

Social Networking Sites as Communication, Interaction, and Learning Environments: Perceptions and Preferences of Distance Education Students

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Abstract: The advent of Web 2.0 technologies transformed online networks into interactive spaces in which user-generated content has become the core material. With the possibilities that emerged from Web 2.0, social networking sites became very popular. The capability of social networking sites promises opportunities for communication and interaction, especially for distance education students who are separated from their teachers, learning resources and other students in terms of time and/or space. Within this perspective, the aim of the study is to investigate distance education students' perceptions and preferences regarding use of social networking sites for communication and interaction purposes. In this context, the study employed a quantitative cross-sectional methodology. Research findings were derived from a sample of 2065 distance education students and the data were gathered through an online questionnaire. The research findings indicate that social networking sites (SNSs) can be used to support social learning processes.

Keywords: Social Networking Sites (SNSs), Distance Education Students, Distance Education, Social Communication, Social Learning.

Introduction

Distance education is a pragmatist field, which uses a diverse array of media to deliver educational content to students who are separated from their teachers and other students. Social networking technologies, offering appealing communication tools for daily life and e-learning environments, allowing students to form digital identities and express themselves digitally. Moreover, they allow students to be socially interactive and build a learning community in online spaces. In this sense, this research intends to explore how Social Networking Sites (SNSs) are used and perceived by distance education students.

Literature Review

According to global digital snapshot data, the total population of the world by 2016 was 7.395B. Of this total, 3.419B are Internet users and 2.307B were active social media users (We are social Singapore, 2016). As a popular SNS, Facebook is globally adopted and has a lot of advantages for higher education (Chugh & Ruhi, 2017). It is the most popular SNS among students (Junco, 2015) and faculty members (Faculty Focus, 2011). For instance, in the US, around 90% of students use Facebook for online social networking (Dahlstrom, Grunwald, de Boor, & Vockley, 2011).



The emergence, growth and use of SNSs are rising not only among the general population but also among higher education students (Boyd and Ellison, 2007). Andrews, Tynan and Backstrom (2012) claim that some distance education students are actively and deliberately using popular, non-institutional social media tools to augment and improve their learning experiences. For instance, Özmen and Atıcı (2014) found that distance education students have positive attitudes towards the use of social networking sites, which positively affected the quality of communication between instructors and students. Callaghan and Fribbance (2016) examined Facebook at Open University of UK and found that Facebook can be used to build a community for distance education students. Additionally, a great many instructors and institutions of higher education have started to combine distance education delivery with SNSs (Brady, Holcomb, & Smith, 2010; Ractham, & Firpo, 2011; Roblyer, McDaniel, Webb, Herman, & Witty, 2010; Tess, 2013).

Distance education is generally offered to students through learning management systems (LMSs) in which instruction is delivered in a structured manner (DeSchryver, Mishra, Koehleer, & Francis, 2009; Lee, & McLoughlin, 2010; West, Waddoups, & Graham, 2006); however, some research findings indicate that these platforms fail to fulfill the social experience which is a significant ingredient of learning (Brady et al, 2010; Lee & McLoughlin, 2010; Mazman & Usluel, 2010; Schroeder, Minocha, & Schneider, 2010; Whitworth, & Benson, 2010). Accordingly, as a social software, SNSs exist beyond traditional LMSs and potentially open up the learning environment to a public space. By using SNSs and similar Web 2.0 tools in the teaching and learning processes, academic content, discussions and other interactions no longer live in the safe, structured and controlled world of academia, and they become accessible in online social environments (Rodriguez, 2011). Recent literature indicates that, as a very intensive and collaborative environment in nature, Facebook can be used as an alternative to an LMS (Maleko, Nandi, Hamilton, D'Souza, & Harland, 2013; Wang et al., 2011) with some major advantages over traditional LMSs in promoting collaborative and active learning (Meishar-Tal, Kurtz, & Pieterse, 2012).

SNSs also support formation of virtual communities of practice and enable students to connect, communicate, interact and collaborate on online networks (McCann, 2009). Additionally, SNSs provide students with the social communication tools that allow for freedom, flexibility, fluidity and digital identity in learning processes (Brady et al., 2010; Lee, & McLoughlin, 2010; Webb, 2009). The ability to create a digital identity in SNSs is important because digital identity formation makes learners visible to other learners and increases a sense of social presence; in other words, it makes networked learning experiences more human, which is essential to increasing interaction in social learning (Bozkurt, & Tu, 2016). Besides, students can share and communicate with each other in their personal learning environments, which facilitate the building of personal understanding and interest toward learning (Li, Ganeshan, & Xu, 2012). SNSs, as communication and interaction platforms in educational settings, may further support students in building social connections by exploiting the immediacy and intimacy features of SNSs (Wheeler, Yeomans, & Wheeler, 2008; Dron, & Anderson, 2009; Greenhow, 2011).

A systematic review by Manca and Ranieri, (2016a) demonstrated that Facebook is used for discussion and peer learning/assessment, content development, content delivery, sharing resources, and support self-organised learning. Another systematic review also highlighted that Facebook has an advantage in terms of increased teacher-student and student-student interaction, improved

performance, and provides the convenience of learning and higher engagement (Chugh, & Ruhi, 2017). The literature on SNS and education reports many other advantages of using Facebook in higher education. SNSs can be used for informal learning (Pimmer, Linxen, & Gröhbiel, 2012) and peer support (Garcia, Elbeltagi, Dungay, & Hardaker, 2015). As an educational tool that enhances teaching and learning (Bicen, & Uzunboylu, 2013; O'neil, & Wels, 2016), SNSs can be used as an additional social space in educational processes such as MOOCs (Liu, McKelroy, Kang, Harron, & Liu, 2016), and serves as a third space between social life and schoolwork (Aaen, & Dalsgaard, 2016). In addition to these advantages, it is reported that SNS has an impact on learning outcomes of university students (Khan, Kend, & Robertson, 2016) and academic performances (Lambić, 2016).

Research Objectives

The SNS trend is a relatively new and widely accepted phenomenon. While many studies have reported the positive outcomes of using SNSs in higher education (Manca, & Ranieri, 2016b; Rodríguez-Hoyos, Haya Salmon, & Fernández-Díaz, 2015) their use for academic and learning purposes is still rather limited and they are mainly used for administrative purposes rather than for pedagogical ones (Rap, & Blonder, 2017). Therefore, there is a need to study the acceptance and use of SNS in education in general (Bosch, 2009) and distance education in particular. In this regard, this study intends to contribute to the related literature by providing the perspectives of distance education learners. Literature shows that Facebook is the most popular SNS used in higher education (Dahlstrom, Grunwald, de Boor, & Vockley, 2011; Junco, 2015) and mobile technologies that promise ubiquitous learning (Gaskell, & Mills, 2010) are the preferred mode of access. However, existing literature generally focuses on using these hard and soft technologies in face-to-face education. This study was designed to gather evidence of the current adaptation of SNSs by distance education students and explore the potential of SNSs for delivering teaching and learning in distance education. On these grounds, the purpose of the study is to identify distance education students' SNS usage preferences for communication and interaction purposes. The study addressed the following research questions:

- How do distance education students access SNSs?
- How long have distance education students been using SNSs?
- What is the approximate frequency of using SNSs?
- What are the most popular SNSs used for distance education?
- Why do distance education students use SNSs?
- Why don't distance education students use SNSs?
- How do SNSs affect distance education students' communication patterns?
- What is the degree of distance education students' interaction on SNSs?
- How do communication patterns and degree of interaction correlate?

Methodology

This section of the study presents research design, sampling, data collecting, analysis, strengths and limitations of the study.

Research Design

For the purposes of the study, a quantitative cross-sectional survey research design was used. In a cross-sectional study, researchers conduct a survey and collect data at one point in time from a sample or from an entire population of individuals in order to identify their attitudes, beliefs, opinions, behaviors, practices or characteristics (Creswell, 2012).

Sampling

The participants in this research were 2065 students who attend distance education programmes at a public distance education university in Turkey. The margin of error for the sampling is 2.15% with a confidence level of 95%.

Research Context

The research was conducted at Anadolu University, which is a dual-mode, public university located in Eskişehir, Turkey. Founded in 1958, it started to deliver distance education in 1982. By 2017, there were 30,565 students in traditional face-to-face programmes and 2,724,650 students in distance education programmes (Anadolu University, n.d). With massive number of students, it is called a “mega university” (Daniel, 1998). By 2017, in terms of student enrollment, Anadolu University is the largest university in Europe and the second largest in the world (Times Higher Education, 2017; WorldAtlas, 2017).

The university benefits from many educational technologies to deliver distance education programmes. The core learning materials are printed and digital books and a learning management system is used as a learning environment. In addition, Facebook is used as an additional learner support system in which there are more than 200K subscribers. Though it is not part of the official curriculum, there are some experimental uses of Facebook and other online SNSs to deliver distance education as a part of the academic and student support services.

Data Collection Procedure and Analysis

The data were collected through an online questionnaire, which was delivered through the Student Portal. Online questionnaire items were derived from the need to explore distance learners’ perception on SNSs and their potential for pedagogic purposes in distance education. Participation was voluntary and a consent form was attached to the first page of the questionnaire. Questionnaire items were provided to those who agree to take part in this research.

The first item of the questionnaire was a filtering question. In the filtering questionnaire item, participants were asked whether they use SNSs or not. Participants who reported that they used SNSs and those who reported that they didn’t use SNSs were directed to different questionnaire items to collect detailed information regarding their preferences. At the end of the questionnaire, demographic data was collected. The data gathered were analysed by using descriptive and correlational statistical analysis. Following that, the findings of the study were discussed by comparing the results obtained with the results in the existing literature on Facebook and education.

Strengths and Limitations

Being socially present is not limited to only offline worlds; it is also possible in online worlds. SNSs are one of the most important aspects of our lives, and they shape many dimensions of students. Better understanding of this phenomenon would assist future educational strategies, and distance education institutions for higher education should identify how SNSs are perceived, used and interpreted by distance education students. In this sense, this study attempts to give a response to this need by exploring the current state of SNSs usage by distance education students. For this purpose, the research provides data from one of the leading universities that provides distance education opportunities to students with a significant number of responses, which strengthens the findings of this research to generalise to a wider population.

In addition to the above-mentioned strengths, the study has some limitations as well. Though the sample size is considered robust enough to produce valid inferences from the research findings, distance education students' preferences and perceptions may change in different cultural contexts.

Findings and Discussions

Who are the Participants?

This section of the study presents participants' demographic information and the data of distance education students who used SNSs and those who did not. As shown in Table 1, 59.2% of the respondents are male and 40.8% are female. Nearly a quarter of the students are in the 23-26-year age range. In terms of occupational status, 65.1% of the students are employed, while 34.9% are unemployed. 87.9% of the students stated that they used SNSs while 12.1% of them said that they did not.

Table 1: Demographics of Distance Education Students.

	Participants who used SNSs (n = 1815)			Participants who didn't use SNSs (n = 250)			TOTAL (n = 2065)		
	Category	F	%	Category	F	%	Category	F	%
			87,9%			12,1%			100%
Gender	Male	1069	58,9	Male	154	61,6	Male	1223	59,2
	Female	746	41,1	Female	96	38,4	Female	842	40,8
Age	18-22	317	17.5	18-22	38	15.2	18-22	355	17.2
	23-26	466	25.7	23-26	53	21.2	23-26	519	25.1
	27-30	306	16.9	27-30	45	18.0	27-30	351	17
	31-34	206	11.3	31-34	28	11.2	31-34	234	11.3
	35-38	220	12.1	35-38	25	10.0	35-38	245	11.9
	39-42	120	6.6	39-42	27	10.8	39-42	147	7.1
	43+	180	9.9	43+	34	13.6	43+	214	10.4
Occupation	Working	1184	62.5	Working	161	64.4	Working	1345	65.1
	Not working	631	34.8	Not working	89	35.6	Not working	720	34.9

How do distance education students access SNSs?

As can be seen from Table 2, distance education students use smartphones, laptops, desktops, and tablet PCs, respectively, to access SNSs. A great majority of the students (N = 1456) prefer smartphones, from usually to always, to access SNSs, which can be interpreted as Internet-connected, always-online devices are the basic means to access SNSs.

Table 2: Devices Used to Access SNSs.

	Never		Rarely		Usually		Often		Always	
	F	%	F	%	F	%	F	%	F	%
SmartPhone	98	5.4	161	8.9	330	18.2	455	25.1	771	42.5
Laptop	301	16.6	444	24.5	339	18.7	347	19.1	384	21.2
Desktop	599	33.0	419	23.1	287	15.8	241	13.3	269	14.8
Tablet PC	796	43.9	571	31.5	146	8.0	157	8.7	145	8.0

In terms of accessibility means, the results of this study demonstrate that distance education students usually prefer using mobile devices to connect to SNSs. This finding confirms Duggan and Brenner (2013) who reported that individuals are connecting to SNSs mostly through their mobile phones. Duggan (2015) further reported that 85% of adults are Internet users and 67% are smartphone users. This finding sparks some ideas regarding the future of distance education. The advent of the Internet and innovative technological tools created first e-learning, then m-learning and, finally, u-learning. Each learning approach has its own characteristics and u-learning emphasises that learning can exist or be everywhere at the same time; in other words, it is an omnipresent process. Therefore, it is clear that higher education institutions should revise their strategies for extensive mobile phone and SNS usage.

What is the approximate frequency of using social networking sites?

The findings regarding the approximate frequency of using SNSs are salient in Table 3: 27.9% of the students connect to SNSs every hour, 58.7% of them a few times a day and 8.1% once a day.

Table 3: Frequency of connecting to SNSs.

	Frequency	Percentage
Every hour	507	27.9
A few times a day	1066	58.7
Once a day	147	8.1
Twice a week	68	3.7
Once a week	17	0.9
Once a month	10	0.6

Distance education students are present on SNSs on a daily basis, and a great majority of them are experienced learners. These findings indicate that SNSs are an integral part of students' routine lives and students are present in online and offline worlds. Similarly, Li, Lai and Zhang (2015) reported the frequency of logging in on a daily basis is 94.8%. Bozkurt, Karadeniz and Okur (2015), who investigated post-graduate students' preferences regarding SNSs, reported that the frequency of logging in on a daily basis is 96%. Intimacy (Argyle, & Dean, 1965) and immediacy (Wiener, &

Mehrabian, 1968) are two important dimensions of social presence (Short, Williams, & Christie, 1976). In their research, Bozkurt et al (2015) found that post-graduate students sustain their connectivity and are usually online, which indicates that SNSs support immediacy, an important dimension of social presence. The research findings confirm the results of Bozkurt et al (2015) and indicate that similar to post-graduate students, distance education students use SNSs for immediacy and SNSs are capable of influencing individuals' perceptions of social presence (Cheikh-Ammar, & Barki, 2016).

The findings also indicate that there is an excessive use of SNS (86.6%) among distance education students. In line with these numbers, Hormes, Kearns and Timko (2014) reported that, as a behavioral addiction, nearly 10% of students are addicted to SNSs. While this data proves the potential of SNSs in education and demonstrates that they have really penetrated into many aspects of individuals' lives, stemming from a series of factors (Kuss, & Griffiths, 2017) they can be also linked to a variety of impairments in psychosocial functioning, which requires great attention (Hormes, 2016).

How long have distance education students been using social networking sites?

According to Table 4, 14.9% of the respondents have been using SNSs for 3-4 years and 77.8% of users have been using for more than 5 years which means that 92.7% of the students have at least 3 years experience with SNSs.

Table 4: Time span of SNSs usage.

Time span	Frequency	Percentage
Less than 6 months	29	1.6
6 months – 1 year	29	1.6
1 - 2 years	75	4.1
3 - 4 years	270	14.9
More than 5 years	1412	77.8

This finding confirms results from both Li et al (2015) and Bozkurt et al (2015), who reported that many individuals are experienced SNS users and have integrated SNSs into their daily life. The length of SNS usage indicates some other important issues. First of all, distance education students are experienced SNS users. It can be further argued that their choices regarding the use of social and academic issues of SNSs are meaningful rather than incidental. Finally, it seems that SNSs are an important part of students' daily social lives, and it is clear that the lines between the physical and virtual social worlds are blurring, which exposes the potential of SNSs for academic purposes.

What are the most popular social networking sites?

The participants were asked to report which of the SNSs they frequently use (Table 5). The students generally prefer Facebook, YouTube and Instagram. Facebook is the most popular SNS among students. It is also clear that distance education students use multiple platforms for social networking. Not surprisingly, several researchers reported similar results. For instance, Duggan (2015) reported that 72% of adult Internet users and 62% of the entire adult population in the US are using Facebook as their primary SNS.

Table 5: The most popular SNSs among the distance education students.

	Never		Rarely		Usually		Often		Always	
	F	%	F	%	F	%	F	%	F	%
Facebook	168	9.3	250	13.8	455	25.1	405	22.3	537	29.6
YouTube	119	6.6	235	12.9	493	27.2	443	24.4	525	28.9
Instagram	600	33.1	332	18.3	285	15.7	255	14.0	343	18.9
Twitter	706	38.9	570	31.4	200	11.0	161	8.9	178	9.8
Google Plus	976	53.8	474	26.1	186	10.2	92	5.1	87	4.8
Swarm	1295	71.3	225	12.4	109	6.0	78	4.3	108	6.0
LinkedIn	1371	75.5	265	14.6	86	4.7	48	2.6	45	2.5
Tumblr	1587	87.4	133	7.3	50	2.8	21	1.2	24	1.3
Vine	1521	83.8	202	11.1	46	2.5	16	0.9	30	1.7
Pinterest	1566	86.3	130	7.2	48	2.6	33	1.8	38	2.1

What is the value of SNSs in terms of learning?

Table 6 shows distance education students' perspective of learning from SNSs. A considerable number of distance education students think that SNSs have a great potential as learning environments. When responses for "agree" and "completely agree" were collapsed into one response group, it was seen that SNSs increase students' interest in the courses when learning content is shared (49.5%), increase interaction (47.1%), have a positive effect on learning (46.2%), are an important tool for learning (44.2%), make learning engaging (43.6%), are convenient learning support environments (43.3%), are straightforward platforms for collaboration (42.5%), improve students' success (40.1%), increase students' motivation (36.3%), are an extension of real-life networking environments (34.4%), are convenient for students to express themselves freely (32.9%) and make students feel like they are a part of a learning community (24.4%).

The questionnaire item to examine value of SNSs in terms of learning revealed some interesting results. A considerable number of the students (40.4%) believe that SNSs can be beneficial for learning purposes. However, there is a significant number of students who are undecided on the use of SNSs (20.9%) and who have a negative attitude (33.7%) toward the use of SNSs. Similarly, other researches show a positive relationship between SNS use and student satisfaction and a sense of community and learning in higher education (Al-Mukhaini, Al-Qayoudhi, & Al-Badi, 2014; Duncan, & Barczyk, 2013; Kenney, Kumar, & Hart, 2013; Wang, Lin, Yu, & Wu, 2013). SNSs facilitate interaction and social relationships in a learning environment (Alloway, Horton, Alloway, & Dawson, 2013; Pempek, Yermolayeva, & Calvert, 2009). Findings of the study conducted by Veletsianos and Navarrete (2012) indicate that students supported one another in their learning and noted that they perceived their learning experience was enhanced by their interactions. Gregory, Gregory and Eddy (2014) found that students who actively participated in the Facebook group were more engaged in the course, more satisfied with the course, and performed better in the course than students who did not actively engage in the Facebook group.

Table 6: Perceived value of SNS for learning.

	Completely disagree		Disagree		Neither agree or disagree		Agree		Completely agree	
	F	%	F	%	F	%	F	%	F	%
SNSs increase students' interest for the courses when learning content is shared	225	12.4	264	14.5	427	23.5	379	20.9	520	28.7
SNSs increase interaction	192	10.6	296	16.3	472	26.0	430	23.7	425	23.4
SNSs have positive effect on learning	189	10.4	326	18.0	462	25.5	417	23.0	421	23.2
SNSs are an important tool for learning	212	11.7	318	17.5	482	26.6	374	20.6	429	23.6
SNSs make learning engaging	228	12.6	288	15.9	507	27.9	378	20.8	414	22.8
SNSs are convenient learning support environments	218	12.0	330	18.2	482	26.6	387	21.3	398	21.9
SNSs are straightforward platforms for collaboration	213	11.7	293	16.1	537	29.6	421	23.2	351	19.3
SNSs improve students' success	298	16.4	346	19.1	443	24.4	336	18.5	392	21.6
SNSs increase students' motivation	310	17.1	370	20.4	477	26.3	329	18.1	329	18.1
SNSs are an extension of real life networking environments	301	16.6	385	21.2	505	27.8	303	16.7	321	17.7
SNSs are convenient for students to express themselves freely	359	19.8	379	20.9	479	26.4	270	14.9	328	18.1
SNSs make students feel a part of learning community	620	34.2	379	20.9	374	20.6	216	11.9	226	12.5

Why do distance education students use SNSs?

Distance education students reported a number of reasons on a 5-point Likert scale to demonstrate why they use SNSs (Table 7). Distance education students' responses for "usually", "often" and "always" were collapsed into one response group and the results were ranked accordingly. Research findings demonstrated that distance education students use SNSs primarily to find information and get opinions (82%) and then to keep in touch with friends or family (69.4%). The students further stated that they use SNSs to spend time (53.4%), share media (48.5%), share experiences (43.7%), make professional contacts (42.4%), express themselves (24.1%), play online games (20.1%) and make new friends (13.7%).

Research findings demonstrate that distance education students use SNSs primarily to find information and get opinions and then to keep in touch with friends or family. The distance education students in the study further stated that they use SNSs to share media, share experiences, make professional contacts, express themselves, play online games and make new friends. These findings are in parallel with the existing literature. For instance, Cheung, Chiu and Lee (2011) claim that the primary reason most people use Facebook is to have instant communication and connection with their friends. Manasijević, Živković, Arsić and Milošević (2016) reported that students use Facebook for interaction, collaboration, and communication purposes in their learning processes. Similarly, in a study conducted by Iordache and Lamanauskas (2013), the most important functions of SNSs for Romanian students were communication, learning and exchanging information, exchanging photos and videos, friend search and messaging. Jieun and Richardson (2016) found that students used SNSs frequently and actively for various reasons in their daily life, and they showed positive perceptions of using SNSs for educational purposes.

Table 7: Distance education students' reasons to use SNSs

	Never		Rarely		Usually		Often		Always	
	F	%	F	%	F	%	F	%	F	%
To find information and get opinions	80	4.4	247	13.6	540	29.8	486	26.8	462	25.5
To keep in touch with friends or family	138	7.6	418	23.0	548	30.2	335	18.5	376	20.7
To spend time	245	13.5	601	33.1	479	26.4	240	13.2	250	13.8
To share videos/ photos/ music	269	14.8	666	36.7	439	24.2	227	12.5	214	11.8
To share experiences	420	23.1	601	33.1	416	22.9	183	10.1	195	10.7
To make professional and business contacts	499	27.5	547	30.1	325	17.9	221	12.2	223	12.3
To express themselves on online environments	766	42.2	611	33.7	250	13.8	104	5.7	84	4.6
To play online games	883	48.7	567	31.2	180	9.9	97	5.3	88	4.8
To make new friends	908	50.0	659	36.3	145	8.0	45	2.5	58	3.2

Why don't distance education students use social network sites?

12.1% of the respondents reported that they don't use SNSs (N = 250) (Table 8). These participants stated that they don't use SNSs because of the following reasons: they are not interested in joining social networking (42%), they joined once, but they didn't enjoy it (32.8%), privacy issues (32.4%), cultural issues (12%) and other reasons (8.4%). Some "other reasons" reported by distance learners are: lack of time, inaccessibility to the Internet and misinformation on SNSs.

Table 8: Reasons for not using SNSs

Reasons*	Frequency	Percentage (n = 250)	Percentage (n = 1815)
I am not interested in joining social networking	105	42.0	5.7
I joined once, but I didn't enjoy it	82	32.8	4.5
Privacy issues	81	32.4	4.5
It's against my culture	30	12.0	1.6
Other reasons	21	8.4	1.1

*Research participants were allowed to select more than one reason

Do distance education students think of SNSs for learning purposes?

Those who don't use SNSs were asked whether they might use SNSs for learning purposes such as discussing in course groups or pages, accessing learning content, etc. (Table 9). Of all the respondents, 30.4% said that they would use SNSs in the future, 41.6% said that they did not think they would use SNSs in any case, while 28% of the respondents stated that they were not sure whether they would use SNSs for learning purposes in the future.

Table 9: Future considerations to use SNSs for learning purposes

Consideration	Frequency	Percentage (n = 250)	Percentage (n = 1815)
Yes	76	30.4	3.7
No	104	41.6	5.0
Not sure	70	28.0	3.4

Do distance education students think of SNSs for communication purposes?

In an effort to understand future possibilities to use SNSs, distance education students were asked whether they might use SNSs for communication purposes or not (Table 10). Accordingly, 30.4% of the distance education students stated that they plan to use SNSs for communication purposes, while 41.6% of the respondents do not plan to use SNSs even for communication purposes. A total of 22.4% of the respondents reported that they were not sure whether to use SNSs or not.

Table 10: Future considerations to use SNSs for communication purposes

Consideration	Frequency	Percentage (n = 250)	Percentage (n = 1815)
Yes	66	26.4	3.2
No	128	54.2	6.2
Not sure	56	22.4	2.7

How do SNSs affect distance education students' communication patterns?

In order to understand how distance education students perceive SNSs in terms of communication, a questionnaire item was directed to respondents (Table 11). While 38.8% of distance education students reported that SNSs don't have an effect on face-to-face (F2F) communication, 41.9% of the

students reported that SNSs somewhat have an effect on F2F communication and 19.3% of these students think that SNSs replace most of the F2F communication.

Table 11: How do SNSs affect distance education students' communication?

Degree of Effect	Frequency	Percentage
Do not have an effect on face-to-face communication	704	38.8
Somewhat have an effect on face-to-face communication	760	41.9
Replace most of the face-to-face communication	351	19.3

The total of respondents who think SNSs somewhat have an effect on (41.9%) or replaces most of the face-to-face communication (19.3%) is 61.2%. Accordingly, this finding indicates that SNSs also support intimacy (Argyle, & Dean, 1965), which is another dimension of social presence, because 61.2% think that SNSs provide similar experiences to F2F communication.

Following descriptive analysis, whether there is a relationship between gender and communication patterns and gender and degree of interaction, Pearson's chi-square test (Fisher, 1922; Pearson, 1900) was used. Accordingly, there was a significant association between gender and communication patterns $\chi^2 (2 N = 1815) = 12.28, p = .002$; gender and degree of interaction $\chi^2 (4 N = 1815) = 9.76, p = .045$. This seems to represent the fact that gender and communication patterns and gender and degree of interaction have a relationship.

What is distance education students' degree of interaction on SNSs?

To discover behavior and interaction patterns of distance education students on SNSs, respondents were asked to report how they behave on SNSs (Table 12). Thirty-one percent of the students stated that they simply lurk on SNSs; 8.2% of the students only like/favor the shares; 15.4% of the students like, share and favor posts, while 25.9% further comment on these posts. Additionally, 19.5% of distance education students create new posts, join the discussions, like, share and add to favorites.

Table 12: Behavior and interaction patterns of post-graduate students

Degree of Interaction	Frequency	Percentage
I usually don't do anything but look at the posts	562	31.0
I only like/favorite the shares	149	8.2
I like, share and add the posts to my favorites	280	15.4
I comment on, like and share the posts	470	25.9
I create new posts, join the discussions, like, share and add to my favorites	354	19.5

Pearson's chi-square test (Fisher, 1922; Pearson, 1900) was used to analyse the age groups of the participants (Table 1). Accordingly, there was no significant association between age and communication patterns $\chi^2 (12 N = 1815) = 13.12, p = .361$; however, there was a significant association age and degree of interaction $\chi^2 (24 N = 1815) = 77.61, p = .000$. This seems to represent the fact that, in terms of the age groups of the participants, age and communication patterns do not have a relationship, but age and degree of interaction have a relationship.

How do communication patterns and degree of interaction correlate?

To better understand distance education students' communication patterns and degree of interaction, correspondence analysis was performed to identify and visualize the relationship between the variables of these two categories. As can be seen in a scatter graph (Figure 1), it is revealed that "it does not have an effect on face-to-face communication" (A1) and "I usually don't do anything but look at the posts" (B1); "somewhat have an effect on face-to-face communication" (A2), "I only like/favorite the shares" (B2), "I like, share and add the posts to my favorites" (B3) and "I comment on, like and share the posts" (B4); and "it replaces most of the face-to-face communication" (A3) and "I create new posts, join the discussions, like, share and add to my favorites (B5)" are associated with each other.

In terms of communication and interaction issues, distance education students think that an SNS "replaces most of the face-to-face communication" or "somewhat have an effect on face-to-face communication" (both constitute 61.2%) and "does not have an effect on face-to-face communication" (38.8%). In terms of interactivity, research findings reveal that around 20% of the students are active producers, while 80% of the students are consumers decreasingly on the producer-consumer continuum. The Pareto principle (AKA the 80–20 rule) suggests that roughly 80% of the effects come from 20% of the causes. In other words, the many consume what the relatively few create (Juran, 1975). According to research findings, while 19.5% of students create the contents, the remaining 80.5% consume what has been created. The findings have similar tendencies to previous research. For instance, according to Rainie, Brenner and Purcell (2012), 56% of Internet users do at least one of the creating or curating activities, while 32% of Internet users do both creating and curating. The interaction pattern identified in this research is important in terms of understanding the potential of SNSs because it can be explained by Power Law (Adamic, & Huberman, 2000), which can be seen in scale-free networks. The interaction pattern in scale-free networks are quite similar to networks that exist in the physical world.

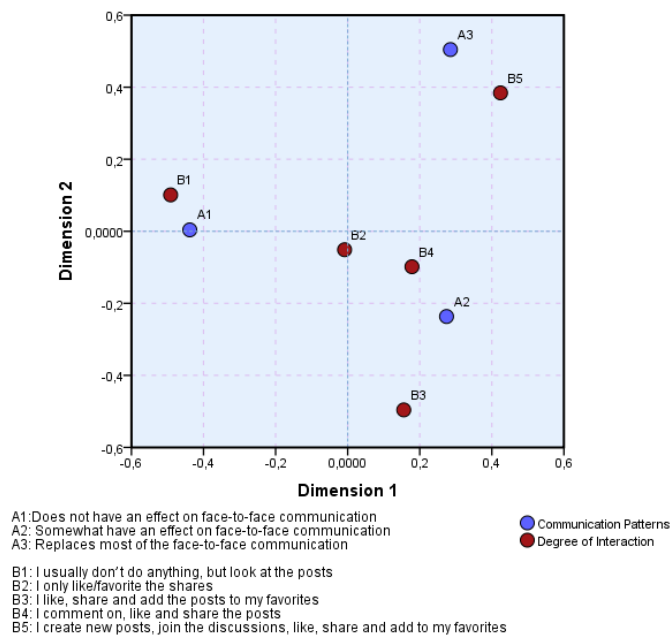


Figure 1: Scatter plot for communication patterns and degree of interaction.

Conclusion and Future Directions

This paper explored the use of SNSs for communication, interaction and learning by the distance education students at Anadolu University, Turkey, which is a dual-mode mega university that facilitates both face-to-face (N = 30,565 students), and distance education (N = 2,724,650 students). A great majority of the students (87.9%) stated that they use SNSs. Mobile devices are the distinctly preferred devices to access SNSs and be present online. Distance education students usually connect to SNSs on a daily basis and most of them are always online. In regard to length of the usage patterns, it was seen that distance education students are experienced users, and SNSs are part of their lives. In terms of learning, most distance education students find SNSs promising, while some have negative thoughts and are undecided on using them in learning processes. The main reasons to use SNSs are for social communication and interaction as well as being present online. Only small amounts of distance education students do not use SNSs. The majority of those that do not use SNSs also stated that they could use SNSs for learning purposes but not for communication purposes. Distance education students think SNSs have an effect on their communication patterns, and their online degree of interaction is similar to offline patterns as explained in the Pareto Principle. Additionally, there is a correlation between type of communication and degree of interaction. In addition, it was found that gender is significant in terms of communication patterns and degree of interaction. However, it was found that age is significant in terms of degree of interaction, but not for communication patterns.

Based on the above research findings and discussions, the following future implications can be taken into consideration by Anadolu University and other higher education institutions. Currently, Anadolu University benefits from SNSs for administrative purposes and student support services. By using SNSs, it facilitates a constant communication channel with students, promotes institutional announcements, gains feedbacks from students, runs university marketing campaigns, and most importantly gains insights about how students feel by analysing students' reactions. Moreover, students use SNSs for informal communication among themselves, receiving announcements, and keeping in communication with their institute. Even though SNSs were effectively used for administrative purposes and student support services, there is a need for some experimental research in using SNSs for educational purposes. As explained in the literature review section, SNSs are used as a social learning management system with fewer student numbers. However, it is still unclear how to use SNSs with a massive number of students to facilitate education. In this regard, future studies can focus on the instructional use of SNSs with a massive number of students, and these studies can focus on developing institutional policies and strategic planning about the use of SNSs as an educational tool in distance education.

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