# Sustaining Education by Actualizing Affordances of Social Media Platforms During the Pandemic

Naser G. H. Ali[1], Rabab D. Alsaffar[1], Yousif H. Alenzi[1] & Faisal M. Almutairi[1]

[1] College of Basic Education, PAAET, Kuwait

Correspondence: Faisal M. Almutairi, College of Basic Education, PAAET, Kuwait.

## Abstract

This paper draws on the affordances theory and investigates the ways in which pre-service teachers are sustaining social media uptake in learning by taking advantage of the opportunities afforded by the new delivery methods during the pandemic. This research is part of a descriptive mixed methods study. A questionnaire and in-depth, qualitative interviews were used to explore pre-service teachers' perceptions of the affordances of social media platforms for learning and the actualization of those affordances. The survey and interview data were analyzed through the theoretical lens of affordance theory. The results suggest that the pre-service teachers actualized the affordances of social media by their knowledgeable use in a dynamic learning environment. The key findings are that the teachers perceived the social media applications to be flexible, useful and practical (functional affordances), bridges formal and informal learning and supported self-regulated learning (cognitive affordances), allowed pre-service teachers to assume new identities and discover learning as independent learners who had control over their learning (identity creation affordances), and fostered interaction and collaborative feedback (social affordances). Lack of guidance or lack of teacher presence was the main constraint. This research produces new knowledge and analysis and makes new theoretical contributions on the specific affordances of social media technologies. This study adds to and extends existing literature by contributing to an understanding of the actualization of the affordances of social media platforms.

**Keywords:** social media platforms, pre-service teachers, affordances, actualization

## 1. Introduction

### 1.1 Background

Education is critical for long-term development, and to effectively meet students' learning styles, educators must adapt to quickly changing technology, and be open to technology-rich teaching and learning environments (Hartman, Townsend, & Jackson, 2019). This is because new and emerging technologies are changing not only how we teach and learn, but also our attitudes, perceptions, and goals (Burbules, Fan, & Repp, 2020). Discussion and debate are also going on about how higher educational institutions around the world must change how they deliver course content to students (Bouilheres et al., 2020; Van Den Beemt, Thurlings, & Willems, 2020). In order to put an end to unsustainable thinking and practice, we will need to transform the current educational system. This necessitates a new perspective on emerging technologies in education: not simply as tools or delivery systems, but as a set of resources and affordances that allow us to rethink our educational goals and pedagogical approaches. Failure to take advantage of this opportunity for rethinking limits the potentially transformational potential of these technologies (Burbules et al., 2020). The change is also required to face disruptions caused by pandemics and in times of crisis an educational institution has to renew itself, albeit in a disruptive way. The pandemic has triggered a rapid pedagogical shift from traditional to remote or distance learning and virtual instruction (Mishra et al., 2020). Although the transformation was hasty and compelled by the situation, institutions began using technologies and social media platforms, for instance WhatsApp, Telegram and Microsoft Teams, video-conferencing tools such as Zoom, Skype, and Google Hangouts, and educational apps (Google Classroom) to support teaching and learning and to maintain individualized contact with students. This study focuses on social media platforms that not only support formal and informal learning but also support self-regulated learning and is well suited for blended learning (Greenhow et al., 2020; Dabbagh & Kitsantas, 2012).

The latest focus of learning and teaching in government run teacher training colleges in Kuwait has been the

varied benefits of new and emerging educational technologies and their potential delivery methods as well as the extension of the formal classroom which include the affordances of blended learning, the flipped classroom, and the real-time Microsoft Teams platform to name just a few (Alayyar & Fisser, 2019; Almodaires, Almutairi, & Almsaud, 2021; Almutairi, Almodaires, & Zeyab, 2020). This suggests that decisions are being made to sustain learning opportunities.

*1.2 Research Problem and Rationale for the Study*

Given the rising number of educational institutions moving to blended learning that integrates face-to-face instruction and distance learning there is the need for research on the affordances of social media platforms for teaching and learning. Although there is a wealth of research on the effectiveness or usefulness of social media platforms such as Facebook, WhatsApp, and Microsoft Teams, less is known about pre-service teachers' perceptions of the actualization of the affordances of social media platforms. Research has strongly supported the argument that social media bridges formal and informal learning, fosters peer learning and collaboration. Although this study supports these claims, much of the literature focuses on Western settings and those findings may not be as relevant to Kuwait where new pedagogical approaches have still not gained ground.

Since pre-service teachers are expected to be future teachers, the underlying assumption is that they are likely to have different perception of the affordances of social media platforms for teaching and learning compared to students from other undergraduate programs. It is also assumed that pre-service teachers have different motives and goals than other students for using social media platforms. It is based on this assumption that the affordances of social media platforms are assessed at the College of Basic Education, Public Authority for Applied Education and Training, Kuwait. Overall, this study not only explores pre-service teachers' perception of social media to sustain teaching and learning during the pandemic, but also intends to contribute to knowledge of the actualization of the affordances of social media platforms in the Arab heritage context.

*1.3 Aim and Objectives of the Study*

The main aim of this study is to analyze pre-service teachers' perceptions of the affordances of social media platforms for learning. Therefore, this study is *descriptive* and qualitative. The objectives of this study are:

1) To explore pre-service teachers' perceptions of the affordances of social media platforms for learning and the actualization of those affordances.

2) To analyze survey and interview data through the theoretical lens of affordance theory and explain how pre-service teachers perceive the properties of the social media learning environment and the actions they perform in it.

The overarching research questions of this study are:

1) What are the pre-service teachers' perceptions of the affordances of social media platforms for sustaining learning and teaching during the pandemic?

2) How do pre-service teachers actualize the affordances of social media platforms in practice?

3) What are the perceived challenges of the usage of social media platforms to sustain formal teaching and learning?

The paper outlines the current developments in research on the affordances of social media platforms for sustaining teaching and learning. The notion of affordances is described, as well as ways in which it might be used to develop a better understanding of the use of social media by the pre-service teachers. The paper argues that there is a need to explore a theoretical basis for the use of social media and present a conceptual framework as an attempt to further explore the notions of affordances in this respect. The research methodology used and the affordance theory on which the paper draws, are then described. The paper concludes with suggestions for further research.

## 2. Literature Review

A critical review of extant literature was undertaken on topics that were pertinent and related to the affordances of social media platforms for sustaining teaching and learning. It involved selecting latest empirical studies from 2016 or later with a few dating earlier and ensuring that the articles align with current study's focus and research questions. The descriptors that were used for searching and locating the resources included "social media", "affordances", "actualization", "pre-service teachers", "perceptions".

*2.1 Social Media Platforms*

Social media technologies or platforms are "Internet-based channels that allow users to opportunistically interact

and selectively self-present, either in real-time or asynchronously, with both broad and narrow audiences who derive value from user-generated content and the perception of interaction with others" (Carr & Hayes, 2015, p. 50). Social media has firmly established itself as an integral part of contemporary education (Selwyn, 2016). Some of the common applications include Facebook, WhatsApp, YouTube, Microsoft Teams, Twitter, and Reddit. All these social media platforms are participatory technologies (Roberts, 2017) and they are claimed to have a 'social' element' (Selwyn, 2016). They "not only facilitate but also influence the activities they mediate" (Greenhalgh, Krutka, & Oltmann, 2021, p. 2). Educational researchers have considered informal learning on these platforms, for example Facebook and Twitter (Greenhow & Askari, 2017; Greenhow et al., 2020), Reddit (Staudt Willet & Carpenter, 2020) and YouTube (Lange, 2019).

Social media learning environments compete at times with institutional virtual environments, such as the LMS or Learning Management Systems (Garmendía & Cobos, 2013). Although, educational institutions are increasingly using LMS with social media-like functionalities, it does not support informal learning, educational activities from a socio-constructivist perspective (Van Den Beemt et al., 2020; Garmendía & Cobos, 2013). According to Unlüsoy, Leander, and Haan (2022) social media is an "ever expanding and shrinking collections of nodes and link" that "allow forms of interaction and learning that are fundamentally different" (p. 79) from other learning platforms. Therefore, social media has important implications for rethinking the connectivity or the kinds of social interaction that underlie most of our thinking about learning (Unlüsoy et al., 2022).

However, some authors were skeptical about the affordances of social media and argued that these tools do not serve educational purposes (Bruneel, De Wit, Verhoeven, & Eelen, 2013). While others viewed social media for content delivery as a threat to the status quo and believed that these platforms would disrupt the long-established traditional *didactic teaching* approaches (Bouilheres et al., 2020; Van Den Beemt et al., 2020). It is also advanced that teachers who lack technical pedagogical content knowledge may struggle with the tension between possible pedagogical use and the tempting distraction of this technology (Van Den Beemt et al., 2020).

In contrast to these barriers and privacy issues, research reports several affordances. If properly administered, social media platforms can bridge the gap between the traditional pedagogies and those of today's pedagogies, develop techno-pedagogical competences in pre-service teachers (Burbules et al., 2020; Whyte, 2014). The affordances of social media platforms are contingent on the degree to which students and instructors perceive and actualize the many possibilities and use its features to perform their tasks, for instance to create, share, and collaborate (Lehrig, Krancher, & Dibbern, 2017; Strong et al., 2014).

A selection of four affordances of social media is presented below which this paper considers relevant for learning: functionality (usability, practicality, visibility, and flexibility), cognitive, identity creation and social. Although this is not an exhaustive list of affordances, these four elements significantly shape new possibilities for learning, for example through usability, practicality, visibility, and flexibility, connection, collaboration, communication, and interaction.

## 2.2 Functional Affordances of Social Media: Usability and Practicality

The rapid proliferation of technologies, new functionalities of mobile devices and social media applications has enabled their increasing integration in education and has prompted the study of the affordances and application of these technologies (Roberts, 2017). Functionality is the quality of a technology that is suitable for serving a purpose well. For instance, the practicality or usability of a device or an application. The use of social media presents several advantages, mostly its benefits seen in terms of accessing lessons, content, video clips, etc. Students prefer social media because they are convenient collaborative tools for acquiring important information, which allow them to create, edit and share content textually, visually or via audio, and because it significantly contributes to their academic performance and satisfaction (Ansari & Khan, 2020).

Functional affordances are embedded within the technology. The practical aspect of social media or its functionality involves how it is used, for what, and if it is used as intended. The usability aspect concerns the meaning a social media platform has for the user and how this affects the use. The practical aspects include the promotion of collaboration, synchronous or asynchronous communication and the opportunity to extend learning opportunities beyond the classroom (Attard & Holmes, 2020). It also includes using social media platforms to virtually connect, share ideas, and enhance pre-service teachers' professional development opportunities (Prestridge, 2019). While there are claims that social media use is beneficial for discussions, enhanced communication, and increased student creativity it is also argued that it offers opportunities for learning from anywhere and at any time through blended approaches, and improving literacy practices (Attard & Holmes, 2020; Greenhow et al., 2019; Stewart, 2015).

One of the functional affordances is expanded visibility enabled by social media. This aspect is related to

learning as learners can access vast amounts of information publicly visible in networks (Unlüsoy et al., 2022). Yet another aspect is flexibility afforded by social media, for instance the 'open' learning settings, in which learners have the freedom to choose their preferred technology or application and learn without being constrained by a prescribed path as in traditional learning environments (Unlüsoy et al., 2022).

The functional affordances discussed above are claimed to trigger cognitive heuristics among users for example facilitate problem-solving and make immediate judgments and meet some of their expectations (Sundar, 2008). Thus, functional affordances are related to *cognitive affordances*.

## 2.3 Cognitive Affordances of Social Media: Bridges Formal and Informal Learning

One of the cognitive affordances of social media is the integration of formal with informal learning. Research on social media in education suggests that integrating social media in learning and teaching environments may have positive cognitive impacts. Researchers claim that social media has demonstrated that it can facilitate informal learning in a variety of settings (Moreno & D'Angelo, 2019) and that the integration of these virtual applications into formal curriculum can enhance the cognitive and creative skills of students through a student-centered environment (Steele et al., 2019).

According to Greenhow and Lewin (2016), social media is "a space for learning with varying attributes of formality and informality" (p. 7). This suggests that *social media* does not replace formal learning but supplements it or in other words serves as a bridge between formal and informal *learning* (Greenhow et al., 2019). Learning in these informal spaces is not entirely led by an individual but through group discussions or activities (Greenhow & Lewin, 2016). Research on the use of social media technologies for informal learning suggests that the platforms will subsequently influence learning in formal settings (Greenhalgh et al., 2021). According to Galvin and Greenhow (2020) the phenomenon of social media bridging informal and formal learning is due to the considerable amount of learning taking place on social media.

Cognitive affordances also include enhanced media/digital literacy, including development of critical literacy, and increased participation enabled by functional characteristics of social media (Sobaih, Hasanein & Abu Elnasr, 2020; Anderson, 2019). However, researchers argue that although social media supports informal learning, some of it is "miseducational", thus suggesting that these platforms are not neutral (learning) spaces that encourage, enable or embody best teaching practices and that policy makers and educators must reconsider the relationship between informal learning, (mis)education, and social media (Greenhalgh et al., 2021).

## 2.4 The Identity Creation Affordances of Social Media: Generative Role Taking

Pre-service teacher identity is dynamic and during their teacher training programs as they learn new pedagogical methods their visions of themselves as teachers could change as they encounter the realities of teaching (Beltman et al., 2015). In a time when the use of social media platforms is vital for learning and teaching, pre-service teachers must develop an identity that meets the requirements of a changing world. It has been proposed that social media platforms can allow users to take on new identities during interactions which are referred to as generative role taking (Moreno & D'Angelo, 2019). These identities are constantly changing and are shaped by pre-service teachers' engagement with teaching technologies, pedagogical strategies, institutional expectations, student needs and professional values (Nykvist & Mukherjee, 2016).

A pre-service teacher can assume various roles as they construct their professional knowledge in social media enabled learning environments: an info-consumer, a student developing instructional competencies, a student learning classroom management procedure, a communicator who can socially interact and articulate clearly and accurately, and as a peer (Prestridge, 2019; Nykvist & Mukherjee, 2016).

Although pre-service teachers use social media and various digital technologies, they still lack the ability and skill to use technology for academic purposes and struggle to integrate pedagogy, content, and technology into their teaching (Lau, 2018). Lack of relevant competence and training is hindrance to actualization of the cognitive affordances of social media (Lindeman, Svensson, & Enochsson, 2021).

## 2.5 The Social Affordances of Social Media: Communication and Collaborative Learning

Social media applications and collaborative tools have increased the existing possibilities for online learning during the pandemic. Although the lockdowns had hindered the learning process in various ways and affected students' learning experiences, the interactive and collaborative nature of social media and the properties of the learning environment are permitting *social* actions. In other words, social media offers many social affordances ((Moreno & D'Angelo, 2019). Research suggests that there is greater self-regulation and self-motivation, and even though there were low levels of support pre-service teachers was able to plan, monitor, and control their learning processes more autonomously through communication and collaboration with peers and lecturers

(Naujoks et al., 2021). This was possible because of the affordances of the technology which promoted higher levels of interaction, scaffolded feedback, collective exploration, and a more personalized approach to learning (Attard & Holmes, 2020; Hu et al., 2017; Selwyn, 2016). Scaffolded feedback opportunities allow learners to collaborate and build capacity for independence (Van Woezik et al., 2019; Greenhow & Lewin, 2016). While educators in social media learning environments support students in their new roles as coaches or mentors, this type of support can lead to higher levels of self-regulation among students (Van Den Beemt et al., 2020). This suggests that social media is appropriate for social constructivist learning approaches.

*2.6 Social Media and the Theoretical Framework of Affordances*

This paper draws on the theoretical framework of affordances (Moreno & D'Angelo, 2019) to help understand why and how pre-service teachers select and use or actualize social media platforms for learning. Most research on the benefits of social media technologies focuses on their positive effects (Greenhow & Askari, 2017; Greenhow et al., 2020; Staudt Willet & Carpenter, 2020; Lange, 2019). This is not surprising, given that social media is relatively new. Therefore, an affordance perspective is more important to not only discuss the positive impact of social media, but also the challenges faced by students and educators when using these platforms.

Affordances are actionable possibilities of an artifact (technological artifacts such as social media) that users may recognize and contribute to their function (Gibson, 1979). Although these actionable possibilities are made possible by a technology, the opportunities are not determined by the technology (Roberts, 2017). In other words, affordances are not sufficient causes but the perceived and actual properties that are encouraged, supported, or permitted by a technology. Affordances depend on the skills and goals of an individual. According to Gibson, affordances are subject to users' perceptions (Fox & McEwan, 2017; Rice et al., 2017). Parchoma (2014) noted that affordance is the relationship between individuals or the users and their perception of the technical features available in an environment. Research suggests that as affordances are simply potentials for action and therefor has to be triggered or actualized by users to achieve an outcome (Strong et al., 2014; Sundar & Limperos, 2013).

Researchers from various fields discuss technology in terms of its affordances (Moreno & D'Angelo, 2019). The application of the affordance approach helps teachers, students, or researchers to select an appropriate social media platform, based on the usability and popularity of the platforms. By using an affordance approach, a user (researcher, educator, or policy maker) can characterize a technology required for a certain situation, and then propose potential platforms that fit these criteria (Moreno & D'Angelo, 2019). These affordances are functional or technological, cognitive, identity creation and social.

Technology or functional affordances are referred to as the "potential that comes from a goal-oriented behavior and that turns into concrete actions. Affordances only exist in practice and in context. The very same technology might have different potentialities when considering different situations." (Bobsin, Petrini, & Pozzebon, 2019; p. 15) Functional affordances are basic functions that affect how social media platforms are used to communicate or save information (Moreno & D'Angelo, 2019).

Cognitive affordances include using social media tools to expand one's learning. Examples may include increasing awareness of new concepts (Moreno & D'Angelo, 2019). Cognitive affordances not only include dialogic learning, self-regulated learning, and supportive learning, (Dabbagh, Mason, & Dass, 2014) but also the opportunity for enhanced creativity (Moreno & D'Angelo, 2019).

The identity creation affordances of social media include opportunities on social media platforms for *identity development and portrayal and the generative role* played by users in those virtual environments (Moreno & D'Angelo, 2019). Instructors and students can assume many different roles in the social media learning environment when producing content or knowledge, and when justifying, communicating, and presenting a specific solution to problems (Koehler & Vilarinho-Pereira, 2021). With several options, both lecturers and students can choose platforms they prefer to meet learning goals.

Social affordances are properties in a virtual learning environment that facilitates social interaction and includes a sense of belonging (or association) to a group such as a group focused on a particular interest or expertise The functional affordances of social media are socialized in the collective processes of participatory learning (Moreno & D'Angelo, 2019). It is claimed by academics that social media makes it easier than ever to satisfy the need to belong. Two other constructs, namely "relatedness" and "interaction" together contribute to a complete sense of belonging (Baumeister & Leary, 1995). The factors that both support and restrict a user's actualization of these affordances are the abilities and preferences of the individual, features of the system, and characteristics of the environment (Strong et al., 2014). However, a lack of interaction between students and teachers could lead to feelings of isolation, discontent and reduced transactional distance (Zilka, Cohen, & Rahimi, 2018).
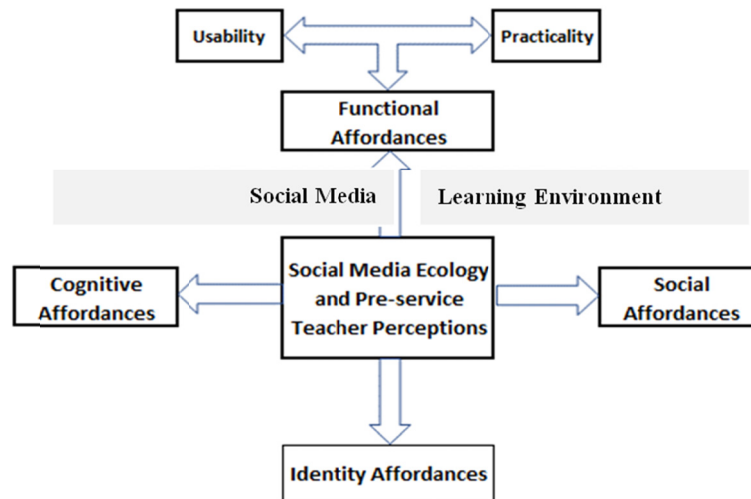
Figure 1. Sustaining learning and teaching by actualizing social media

In the social media ecology of learning and teaching, the four types of affordances, namely functional (or technological), social, cognitive and identity creation are closely related to one another and can work inter-dependently to create an effective social media learning environment. This study focuses on these four affordances to examine pr-service teachers' perceptions of social media and how they actualized the affordances for learning. These four affordances are discussed in detail in the following sections.

## 3. Research Methodology

A descriptive mixed methods approach was adopted for this research. This study combines 'methods, a philosophy and a research design orientation' (Creswell & Plano Clark, 2011) as well as a "wide range of interconnected interpretive practices" (Denzin & Lincoln, 2005, p. 3) to explore the actualization of social media affordances by pre-service teachers through surveys and interviews to elucidate rich and meaningful data for analysis. In other words, data was collected and analyzed using both qualitative and quantitative methods. The goal of this descriptive study is to summarize the experience of the pre-service teachers. This approach is suitable for this study as the researchers were seeking to gain a rich description of pre-service teachers' experiences when using and actualizing social media for learning. The data was analyzed using descriptive statistical analysis and thematic analysis.

### 3.1 Sample

The setting for the study was the College of Basic Education, Kuwait. The sample consisted of 146 pre-service teachers who took part in the study voluntarily. They were selected from a total of 453 student teachers. The demographic characteristics of the participants are tabulated below.

Table 1. Demographic characteristics

| Characteristics | | Count/Frequency |
|---|---|---|
| Gender | Male | 74 (51%) |
| | Female | 72 (49%) |
| Year | 1 | 21 (51%) |
| | 2 | 27 (51%) |
| | 3 | 98 (51%) |

As seen in Table 1, the sample was equally distributed in terms of gender. Although the participants were drawn from various classes or year of study, most of them were enrolled in year 3 of their teacher training program.

### 3.2 Questionnaire

A questionnaire was developed by reviewing literature (Koehler & Vilarinho-Pereira, 2021; Moreno & D'Angelo, 2019; Lehrig et al., 2017; Fox & McEwan, 2017). All items in the questionnaire were developed in

such a way that the participants could mark them based on a five-point Likert style level of response ranging from strongly agree to strongly disagree (strongly agree-5, Agree-4, neither agree nor disagree-3, disagree-2, strongly disagree-1). The questionnaire comprises of four affordance related constructs namely functional affordances, cognitive affordances, identity creation affordances and social affordances.

3.2.1 Validity and Reliability

To check reliability of the instruments within the context of Kuwait, a pilot test was conducted with a small group of participants similar to those who took part in this study. Following the pilot test, a few questions were modified. The revised scale includes 22 items.

Construct and content validity were assessed to ensure that the constructs and items were developed based on relevant existing knowledge. A panel of experts evaluated the research instrument for its relevance, clarity, completeness and ensured that the items were representative of all aspects of the construct. Cronbach's alpha was used to evaluate the internal reliability of the constructs and associated variables. The affordance constructs and their respective reliability scores, as measured by Cronbach's $\alpha$, are presented in Table 2.

Table 2. Reliability of affordance constructs

| Constructs | $\alpha$ |
|---|---|
| Functional affordances | 0.682 |
| Cognitive affordances | 0.610 |
| Identity creation affordances | 0.712 |
| Social affordances | 0.688 |

Overall, the results suggest that the reliability values ranged between 0.6 and 0.71.

3.2.2 Procedure

An invitation was posted on the college website, and pre-service teachers self-selected to take part in the survey. The participants were also provided with a link to Microsoft Forms where they could access the questionnaire, participant information sheets and consent forms. In the questionnaire the pre-service teachers were asked to mention their preferred social media applications and to complete the 22 Likert-type items and the 2 open-ended questions. Data gathered were analyzed using descriptive statistics (mean and standard deviation of variables), frequencies and weighted mean. Survey results retrieved from Microsoft Forms were anonymous.

*3.3 Interviews*

The data used in this example is an extract from one of a series of in-depth interviews involving 4 pre-service teachers. Each of these interviews lasted between 40-50 minutes. These were then transcribed verbatim.

**4. Results**

*4.1 Descriptive Findings*

WhatsApp was the most preferred social media application (84%) used by the pre-service teachers. Table 3 indicates that YouTube (77%) and Twitter (71%) were the other two preferred applications.

Table 3. Preferred social media applications

| Social media | N | % |
|---|---|---|
| WhatsApp | 123 | 84% |
| Facebook | 64 | 44% |
| Twitter | 104 | 71% |
| Blogs | 55 | 37% |
| YouTube | 113 | 77% |
| *Others (please specify)* | | |
| Snapchat | 77 | 52% |
| Instagram | 40 | 27% |
| Tik Tok | 6 | 4% |
| telegram | 1 | 1% |
| Snapchat | 77 | 52% |
| Instagram | 40 | 27% |

The ways in which the pre-service teachers used and actualized the affordances of social media are categorized into four research clusters (Table 4): functional, cognitive, identity creation and social. In keeping with the conceptual framework, identifying ways that pre-service teachers used social media and participated in the learning environment indicates ways in which learning may be happening.

Table 4. Weighted means of the affordance constructs

| Affordances | M | SD |
|---|---|---|
| *Functional affordances of social media* | | |
| 1) Allows me to communicate and share content/documents | 4.05 | 1.18 |
| 2) Allows me to interact with the world through features of modality, agency, interactivity, and navigation. | 4.16 | 1.01 |
| 3) Allows me to access, edit, replicate, or manipulate and store information which I can use in other locations (online, inside and outside classrooms) | 3.46 | 0.77 |
| 4) Allows me to explore and discover new information and retrieve new information provided by other students | 3.45 | 0.97 |
| *Weighted Mean* | 3.78 | |
| *Cognitive affordances of social media* | | |
| 5) I use social media tools as it helps in learning independently both in-and-out-of-classrooms | 3.22 | 1.23 |
| 6) I use social media tools as it enables me to socially interact and recap classroom experiences | 3.62 | 1.05 |
| 7) Social media supports informal and formal learning as I can participate in informal discussions (group deliberation and reflection with my classmates and lecturer) and to combine my formal learning in classrooms | 3.57 | 0.78 |
| 8) I can use written posts on social media to complement more in-depth class discussions rather than replacing it altogether | 4.06 | 0.86 |
| 9) Lecturers support us both in the task and beyond the task by making us aware of new concepts | 4.04 | 0.63 |
| *Weighted Mean* | 3.70 | |
| *Identity creation affordances* | M | SD |
| 10) I can use the social media platform I prefer to seek information on things that I want to learn about | 4.38 | 0.88 |
| 11) I am not directed or controlled by the lecturer | 4.01 | 0.64 |
| 12) I have developed the feeling that I have control over learning | 4.12 | 0.47 |
| 13) There is no one to impose curriculum on learners | 3.10 | 1.16 |
| 14) Although the lecturer is involved in the learning process to a great extent, I am able to learn on my own | 3.69 | 1.09 |
| 15) I interact with peers and ask them what they did not understand | 3.68 | 1.25 |
| *Weighted Mean* | 3.83 | |
| *Social affordances of social media* | M | SD |
| 16) Social media allows me to feel a sense of belonging | 4.29 | 0.59 |
| 17) Social media allows me to interact and learn through conversation and cooperation | 4.08 | 0.74 |
| 18) Social media allows me to post questions to peers to better understand concepts | 3.55 | 1.26 |
| 19) Social media allows me to get quick feedback from my peers | 3.66 | 1.26 |
| 20) Social media allows me to get quick feedback from my lecturers | 4.10 | 0.52 |
| 21) Social media allows me to stay connected with people who have similar interests | 4.60 | 0.71 |
| 22) Social media allows me to comfortably share my experiences with peers or lecturers | 4.08 | 0.62 |
| *Weighted Mean* | 4.05 | |

*Functional affordances*: The first part of Table 3 (items 1-4) shows that pre-service teachers were quite assured that the social media applications were effective due to the perceived usability and practicality of the platforms, for instance editability and replicability of content, and exposure to the vast amounts of information available in the social media environment. The weighted mean of 3.78 suggest that all the means were relatively close and can be interpreted as being very effective. Although two items, for e.g., accessing, editing, and storing information and accessing materials sent by other students, had relatively low ratings, the participants considered social media applications to useful for interaction and communication.

*Cognitive affordances*: Likert-type items 5 to 9 addressed participants' perceptions of social media as a tool that supports self-regulated and supportive learning, and bridges informal and formal learning. The weighted mean of 3.70 suggest that social media applications are a tool for informal discussions and supportive learning. However, the pre-service teachers perceived that social media was not very effective for autonomous learning (M=3.22).

*Identity creation affordances*: The third part of Table 3 (items 10-15) shows that pre-service teachers sought information on their own (M=4.38) and perceived that they had control over learning (M=4.12) because they were not directed or controlled by the lecturer (M=4.01). The perception that they had no one to impose curriculum on them (M=3.10) had very low rating. Nevertheless, the weighted mean of 3.83 suggest that social media applications enabled constructing individual and collective identity.

*Social affordances*: The weighted mean of 4.05 suggest that social media applications are a tool for communication and collaboration (items 16-22). The pre-service teachers' perceptions of the social affordances of social media suggest that it is a tool for collaborative feedback and learning through conversation and cooperation. Most importantly they felt that social media was an avenue to achieving sense of belonging (M=4.29) and for staying connected with people who have similar interests (M=4.60).

*4.2 Themes*

A thematic analysis approach was used to analysis the narrative responses to the open-ended questions. The narrative statements were initially coded by the researchers and external reviewers from the College of Basic Education, Kuwait were engaged to examine and analyze the codes until consensus was reached on generating the themes. A systematic process was used for coding the responses to the open-ended questions. First, open coding was done to identify similarities and differences in the responses. Then, axial coding was used to generate categories. Through further analysis, five themes were uncovered: discovery learning, functionality, connection and communication, collaborative feedback, and constraints.

*Discovery learning*: Of the most described affordances, "discovery learning" was based on the pre-service teachers' penchant for social media use for information seeking purposes. One pre-service teacher stated:

> "I've always believed in the value of social media as tool for finding information. It is not only a source of communication but a tool that supports content delivery."

The participants showed determination and took active steps that were consistent with their thoughts when using social media for learning. They demonstrated that they were independent learners. They also reported that in order to learn on their own, they took control over it. According to one:

> "I like to take my own initiative and learn by many ways like smart phone. I access to YouTube after watching the explanation of some lecturers."

Learner autonomy here refers to the ability of the students to take charge of one's own learning and take own initiatives or responsibility for learning on their own without assistance through discovery learning.

*Functionality*: Under the theme of functionality, all the respondents indicated that they were able to actualize the affordances of social media as they had the ability to use the applications. Some of the comments included:

> "It is convenient, and we have access to the material 24/7."

> "I am already familiar with social media technology and find it less stressful to be behind a screen rather than in a classroom full of people in person."

> "It allows us to access content which we can copy and edit. We can learn at our own pace and in the comfort of our own homes."

*Collaborative feedback*: The pre-service teachers actualized the collaborative affordances of social media to give and receive feedback. All the four interviewees referenced the importance of collaboration among peers and with lecturers:

> "Familiarity with social media apps was important, but more important was the discussions I had with

fellow students and follow-up discussions with lecturers about concepts and lesson materials."

Another response reflected the value put on collaboration:

"I am happy to have someone available to answer specific, course-related questions". Regarding feedback one participant remarked "When I post questions on WhatsApp someone, either a student or my lecturer, always responds."

*Connection and communication*: The overarching theme of connection and communication which places greater emphasis on interaction, refers to a particular understanding of the relations between the pre-service teachers and social media. The social media technologies supported sociability by creating social spaces which are crucial for participatory learning:

"I became a part of a community in the social media environment. I felt that I had built new connections with others, and we are working as a team in a much better way than before."

Another participant claimed:

"The presence of lectures felt like I was more connected to the class rather than in person, so that really helped me out."

"I use social media when I want to cooperate with fellow classmates about a project or if we don't have time to meet in a place or sit together."

What was central to the pre-service teachers was an understanding of group learning, which enabled them to work collectively. The observation made by one pre-service teachers serves as a good case in point:

"We interact with each other and exchange information through WhatsApp groups."

*Constraints*: Constraints are the issues that are difficult to solve or cannot be resolved. Constraints here refers to actions which pre-service teachers are unable to accomplish when using social media. In this study, the constraints included:

"Individuals who learn online must be self-motivated and adept at time management."

"Social media interferes with learning as it easily diverts the mind and attention of most students. When you have to learn something that is essential, some leave it and go chatting and waste time using apps such as Snapchat."

Similar views were articulated by other pre-service teachers who attributed distraction to use of Smart phone and social media applications. All these responses indicate that some might be tempted to abandon their academic work and reading times in preference for chatting online with friends or discussing trivial issues instead of channeling their efforts towards learning. As a result, it could have a ripple effect on academic achievement eventually.

Lack of guidance or lack of teacher presence was another challenge. The participants were not happy with lecturers' social presence in the social media learning environment and their inability to use social media.

"Some lecturers who are overly harsh, not understanding the circumstances of how learning via online."

"Some instructors lacked skills to integrate social media in teaching methods."

The above remarks indicate that the lack of presence was due to lecturers' lack of skills in using social media technologies for pedagogical purposes. The lack of skills impact instructor presence as they neither play a significant role in facilitating discussion and social interaction nor participate in the discussions. When lecturers lack skills, they are resistant to informal modes of learning.

## 5. Discussion

Against the backdrop of the switch to remote instruction caused by the COVID-19 pandemic, this paper sheds light on pre-service teachers' perceptions of using and actualizing social media for learning. The findings are discussed here to either confirm what is already known about the usage and actualization of the affordances of social media technologies. The descriptive and the qualitative results suggest they are closely related and mutually reinforcing. The two data sets were triangulated, and the overall findings are discussed under five headings:

*Usability and practicality*: The descriptive data suggests that the pre-service teachers perceived the social media applications to be flexible, useful and practical, for accessing resources, editing, reproducing and storing information. Previous studies have shown that students were able to identify and actualize the affordances of

social media as they perceived that these platforms were flexible and allowed acquiring important information (Ansari & Khan, 2020) from anywhere and at any time (Attard & Holmes, 2020; Greenhow et al., 2019; Stewart, 2015). The functional affordances, for instance usability and practicality, have also been explored in prior studies by Unlüsoy et al. (2022) who found that besides editability and replicability which are valuable capacities that allow students to engage with content the social media environment also expanded visibility or exposure to the vast amounts of information.

*Bridges formal and informal learning***:** The results showed that in addition to sustaining formal teaching and learning social media bridged formal and informal learning. Descriptive results show that although social media applications are a tool for informal discussions and supportive learning the pre-service teachers perceived that social media was not very effective for autonomous learning. The qualitative theme of connection and communication places greater emphasis on interaction between the leaners and the lecturers. This confirms previous research findings that the connectivity (or being connected with others) afforded by social media (Koehler & Vilarinho-Pereira, 2021; Attard & Holmes, 2020, Prestridge, 2019). Rather than being connected face-to-face with others, often through formal activities, the experiences of using social media was interpreted as creating new connections with others and with the learning material. Besides bridging formal and informal learning, the cognitive affordances included enhancing the intellectual and creative skills of students (Steele et al., 2019).

*Assume new identities*: Descriptive results and qualitative themes suggest that the pre-service teachers considered themselves to be independent learners who had control over learning in the social media learning environment. They also reported that in order to learn on their own, they assumed new identities, both individual and collective identity. There was a level of anonymity in the social media learning environment which transformed their identities both for the individual and the group. These findings are analogous to related literature, that have previously claimed that social media fosters learner control (Van Woezik et al., 2019) and allows users to take on new identities during interactions (Moreno & D'Angelo, 2019).

*Tool for s*ocial collaboration*: All data sets indicate that social media served as a collaborative tool that supported sociability. For instance, as a tool for collaboration (questionnaire), supported collaboration and communication (interviews) and strengthened pre-service teacher-lecturer social interaction (questionnaire and interviews). The social media learning environment provided an avenue to achieving sense of belonging, enabled collaboration or the exchange of information or knowledge to advance learning, as well as a means of communication for interacting and achieving a better understanding of courses. Overall, through diverse learning tools in the ubiquitous learning environment, the pre-service teachers could complete their learning tasks. The pre-service teachers actualized the affordances of social media to build an online community and support each other by providing feedback. The feedback or comments and suggestions from lecturers motivated the learners. By obtaining feedback from peers or lecturers, students were able to engage with the tasks and were able to able to contribute something new to their learning process. Previous research has demonstrated that social media can help scaffold instruction (Van Woezik et al., 2019; Owen, 2016) and that instructor feedback is a key element in digital learning as it builds capacity for independence (Greenhow & Lewin, 2016).

Overall, the results of the study pertaining to the affordances perspective confirm that proper usage of social media can promote a new era of social learning, social presence, and an alternative platform to foster online learning.

*Constraints*: Although the questionnaire did not address constraints or challenges, the interview results show that the barriers which limited the achievement of affordances were the lecturers' lack of knowledge of the functionalities of a technology. The qualitative results suggest that pre-service teachers at times did not receive any direction from some of their lecturers. The failure of lecturers to address the difficulties of pre-service teachers may have led to feelings of isolation, inability to cope with learning tasks leading to dissatisfaction. This finding is congruent with the claims of Zilka et al. (2018) that the feelings of helplessness could have been due to the lack of good interaction between lecturers and students.

## 6. Conclusion

Overall, the triangulated mixed methods data analysis suggests that the pre-service teachers actualized the potentialities of social media by their knowledgeable use in a dynamic learning environment. In the context of this study, the concept of affordance implies the relationship between social media and the actions taken by pre-service teachers. The descriptive and qualitative findings suggest that the pre-service teachers were making a successful transition from passive consumers of knowledge towards creative producers or co-producers of content in a student-centred informal learning. The social media learning environment was integrated in a way

that connected or bridged formal learning environments of the teacher training college to informal learning environments such as off campus activities. The overall impression was that the pre-service teachers were positive about social media and that they realistically accepted the realities of the situation they were in. In order to overcome the challenges, they appeared to have carefully considered the learning objectives and purpose for using the technologies. Taken together, the results provide evidence for the actualization of the affordances of social media. However, the findings are context-dependent, and perceptions are from pre-service teachers from a specific course, and in a specific educational culture. This hinders generalizations.

*Practical implications:* The constraints or the barriers can be reduced with the right policy and support. The findings have implications for pre-service teachers as they can learn from experience what will drive their students in the future. Pre-service teachers should receive rigorous training to ensure that they have the requisite awareness and knowledge about different types of affordances. Teacher training colleges can use this information to enable their teachers and educators in actualizing affordances.

*Contributions*: The results contribute to the body of knowledge on social media platforms usage in pre-service teacher education by presenting a conceptual framework from an affordance-actualization perspective. The existing literature provides limited insights into pre-service teachers' affordance perceptions and actualization of technologies. Another contribution is the mixed methods research perspective on affordance perception and actualization in the context of social media platforms. This study holds value for educators and pre-service teachers by allowing them to analyze the potentials of social media platforms.

*Future research:* The findings of this study also suggest that teacher training colleges should try alternative pedagogical approaches and embrace social media technologies as a priority. The present study is a case in point and hence more field investigations should be carried out to generalize the results. Future studies could focus on each research issue individually to have more thorough research with more precise findings that the institutions can employ. All the themes are still being explored and expanded upon by the authors as part of future iterations of this investigation. In other words, the affordance perspective opens new avenues for research. Future research could further use the affordances perception and actualization framework in more case studies.

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