & Mohamed, 2013). Regarding digital skills. Nevertheless, very few studies have looked into the obstacles that the tourist and hospitality industries have when it comes to adopting digital skills (Chan, 2008), and little study has been done in Egypt on this topic (Eldemerdash & Mohamed, 2013). In addition, there a lack of papers published in the digital skills within a tourism and hospitality context (King et al., 2010). Therefore, this paper aims to identify the digital skills gaps and training needs in Egyptian tourism and hospitality industry in particularly, five-star hotels and tourism companies (category A).

Literature review

Digital skills in tourism and hospitality

According to Li et al. (2019), the tourism business is currently operating in an era marked by a multitude of new technologies that have completely improved the work. Furthermore, digital technologies are advancing quickly (Syam and Sharma, 2018), and it is anticipated that these advances will have a major impact on a number of commercial sectors, including tourism and hospitality (Almada-Lobo, 2016). The tourism and hospitality industries benefit from emerging technologies like automation, robotics, and artificial intelligence, which assist them overcome a variety of day-to-day management obstacles (Makridakis, 2017). In addition to providing a more unique and memorable experience for hospitality services, these technologies will also save expenses and boost output (Li et al., 2019). Artificial intelligence, big data, the internet of things, and mobile technology are examples of innovative approaches that are referred to as "digital technology" (Ivanov, 2019). Every aspect of human life is impacted by digitalization, which has created new communication channels including social networks (Morozov and Morozova, 2020).

However, it was thought that the tourism and hospitality industries would benefit less from technology advancement (Kumar, 2020). The aforementioned observation underscores the industry's general sluggishness in embracing technological advancements to enhance customer satisfaction and propel business growth (Pizam, 2017). According to Ali et al. (2018), there's a knowledge that technology can help a hotel company, but it's not always in line with the abilities that staff members or recent graduates have. Carlisle et al. (2021) clarified that the tourism and hospitality industry must make investments in certain technology-related skills if it hopes to maintain its competitiveness in the future. This covers using social media in a professional setting, e-marketing techniques, computer literacy basics,

and sophisticated IT and software abilities. The degree to which digital technologies improve learning for online learning delivery is a major concern for suppliers of tourism and hospitality education (Khan, 2019). Hospitality is not only the industry that facing issues with student involvement and technological advancements (Terry et al., 2016; Mejia and Torres, 2018). Future tourism and hospitality industry priorities will be taken into account by the automation (digital) skills. According to Lawrence et al. (2017), they will start to significantly alter the setting moving forward. As well, Brown (2019), reported that tourism business will benefit from the automation competence.

Furthermore, Praničević et al. (2019) noted that smartphone usage for travel planning and booking is on the rise in tourism destinations; this implies that customers can book and relocate using location data. Additionally, the majority of consumers booked their vacations using mobile devices (Ali et al., 2018). For DMOs and travel agencies to be effective in their marketing efforts to attract their target client, there are requirements for a sensitive attitude on the part of the staff about digital booking behavior by tourists (Tussyadiah et al., 2018). Regarding social media and advertising, the majority of visitors have previously seen marketing, advertising, and communications about tourism destinations. Thus, digital technology has altered both the experience of travel and its documentation (Carlisle et al., 2021).

Leung et al. (2013) observed that information technology applications are now a crucial component of hotel operations, while Ali et al. (2018) emphasized that gaining a competitive advantage in the hospitality industry depends on involvement and the ability to utilize IT and technology. Pizam (2017) has brought attention to the fact that many hotels and tourist destinations utilize a variety of systems for tracking customer behavior, energy consumption, safety and security, locking systems, inventory control, and other purposes. However, because these systems are not interoperable, their potential for usage is restricted. According to Carlisle et al. (2021), "users of smartphones can make reservations for tables, read and write reviews of restaurants, search for restaurants, get directions using map applications, and pre-order both sit-down and takeout meals." Faster service is something that customers want, so it should be good news for eateries that let customers order food and beverages in advance. The hotel industry should be aware, nonetheless, that not all businesses or clientele will benefit from mobile technology (Youssef et al., 2021). As previously mentioned, smartphone ownership and usage declined with age. This, along with an aging population, may mean that if the industry uses these technologies and depends solely on them for communication, they run the risk of alienating some segment of the potential market (Ivanov et al., 2017). Regarding automation, "a few hotels have started implementing automation for front-of-house and porter duties" (Ahmed et al., 2022). Hoteliers may find themselves forced to consider automated service technology. Hotels must decide which needs to come first: efficiency or service. When staying in a hotel, the great majority of visitors desire a personal touch (Praničević et al., 2019). 73% of hotel visitors believe that having a human interaction is crucial when staying at a hotel (for example, when ordering room service or checking in) (Carlisle et al., 2021).

Training and digital skills in tourism and hospitality

The tourism and hospitality sectors are currently experiencing an era marked by a multitude of new technologies that have greatly enhanced their operations (Li et al., 2019). Additionally, the fourth industrial revolution has emerged due to the rapid advancement of

digital technology (Syam & Sharma, 2018). It is anticipated that these technological advancements would have a substantial impact on a number of economic sectors, including tourism and hospitality (Almada-Lobo, 2016). Modern technologies like automation, robots, and artificial intelligence assist hospitality organizations in resolving a variety of day-to-day management issues (Makridakis, 2017). These technologies have also made hospitality services more memorable and individualized. They will also save expenses and boost productivity (Li et al., 2019).

Thus, the prevailing ideas about the tourism business are no different from those about other industries. However, there is now a severe skills gap in the tourism business globally (Moore, 2008), and a new approach is required to close this gap (King et al., 2011). More so than management and supervisory grades, skilled trades and the food service industry suffer from a skills shortage. According to Bello et al. (2019), the most frequently mentioned professions with shortages are those involving qualified chefs, kitchen personnel, bar workers, waiting staff, and counter staff. To maintain a competitive edge, the tourism and hospitality industries require a wide range of skills and capabilities from their workforce (Chand, 2016). Inadequate hiring and training of personnel to handle these novel advancements would inevitably lead to subpar service throughout the hospitality sector. The tourism destination insists that concerns about the education and training of suitably qualified personnel in its hospitality sector be taken seriously. But in order to take such action, companies and workers must view training as an investment in the future (Moore, 2008). However, Haven and Jones (2008) affirmed that there is agreement over the need to create a training program and improve employee skills for all workers in the tourism sector.

According to, Haven and Jones (2008) developing a motivated and well-trained workforce is one of the skills gaps. Customer service, administration, managers, housekeepers, cooks and chefs, cleaners and domestics, kitchen porters and catering helpers, public relations, bartending and waiting staff, and management and leadership abilities were among the most common areas of skill shortage. But skill gaps are when an employee finds it challenging to provide goods and services that live up to client expectations (Bello et al., 2019). Therefore, many tourism-related businesses assess the abilities of their staff to make sure they are competent and offer additional on-the-job or off-the-job training. staff abilities, service quality, and training are not correlated in the tourism industry since staff training is frequently not seen as a top priority by these businesses (Haven and Jones, 2008). If employers believe that a worker's training is not fulfilling the demands of the company, they typically hesitate to send them to training (Pizam, 2017). The tourism and hospitality sectors have not adapted to the internet of things technology as quickly as other businesses, according to Ahmed et al. (2022). It is necessary to look at the training and knowledge needed to enhance digital skills in the tourism industry further (Pizam, 2017).

Sobaih and Jones (2015) found that main work categories of hotels, restaurants, and visitor attractions generally lack the necessary skills. Every work function has the potential to include digital competencies. Like all other forms of training, IT training is typically given on-the-job by an immediate supervisor or a member of the management team (Sobaih & Jones, 2015), with the majority of hospitality and tourism businesses worldwide being classified as SME. Consequently, SMEs' capacity to reap the rewards of technology engagement may be seriously jeopardized if IT-related skills are either absent or lost as a result of excessive employee turnover (Tussyadiah et al., 2018). Furthermore, Carlisle et al. (2021) point out that hotels are less likely to participate in such types of training since they

are typically restricted to the operational side of IT systems and less focused on learning new technologies, system development, or maintenance (Bello et al., 2019).

Development of the conceptual framework and hypotheses

Figure 1 shows the research framework, which attempts to illustrate the study variables. It demonstrates that training for the current and future levels of digital skills is related to the type of sector, and job level. The following hypotheses were created and investigated by this study:

Hypothesis 1: Training will positively effect in current/ future digital skills for employees in Egyptian tourism and hospitality industry.

Hypothesis 2: There is a relationship between the contextual factors (type of sector, and job level), training delivery and the current/future level of digital skills proficiency in Egyptian tourism and hospitality industry.
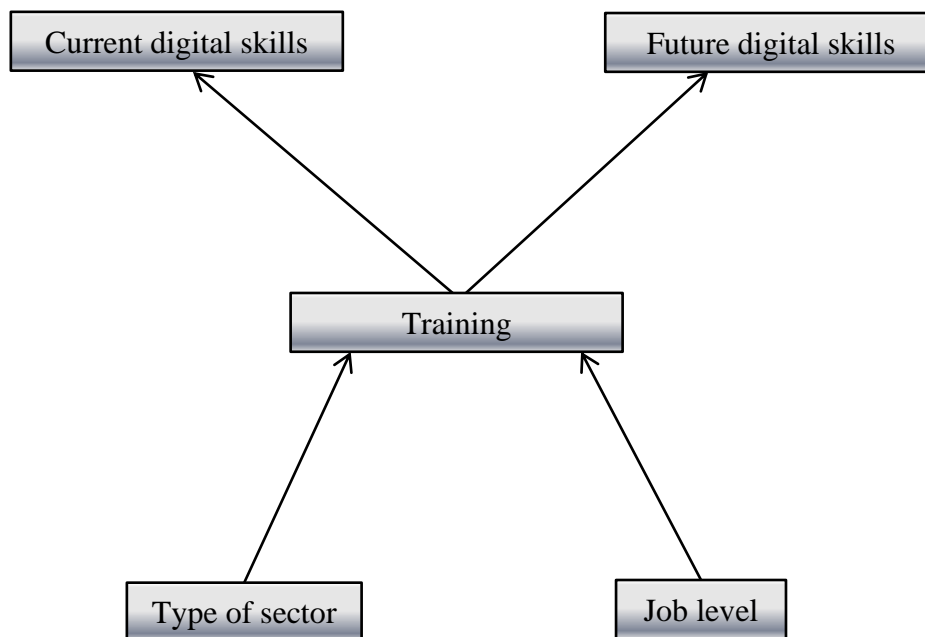
Figure 1: The research variables' conceptual framework

Research methodology

A quantitative methodology forms the basis of the study. A questionnaire was employed to gather information in order to evaluate the training requirements and digital skill shortages in the Egyptian tourism and hospitality sector. The sampling frame included a sample of Cairo's five-star hotels and tourism companies (category A). Cairo was chosen by the researchers as the sampling location because it is conveniently located for them geographically and offers distinctive tourism and hospitality services. In this study, a convenience sample strategy was

used. It takes about 15 minutes to complete an online questionnaire. Both closed-ended and open-ended questions were included in the majority of the questionnaire questions. A total of 400 questionnaires were given, 200 for employees of five-star hotels and 200 for employees of tourism companies. Of those, only 300 copies (155 from five-star hotels and 145 from tourism companies) were returned, representing a 75% response rate. A pilot study was conducted to assess the questionnaire instrument on a group of academics.

There were three sections to the questionnaire. Four questions regarding the demographic characteristics of (type of sector, and job level) are included in the first section after a cover letter outlining the questionnaire's goal, important contact details, and basic instructions. The purpose of the second section was to ascertain the respondents' opinions regarding their level of digital skill proficiency, both current and the future. All research concept was assessed using a 5-point Likert-type scale, where 1= (no skills present) and 5= (expert). Two questions about training and forms of training follow this section. The third section contained 11 variables of the digital skills, modified from Carlisle et al. (2021). The association between the model variables and survey dimensionality were examined using SPSS (Ver. 26) software.

Results

Descriptive analysis

The sample characteristics were displayed in Table (1). There were 300 questionnaires that were completely filled out. The vast majority of those surveyed worked in hotels. Of the respondents, 155 (52%) and 145 (48%) worked for tourism companies (category A). It was discovered that the respondents' demographics were as follows: 90(30%) were supervisors, 110(37%) were employees, and 100(33%) were managers.

Table 1: Descriptive statistics of the sample (N=300)

Sample characteristics	Frequency	Percentage
1- type of sector	300	100
Five-star hotels	155	52
Tourism companies (category A)	145	48
2- Job Level		
Manager	100	33
Supervisor	90	30
Employees	110	37

Skills gaps in Egypt tourism and hospitality sectors

Regarding the evaluation of skills gaps based on the tourism and hospitality industries, Table (2) below emphasized the digital skills gaps. This table demonstrated that the digital skills variable's Cronbach's coefficient was 0.90 for the skills variables derived from the used survey. These earlier coefficients accurately represent the model constructs and survey dimensions.

Table 2: Skills gaps according to tourism and hospitality sectors

Questionnaire variables	Skills Gap	Gap	Number	α

	(Future - Current Mean)	%	of items	
Digital skills in five-star hotel	0.94	26	11	0.90
Digital skills in tourism companies	0.97	36	11	
All Digital skills in Egypt	0.88	29		

Note: α: Cronbach's Alpha Coefficient

The findings in the table above (2) indicated that the digital skills gap was the largest at 29%. According to Callander et al. (2018), digitalization is one of the potential and worldwide difficulties that Egypt's tourism and hospitality business is experiencing. They also predicted that the rapid advancements in technology would lead to the fourth "industrial revolution." Thus, it is evident that new virtual technologies such as augmented reality, AI, the internet of things, block-chain, information analytics, and new technologies are introducing themselves into roles, talent stages, and sectors of Egypt's economy that were previously unaffected by technological change.

Current/future level of digital skills in hotels

The mean scores for the current skills gap in hotels range from 2.78 to 3.89 and for the future skills gap from 4.25 to 3.71, according to the following table (3). The standard deviation for the current level and the future level, respectively, was 0.65 to 1.16 and 0.55 to 1.17. Furthermore, operating systems (M=3.89 and SD=0.78) and Microsoft Office (M=3.88 and SD=0.65) were the skills that respondents felt most confident using according to the results. robotics and AI skills (M=2.78 and SD=1.16) and VR (M=2.80 and SD=1.15) were the areas where the respondents' current skill levels were lowest. skills for using different social media platforms (M=4.25 and SD=0.89), internet marketing (M=4.17 and SD=1.09), operating system (M=4.11 and SD=1.12), internet safety procedures skills (M=4.10 and SD=1.14), and Microsoft Office (M=4.09 and SD=1.03) were found to be the most crucial skills that hotel employees will need in the future. Furthermore, the lowest level of future skills needed was in computer programming (M=3.80 and SD=0.75), robotics and AI skills (M=3.71 and SD=0.55), data analytics skills (M=3.78 and SD=0.66), website improvement and development skills (M=3.90 and SD=1.16), and VR (M=3.99 and SD=1.17). On the other hand, Table 3 shows that the digital skills gap in hotels was greatest for those with Robotics and AI skills (69%), which was followed by those with skills in using digital hardware technologies, like VR (68%), and website improvement and development skills (36%). The two areas with the lowest digital skill gaps were computer programming (26%), and data monitoring and online review (25%) skills.

Table 3: the digital skills gaps in five-star hotels

Digital skills gap in five-star hotels	Current skills		Future skills		Skills gap percentage
	Mean	SD	Mean	SD	
- Robotics and AI Skills	2.78	1.16	3.71	0.55	69
- Virtual Reality (VR) enhancement skills	2.80	1.15	3.99	1.17	68
- Website improvement and development skills	3.11	1.02	3.90	1.16	36
- Skills for data analytics	3.05	0.93	3.78	0.66	34
- Computer programming and usage skills	3.16	0.70	3.80	0.75	26
- Data monitoring and online review skills	3.59	0.68	3.89	1.05	25

- Operation and computer systems skills	3.89	0.78	4.11	1.12	28
- Microsoft office systems skills	3.88	0.65	4.09	1.03	33
- Internet safety procedures skills	3.25	0.69	4.10	1.14	27
- Internet marketing skills	3.12	0.82	4.17	1.09	30
- Skills for using different social media platforms	3.33	1.05	4.25	0.89	29

Current/future level of digital skills in tourism companies

The aforementioned table (4) demonstrated that the mean scores for the current skills gap in tourism companies vary from 1.75 to 3.80 and 1.99 to 4.05 for the future skills gap. The standard deviation ranged from 0.60 to 1.10 for the current level and 0.65 to 1.05 for the future level. Furthermore, the results demonstrated that the respondents felt most comfortable using their knowledge of operating systems (M=3.80 and SD=0.73), Microsoft Office (M=3.77 and SD=0.60), and robotics and AI skills (M=1.85 and SD=0.90) as the least level of current skills needed. However, operating systems (M=4.05 and SD=0.65), Microsoft Office (M=3.99 and SD=0.91), internet marketing (M=3.95 and SD=1.01), and social media (M=3.89 and SD=0.95) skills were shown to be the most crucial for future employment in tourism companies. Conversely, the least level of future skills needed was in website improvement and development skills (M=2.88 and SD=0.79), data analytics skills (M=2.95 and SD=0.85), VR (M=2.77 and SD=0.88), robots and AI skill (M=1.99 and SD=0.72). Furthermore, Table (4) revealed that the digital skills gap in tourism companies was highest for robotics and AI skills (88%), VR (79%), website improvement and development skills (73%) and data analytics skills (69%). The two areas with the lowest digital skill gaps were social media (28%), and data monitoring and online review (29%).

Table 4: the digital skills gaps in tourism companies

Digital skills gap in tourism companies	Current skills		Future skills		Skills gap percentage
	Mean	SD	Mean	SD	
- Robotics and AI skills	1.85	0.90	1.99	0.72	88
- Virtual Reality (VR) enhancement skills	1.75	0.99	2.77	0.88	79
- Website improvement and development skills	2.11	1.10	2.88	0.79	73
- Skills for data analytics	3.05	0.89	2.95	0.85	69
- Computer programming and usage skills	3.20	0.75	3.51	0.77	58
- Data monitoring and online review skills	3.30	0.70	3.72	1.05	29
- Operation and computer systems skills	3.80	0.73	4.05	0.65	25
- Microsoft office systems skills	3.77	0.60	3.99	0.91	34
- Internet safety procedures skills	3.24	0.65	3.76	0.75	32
- Internet marketing skills	3.75	0.83	3.95	1.01	36
- Skills for using different social media platforms	3.65	0.74	3.89	0.95	28

Current/future level of digital skills and the availability of training

According to the study results the majority of training provided to tourism professionals in Egypt, on average, related to digital skills (see Table 5). The increased skills gap on the one hand and the quick speed at which digitalization is changing on the other may be the causes of this emphasis on digital technology training. Hotels attain the highest level of training in

this domain (71%) and are followed in second place by tourism companies (64%), some of which plan to use virtual and augmented reality.

Table 5: Training provision percent in digital skills

Types of sectors	Yes	No
Five-star hotels	71	29
Tourism companies (category A)	64	36

A content analysis is utilized to categorize the respondents' comments in order to determine the challenges associated with skill training specific to Egypt's tourism and hospitality sectors. The fact that essential knowledge is already in place and that this kind of expertise is not required are two reasons why hotels do not offer training in digital skills. Furthermore, it is possible that this kind of instruction will be offered in the near future. Some employers in the tourism companies choose not to provide digital training for a number of reasons, such as the lack of priority placed on digital skills, staffing levels that make it difficult for employees' s to attend training, and the absence of locally available, pertinent training. Finally, responses highlighted a number of factors, including the fact that these skills are already in place, the fact that digital tasks are outsourced, the fact that training is not prioritized, and the absence of funding for training, as reasons why some tourism and hospitality sectors do not teach digital skills.

Developing the current and future level of skills sets through training: Multiple regression analysis

The skill sets and present and future levels of competence were among the numerous dependent variables included in the conceptual model created for this study. The independent factor is training. Two control variables were type of sector and job level. According to regression analysis, respondents' assessments of their current and future level of digital abilities would be greatly impacted by the availability of training (see Table 6).

Table 6: Multiple regression analysis

Model		Unstandardized Coefficients		t	Sig.	R^2	Dependent Variable
		B	Std. Error				
1	(Constant)	1.4	0.16	8.3	0	0.8	Training
	Type of sector	0.002	0.02	0.05	0.00		
	Job level	0.006	0.05	0.15	0.02		
2	(Constant)	2.6	0.18	15.5	0	0.06	Overall_ current _digital
	Training	0.23	0.14	1.6	0.01		
3	(Constant)	3.5	0.19	19.3	0	0.05	Overall_ future _ digital
	Training	0.30	0.12	1.6	0.02		

From the tested model, it can be inferred that training has a considerable impact on the level of digital skills that an individual possesses current and in the future based on factors such as type of sector and job level (see Figure 2). For testing the first hypothesis, the results of the independent variable "training" were displayed in table (6). The table displays significant regression coefficients with a significant degree (0.01) for the digital skills that are currently in use and a significant degree (0.02) for those that will be in use in the future at a significant level (0.05). Consequently, the study rejected the null hypothesis and accepted the alternative, which stated that there are positively effects of training in the current/ future digital skills for employees in Egyptian tourism and hospitality industry.

In terms the second hypothesis, the results showed in table (6) and Figure (2) displayed significant regression coefficients with a significant degree (0.00) for the type of sector and a significant degree (0.02) for job level at a significant level (0.05). This means that the study rejected the null hypothesis and accepted the alternative, which declared that there is a relationship between the contextual factors (type of sector, and job level), training delivery and the current/future level of digital skills proficiency in Egyptian tourism and hospitality industry.
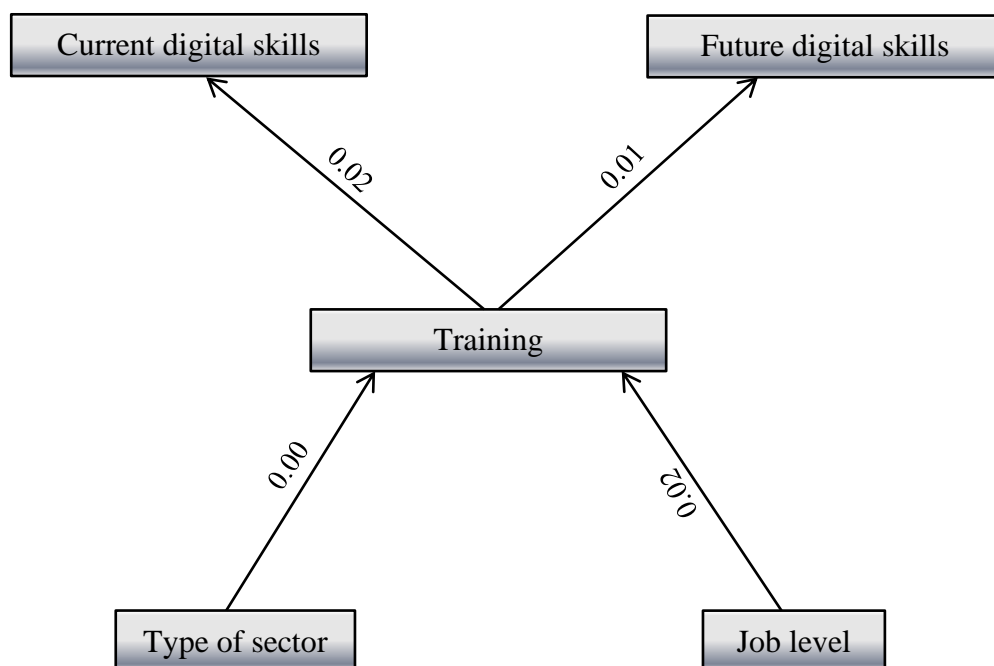

Figure 2: The conceptual tested model

Discussion

The research highlighted the important of skills assessment in tourism and hospitality industry during Covid-19 (Carlisle et al., 2021). The research seeks to assess the digital skills gaps and training needs across two contextual factors according to type of sector and job level. The results found that there is gap in digital skills between current and future in five-star hotels and tourism companies (category A). The results indicated that the respondents felt most comfortable employing their Microsoft Office and operating system skills at five-star

hotels, while AI, robotics, and VR skills were currently the least in demand. However, the most crucial skills that staff at five-star hotels would need to possess in the future were those related to social media, e-marketing, communication, operating systems, safety protocols, and Microsoft Office. Additionally, research demonstrated that the least amount of future-ready skills needed were those related to robots and AI, data analytics, computer programming, website improvement and development, and augmented and virtual realities.

The findings showed that respondents in the tourism companies (category A) were most confident in their ability to use Microsoft office and operating systems, while VR, robots, and AI skills required the least level of current skills. But the most crucial skills needed for employees in tourism companies going forward were proficiency with social media, e-marketing, and operating systems. Furthermore, the findings indicated that the least level of future skills needed was in robots and AI, data analytics, VR, and website improvement and development.

These findings were supported by the literature review, which also showed that the current study biggest digital skill gaps were in robots, AI, and VR. According to the literature review, employees in the hotel business who use automation technology must possess technical abilities in order to operate these devices (Ivanov, 2019). In addition, the researches in hospitality and tourism must comprehend and pinpoint the skills level required to assist staff in using IT applications (Autor et al., 2003). According to, Praničević et al. (2019) there is a requirement for all employees to have at least a basic understanding of operating systems and Microsoft office before starting work. Several studies have demonstrated that these abilities should be acquired prior to starting work.

The digital skills gap at five-star hotels was greatest for those with Robotics and AI skills (69%), followed by those with skills in utilizing digital hardware technologies, like VR (68%), and website improvement and development (36%). The two areas with the lowest digital skill gaps were computer programming (26%), and data monitoring and online review (25) skills. Additionally, proficiency in robotics and AI skills (88%), VR (79%), Website improvement and development (73%) and data analytics (69%) were the areas where tourism companies had the greatest digital skills shortage. Digital skills gap for social media (28%) and data monitoring and online review (29%) were the lowest. The ability to use AI skills, VR, along with the importance of mobile applications, is the most crucial factor for attracting guests in the tourism and hospitality industries. As a result, five-star hotels and tourism companies are attempting to incorporate these technologies into their offerings (Hertzman et al., 2015; Maaiah et al., 2019).

Conclusions, contribution, limitation and further research

This research comes as one that seeks to assess the current and future of technology skills in the hospitality sectors in Egypt in particularly five-star hotels and tourism companies (category A). The methodology of this study was based on a set of data collection methods such as secondary data and primary. The initial descriptive results of the study reported that there was a discrepancy between the rates of technology skills gaps. The model developed by this study is concentrating on the vital role of training to develop the current and future level of skills sets. Findings of multiple regression analysis show a significant effect of training on digital skills. However, this does not ignore the crucial role that employees play in the

tourism and hospitality industry as they project the image of their organization using their skills.

The results were supported the first and second hypotheses which refers that training has a direct positive effect on current and future of digital skills for employees in five-star hotels and tourism companies (category A). As well, there is a relationship between the contextual factors (type of sector, and job level), finally, training delivery and the current/future level of digital skills proficiency in five-star hotels and tourism companies (category A). This research contributes to knowledge by examining the digital skills gaps in tourism. The highest digital skills gap in five-star hotels and tourism companies (category A) were Robotics and AI skills; followed by skills related to applying digital hardware technologies, such as VR; and website improvement and development skills respectively. However, the lowest highest digital skills gaps were data monitoring and online review skills and skill for computer programming in five-star hotels. As well, the lowest highest digital skills gaps were data monitoring and online review skills and Skills for using different social media platforms in tourism companies.

This research has several limitations, which offer the opportunity for future research for other scholars. Firstly, the literature showed there had been clear lack of prior research studies to measuring the gaps in digital skills in tourism and hospitality industry in Egypt in particularly five-star hotels and tourism companies (category A). Secondly, this research focused on five-star hotels and tourism companies in Cairo. Generalizing these results in other hospitality sectors in Egypt it will be suitable for testing the research results. However, generalizability in another region might be erroneous as participants' perceptions are totally different. Finally, the further research should measure the effect of the gaps of digital skills on the employee performance and productivity in tourism and hospitality.

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