

# A Proposed Vision for Developing Professional Development Programs for Teachers in the Kingdom of Saudi Arabia in Light of the Requirements and Dimensions of Digital Citizenship

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## Abstract

The current study aims to identify the requirements and dimensions of digital citizenship that should be included in the professional development programs for teachers in the Kingdom of Saudi Arabia. The descriptive approach was used to identify and assess the availability level of these dimensions and requirements for digital citizenship in professional development programs for teachers. Eighty-three teachers were randomly selected to complete a questionnaire consisting of (6) domains. Five domains are related to the dimensions of citizenship and the obstacles to including digital citizenship requirements in professional development programs for teachers. The results showed that the sample believe that the professional development programs in which they participated contributed to their acquisition of knowledge and skills related to the dimension of availability and access at a medium rate. However, they believe that the professional development programs in which they participated contributed to the acquisition of knowledge and skills related to the dimension of communication and digital cooperation at a low rate. The results also indicated a weak contribution of professional development programs to the acquisition of knowledge and skills related to digital laws, rules, rights and responsibilities. Accordingly, the current study discussed recommendations for developing professional development programs for teachers in the Kingdom of Saudi Arabia.

## Introduction

The change in the role of the teacher in light of the requirements of the Kingdom's Vision 2030, technical and knowledge developments and digital transformations in all aspects of life has become an urgent necessity. The role of the teacher is no longer limited to the teaching process and the classroom and the transfer of knowledge to learners only. Rather, he is required to participate learners in building learning communities based on sharing information and exchanging ideas, using different applications of interaction, sharing and communication. In addition, he should be able to choose the appropriate learning source from among the various sources, access to information, use the sources of obtaining it efficiently, and

store and reuse it. Therefore, these transformations impose the need to prepare the teacher digitally to qualify him to deal with digital societies in general, and the digital learning community in particular, and improve his ability to gain the necessary flexibility to adapt to informational and technical developments.

The ultimate goal of societies is to prepare a developed society that possesses the technical skills necessary to manage and implement the activities of its daily life. In light of binding rules and standards to ensure the optimal employment of these technical skills, digital citizenship came to play this role. The educational system, on the top of which is the teacher, is one of the main pillars in achieving the dimensions of digital

citizenship. Therefore, professionals who design, build and implement professional development programs for teachers should take into consideration all that would positively enhance the dimensions of digital citizenship.

The Kingdom of Saudi Arabia has made great efforts to spread digital citizenship through various media and communication. Also, it was spread through programs and workshops that deal with raising citizens' awareness of the importance of digital citizenship in the current era, dealing with it carefully and noting the negative aspects that may occur as a result of poor awareness of it and the mechanisms for dealing with digital citizenship (Al-Ghamdi, 2021). This notion was confirmed by Al-Saadi and Al-Dhahawi (2017) in the need to enhance the dimensions of digital citizenship, and that it is the responsibility of every individual in society. It can be via using all possible methods and available means of communication and focusing on the rights and duties of every citizen towards his nation.

Al-Sayed (2016) indicated that digital citizenship has become a necessity and a global trend that has imposed itself on teaching and learning systems and the requirements for dealing with educational activities. This was a result of several reasons that include the transformation of learning and teaching systems and environments into digital learning environments, the spread and expansion of teachers and learners' use of digital applications, web applications and various means of communication and interaction. Also, other reasons include the diversity of sources of information acquisition, accessibility and availability and the emergence of some accompanying concepts such as acceptance of technology and cyber-bullying. This imposed several necessities to deal with these challenges, including raising awareness of digital citizenship and seeking to acquire its skills among community members through means of communication, workshops, awareness programs and professional development.

Several studies have also confirmed that digital citizenship is one of the most important skills that must be acquired and trained for teachers and included in the professional development programs offered to them. It has become an urgent

necessity imposed by developments and changes in the current era. These developments resulted in fundamental changes in all life activities, especially teaching and learning activities and the nature of teaching and learning environments (Hollandsworth et al., 2011; Ashmeade, 2016; Snyder, 2016; Raman & Thannmalai, 2019; Chong & Pao, 2021).

Ashmeade (2016) confirmed that there is a positive relationship between including the dimensions of digital citizenship in teacher preparation and professional development programs. Also, there was a positive relationship between his attitude and perceptions towards its practices and application in teaching and learning processes. At the same time, he recommended the need to continue developing and building professional development programs that enhance digital citizenship skills. Snyder (2016) also stressed that students' weak skills in using digital citizenship entail many negative aspects of using digital applications and communications. This necessarily imposes a need for teachers on how to deal with digital citizenship skills so that they can pass them on to their students. In addition, Suppo (2013) indicated that there is a strong relationship between the availability of digital citizenship skills among school leaders and teachers and the level of learners' practice of them in those schools.

Several studies have recommended the need to design training and professional development programs that qualify teachers to acquire digital citizenship skills. Al-Shammari (2016), Fatani and Al-Montashiri (2018), Al Hosari (2016), Al-Suhaim and Al-Brahim (2019), and Al-Shehri (2021) recommended the need to analyze the content of the existing professional development programs to identify the strengths and weaknesses of those programs. Given that the education community in general and the teacher, in particular, are among the primary sources for spreading awareness of the skills and values of digital citizenship.

### **Statement and questions of the study**

Possessing digital citizenship skills is a necessity to face digital and technical transformations in societies, especially the learning community,

which has come to be called the digital learning community. Also, possessing digital citizenship skills has become an indicator to measure the extent to which professional development programs have achieved their goals and enabled their graduates to keep pace with technical and informational changes and developments. Despite what many studies have recommended concerning the need to design professional development programs that qualify teachers to deal with the requirements of digital citizenship. The studies recommended the necessity of assessing the reality of professional development programs in light of recent trends and developments and the requirements of dealing with technological, digital and informational developments and changes (Kelly et al., 2019; Xu et al., 2019; Falloon, 2020; Fernandez-Batanero et al., 2020; Ramirez-Montoya et al., 2021). Al-Shammari (2019), Abduessalam (2019), and Al-Zahrani (2019) emphasized the importance of developing and assessing professional development programs for teachers. This is to ensure that they are provided with the competencies and skills necessary to deal with cognitive and technological changes and developments.

Since the teacher is the mainstay in enhancing the requirements and skills of digital citizenship, it is important to reconsider the programs for his preparation and professional development to qualify him to acquire digital citizenship skills, and use them in teaching and learning processes. Through teaching by teachers within programs for optimal investment of human cadres and in the context of some unstructured interviews with these teachers, it became clear that they lacked awareness of digital citizenship skills and its dimensions. Although they have received several professional development programs, they indicated that those programs in which they participated were not sufficient enough to provide them with digital citizenship skills.

Therefore, the study statement can be formulated in the following research question: What are the requirements and dimensions of digital citizenship that must be included in professional development programs for teachers in the Kingdom of Saudi Arabia? The sub-questions are:

-What is the availability level of the dimensions and requirements of digital citizenship in professional development programs for teachers in the Kingdom of Saudi Arabia?

- What are the obstacles to including the dimensions and requirements of digital citizenship in professional development programs for teachers in the Kingdom of Saudi Arabia?

- What is the proposed vision of professional development programs for teachers in the Kingdom of Saudi Arabia in light of the requirements of digital citizenship?

### **Objectives of the study**

The study aims to

-identify the availability level of the dimensions and requirements of digital citizenship in professional development programs for teachers in the Kingdom of Saudi Arabia.

-reveal the obstacles to including the dimensions and requirements of digital citizenship in professional development programs for teachers in the Kingdom of Saudi Arabia.

-present a proposed vision for professional development programs for teachers in the Kingdom of Saudi Arabia in light of the requirements of digital citizenship.

### **Significance of the study**

The current study is of significance in increasing awareness of digital citizenship by emphasizing the importance of its skills and dimensions that the teacher must be familiar with. The results of the study may be useful in assisting those responsible for developing professional development programs for teachers by highlighting the values, dimensions and skills of digital citizenship that must be included. The results may also be useful in enabling teachers to acquire digital citizenship skills to be reflected in the strengthening of its values and skills among students. In addition, the list of digital citizenship skills will be beneficial whether when developing programs and workshops to develop them, or when providing

them to students. Finally, the study is important in spreading awareness of digital citizenship, its dimensions and importance among the components of the educational system.

### Key terms of the study

**Digital citizenship:** Al-Dahshan (2015) defines digital citizenship as a set of rules, controls and ideas that an individual follows to optimally employ technology and its applications, which the individual needs to contribute to the advancement of his society, make use of its benefits and protect himself from its dangers. Researchers define it procedurally as a set of knowledge, skills and values that enable the teacher to participate in digital learning communities to ensure optimal use, protection and encouragement of desired behaviors to achieve the planned educational goals efficiently and smoothly.

**Professional development:** It is every organized and planned program that enables the teacher to grow professionally to practice performances related to the teaching profession, which includes a set of experiences that involve values, knowledge and skills that contribute to improving his cognitive, performance and value competencies.

**Proposed vision:** It is a program that includes a set of experiences and components that are based on the dimensions, values and skills of digital citizenship and can be presented to the teacher to develop him professionally to deal with the requirements of digital citizenship.

### Method

According to the nature of the current research, its objectives and questions, the researchers used the descriptive analytical approach to describe and assess the availability level of the dimensions and requirements of digital citizenship in professional development programs for teachers in the Kingdom of Saudi Arabia.

### Population and sample of the study

The population of the study consisted of all male and female teachers in Najran. A random sample of (83) teachers was selected during the second semester of 2022.

### Instrument of the study

The instrument of the study was prepared by reviewing some relevant previous literature (Al Ibrahim, 2021; Al-Harbi, 2021, Al-Ghamdi, 2021; Choi, 2015; Kim & Choi, 2018; Ata & Yildirim, 2019). The questionnaire, in its initial version, consisted of (6) domains. Five domains are related to the dimensions of digital citizenship under study: digital availability, digital communication and cooperation, digital literacy, digital rights and responsibilities, digital security). The sixth domain relates to the obstacles to integrating the requirements of digital citizenship in the professional development programs for teachers.

To verify the validity of the questionnaire, it was presented in its initial version to a group of (5) experts in the disciplines of measurement and assessment, teaching and e-learning techniques. Also, (7) teachers reviewed the questionnaire. The necessary amendments were made in light of their opinions. To calculate the reliability of the questionnaire, the Cronbach's Alpha coefficient was calculated as shown in Table 1:

Table 1. Values of Cronbach's Alpha coefficients for the domains of the questionnaire

No.	Domain	Items	Cronbach's Alpha coefficient
1	The first domain: digital availability (Accessibility)		0.73
2	The second domain: digital communication and cooperation		0.76
3	The third domain: digital literacy		0.81
4	The fourth domain: digital rights and responsibilities		0.79
5	The fifth domain: digital security		0.83
6	The sixth domain: obstacles to integrating the requirements of digital citizenship in the professional development programs for teachers		0.69
-	Total		0.78

Table 2 shows that the values of the reliability coefficients for the questionnaire domains were acceptable. The value of the reliability coefficient for the questionnaire as a whole amounted to (0.78), which is an acceptable value to indicate the reliability of the questionnaire.

### Data Analysis

SPSS V25 software was used to calculate frequencies, percentages, means and standard deviations. According to a three-point Likert scale, the length of the degree (level range) was calculated with a value of (0.66) as interpreted in Table 2.

Table 2. Distribution of the availability level of the dimensions and requirements of digital citizenship in professional development programs for teachers according to a three-point Likert scale

Means	Level of integrating professional development programs for the dimensions of digital citizenship	The impact level of the of obstacles in the sixth domain
1.00-1.66	Low	High
1.67-2:32	Medium	Medium
2.33-3.00	High	Low

### Results

The results are interpreted in the research questions:

**Results of the first research question:** What is the availability level of the dimensions and requirements of digital citizenship in professional development programs for teachers in the Kingdom of Saudi Arabia?

To answer this question, the questionnaire was applied, and the data related to the first five domains were statistically processed using SPSS

v25. Then, frequencies, percentages, means and standard deviations were calculated as shown in Table 3,4,5,6, and 7.

Table 3. The results of descriptive statistics for the availability level of indicators on the dimension of digital availability and accessibility in professional development programs for teachers from the teachers' point of view

No.	Indicators	Degree of requirement availability						M	SD	Availability level
		High		Medium		Low				
		Freq.	%	Freq.	%	Freq.	%			
The first domain: digital availability and accessibility/ Professional development programs have provided me with the necessary knowledge and skills to:										
1	Access digital sources of information widely.	6	%7.2	47	%56.6	30	%36.1	1.71	0.59	Medium
2	Employ digital technologies and applications in my field.	6	%7.2	44	%53.0	33	%39.8	1.67	0.60	Medium
3	Provide the necessary technical support for students to use digital applications.	8	%9.6	44	%53.0	31	%37.3	1.72	0.63	Medium
4	Use educational platforms and remote meeting applications.	11	%13.3	42	%50.6	30	%36.1	1.77	0.66	Medium
5	Implement the processes for managing and using electronic content.	7	%8.4	46	%55.4	30	%36.1	1.72	0.611	Medium
6	Educate students about the importance of digital technologies and their	3	%3.6	36	%43.4	44	%53.0	1.50	0.57	Low

	educational benefits.									
7	Use search engines and databases for information and digital resources.	5	%6.0	34	%41	44	%53	1.53	0.611	Low

Table 3 shows that the means of digital accessibility or availability in professional development programs was (1.66). This value indicates a relatively medium weight. In order words, the respondents believe that the professional development programs in which they participated contributed to providing them with knowledge and skills related to the dimension of availability and accessibility at a moderate rate. However, the medium degree is noted as the minimum degree in the level. The response of the sample to the indicators of this dimension came in (7) items. Five indicators scored mean values ranged between (1.77-1.67). These values indicate that professional development programs have contributed to empowering participating teachers with the knowledge and skills associated with these indicators in the dimension of digital availability and accessibility at a moderate level. Two indicators (use search engines and databases for information and digital resources, and educate

students about the importance of digital technologies and their educational benefits) had means values of (1.53, 1.50) in order. These values indicate a weak contribution of professional development programs to the acquisition of knowledge and skills related to the two indicators. It is also noted that the standard deviation values for all items were small, ranging between (0.75-0.66). This indicates the homogeneity of the sample’s opinions in response to the indicators of this dimension. These results can be attributed to some education departments rushing to make efforts, in light of the Corona pandemic, especially in providing short-term training programs that are aimed at introducing educational platforms and how to use their resources. As a result, the teachers perceived that the programs they participated in have acquired some skills that help them in digital learning. This result is consistent with that result by Al-Shehri (2021).

Table 4. The results of descriptive statistics for the availability level of indicators on the dimension of digital communication and cooperation in professional development programs

No.	Indicators	Degree of requirement availability						M	SD	Availability level
		High		Medium		Low				
		Freq.	%	Freq.	%	Freq.	%			

Digital communication and Cooperation/ Professional development programs have provided me with the necessary knowledge and skills to:

8	Expand the scope of interaction and communication with my colleagues and students locally and internationally.	4	%4.8	33	%39.8	46	%55.4	1.49	0.59	Low
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9	Exchange experiences and information sources electronically, synchronously or asynchronously.	4	%4.8	34	%41	45	%54.2	1.50	0.59	Low
10	Educate students to make sound decisions regarding the selection of digital information sources.	5	%6	39	%47	39	%47	1.59	0.60	Low
11	Employ various means of communication to exchange knowledge and information.	5	%6	46	%55.4	32	%38.6	1.67	0.58	Medium
12	Communicate with my colleagues and students using digital communication tools and applications.	5	%6	56	%67.5	22	%26.5	1.79	0.53	Medium

The results in Table 4 show that the availability means of digital communication and cooperation dimension in professional development programs was (1.61), a value that indicates a relatively low weight. That is to say, the sample members believe that the professional development programs in which they participated contributed to their acquisition of knowledge and skills concerning communication and digital cooperation came at a low rate. The sample of the study responded to the indicators of this dimension came in (5) items.

The indicators of the contribution of professional development programs to teachers' acquisition of knowledge and skills related to (communicate with my colleagues and students using digital communication means and applications and employ different means of communication in exchanging knowledge and information) had mean values of (1.79, 1.67) respectively. These values indicate that professional development programs have contributed to empowering

participating teachers with the knowledge and skills associated with the two indicators moderately. The other three indicators of this dimension scored mean values of (1.59, 1.50, 1.49). These values indicate the low contribution of professional development programs to the acquisition of knowledge and skills related to those indicators. It is also noted that the standard deviation values for all items were small. They ranged between (0.60 - 0.53). This is an indication of the homogeneity of the opinions of the sample members in responding to the indicators of this dimension. This result can be attributed to the absence of accurate identification of training needs, especially digital cooperation and communication. This resulted in weak knowledge of those skills among teachers. As a result, current professional development programs do not focus on these skills. This result is in line with what was indicated by Sari and Al-Harbi (2021) and Al-Shehri (2021).



Table 5. The results of descriptive statistics for the availability level of indicators on the dimension of digital literacy in professional development programs from the point of view of teachers

No.	Indicators	Degree of requirement availability						M	SD	Availability level
		High		Medium		Low				
		Freq.	%	Freq.	Freq.	%	Freq.			
The third domain: digital literacy/ Professional development programs have provided me with the necessary knowledge and skills to:										
13	Use digital technologies and applications in my professional and daily life activities	3	%3.6	56	%67.5	24	%28.9	1.74	0.51	Medium
14	Provide students with the knowledge and skills necessary to use digital technologies and applications in their daily activities.	5	%6	50	%60.2	28	%33.7	1.72	0.569	Medium
15	Train students on how to employ digital technologies and applications to achieve their goals and serve their communities	2	%2.4	33	%39.8	48	%57.8	1.44	0.54	Low
16	Know modern methods of digital learning and awareness.	4	%4.8	31	%37.3	48	%57.8	1.46	0.591	Low
17	Participate in digital and interactive training communities, whether as a	4	%4.8	39	%47	40	%48.2	1.56	0.588	Low

	coach or a trainee.									
18	Educate others about the importance of having the knowledge and skills to use technology and digital applications.	2	%2.4	38	%45.8	43	%51.8	1.50	0.548	Low

Table 5 shows that the availability means of digital literacy in professional development programs was (1.57), a relatively low value. That is to say, the sample members believe that the professional development programs in which they participated contributed to the acquisition of knowledge and skills related to the dimension of digital literacy at a low rate. The sample’s responses to the indicators of this dimension came in (6) items, (2) of which had values of (1.74, 1.72). These values indicate that professional development programs have contributed to empowering participating teachers with the knowledge and skills related to the two indicators (use digital technologies and applications in my professional and daily life activities, and provide students with the knowledge and skills necessary to use digital technologies and applications in their daily

activities) were moderately perceived. The rest of the four indicators had mean values of (1.56, 1.50, 1.46, 1.44). These values indicate the weak contribution of professional development programs to the acquisition of knowledge and skills related to those indicators. It is also noted that the standard deviation values for all items were small, ranging between (0.59 - 0.51). This indicates that the sample’s opinions on the indicators of this domain were homogenous. This result can be attributed to the absence of accurate identification of training needs, especially concerning digital culture. This resulted in a lack of knowledge of those skills among teachers. As a result, current professional development programs do not focus on these skills. This result accords with what was indicated by the studies of Hasaneen (2021) and Al-Shehri (2021).

Table 6. The results of descriptive statistics for the availability level of indicators on the dimension of digital rights and responsibilities in professional development programs from the point of view of teachers

No.	Indicators	Degree of requirement availability						M	SD	Availability level
		High		Medium		Low				
		Freq.	%	Freq.	Freq.	%	Freq.			

The fourth Domain: digital rights and responsibilities/ Professional development programs have provided me with the necessary knowledge and skills to:

19	Apply the principles of privacy, confidentiality and expression of	2	%2.4	41	%49.4	40	%48.2	1.54	0.547	Low
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	opinion in digital societies.									
20	Practice bearing responsibilities towards the use of digital technologies and applications.	2	%2.4	40	%48.2	41	%49.4	1.53	0.548	Low
21	Be familiar with the types of electronic crimes and methods of dealing with them, avoiding their dangers, and educating others about them.	1	%1.2	44	%53.0	38	%45.8	1.55	0.523	Low
22	Respect intellectual property rights when using digital resources, tools, applications and content.	2	%2.4	55	%66.3	26	%31.3	1.71	0.50	Medium

Table 6 shows that the availability means of digital rights and responsibilities in professional development programs was (1.58), a relatively low value. That is to say, the sample members believe that the professional development programs in which they participated contributed to the acquisition of knowledge and skills related to the dimension of digital rights and responsibilities at a low rate. The sample's responses to the indicators of this dimension came in (4) items. The indicator of the contribution of professional development programs to the acquisition of knowledge and skills related to (Respect for intellectual property rights when using digital resources, tools, applications, and content.) had a means of (1.71). This value indicates that professional development programs have contributed to empowering participating teachers with the knowledge and skills related to this

indicator at a medium level. The other three indicators of this dimension scored mean values of (1.55, 1.54, 1.53). These values indicate the weak contribution of professional development programs in acquiring knowledge and skills related to those indicators. It is also noted that the standard deviation values for all items were small, ranging between (0.54 - 0.50). This indicates that the sample's opinions on the indicators of this domain were homogenous. This result can be attributed to the absence of accurate identification of training needs, especially regarding digital laws, rules, rights and responsibilities, which resulted in teachers' poor knowledge of these skills. This is because current professional development programs do not focus on these skills. This result agrees with what was indicated by Sari and Al-Harbi (2021) and Al-Tuwairqi (2021).

Table 7. The results of descriptive statistics for the availability level of indicators on the dimension of digital security in professional development programs from the point of view of teachers

No.	Indicators	Degree of requirement availability						M	SD	Availability level
		High		Medium		Low				
		Freq.	%	Freq.	Freq.	%	Freq.			
The fifth domain: digital security/ Professional development programs have provided me with the necessary knowledge and skills to:										
23	Use protection programs from intrusion, viruses and electronic piracy.	6	%7.2	47	%56.6	30	%36.1	1.71	0.595	Medium
24	Be familiar with data backup policies and the use of its applications.	6	%7.2	48	%57.8	29	%34.9	1.72	0.590	Medium
25	Educate others about the culture of digital security and cybercrime and the penalties resulting from them.	5	%6	38	%45.8	40	%48.2	1.57	0.607	Low
26	Use information integrity checkers, apps, browsers, and websites.	7	%4.8	45	%54.2	31	%37.3	1.71	0.615	Medium
27	Educate students about the dangers of cyberbullying and its negative effects and consequences.	2	%2.4	47	%56.6	34	%41	1.61	0.537	Low
28	Manage and create passwords and personal protection.	0	%0	44	%53	39	%47	1.53	0.502	Low

Table 6 shows that the availability means of digital rights and responsibilities in professional development programs was (1.64), a relatively low value. That is to say, the sample members believe that the professional development programs in which they participated contributed to the acquisition of knowledge and skills related to the dimension of digital security at a low rate. The sample's responses to the indicators of this dimension came in (6) items. Three of these indicators obtained mean values of (1.61, 1.57, 1.53). These values indicate the weak contribution of professional development programs to the acquisition of knowledge and skills related to these indicators. It is also noted that the standard deviation values for all items were small. They ranged between (0.615- 0.502). This is because the opinions of the sample members in responding to the indicators of this dimension were homogenous. This result may be attributed to the

absence of accurate identification of training needs, especially concerning digital security, which resulted in teachers' poor knowledge of these skills because current professional development programs do not focus on these skills. This result agrees with that of Sari and Al-Harbi (2021) and Al-Tuwairqi (2021).

**Results of the second research question:** What are the obstacles to including the dimensions and requirements of digital citizenship in professional development programs for teachers in the Kingdom of Saudi Arabia?

To answer this question, the data related to the sixth domain were statistically processed using SPSS v25. Frequencies, percentages, means and standard deviations were calculated as shown in Table 8.

Table 8. The results of calculating descriptive statistics for the sample responses to the obstacles to integrating digital citizenship requirements in teacher professional development programs

No.	Indicators	Relative weight of obstacle						M	SD	Impact of obstacle
		High (1)		Medium (2)		Low (3)				
		Freq.	%	Freq.	%	Freq.	%			
The sixth domain: obstacles to integrating digital citizenship requirements in teacher professional development programs.										
From your point of view, how do you perceive the impact of each of the following obstacles on the inadequacy of the professional development programs you participated in to achieve the requirements of digital citizenship?										
29	Weak planning of professional development programs dedicated to raising awareness of the values and dimensions of digital citizenship	41	%49.4	39	%47	3	%3.6	1.54	0.569	High
30	Weak competencies of qualified trainers to plan and implement professional development programs that target skills of digital citizenship	33	%39.8	44	%53	6	%7.2	1.67	0.607	Medium
31	Weak material and moral incentives to	55	%66.3	24	%28.9	4	%4.8	1.38	0.580	High

	participate in professional development programs that target digital citizenship.									
32	Lack of awareness of the importance of digital citizenship values and skills	43	%51.8	36	%43.4	4	%4.8	1.53	0.591	High
33	Weak infrastructure and interactive training techniques that enhance the employment of digital applications	33	%39.8	48	%57.8	2	%2.4	1.55	0.546	High
34	Focus on the theoretical aspects rather than the practical aspects	40	%48.2	40	%48.2	3	%3.6	1.55	0.568	High
35	Weak interest, participation, and communication during the implementation of professional development programs	40	%48.2	40	%48.2	3	%3.6	1.55	0.568	High
36	Deficiency of training methods and techniques used in the implementation of professional development programs	38	%45.8	42	%50.6	3	%3.6	1.57	0.565	High
37	Weak follow-up and impact measurement of professional development programs	35	%42.2	48	%57.8	0	%0	1.57	0.496	High
38	Lack of a clear identification of training needs to keep pace with information and technical developments	30	%36.1	49	%59	4	%4.8	1.69	0.561	High

According to Table 8, the domain of obstacles that limit the role of professional development programs in enhancing the dimensions and requirements of digital citizenship has (10) obstacles. Eight of them came with a high impact. They obtained means values less than (1.66). These values indicate the high rate of approval of this obstacle and its impact on the weak efficiency of professional development programs in enhancing the dimensions and requirements of digital citizenship. On the other hand, only two obstacles had a medium effect, namely (the lack of a clear identification of training needs in line with information and technical developments, and the weak competencies of qualified trainers for planning and implementing professional development programs that target digital citizenship skills). They scored values of (1.69, 1.67), respectively. It is also noted that the standard deviation values for all items were small. They ranged between (0.60 - 0.49). This is an indication of the agreement of the sample concerning the availability of these obstacles and the level of their impact on limiting teachers' acquisition of knowledge and skills related to the dimensions and requirements of digital citizenship. These results can be attributed to the fact that the current professional development programs did not address these factors, and then neglected and underestimated alternatives and solutions to overcome them. This resulted in the high level of the impact of these obstacles in limiting the contribution of current professional development programs to achieving the dimensions and requirements of digital citizenship. These results are in agreement with the findings of Al-Ibraheem (2021), Al-Harbi (2021), Al-Ghamdi (2021), and Qandeel (2021).

**Results of the third research question:** What is the proposed vision of professional development programs for teachers in the Kingdom of Saudi Arabia in light of the requirements of digital citizenship?

To answer this research question, the main steps were followed:

A. The proposed vision and premises:

The philosophy of the proposed vision is based on the need to develop professional development programs for teachers in the Kingdom of Saudi Arabia to keep pace with the requirements of digital citizenship and to effectively employ its indicators in the management and implementation of digital education and learning communities. This does not mean the disqualification of existing professional development programs. Rather, they should be modernized and re-planned to ensure that they keep pace with digital transformations and knowledge and technological revolutions. The proposed vision is based on a set of premises as follows:

- Professional development programs are the strategic choice for teacher rehabilitation. Teachers will keep abreast of digital developments and transformations, and employ digital technologies and applications in the activities of daily life in general and in private digital learning communities.

- Digital citizenship is a basic requirement for all segments of society, especially those in charge of education and learning systems. It enables them to possess the skills of the future and to deal with the challenges resulting from developments in various fields.

- The relationship between professional development programs and digital citizenship is reciprocal. As each achieves the goals of the other. If professional development programs are well planned and implemented, the goals of digital citizenship will be achieved. Likewise, if the teacher and learner master the skills of digital citizenship, this will contribute effectively to the success of professional development programs.

B. Derivation of the elements of the proposed vision as the following sources were based:

- Reviewing some sources (Al-Shehri, 2021; Qandeel, 2021; Hasaneen, 2021; Sari & Al-Harbi, 2021; Al-Tuwairqi, 2021; Al-Ghamdi, 2021) to derive the elements of the proposed vision. The elements of the proposed vision were identified in: the objectives of professional development programs to achieve the dimensions and requirements of digital citizenship, the training content of the dimensions and skills of digital citizenship, training methods and techniques,

assessment methods and measuring the impact of professional development programs and their contribution to achieving the requirements of digital citizenship.

- The results of analyzing the responses of the research sample at the level of integrating the current professional development programs for each of the dimensions of digital citizenship and the associated indicators.

- The results of analyzing the responses of the research sample concerning the obstacles that limit the availability of the dimensions of digital citizenship and its indicators.

C. Formulating the objectives of the proposed vision (the objectives of professional development programs in light of the dimensions and indicators of digital citizenship).

- To recognize the concept of digital citizenship, digital learning, its importance, requirements, dimensions, and the role of the family, school, and society in promoting it.

- To recognize the concept of digital learning, digital learning communities, digital education,

digital identity, and the factors for enhancing it, digital skills and competencies.

- To employ the skills of the dimensions of digital citizenship and the associated indicators.

- To master the skills of designing, producing, publishing, and using digital content and digital information sources.

- To master the skills of managing and using digital learning platforms.

- To apply the code of conduct and the ethics of digital citizenship.

- To apply ways to detect digital crimes and electronic piracy and avoid their negative effects.

D. Determining the elements of the training content of professional development programs in light of the requirements and indicators of the dimensions of digital citizenship.

In light of the proposed planning for the objectives of professional development programs to achieve the requirements of digital citizenship, the domains of training content and sub-themes for each of them were identified:

Table 9. Domains of training content and their sub-themes for teacher professional development programs in light of the requirements of digital citizenship

Domains	Sub-themes
Digital citizenship	-Concepts related to digital citizenship.
	-Dimensions of digital citizenship.
	-The role of the family, school and society in promoting digital citizenship.
	-Digital citizenship skills, stages and models for training and development.
Digital learning concepts	-The concept of digital learning, digital learning communities and digital education.
	-The digital identity, its concept, and its enhancement factors.
	-Digital skills and competencies
	-Digital access or availability.
	-Digital communication and sharing



Dimensions of digital citizenship	-Culture/digital Literacy.
	-Health and digital security
	-Rights and responsibilities in digital societies.
	-Code of conduct and digital fitness.
Digital content	-Digital content concepts.
	-Digital content industry.
	-Programs and applications for designing, producing and publishing digital content.
	-Digital information sources.
Digital learning and teaching platforms	-Open Source Digital Resources (MOOCs).
	-Educational platforms, concept and practical practices.
	-Skills of using digital platforms.
	-Code of conduct in dealing with digital platforms.
Digital code of conduct and ethics for digital citizenship	-Tools and methods of assessment and evaluation in digital platforms.
	- Digital rules of conduct in dealing with others, sources of information, digital content and data, devices, applications and software.
	-Cybercrime and prevention methods.
	-Electronic bullying and ways to deal with it.

E. Determining the training methods and techniques used in professional development programs in light of the requirements and indicators of the dimensions of digital citizenship.

Modern interactive training environments depend on diversifying the use of training techniques and tools, and not being limited to one style alone. Among the interactive training techniques that can be used in this visualization are the following:

- Synchronous interactive training
- Asynchronous training
- Discussions and applications of participatory training
- Practical training and application

-Presentations and simulations

-Video conferencing, teleconferencing and video telephony

F. Determining the assessment and measurement methods of the impact of professional development programs in light of the requirements and indicators of the dimensions of digital citizenship.

Assessment is a key indicator of the success of professional development programs in achieving their objectives. Among the requirements for successful assessment are the diversification of assessment tools and methods, the use of appropriate tools and methods for the objectives and content of professional development programs, the use of follow-up mechanisms and

measuring the training impact to aim at good planning in the future for these programs.

The following are some assessment methods and tools that can be chosen and combined:

- E-portfolio
- Practical projects
- Polls
- Performance measures
- All kinds of electronic exams
- Focus groups
- Direct observation and simulation

### Conclusion and Recommendations

The results that have been reached in the current study confirmed the low level of availability of the dimensions and requirements of digital citizenship in the professional development programs currently offered to teachers. Also, some obstacles limit the ability of professional development programs to achieve the requirements of digital citizenship and the indicators and associated practices. In light of these results, the following can be recommended:

- Benefiting from the proposed vision in the current research to implement a matrix of training programs and workshops to develop teachers' digital citizenship skills.
- Integrating the dimensions and skills of digital citizenship within teacher preparation programs in faculties of education and teacher preparation institutions.
- Reconsidering the standards of the professional license to practice the profession of education so that the dimensions and skills of digital citizenship become a major field that must be passed when granting licenses to practice the profession for teachers.
- Working on designing a platform for interactive remote training to benefit in implementing professional development programs concerned with digital citizenship.

- Integrating the dimensions of digital citizenship and the associated indicators in the curricula of different educational stages.

- Planning to integrate a course on digital citizenship as a university requirement in the university education stage.

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