



Asian Journal of Distance Education

Online Knowledge Construction for Teachers on Social Media: A Community Perspective for Practice

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Abstract: This study used the Communities of Practice (CoP) framework to analyze how social media helped build an online community in a collaborative process by carrying out exploratory research design. For eight weeks, data was collected from ten teachers enrolled in an educational technology graduate program. The data was collected by Facebook through likes and posts. In addition, semi-structured interviews were conducted with all participants. While content analysis was performed on all qualitative data, descriptive and social network analysis were performed in the analysis of quantitative data obtained from Facebook. The participants were asked to develop an authentic video for young students to increase their awareness on using the internet safely. Social media was offered to participants to share their knowledge and designs during the collaborative construction of the artifact exercises. The results showed that the features of social media helped build a community of practice in terms of engagement, fostering a sense of responsibility and mutual assistance. The most popular features such as like buttons, comments, posts, shares and reactions for students were used in a variety of ways to build an online community of practice for adult learners. They made it easier to create a common product, take responsibility, spread the effort for the product video, eliminate of the shortcomings, achieve a common result, help each other, expertise, high engagement and collective understanding. Some practical implications for a better learning experience within an online practice community via social media have also been included.

Keywords: communities of practice, social media, adult learning, online learning, distance education

Highlights

What is already known about this topic:

- Practices within a community have critical importance in constructing knowledge
- CoP members can use social media networks in an informal way to share knowledge, discuss and create knowledge in many cases when they are not physically together.

What this paper contributes:

- Adult learners provided knowledge construction through their posts within the group and thus developed themselves towards expertise.
- Adult learners interact socially by writing comments, using like buttons and posting in contributing towards the construction of an online community of practice.
- The features of Facebook tools resulted in the components of CoP to be used at a high rate of engagement.

Implications for theory, practice and/or policy:

- Future research could be on a larger scale for evaluation of interactions between groups in CoP creation.
- For qualitative research, clinical interviews with online groups can be conducted and the results can be examined in depth in terms of interaction status within the CoP group.



Introduction

With advances in online interactive learning tools, researchers suggest constructing knowledge collaboratively within tasks that focus on product development for adults (Huang, 2002; Herrington et al., 2003; Park & Choi, 2009). Unlike traditional location-based CoPs, online CoPs bring individuals together around a task or idea, and online tools provide ways to suppress traditional group norm behavior (Squire & Johnson, 2000; Johnson, 2001). Bearing this in mind, educators tend to leverage the potential benefits of social networks to create collaborative environments and communities of practice. Since Facebook is one of the most popular platforms among adults, determining whether Facebook is a Community of Practice (CoP) environment can provide guidance on how to design and implement online learning environments for adult learners. While significant effort is put into discovering the contribution of Facebook usage to learning outcomes based on user experience, there is a small amount of research exploring Facebook in the guidance of the CoP framework. Therefore, given the importance of professional development, this study offers a conceptualization of adult knowledge construction regarding Facebook and hopes to contribute to the empirical evidence in this area by designing, implementing and evaluating adult learning experiences. The purpose of the study is to examine how a CoP is built during the adult learning process on social media. Therefore, the study is formulated by the following questions considering Wenger's model and according to the experiences and perspectives of learners:

1. To what extent does the social media group contribute to the development of a CoP?
2. What role does social media play in creating an artifact through collaborative work?

Adult Learning

Adult learners having different backgrounds and characteristics is what sets their learning process apart from other learners. Adult learners have different goals, experiences, professions, family situations, and educational backgrounds (Hoare, 2009; Peeters et al., 2014). Adults participate in the learning process based on particular personal needs, such as searching for a new job or preparing for a life role (Botha & Coetzee, 2016). Knowles (1996) stated that adult learners tend to learn why they need to learn and what they need to know. Adult learners have a high internal motivation to be aware of their responsibility to learn, to participate in a learning process and to reflect their own experiences (Lindeman, 1961). Therefore, McCray (2016) suggests that learning environments should be designed that allow adults to emphasize their experiences and focus on discussing these with other learners. In addition, Halverson (2003) suggests developing activities to construct artifacts with adult occupations in mind. The goal of creating artifacts or products is to encourage adults to actively participate in the activities and social interactions among learners within the community (Huang, 2002; Cercone, 2008; Gau, 2016). Adult learners, who have different backgrounds and the ability to manage their own learning process, may have the potential to create a community in collaborative learning processes. However, adult learners may have few opportunities to make friends with their peers, and therefore they may begin to feel isolated and alone (Cherrstrom et al., 2017). These negative aspects can affect the creation of online CoPs and the use of social media to eliminate them can create an opportunity. Since social media has the feature that can reduce the factors that prevent community building (Wang et al., 2019), adult learners have chance to affect their online CoP formation positively.

Community of Practice

Situated learning suggests that all human knowledge resides in the learning environment. The learning environment is a living context in which learners share a common interest in sharing ideas and solving problems (Lave & Wenger, 1991). Wenger (1998) defines CoP in social theory of learning as a group of people who communicate with each other (mutual engagement) and develop ways and resources (shared repertoire) to achieve a common goal (joint enterprise). In this sense, according to Lave and Wenger (1991) the discourse as it being social participation is at the center of learning. The CoP is also

expressed as a group of people who constantly interact to meet a shared set of needs (Hefetz & Ben-Zvi, 2020).

Interactions built by community members of experts and novices lead to a common meaning of topics or problems. Wenger (1991) noted that the core members are experts with sufficient knowledge and skills to maintain a high quality dialogue in the community of practice. Community practices are critical to the construction of knowledge. According to Wenger et al. (2002), community practice is a set of shared resource repertoires that include experiences, stories, tools, and problem-solving approaches. Consequently, the features of the learning environment are also essential for the construction of CoP. The CoP was created in this context on the basis of social learning theory because it is known that experiences, practices, group membership and identity in social learning theory represent the components of the learning process and that CoP is developed in this context (Wenger, 1998). Figure 1 summarizes the main components of social theory related to learning.

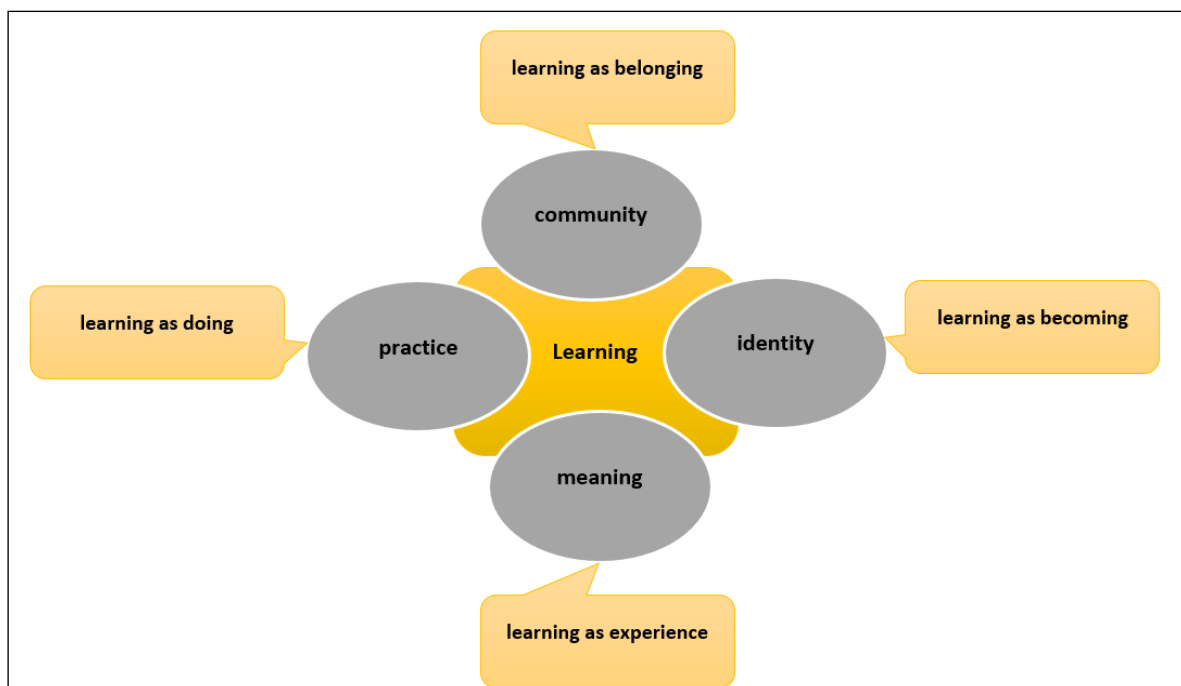


Figure 1. Components of a social theory of learning according to Wenger (1998)

Figure 1 shows that our background and life experiences have an essential place in the learning process (meaning) and that social resources, framework conditions and perspectives for interaction result in mutual engagement (practice) (Wenger, 1998). In addition, as shown in Figure 1, an identity and a sense of belonging to a community (community) are essential for improving learning.

Online CoP and Adult Learning

With online environments primarily designed for adults, CoP members can use social networks in an informal way to share, discuss and create knowledge without physical contact. One social media outlet is Facebook, which is an informal way for adults to communicate effectively with others. Facebook enables students to interact, communicate, and collaborate with one another, promoting a better relationship between students and their teachers (Steinfeld et al., 2008; Yu et al., 2010). Using Facebook tools (buttons, live video, posts, sharing posts, videos, photos, gifs, etc.) adult learners can share their experiences and be motivated to create artifacts together (Ellison et al., 2007). Additionally, Jones et al. (2010) suggest that the majority of students today can collaboratively download materials through Facebook.

Although CoP was seen as an important learning mechanism for the development of adult education, few studies have looked at the learning of adults from the perspective of CoP on Facebook (Gau, 2016). Gau (2016) showed the effects of the shared repertoire within CoP on adult learners such as trust, communication, habit and culture. In addition, Novakovich et al. (2017) have developed a curriculum to shape professional social media skills and identity in virtual practice communities. Studies of opportunities in online learning environments to create CoPs and the impact of the shared repertoire type on the process of creating CoPs are limited.

Facebook is one of the most popular social media applications and has over 2 billion users (Statista, 2018). It has some useful features such as messaging, status updates, ability to take notes, creating events, chatting, giving likes and reading messages (Ryan & Xenos, 2011). Facebook is considered a tool for social interaction among young adults (Feng et al., 2019). Facebook's potential for the construction of CoPs and its possible contributions to the development of artifacts and the role of individuals in the process remains to be explored.

Community of practice is everywhere and online communities are the new version of CoP (Glaze-Crampes, 2020). The interaction of people is necessary for the formation of a CoP, which consists of 3 components: mutual engagement, shared repertoire and joint enterprise. It may be important to reveal the contribution to the literature of the CoP construction process of adult learners using the interaction elements offered by social media. The fact that online communities are a new concept in terms of traditional communities of practice and revealing the factors affecting this process can be a guide to learn how online CoP develops in social media among adult learners and to carry out the process correctly for learning purpose. The factors that affect the creation and correct operation of the CoP are as follows:

- Guarantee of members to see each other,
- Being original and sharing ideas easily,
- Developing a reflex to the criticisms of others about the CoP members,
- Not being afraid of being judged,
- Assignments to be completed (Campbell, 2021).

Social media, especially Facebook, which is frequently used by adults, has features that allow the development of these factors. However, in order to create the CoP correctly, it is necessary to know which features of social media tools have an effect and how these features affect the CoP. Considering the importance of online learning environments in distance education, Online CoP via social media platforms has the potential to become a mainstream distance learning technology (Ramachandran & Kuppusamy, 2018).

Methodology

Research Design

The study gathered adult experiences and perspectives to explore adult online collaborative work on Facebook. Given the nature of the study, the exploratory study approach was considered appropriate for this research. Exploratory studies are preferred when the research topic is relatively new and there is not much testable research on the topic (Stebbins, 2001). Descriptive statistics on the use of Facebook components were discussed within the learning aim of the group creating a video. How the CoP was built during the training process was revealed through participant messages on Facebook and through interviews. Thus, necessary information was gathered to conduct more comprehensive research, which is one of the aims of exploratory study (Stebbins, 2001).

Participants

The participants were 10 secondary school teachers enrolled in the graduate (professional development) program in educational technology. As an exploratory study, a group of adult learners (n=10) were offered an online course on internet security and ethics for eight weeks where most participants used software to create or edit videos. The demographic information of the participants is shown in Table 1.

Table 1. Demographic information of the participants

Gender	f	Marital Status	f	Profession	f	Use of Social Media	f	Professional Experience	f
Female	4	Married	7	IT Teacher	10	1-3 hours	5	Over 10 years	6
Male	6	Single	3			Over 3 hours	5	3 years	4

Research Process

The course consists of an introduction to information ethics, intellectual property, access, privacy and accuracy sections. The learners were asked to work together on the design of instructional videos with relevant topics during class. The videos they created should contain multimedia elements such as text, images, sound, and animation. During the process, learners were allowed to share their work and messages through a Facebook group to benefit from each other's experiences. During the process, learners were asked to develop short videos on the subtopics and share them in the Facebook group. Participants were allowed to share, rate, and discuss information on subtopics, drafts on subtopics, the other materials such as images, audio components, or text related to the final video. At this point, the instructor explained to the learners that they should use any kind of Facebook tool they like, such as posting their status, videos and photos; and to use like buttons and comments to share their knowledge or feelings about the development of the video. In addition, short videos had to be combined into a single video for educational purposes. Various video editing tools were used in developing these videos. Learners shared their ideas about their weekly products, their experiences using the tools, problems they encountered, and the information they found about their target video. Thus, the effect of social media in providing the development of online CoP and the role of social media in terms of putting together a common product within the framework of collaborative work have been tried to be revealed.

Data Collection and Analysis

In the study, the data were thematically interpreted and codes described and explained in accordance with the theoretical framework of components geared towards Wenger's (1998) Communities of Practice. The data collection tools used in the study are Facebook posts, interviews and Facebook log data.

Facebook posts: The posts were in text, photo or video format. We analyzed posts to see how and why the adult learners shared it to understand the interactions in the CoP. For the analysis, we used descriptive analysis to reveal the frequency of the posts and a social network analysis tool to determine the interaction between the participants and the posts. With the help of the social network analysis, the engagement status of the participants was determined by revealing who interacts with each other on Facebook and which Facebook tools are used frequently. Two researchers analyzed and interpreted the posts. Reflections on engagement in the learning process and community building process are presented.

Interviews: Semi-structured interviews were conducted with all participants in order to understand the roles of the participants in the video creation process and what Facebook offers. Participants were asked about demographic information, posting in the Facebook group, and the video creation process. The participants were then asked questions about the tools used and the reasons for their use. The knowledge they share, how often they share, the interaction status and the reasons for interaction in the

group were also ascertained through interviews. Finally, the participants were asked about the video creation process; the way they followed design, what they learned about video creation, how they used video editing software, and what technologies they used. The interview form consists of three parts and 15 questions as Facebook, subject and video. The interview questions are given in Table 2.

Table 2. The interview questions

Questions about Facebook	
1.	What tools did you use in terms of sharing information on Facebook (Like, Comment, Share, etc.)? - Do you think these tools are sufficient for information sharing? Why? - What kind of information did you share on Facebook (Textual expression, video, link, etc.)? - How often did you post on Facebook?
2.	What kind of gains has the Facebook group made about working together?
3.	Could you tell us briefly about your participation in the Facebook group? What factors affected your participation status? (Environment, friends, assigned task, personal reasons, etc.).
4.	In your opinion, what are the positive and negative aspects of Facebook groups in productive tasks?
Questions about the Subject	
1.	When you chose the subject, what was your level of knowledge about that subject? What level do you think you are at the end of the mission?
2.	What kind of research have you done on your chosen topic? Can you talk about it briefly?
3.	To what extent is the subject of the task assigned to you suitable for working together?
4.	What paths did you follow while researching the subject? What tools did you use (Internet, text, video, etc.)?
Questions about the video	
1.	In your opinion, what kind of topics should be given in such tasks (such as obtaining products by creating videos)?
2.	Could you briefly describe the video design process?
3.	What tools did you use in the video creation process? Where and how did you learn about these tools?
4.	What do you think you've gained in video development?
5.	What kind of contributions did you receive from your friends during the video production process, what kind of contributions did you make to them? How did you evaluate the suggestions you received?
6.	How did your work and private life affect your contribution to this work?
7.	If you compare your initial and final situation, in what way do you think this process contributed to you?

CoP dimensions were considered while preparing the interview questions. In this framework, questions regarding the environment, subject and video design process used were drafted. Then, draft questions were presented to experts who have worked on educational technologies, online learning and social media. Adjustments were made in the light of the feedback of the experts and the final form of the interview form was given. After the experts examined the subject in terms of scope and grammar, four questions were removed from the form because of the out of scope.

Facebook Data: The data was collected by Facebook of shares, likes and posts. The quantitative data obtained from the log data was used to understand the interactions between the participants.

All qualitative data were analyzed and coded by two coders together. Facebook posts and other data were retrieved from the social network analysis software Gephi and the data from the interview were used to provide detailed information on the posts. To develop categories and codes for the transcribed data, the coders carefully read students' responses to each question in the interviews and their posts together. Codes were created as part of the basic components of CoP, which are mutual engagement, joint enterprise, and joint repertoire. The data gathering phases are briefly explained in Figure 2.

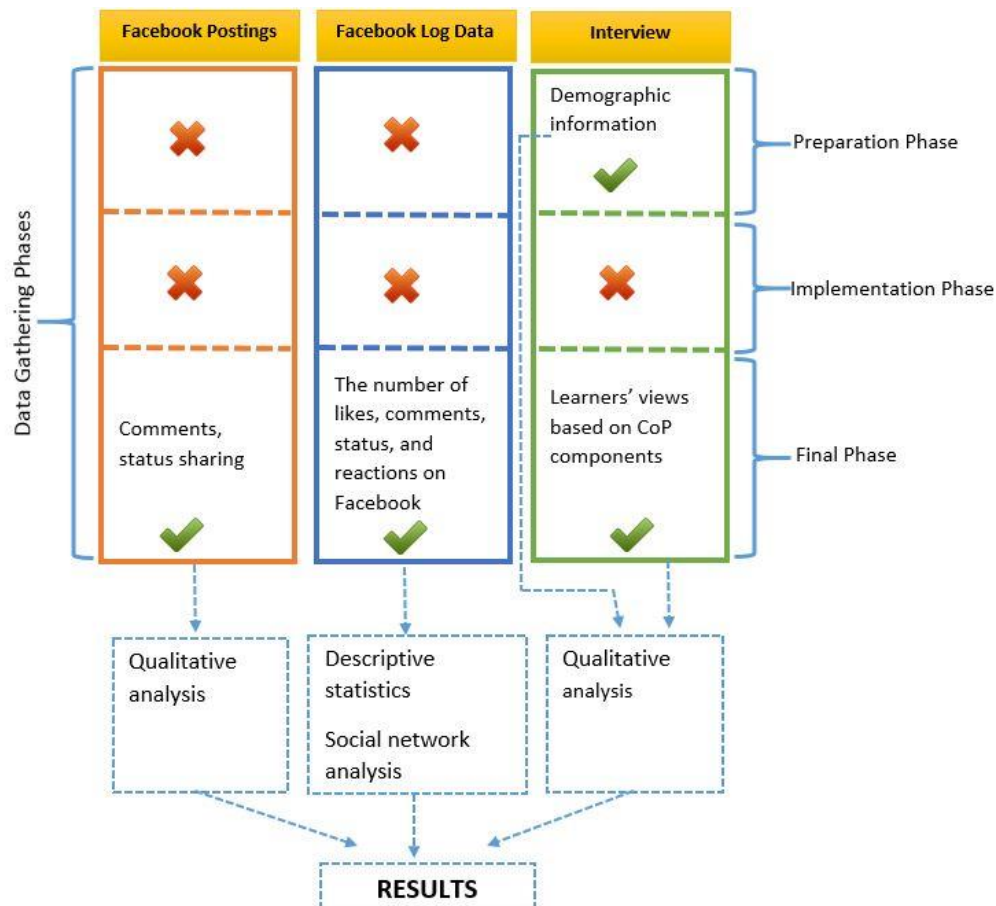


Figure 2. Stages of data collection

Findings and Discussion

The results are discussed under two main topics by aligning CoP principles under guidance of the research questions. The structure of the CoP process is discussed in terms of the CoP phases. In this section, the results under the titles of engagement and collective construction in the context of identity and community components of Wenger's model are examined and discussed.

Engagement in Facebook Group

The quantitative data reflecting engagement gathered while the adult learners worked on assignments was analyzed to examine the role of Facebook tools in engagement in establishing a CoP. Some learners' opinions on their exchanges were used to explain the quantitative data in detail. In this context, Table 3 presents the results of the data analysis obtained from the Gephi social network analysis program.

Table 3. Facebook data on engagement

Type of post	No. of post		Like count	Comment count	Reaction count	Engagement
	n	n	n	n	n	n
Status	Document	3	28	47	73	48
	Text	25				
Video		19	75	119	75	194
Photo		3	25	0	25	25
Total		50	147	192	148	340

The data shows that the total number of likes, comments, and reactions from 50 posts by the 10 adult learners during the eight-week learning process are 147, 192, and 148, respectively. At this point, engagement is treated as the sum of likes and reactions. Reaction refers to the sum of the likes when posting and the sum of the likes when commenting on comments on Facebook. Table 3 shows that the most common types of posts were video and status. Status means sharing texts about one's emotions and sharing documents. Positive emotions promote intrinsic and extrinsic motivation to learn by improving interest and problem solving (Pekrun et al., 2017). In addition, when the motivation of the learners to become experts in the subject is increased, they share more information and experience about their field of expertise (Burgess et al., 2019). In addition to posting ideas and products, sharing emotions is also important for building an online community. The engagement score for video posts by the group seems to occupy an important place ($n=194$). This shows that the learners had the common goal of producing a group video and sharing preliminary video takes towards that goal and engaging in the group. Luo and Kalman (2018) claimed that instructional videos create a convenient learning environment to easily engage with the content. Accordingly, the adult learners interacted with one another around video production on Facebook. In these interactions, some learners introduced process-initiating posts, while others participated directly or indirectly with comments and likes. Subsequently, it is seen that diverse participants can interact more frequently as part of the establishment of a CoP.

Therefore, a social network analysis was carried out to demonstrate the engagement at the participant level in relation to the interactions in the process, which is shown in Figure 3.

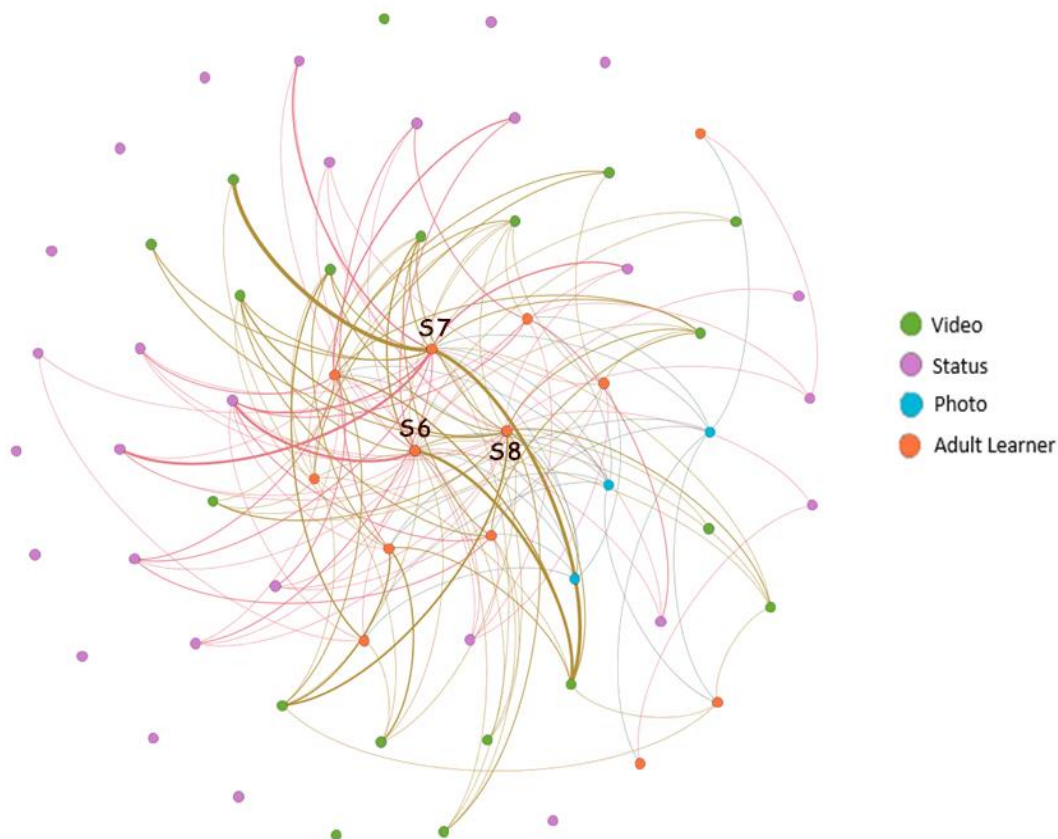


Figure 3. Relationship between adult learners in the Facebook group

Figure 3 shows status posts; participants with high interactivity are in the center, and the status postings and participants with lower interaction rate outside the circle. The participants in the middle of Figure 3 seem to have interacted more through video and status (like comments, reactions). It is understood from the above figure that the posts and comments of the three adult learners S6, S7 and S8 attracted more

attention from posts by other participants, as the connecting lines coming from them are thicker compared to the others. These three participants use social media for more than 3 hours a day and are single. Rasmussen et al. (2019) explain that adults see social media as a problem if they use it between 9 and 10 hours daily. This shows that the active status of the participants is sufficient and not problematic. In addition, the status distributions of the participants shown in Figure 3 are an indication that they are a natural guide in providing technical support, participation and motivation. The fact that these participants are more experienced than the other participants suggest that they are more technically helpful, as shown below:

S8: "We have entered an intensive process. Time is running out. Strength comes from acting together. This video is getting ready"

S6: "Let's get the group together. Where is everyone?"

It is also a notable finding that there is no interaction with 11 status posts as it is made up of parts that indicate what topics the learners are choosing for a video design project. This was a situation where no student interaction was required. In addition, the number of posts, comments and likes seems to be high despite the small group size. Keown (2009) suggested that a reasonable size for online communities is 10-20 different members. Table 4 shows the learners' opinions regarding engagement in the Facebook group.

Table 4. Students' opinions on engagement in the Facebook group

Theme: Engagement		
Code	Student	Students' opinion
Comment	S1	"We were able to see posts that everyone shared and comment on them. And we correct the mistakes that were unnoticed."
Like	S2	"We have been waiting curiously for likes on the draft video takes"
	S3	"Giving likes of our work motivated us."
Social Interaction	S3	"We have strengthened the social relationships between us by acting together to spot mistakes."
	S4	"We corrected each other's mistakes using Facebook."
Sharing	S5	"Since almost everyone has a Facebook account and usage information, we easily corrected our shortcomings."

The learner's perspective shows that the learner is in social interaction by writing comments, using like buttons and posting. In this regard, mutual engagement is one of the fundamental components of CoP, which are defined as norms and social interactions between group members and construction of the meaning of issues or problems (Agrifoglio, 2015). Simply using social media tools for engagement can enable high interaction among adult learners. According to Wenger (1998), connections of mutual engagement transform group individuals into a social unit. Hence, the views of the learners in this study show that one reason they acted together was to strengthen their social relationships. Mutual engagement plays a critical role in CoP, which supports learners involved in deep and meaningful interaction (Dabbagh & Bannan-Ritland, 2005). In this study, adults have only just begun to acquire a background for learning skills through active engagement in a community (O'Donnell & Tobbell, 2007). From the student opinions, it is assumed that the functions of the Facebook tools lead to the components of CoP being used with a high engagement rate. The online social networks can gather people around the same things because they have the opportunity to build a community for many products (Waiyahong, 2014). The use of Facebook tools in this study offered the opportunity to form communities.

The learners' experiences in this study showed they were able to share knowledge and correct their shortcomings on Facebook while creating videos. Since learners use Facebook frequently in their daily lives, they easily interact with each other using Facebook tools from either PCs or mobile devices.

Consistent with this finding, studies reported that if online settings can be designed so that adults can take an active role, interact socially and share experiences, then the community experiences in the learning process form a community of practice (Huang, 2002; Cercone, 2008).

Collective Construction

The members of the community contributed efforts with the aim of bringing out a particular product in the direction of a common purpose. Participants worked on tasks with the idea of joint action, produced draft video takes, considered each other's perspectives and ultimately contributed to the group creating a video product. Thus, they began to form a community with collective work. Table 5 summarizes students' views on sharing their learning related to the video creation process on Facebook.

Table 5. Student perspectives on collective construction

Theme: Collective production		
Code	Student	Students' Opinion
Sense of Responsibility	S8	"Everyone sincerely did their best. There was a mission, and as a class, we always wanted to grow stronger so that we could make a concerted effort. We made it ☺" "There are six themes. Considering that time is running out, we need fewer themes."
	S2	"Although my workload affected my participation, I tried to fulfill my responsibility to support the group."
	S3	"I use the Facebook tools (comments, likes, posts) because I am responsible for implementing our goal as quickly as possible."
Help each other	S1	"I comment when there is something I can help with in the group or when I need help."
	S6	"I interacted with the group members for help and solidarity."
	S2	"I was excited to be waiting for likes for my posts."
	S7	S7 posted the video with the words: Please make your comments quickly☺
	S5	"The evaluation of our work by the other group members was important to me." S5 marked his / her friend and said friends! Let's combine the videos and finish the job now. How can I combine these videos on Powtoon?
	S3	S3 commented, "Let's Make One Last Try My Friends!"
Expertise	S3	"Everyone makes comments to find out about each other's mistakes and to immediately correct the deficiency."
	S8	"I had the opportunity to correct shortcomings when they comment. In addition, even the likes made me feel like my colleagues were following the process and motivating me."

The results of the data from the interviews and the status posts show that the group members have a common understanding that one of the most important factors in performing a particular task is a sense of responsibility. Responsible teachers asked others to rate the video designs, explained the importance of the work, and emphasized their common goals. From the perspective of the participants, it becomes clear that some of the adult learners have developed a collective understanding within the pronounced sense of responsibility and had difficulties in fulfilling the common task. This also sparked joint work to create an artifact, namely a collective construction. This result of the present study is in agreement with that of Li et al. (2009) that joint enterprise is the process that provides engagement and collaboration towards a common goal. Hence, the adult learner's effort is closely tied to the shared enterprise that is one of the important parts of CoP. According to Pilerot and Limberg (2011), the development of a collective understanding is an important contribution to the development of a community of practice. Taking responsibility can trigger the learning process at a choke point. In addition, it can be said that the sense of taking responsibility enables the participants to become expertise in the subject and thus provides more permanent learning by practice. In short, helping each other, taking responsibility and

expertise in social media environments contribute to the construction of CoP, and also have positive effects on the learning process.

The adult learners provided knowledge building through the exchange of expertise in the group. This can be explained by one of the key concepts of the CoP and legitimate peripheral participation (Soden & Halliday, 2000), in which the CoP members are divided into novices and experts (Johnson, 2001). The learners switched from peripheral participation to full participation (Lave & Wenger, 1991), which can be seen from the exchange of experiences between novices in the Facebook group. Chen et al. (2012) found that beginners within a given task in the Wiki system take on a central role as experts after a certain period of time and that they are satisfied with this. Similarly, as can be seen from the views of the students in this study, learners were motivated to learn by helping one another. O'Donnell and Tobbell (2007) reported that there is no shortcut to full participation in a community and that this can only be done in socio-cultural practices. The result of the present study contradicts O'Donnell and Tobbell's (2007) results, since there were no participants from different socio-cultures and all participants came from a similar professional life, so it is assumed that the participants can easily show their full participation with the help of Facebook tools. Social media helps participants gain new perspectives for collaborative learning and the sharing of resources (Tiruwa et al., 2018).

The Role of Social Media in Video Creation Skills of Adults

This section examines the results in terms of video creation skills and management of this process in the context of the practical and meaningful components of Wenger's model. Teachers used social media tools while creating a CoP to engage in the learning process and act with collective understanding. Taking into account the views of learners, it is assumed that learners could fulfill their responsibilities by making sufficient use of social media tools. Table 6 summarizes the purposes of social media usage.

Table 6. Social media tools used for the CoP development process

Tools and their contributions	Engagement	Sense of Responsibility	Help Each Other
Like Buttons	<ul style="list-style-type: none"> Social interaction 	<ul style="list-style-type: none"> Create a sense of responsibility 	<ul style="list-style-type: none"> Emotional response to motivation
Posting Video, Photo and Status	<ul style="list-style-type: none"> Social interaction 	<ul style="list-style-type: none"> Distribute the effort for the video production 	<ul style="list-style-type: none"> Elimination of shortcomings Exchange of ideas
Comment, Comment to Comment	<ul style="list-style-type: none"> Social Interaction 	<ul style="list-style-type: none"> Elimination of shortcomings Achieve a common result 	<ul style="list-style-type: none"> Elimination of shortcomings Discussion Motivation
Tags and Feelings	<ul style="list-style-type: none"> Social interaction 	<ul style="list-style-type: none"> Motivation 	<ul style="list-style-type: none"> Speeding up the process

With the social media tools, learners can help each other with video editing and by posting videos, liking posts and even commenting on comments. Thus, it provides mutual engagement. The practices given to the participants result in the formation and development of mutual engagement (Wang et al., 2021). It is also clear that the learners reacted emotionally to others' posts with their like buttons, thus motivating themselves and making more of an effort during the video production process. With the aim of informing others, group members also tagged other learners faster. Through tags, some of the learners tried to motivate others by letting them know about their respective designs. An increase in members viewing, liking and sharing the posts can be seen in online communities as participants gain reliable followers (Ramachandran & Kuppusamy, 2018). This may be an indication that the participants can construct a community within the scope of the study.

Another problem that emerges from the results is the sense of responsibility. Adult learners have responsibilities in daily life that can affect their learning process and are different from other students (Cercone, 2008). However, these responsibilities ensure a high level of motivation in the learning process (Merriam & Caffarella, 1999). The results from group members who post showed that they frequently used like buttons to provide social interaction, emotional awareness, and emotional response to motivation. In addition, the other social media tools allow for the sharing of videos, photos and status. These tools allow them to exchange opinions, correct shortcomings, and rely on the effort involved in creating the video. With the discussion tool in the group, the learners supplemented their deficiencies and based on the comments, constructed a collective understanding of the task. Finally, it was proven from the learners' views and comments that they were trying to achieve a common goal by using the tag and feel features to quickly inform each other through the group and speed up and motivate the process because the emotions that arise in the learning process can give adults who learn in online learning environments different learning experiences (Ch'ng, 2019).

In summary, the adult learners used social media knowledge construction tools by helping each other (Table 4), and it was observed that they tried to achieve collective understanding by discussing product development and wrong knowledge. This is in line with the idea of Conrad (2008) that a high level of cognitive comfort is given in their learning activities and in the quality (authenticity, critical thinking, problem solving, knowledge construction, etc.) of their learning through the use of the spectrum of learning tools available to them to communicate with each other.

Managing the Process of Creating Instructional Videos on Facebook

When creating videos, students mainly focused on the tools, methods, and benefits. The perspectives of the learners are shown in Table 7.

Table 7. Student perspectives on building CoP by creating instructional videos

Tools	Gains at the end of the process	
	Code	Students' Perspectives
Web 2.0 technologies (Powtoon, Storyboard)	Technical Skills	S4: "I learned how to use some images in videos. I also think I learned how sound and transition effects should work in harmony." S1: "I can make effective videos with a web 2.0 tool called Powtoon." S7: "I had the opportunity to see what video editing programs can do."
Video Editing Software (Ulead Video Studio, Adobe Premiere)	Collaborative Work	S2: "I think we find the importance of collaboration between us in the process of video design." S8: "First of all, team spirit is very important. It was encouraging that there was a colleague to back you up when you got tired."
Other tools (Photo machine, Toys, Video recordings)		S5: "The exchange with the group members on the topic enabled me to look at different aspects of the topic."

When creating the video, the learners concentrated intensively on the use of Web 2.0 technologies. Along with using Web 2.0 tools for collaborative and personalized learning, it is necessary to employ appropriate online pedagogy (Alaghbari, 2021). In this study, the participants carried out a collaborative process to create a common product and created a natural online community. Wenger et al. (2002) found that the shared repertoire developed by the members of CoP is necessary for community building. In this sense, one of the most important components of the CoP – the shared repertoire – was revealed through the use of different resources at different times within the common resources (tools, routines, styles, vocabulary, methods, etc.) (Agrifoglio, 2015). On the other hand, according to a study by Conrad (2008), through the use of learning tools (chat, email and discussion forums) for communication, the

participant delivered high quality learning (critical thinking, problem solving, knowledge building) and thus demonstrated cognitive comfort. This study also showed that this convenience allowed learners to motivate each other, especially in social media discussions. As can be seen in the learner's views, the learner tried to develop the video step by step, trying to understand what the problem is, what tools can solve this problem, and then planning what elements can be used for the video. Accordingly, S7 expressed that "I have compiled all the documents on this topic. Then I decided on a video editing program and started the process". S3 presented a transition into the editing phase with the words: "We thought about the basics for a video. We shared the task". The relevant information was collected and then the video was edited. It arises from the point of view that collaborative work situations develop as learners help develop the other's technical skills during the production of the video product using the tool and the method, and thus exchanging knowledge with one another.

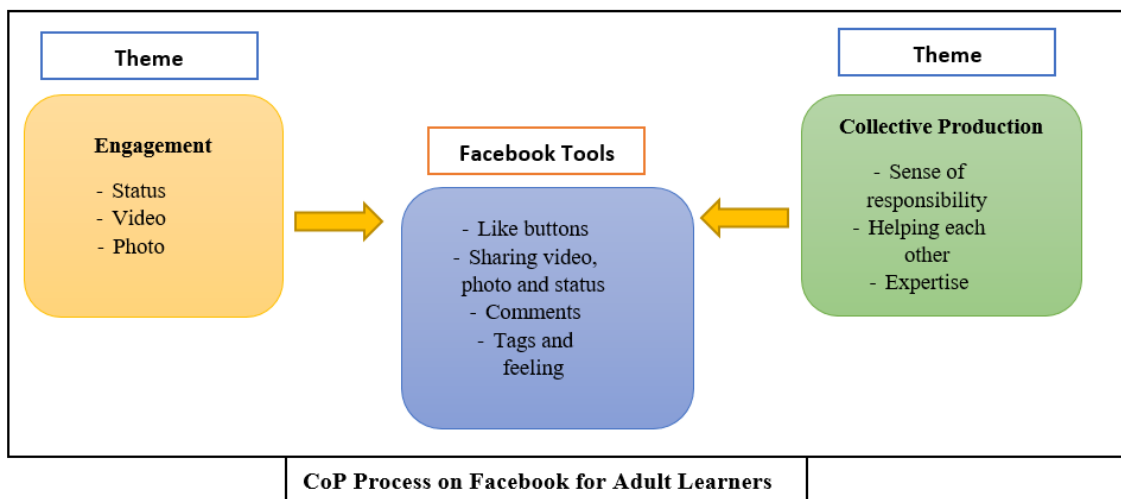


Figure 4. Facebook community of practice process for adult learners

Conclusion and Suggestions

In this study, the factors influencing the development of CoP in adult learners on social media were shown using student perspectives and social media data. In this direction, the learners could easily interact with each other using Facebook tools, even though they were small groups. Within the group, members shared videos and text. The creation of a CoP emerged from the text sharing within the framework of engagement, a sense of responsibility and mutual help. On the other hand, it was shown that learners have a collective understanding within the framework of the joint enterprise of CoP. Moreover, the learners' experiences in this study revealed that they were able to use Facebook to create videos to share their knowledge and correct their flaws. One of the most important factors in performing a particular task is a sense of responsibility. This result shows that adults with a high sense of responsibility have experienced the process of creating artifacts to help each other achieve a common goal. While the components of CoP arise on certain levels, Facebook tools (like, comment, post-sharing and reactions) play an important role in community development. At this point, the analysis of social networks could provide valuable results. Another major result is that the adult learners provided knowledge building through the exchange of expertise in the group. Adult learners used social media knowledge creation tools to assist one another, and it was discovered that they attempted to reach a collective understanding through discussing product development and false information. Moreover, the learners reacted emotionally to each other's sharing by pressing like buttons, inspiring them to work harder during the video production process. It also shows the effect of emotions in creating community of practice.

Functions of Facebook (like buttons, posting, comments and tags) made it easier to create a common product, take responsibility, distribute the effort for the video production, eliminate shortcomings,

achieve a common result, help each other, share expertise, and ensure high engagement and collective understanding. Since these functions are quick and easy to use, the knowledge construction has taken place and contributes to the CoP creation process. In addition, group members can improve their technical and collaborative working skills by sharing the problem on the social media site within the group in case of difficulties encountered during the video production process. Finally, thanks to social media, learners can easily express their feelings and motivate each other.

The contribution of this study to online education is twofold, from the Facebook page and from a common goal of the artifact creation page. Future research could be done on a larger scale to assess intergroup interactions in CoP creation. In addition, clinical interviews with online groups can be collected for qualitative research and examined in depth with regard to the interaction status in the group. By carrying out the research over a longer period, it may be possible to uncover changes in the roles of the participants in setting up a CoP. We hope that through practice activities, the results of this study can provide insights and new ways to use Facebook in adult education. CoP creation processes can be compared by utilizing the various features of different social media. Future studies may examine a single dimension of the CoP and reveal the factors that affect the development of the related dimension in creating the CoP. In addition, CoP creation processes can be explored in the future based on student-student, student-instructor, and student-content interactions.

Limitations

The study also has some limitations. Since the study was carried out with a small group, the interactions (likes, reactions, comments, etc.) evaluated in this group and the transferability of the results to large groups is limited. However, since the research study was of an exploratory nature, the study of a small group is seen as a contribution to the in-depth investigation of the experiences of learners of different ages and different characteristics via online learning.

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Suggested citation:

Erdođdu, F. (2022). Online knowledge construction for teachers on social media: A community perspective for practice. *Asian Journal of Distance Education*, 17(1), 17-33. <https://doi.org/10.5281/zenodo.5979705>

