

An Educational Technology Tool That Developed in The Natural Flow of Life Among Students: WhatsApp

Levent Cetinkayaⁱ
Ankara University

Abstract

This study was carried out to identify the benefits and drawbacks of using mobile social network application WhatsApp in the education of Secondary Education students. In this research, survey model was used and open-ended question form to 145 students together with semi-structured interview technique to 6 students were employed and answer to the same research question was sought by using data of different nature. The data were analysed by content analysis and phenomenologic analysis methods and some of the screenshots of students' posts are given as they are when necessary, which made possible the inspection, comparison and verification of each data one another. The benefits and drawbacks of using WhatsApp for educational purposes, which students normally use for communication purposes, are listed under the subheadings of technique, education and academic. Results indicate that WhatsApp has the potential to provide a natural and unstructured learning environment. Accordingly, by taking the benefits and drawbacks of WhatsApp and the like into account, it is advised to support their educational use.

Keywords: WhatsApp, Instant messaging, Mobile Communication Platforms, Social Networks, Technology Integration in Education.

ⁱ **Levent ÇETİNKAYA** completed his PhD at Ankara University, Department of Computer and Instructional Technology with a PhD dissertation titled "The Design Principles of Web Environments Content Adaptive Education". He has also carried out researches and published papers on technology integration in education, use of mobile social networks in education, adaptive learning environments and cyber security.

Correspondence: l cetinkaya@ankara.edu.tr

Introduction

Digital technologies which can be seen almost in all the activities of young people, have enabled the real and virtual lives to be lived together at the same time due to the increase in the access to the internet. Internet technologies, with the increase in their frequency of use, time and areas, have started to shape the way people produce content and share together with the communication and interaction patterns dynamically. Social networks which are widely used by the young people have become a second living space along with virtual reality. Social networks which are defined as softwares which ease the interaction among individuals and groups and offer different options for social feedback and support social relations (Boyd, 2003), have become a part of users' everyday routines (Dunne, Lawlor, & Rowley, 2010; Papacharissi, & Mendelson, 2011). Different from the other web sites which bring the people who have common interests together, it centers on 'person' (Boyd, & Ellison, 2007).

Proliferation of social networks which center on individuals and reflect the social structure in real life, has made the development of mobile applications necessary which enable the users to access these networks anytime and anywhere. Web-based social networks (Facebook, Twitter etc.) have become more popular through applications which are based on web and compatible with mobile devices. By the help of mobile social network applications, users can use social services, which are already available on computers, anywhere and anytime to interact and share. This has led the use of mobile technologies, mobile phones in particular to change. With the increase in the number of messaging applications (WhatsApp, BBM Line, etc.) developed for mobile phones and their increased popularity, different aspects of this change have started to be approached.

In parallel with the developments in internet technologies and the popularity of new generation mobile phones and social networks, internet based mobile messaging applications which were initially restricted to text messages, has gained an important role with the use of audio and video (multimedia). Recent researches suggest that messaging has become popular and primary communication preference (Lenhart et al., 2010). New mobile messaging technologies have supported text based messaging more than face to face meeting and thus making the users more informed about their family members, social and everyday matters, have changed the interaction among people uncommonly (Harrison, & Gilmore, 2012; Sultan, 2014). Though there are many similar applications that contributed to this change, WhatsApp application in particular, has been one of the most preferred mobile based messaging applications (see also, SimilarWeb, 2016; Statista, 2016). This technology by which users can send image, audio, video, voicemail, text message, location and talk to each other over mobile or WIFI internet connection, has started to be used widely after the developments in mobile technologies. WhatsApp, which Fischer (2013) defined as 'a simple social network', though was initially used for messaging via phone book, later has become an important communication tool that helps people access information quickly, especially by creating groups. Herein, it seems possible to define technically WhatsApp application with its multi-platform feature, multimedia support, support interaction among individuals and groups as mobile based social network.

No sooner social networks became inevitable in our daily lives than they started to appear in education. Accordingly, along with the effects of social networks on individuals, their use and effects in education have also been examined by the researchers. It is noted that the studies examining the use of social networks in education centered upon commonly used Facebook and Twitter. It is determined that each of these tools have the *potential to provide cooperation* (Arteaga Sánchez, Cortijo, & Javed, 2014; Fewkes, & McCabe, 2012; Irwin et al., 2012; Muñoz, & Towner, 2011; Shih, 2011; Wang et al., 2012), *augment social interaction* (Barczyk, & Duncan, 2013; Lim, & Richardson, 2016; Madge et al., 2009; Wang, et al., 2012), *interest and motivation* (Mills, 2011; Mitchell, 2012; Wu, & Hsu, 2011; Ziegler, 2007), *sense of belonging and dependence* (Junco, 2012; Junco, Heibergert, & Loken, 2011), *success* (Cain, & Policastri, 2011; Isacson, & Gretzel, 2011; Sánchez, Cortijo, & Javed, 2014), *learner-instructor intercation* (Muñoz, & Towner, 2011; PiriyaSilpa, 2011; Wang et al., 2012), *support learning everytime and everywhere* (Chu, 2014; Fewkes, & McCabe, 2012; Wang et al.,

2012; Yang et al., 2011), *peer support* (Christofides, Muise, & Desmarais, 2009; Goodband et al., 2012; Ross et al., 2009; Selwyn, 2009), *feedback* (Goodband et al., 2012; Selwyn, 2009), *material and information sharing* (Bosch 2009; Bouhnik, & Deshen, 2014). However, there are also negative effects revealed by studies like; *privacy and security anxiety* (Cain, & Policastri, 2011; Muñoz, & Towner, 2011; Young, & Quan-Haase, 2009), *distractibility* (Madge et al., 2009; Madhusudhan, 2012), *exceed the limits in relations and slang language use* (Muñoz, & Towner, 2011; Mahdi, & El-Naim, 2012), *adversely affected academic life by different reasons (addiction, insomnia, immobility)* (Andreassen, 2012; Dewald et al., 2010; Lee, 2015; Lemola et al., 2015; Li et al., 2014). However, these unfavorable results cannot deny the reality that social networks have taken an important place both in our lives and education.

It is important to develop new and effective learning environments for learning to take place effectively in terms of quality and quantity. However, many studies suggest that adaptation of current, popular digital environments into learning environments contributes to formal and informal learning. Supporting learner-centered approach in education by their human-centered nature, social networks can be used without additional training in the natural flow of life. Furthermore, the educational usage of commonly used mobile technologies and social networks such as; *Facebook* and *Twitter* have been tested by many researchers, and this has necessitated the use of these technologies and the software used with these technologies by the large masses and the adaptation of the softwares into learning environments.

The swift introduction of smartphones into markets has led WhatsApp to be widely popular among various student groups as a communication platform. Being a new phenomenon, the studies examining its impact on interpersonal interaction and teaching and learning processes are limited. However, the presence of some evidence suggesting that these applications have a great impact on the social development of young people makes it necessary to determine the expectations and impacts towards the academic developments. This study herein aims to determine the benefits and drawbacks of using WhatsApp which is considered within the teaching and learning process and has the necessary qualities to cover the learning concepts over mobile and social Networks.

Method

In this section, there are explanations on the research model, study group, data collection and data analysis of the study.

Research model

The study was designed in the form of survey model to determine the benefits and drawbacks of the use of WhatsApp in teaching and learning process of secondary education. Survey models are approaches that aim to describe past or present phenomena as they are (Karasar, 2008). Answer to the same research question was sought by employing data of different nature under the control of several researchers hereby aiming to increase the validity, reliability, consistency and intelligibility of the research. Furthermore, some of the data which could reflect findings in general were given as they are to increase the credibility. (Morse et al. 2002; Wolcot, 1990)

Study group

The study group of the research consists of 72 female (49.7%), 73 male (50.3%), total 145 students who are between the ages of 15-17 and study at 6 different schools. When forming the study group, purposive sampling technique in qualitative research was used to get in-depth information in line with a certain aim, on people, event or situation that form the subject of the study (Maxwell, 1996). Thus, this research was conducted with students using WhatsApp group that is formed just for the purpose of communication or education within the classroom. The distribution of gender, age and school of types which were determined by taking the statistics of formal education in Turkey (MEB, 2015) into consideration are given in Table 1.

Table 1. School types, gender and age distribution

Age	School types (High school)						Gender				Total	
	Anatolian		Science		Vocational		Female		Male		f	%
	f	%	f	%	f	%	f	%	f	%		
15	5	50.0	2	20.0	3	30.0	6	60.0	4	40.0	10	6.9
16	61(3)	50.4	24(1)	19.8	36(1)	29.8	62(3)	51.2	59(2)	48.8	121(5)	83.4
17	5	35.7	1	7.1	8(1)	57.1	4	28.6	10(1)	71.4	14(1)	9.7
Toplam	71(3)	49.0	27(1)	18.6	47(2)	32.4	72(3)	49.7	73(3)	50.3	145(6)	100

Note: (X), information on students who had semi-structured interview.

After the first phase of data collection, in order to elaborate on the research and increase its reliability, semi-structured interviews were made with 6 students, 3 girls and 3 boys, who were randomly selected in the study group.

Data Collection

During the qualitative data collection, by employing different data collection techniques, the inspection, comparison and verification of different data one another were made possible while answering the same research question (Patton, 1990). Hence, the possibility of systematic error was minimised (Maxwell, 1996). Marshall and Rossman (2006) divides the qualitative data collection types as basic data collection methods and supportive data collection methods. In this study, ‘open-ended question form’ as main data collection method and ‘phenomenological interview’ technique as supportive data collection method were used. The data collection tools used in the study were finalised by expert views and interviews.

During the data collection, first the students were informed about the expectations and the aim of the study. Also, school management and parents were informed that the data related to the study could be used within the research ethics without revealing the identities of the participants and their written consent was obtained. Then, the students were asked;

What can be the positive contributions of using WhatsApp in education?

What can be the negative aspects of using WhatsApp in education?

research questions were given to students in written form under the supervision of researchers in the classroom to help them give answers freely and elaborate on them.

After the first data collection phase and completion of the data analysis, phenomenological interview with 6 students, which constitutes semi-structured interview aspect of the study, were made. The interviews which were made face to face and at different times and places were recorded after obtaining the consent of the students and were written out and analysed. Here, rather than forming new categories, verification of the categories determined after the analysis of the data gathered by open-ended question form. Furthermore, it was aimed to reveal how the participants perceived, conceptualized and evaluated the events and tried to conceive the meaning they attributed to external reality (Greasley, & Ashworth, 2007).

Data Analysis

During the first phase of the two-phased data collection of the study, the data obtained from open-ended question form was analysed by content analysis, and the data from semi-structured interview by phenomenological analysis. Content analysis means, objective, systematic and digital analysis of the variables in the text (Wimmer, & Dominick, 2003). During the analysis of the answers given by the participants to the open-ended questions, *categorical analysis* and *frequency analysis* were utilised. In the categorical analysis, the following steps were followed; (1) coding of the data, (2) formation of the categories, (3) organisation of the categories, (4) definition and interpretation of the findings (Corbin, & Strauss, 2007). Frequency analysis revealed the qualitative frequency of the units, density and importance of a particular item (Ryan, & Bernard 2000; Tavşancıl, & Aslan, 2001). In order to show the frequency of participants’ views, frequency (f) and percentages are given

comparatively. Hence, by digitilisation of the qualitative data, data reliability increased, the biasness decreased and the comparison of the data was enabled (Yıldırım, & Şimşek, 2008). After the data collection, they were analysed by two researchers and the consistency of the categories were measured by Cohen’s Kappa Coefficient which shows the reliability between the coders. The results showed a percentage of 0.89 which meant coding consistency is enough with “almost perfect agreement” (Landis, & Koch, 1977)

After the analysis of the data gained from the replies given to the open-ended questions, semi-structured interview form was used in the second phase of the research. The notes obtained by the interviews which lasted at least one hour and were made in line with the questions in the open-ended question form were analysed by using phenomenological analysis which is one of the qualitative data analysis types. By using phenomenological analysis, the researcher tried to comprehend the ideas and feelings of the participants based on what they said (Smith, & Eatough, 2007). Moreover, the participants’ consistency in their perception and recognition of the replies that they gave to the open-ended questions and to the questions asked during the interview were analysed. Hence, the data and the results of the analysis were given to the participants to control, and findings were confirmed. The research was finalised after taking suggestions of an expert, who is experienced in qualitative studies, in order to examine the analysis and results and also determine if the comments made by the researcher reflected the truth and, if yes, to what extent it reflected.

Findings and Interpretations

Findings have been shaped by the analysis of the replies given by the participants to the open-ended questions and semi-structured interview form and they are given under the headings. The data of the research are summed up under two main headings; ‘the benefits’ and ‘drawbacks’ of using WhatsApp in education. Under these main headings, categories are detailed in the subheadings. Besides, the students’ own statements (written data:’SW’, interview data:’SI’) and some screenshots of the students’ conversations in the groups, which they formed, are given.

Benefits

The benefits of the use of WhatsApp groups in education are listed as technical, educational and academic benefits.

Technical benefits: The technical benefits which were identified by the analysis of the replies given by the students for the use of WhatsApp in education are given in Table 2, with their descriptions in categories.

Table 2. *Technical benefits of using WhatsApp in education*

Technical benefits	<i>f</i>	%
Ease of use	136	93.8
Free of charge	130	89.7
Easy accessibility	119	82.1
Fast communication	101	69.7
Reliable communication	91	62.8

Ease of use: It is seen as the major technical benefit of WhatsApp and its being used easily without any training is often emphasized. One of the students, who has been using WhatsApp for two years, (SW102-SI3) said “*It is easy to use and I can get help from my friends since everybody uses it.*” besides its ease of use, the student also mentions about the support s/he can get. SW13 emphasizes the ease of use of its web based application also by stating “*Using a single buton, you can send music or photos... at home I can send whatever I want by getting connected to WebWhatsApp.*”

Free of charge: One of the reasons why it is very popular among students is that no fee is demanded. One of the students (SW33-SI1) stated explicitly“*...at first people told that it would be*

'paid' and this worried me. Its being free of charge is important for me... and if it were paid, I might not use it", which shows that its being free is an important benefit. Furthermore, that it can be used freely where there is WIFI or mobile line (except the connection fee, if any) is seen as another benefit, and this was stated by SW59, *"free communication wherever there is internet"* emphasizing its effectiveness in communication.

Easy accessibility: This means its availability without any technical requirements except the smartphone and the internet connection. The application is supported by all mobile operating systems and can be installed and used everywhere if there is internet connection. Regarding its easy accessibility, SW17, stated *"...after downloading from the page..., and installing it, you can connect everywhere there is internet...whenever I want I can use it both at home and at school without being have to pay"* underlining its benefit of both being free and easy accessible.

Fast communication: It is viewed as an important benefit by students when compared to other social networks. As SW113 *"when I share something on WhatsApp, my friends can get it very quickly. I can see who got and read the message immediately."* besides its benefit of being fast, its control feature is also seen as important. As stated by SW72 *"we had Facebook group before and messages were limited. However, WhatsApp is faster, I can reach instantly."* it can be preferable since it provides fast communication and hence, overtowers other social networks.

Reliable communication: It is another benefit of WhatsApp which is compared to other social Networks as with the benefit of fast communication. SW12 stated *"In our Facebook group which we formed previously, often my friends' accounts were hijacked. I have never faced such a thing in our WhatsApp group."* referring to the security problems s/he encountered in other social networks. However, as can be understood from another student's words (SW88-S12) *"though I don't fully trust social networks, WhatsApp is more reliable."* SW48 *"it is more reliable when compared with the other social networks I use but, after all, it needs internet to operate."* although there is a common idea that WhatsApp is safer than other social networks, there is still some concern. On the other hand, SW61 said *"I feel confident that WhatsApp uses my phone directory and I can keep in touch with the people in my phone directory. There is no risk of fake accounts or I haven't faced."*, underlining that WhatsApp is safer than other social networks.

Educational benefits: Educational benefits are identified by the analysis of the replies to the use of WhatsApp in education given by the students involved in the study are given in Table 3 with their descriptions in categories.

Table 3. *The educational benefits of WhatsApp*

Educational benefits	f	%
Contribution to student-student communication	133	91.7
Peer support	107	73.8
Creating sense of belonging	81	55.9
Naturality and comfort in self-expression	77	53.1

Contribution to student-student communication: It emerged as one of the most important educational benefits of WhatsApp. Besides its contribution to interpersonal communication, it also contributes to the communication by its capacity to bring group members or individuals together toward a particular aim. SW16: *"I can keep in touch with my classmates all the time as if we were in the classroom. And SW99 "... We can continue our communication outside the classroom."* with these statements, students express WhatsApp's contribution to their communication.

Peer support: Students' process of education includes cooperation and WhatsApp's support to this process is viewed as an important point by students. SW55 *"I can get help from my friends*

whenever I need a document or information or have a problem.” these expressions show WhatsApp’s positive contribution to peer support. Though peer support involves being informed instantly about the assignments, tasks and related posts, it isn’t for course content.

Creating sense of belonging: It is also noted that WhatsApp application contributes to sense of belonging positively after the pedagogical interaction period besides its contribution to communication among students. SW139 “it is sort of the whole class is in my pocket” and another student (SW51-SI4) “WhatsApp makes us feel at school... when we come to school the other day we feel as if we hadn’t left school and missed anything.” these expressions show that members of the group go beyond the physical borders and in this way, the contunity of the communication in the group and sense of belonging enabled. However, SW9 “...s/he left school but wanted to stay in the WhatsApp group.” and SW39 “We formed the group, some friends didn’t have smartphones and they bought smartphones merely to join the group.” these words are the indicators of students’ effort to join or stay in the group and the formation of sense of belonging.

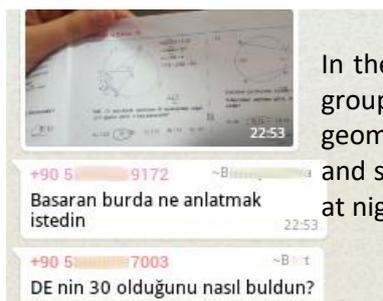
Naturality and comfort in self-expression: It is viewed as one of the benefits which WhatsApp offers to support face to face communication and eliminate the problems in education process. For example, SW59 said “Although some friends don’t speak much in the classroom, they speak in WhatsApp freely.” another student (SW33-SI1), on the other hand, said “some friends can’t speak when they are in the classroom but they can when they use WhatsApp.”, “... what s/he says or asks cannot be understood when face to face ... s/he tells better when s/he writes...” moreover, it is also clear that students stress naturality and ease in expression. This shows that WhatsApp application has become a different communication channel and the problems that can be encountered in face to face communication can be eliminated by this application.

Academic benefits: The benefits related to the students’ academic activities and processes are given in Table 4, with their descriptions in categories.

Table 4. Academic benefits of WhatsApp in education

Academic benefits	f	%
Learning anytime, anywhere	121	83.4
Sharing the materials and resources	113	77.9
Academic support	103	71.0
Organising academic activities	96	66.2
Learning unwittingly	63	43.4

Learning everytime everywhere: That the students can ask questions about unlearned topics at school, share problems instantly and get replies, are often repeated benefits of WhatsApp. “With the help of WhatsApp, when I have a question I don’t have to wait until morning and often I take its photo and send it (SW112-SI6)” and many other students state that the application eliminates the time and space limitations. Also, the capability of the application that enables students to communicate irrespective of time or a particular network, also enables them to get help and support apart from posts for academic purposes.



In the example, one of the students in the group wanted help from his/her friend for a geometry problem that s/he couldn’t solve and sent the photo of the problem at 22:53 at night.

Figure 1. WhatsApp screenshot: Academic support required late at night.

Sharing the materials and resources: It is evaluated together with its multimedia support, easy and quick sharing ability and it is often stated by students as an important benefit in messages for academic purposes. SW19 underlines its ease of use “*just by one touch, you can send documents related to courses.*” together with its benefit to share. SW133 also, states its ease of use and pace along with resource and material sharing, “*it is easy to share the photo of a book or the address of a document on the internet quickly.*” It is also noted that participants often compare the benefit of resource and material sharing with other social networks. The comparison of WhatsApp with other social networks can be summed by SW1’s words “*We have a Facebook group but WhatsApp is both faster and easier in sharing documents related to our courses, ... it is easy to track the posts.*”

Academic support: WhatsApp has a major benefit in sustaining the cooperation and problem solving processes of students towards courses and their content in and outside the school. As can be seen from SW72 “*...the sun side of the picture is when I can’t answer a question and need help, I send it to my friends.*” and SW41 “*... I try to give answers as much as I can.*” academic support, different from peer support, is more related to course and course content. Generally, it includes academic interactions among students on difficult questions or ambiguous topics.

Organising academic activities: Students state that this is possible by using WhatsApp, and by forming mathematics, physics and similar academic groups, it is possible to send purposeful messages. As can be understood from students’ statements; “*My friends taught me the topics that I didn’t understand in class by using WhatsApp*” (SW12) and “*... I could get prepared for the literature exam only by the messages from my friends without using any book*” (SW117-SI5), WhatsApp offers an ideal environment to organise an academic activity. It is noted that academic activities can continue outside the class and also learning can take place purposefully or unwittingly during these academic activities.

Learning unwittingly: This the case which is often referred together with the other benefits of the application and emerges apparently when students follow the process purposefully or unwittingly, “*I could learn the topics which I couldn’t before* (SW11)”, “*... It was enough to glance at the posts* (SW6)”, “*... I revised for the exam even without noticing* (SW1)” this situation which is tried to be phrased by students with similar expressions, though not noticed during the process, is realized when information is needed. For example, SI3 “*... there were questions that I had no idea in the ... exam. Suddenly I remembered a discussion in our WhatsApp group. Though I hadn’t attended the discussion, I remembered the messages and I could answer the question, if not all.*” as can be inferred from this example, learning takes place without active participation of the students unwittingly, just by following the process.

When the data of the study related to the benefits of WhatsApp are examined in general, it is seen that they are interrelated and even complementary of each other. For example, the technical benefits of WhatsApp are closely related with its educational and academic benefits. Likewise, there are also similar relations among the categories. For example, sharing the resources and materials which are included in the category of academic benefits, doesn’t seem much meaningful in cases when there are time and space limitations or without peer support. It has been proven that WhatsApp meets students’ numerous communication needs. As can be seen in Figure 2, a student who demands peer support to answer a question, should be available every time and everywhere, enable resource and material sharing. In this context, a natural informal learning environment comes out when all the benefits of the application are taken together.



Figure 2. WhatsApp message samples before an exam

Drawbacks

The drawbacks of using WhatsApp groups, formed by the students, in education are listed under four headings; technical, educational, academic, social.

Technical drawbacks: The drawbacks identified after the analysis of the answers given by the students to the use of WhatsApp in education are given in Table 5, with their descriptions in categories.

Table 5. Technical drawbacks of using WhatsApp in education

Technical drawbacks	f	%
Battery life	112	77.2
Memory capacity	91	62.8
Problem of mobile internet quota	23	15.9
Faulty smartphones	18	12.4

Battery life: Though it is not directly related to the application, it is one of the problems that affect its use. Besides the necessity of the application to be connected to the internet all the time, depending on the intensity of the notifications, the battery life of the mobile device is also effective. SW37: “The battery of my smartphone goes dead quickly because of WhatsApp... when it is silenced and I want to check it, I see hundreds of messages and half battery life.” as can be understood from these statements, battery life indirectly affects the use of the application.

Memory capacity: It is one of the problems that can be indirectly associated with the application. Memory may get full particularly by the pictures, audio, and other media sent by the users. SW70: “...sometimes pictures which are redundant fill up my phone memory.” most students have found a solution to this problem which is to ‘delete’ them as stated in SW123’s words “... I delete the pictures after some time.” however, students report that they have problems when the course materials are deleted, because they can’t get them back.

Problem of mobile internet quota: Students see it as problem particularly when there is no available WIFI. While students say that they can easily use the application when there is free internet connection or without any restrictions to the internet, they see it as a problem when they have to pay for it or use their mobile phone line. SW90: “when at home or school, it’s OK, but when I’m out, I use up my mobile internet quota. When I use it up I can’t use the application and I get lots of messages successively when I go on to the internet again.” which shows that communication with the group is adversely affected if there is a problem with the internet.

Faulty smartphones: In such cases student may remain away from the group and not be involved in the process. SW78: ‘My phone is out of order and I couldn’t follow what happened in the

group.’ and SW131: “Because of... I had a problem with the screen of my phone and I had to be away from my classmates, I couldn’t follow anything they did and I got bored.” both expressed the problems they encountered when their phones didn’t work and their boredom. Though may not be a big problem for the group in general, it creates individual problems, “when I had a problem with my phone, I had communication problems with my classmates as well, and I couldn’t get the lecture notes before the exams. I had some questions, so I had to make a phone call and ask. (SW88-SI2)” tells that such problems may lead to problems in educational and academic processes.

Educational drawbacks: The educational drawbacks of using WhatsApp in education are given in Table.6 with their descriptions in categories.

Table 6. *The educational drawbacks of using WhatsApp in education*

Educational drawbacks	f	%
Difficulty in editing the posts	72	49.7
Using & sharing improper language	70	48.3
Leaving the WhatsApp group	17	11.7

Difficulty in editing the posts: It is often because of inability of the application to edit the pictures sent. To overcome this, SW77 said “to answer the question, I save the picture, edit it by using another application and send it back.” SW131, “since it is difficult to edit pictures, I send my replies in text.” However, K80: “if it were possible to edit the pictures that I received, I could give answers faster” meaning that inability to edit the received posts directly could lead to time loss.

Using & sharing improper language: Along with use of slang language in the group, improper posts (pictures, videos etc.), unsuitable timings of the messages are seen as major problems for students. A female student SW9: “sometimes boys forget us in the group... and we remind them.’ tells about improper posts and her attitude towards these. SW129, on the other hand, “we formed ... group for communication in class and for our courses but some of our friends let themselves go. Especially when there are football matches, there are often posts between students supporting different teams. Even they sometimes use slang words and I keep silent” tells her attitude towards the use of group out of purpose.

Leaving the WhatsApp group: This could be because of technical reasons, disagreement or without any reasons. “Mobile phone malfunction, mobile internet quota finish or because of the behaviours of some of our friends in the group, some friends leave the group. Though they return to the group later, this sometimes ruins the rapport in the group. This may go on at school as well.” SW15 implies that there could be students leaving the group because of various reasons. Students report that this situation, which is perceived as a problem, also affects the real life as in the virtual environment.

Academic drawbacks: Academic drawbacks of using WhatsApp in the education of students are given in Table. 7’de, with their descriptions in categories.

Table 7. *Academic drawbacks of WhatsApp application in education*

Academic drawbacks	f	%
Shift in perception	65	44.8
Taking the easy way out	34	23.4
Deletion of the messages	23	15.9

Shift in perception: It means student’s distractions especially when they are studying or they have things to do and concentrating on WhatsApp chats. SW133 “Sometimes, especially at the night before the exams, they send too many messages. And sometimes I quit studying and join the chats”, SW83 “When I have to study my lessons, I often mute it. Because every notification distracts me.” by

which they meant there can be shift in perceptions when there are concentration problems. When there is technical background necessary to send WhatsApp messages, the benefit of no time and space limitation, could turn into drawback especially when studying lesson, late at night or during the lesson at school when messages start to come. Also, when there is abundance of unnecessary messages and the notifications are on, there can be concentration problems. In this case generally students create solutions like muting the group and checking it later on.

Taking the easy way out: It refers to rather than creating his/her own solutions, waiting for the other group members to find solutions without spending any effort. SW18: "...they don't take notes in the class, instead they want their photos." and SW111: "... there are people who don't try to find an answer but send the question directly to the group instead and don't do anything." with these expressions, students state that they have friends who take the easy way out, without spending any effort, which leads students to wait for ready solutions.

Deletion of the messages: It is viewed as a problem especially by students who want to reach the course materials later. This is told by SW33: "...when a picture is deleted, it can't be reached again." SW82 "Sometimes I have to delete the photos I share when the memory of my phone gets full." tells his/her reason for deleting messages and this is also reflected in academic process.

Discussion, Result and Suggestions

This study was carried out to identify the benefits and drawbacks of using WhatsApp, one of the instant messaging applications, in the education of secondary education students between the ages of 15-17. Employing open-ended question form together with semi-structured interview techniques enabled the inspection, comparison and verification of each different data one another. Categorical analysis and frequency analysis were utilised in the research whose data were analysed by content analysis and phenomenological analysis. Accordingly, the results and suggestions are given below.

In the recent years, social networks have started to become a part of education in the natural flow of daily life without any training and guidance. Especially, WhatsApp which has an important place in the lives of young people and has the features to be accepted as social network, has become an educational technology form of the daily communication. Yet, it is early to predict how it will influence the education process. However, it seems possible to estimate it by the researches conducted on other social networks (Facebook, Twitter, etc.). Within this framework, the benefits and drawbacks of using WhatsApp groups in education that the students themselves formed to communicate, are listed under 3 headings; technical, educational and academic.

Benefits

Technical benefits of WhatsApp towards education are identified as; ease of use, cost-free, easy accessibility, fast communication and safety. It is seen as an important factor that the application can be used without any training. Besides its ease of use, its being cost-free and easy accessibility are listed among the factors which increase the 'will' to use it. Also, that it can be used in smartphones without demanding any kind of fee, makes it easy to adopt. Another technical benefit of WhatsApp is its speed and reliability. Speed, which is evaluated by students often by making comparisons with the other social networks, though seems related with the internet connection and the device used, enables the messages to be tracked easily. The fact that the application works over mobile phone line, diminishes the risk of using fake accounts and it is safer when compared to other social networks. When technical benefits are evaluated in general, their ease of use, accessibility, speed and reliability are major factors in the adoption and use of the application. These benefits which are identified in the researches of WhatsApp (Bouhnik, & Dshen, 2014; Church, & De Oliveira, 2013; Johnston et al., 2015) are also viewed important in the studies (Mazman, & Usluel, 2010; Arteaga Sánchez, Cortijo, & Javed, 2014) which are towards the acceptance of social networks and use in education.

The benefits of using WhatsApp in education are identified as; contribution to student-student communication, peer support, creating sense of belonging, naturality and comfort in self-expression.

By the help of its feature to bring together a particular group or individuals towards a particular aim, a natural and comfortable communication was formed and this enabled students to support each other during their education process. Also, students stressed the naturality and comfort of the application in the interaction process. It was observed that WhatsApp contributes to the peer support which involves awareness of the assignments and tasks or the messages for the solutions of the problems encountered, and the sense of belonging by mutual interactions. The replies given by the students, efforts to join or not to leave the group, both show that it affects the continuity and thereby, sense of belonging of the group positively. Apart from these educational benefits, it was also noted that WhatsApp is effective also in self-expressions of the students, providing a natural and comfortable environment. Hence, via the application, face to face communication and elimination of the problems in education are supported. Rather than the course content, sense of belonging and the support by the interaction among students which are benefits of the application towards educational processes, come into prominence. This situation was also pointed out in Bouhnik and Deshen's (2014) studies, appeared in the educational benefits of WhatsApp. Johnston and et al. stated that the contribution of the application to communication in the group and the support was very high. However, it is stated that the interdependence in and outside the classroom for the success of the students (Kuh, 2009) and collaboration and interaction in the increase of interdependence are important (Bouta, Retails, & Paraskeva, 2012). As a result, it is apparent that WhatsApp provides the basis for the factors that will develop dependance and sense of belonging.

Academic benefits of WhatsApp in education are identified as; learning anytime, anywhere, sharing the materials and resources, academic support, organising academic activities, learning unwittingly. It was established that by using the application, they could post the problems that they faced instantly and that the application supported learning anywhere and anytime without any interruption in the academic process. The data gained through the study indicate that the application eliminates the time and space limitations in education, and that in addition to the academic messages, it provides students with help and support. Another academic benefit of the application is that by its multimedia support, it lets the students share resources and materials for academic purposes. This also makes it easier to provide academic support by academic messages. In students' problem solving and cooperation processes in relation to courses and their contents, it was determined that WhatsApp has an important role in ensuring the sustainability in and outside the school and that it also contributed positively to the students' getting academic support. It is seen that academic support process continue not only in class groups but in the groups formed for an exam or a particular course outside the class as well. During all this interaction process, some of the students told that they could learn, though not in interaction but in the process unwittingly. In his research on social networks, Leonardi (2014), reported that learning could take place also by observing other people's communication and studies. Researches indicate that social networks support, helping each other on course material, cooperation and content sharing (Rosen, 2010), and provide an unstructured learning environment (Cain, & Policastri, 2011; Grosseck et al., 2011; Lampe et al., Madge et al., 2009; Towner, & Munoz, 2011). By the help of these benefits supported by the researches made on the application (Bouhnik, & Deshen, 2014; Church & de Oliveira, 2013; Nguyen, & Fussell, 2016), it is seen that WhatsApp can be used as part of learning every time everywhere and collaborative learning.

Drawbacks

The technical drawbacks of WhatsApp in the education process are identified as; battery life, memory capacity, problem of mobile internet quota, faulty smartphones. These drawbacks are often associated with smartphones with WhatsApp and internet connection rather than the application itself. However, it was also noted that these technical drawbacks could influence the use of the application and thereby its effectiveness in education negatively. For the application to be useable, it needs internet connection and depending on the message traffic, battery life may vary. Along with the battery life, the message traffic and especially the media (photo, video etc.) cause the memory capacity to get full. To overcome this, students often delete the messages but the related messages become unreachable then. Students can reach the message easily when there is internet, however when it is paid or over mobile line, they could be away from the group. It is also noted that when the students have to pay for the internet or have a faulty smartphone, they could be away from the group

and not be involved in the process. In this case, there can be problems in educational and academic processes because the students can't follow and be away from them. At this point, it is clear that together with the features of the mobile device, access to the internet is also important in the effective use of the application. Especially in the studies related to the use of mobile device in education, it is often reported that these problems could inhibit the students from using the mobile applications effectively (Akarasriworn, 2011; Ke, & Kwak, 2013; Oberg, & Daniels, 2013).

The educational drawbacks of using WhatsApp in education are identified as; difficulty in editing the posts, using & sharing improper language, leaving the WhatsApp group. Since the students share their questions by using their photos and want to get replies in the same way, the inability of the application to edit the posts directly is viewed as a drawback. Though students try to overcome it by using alternative methods, they report that it causes them to lose time. Use of slang language, improper posts (picture, video, etc.) and untimely messages are viewed as serious problems by the students. This might cause negative reactions of the group members or even they might leave the group. Students tell that this sometimes could effect their real lives negatively as well. When the educational drawbacks are observed, the ones other than 'the difficulty in editing the posts' are related to the interaction within the group. Disagreements are inevitable in virtual environments as in the face to face communication because of the human factor involved. Bouhnik and Deshen (2014) also reported similar problems in WhatsApp groups in which the teachers are also involved. Social networks being the first, use of slang language and improper posts which are often encountered in communication in virtual environments are perceived as problems in other social networks that are formed for educational purposes as well. It is possible that these problems could lead to exceeding of the professional borders in relations in educational settings (Muñoz, & Towner, 2011), misunderstandings (Zaidieh, 2012) and hence disagreements (Akarasriworn, 2011).

Academic drawbacks of using WhatsApp in the education of students are identified as; shift in perception, taking the easy way out, deletion of the messages. Shift in perception is defined as student's distractions especially when they are studying or they have things to do and concentrating on WhatsApp chats. In this case students often find solutions like silencing the group. Students often report that they receive a lot of messages especially during the exam periods and since they get the idea that the messages could be important, they want to follow them and thereby have problems in concentrating on the tasks or the exams. So they silence the group and glance at all the posts. Another problem that the students criticised or made self-criticism is taking the easy way out. It means rather than creating his/her own solutions, waiting for the other group members to find solutions without spending any effort. This leads the students to wait for the other students find solutions instead of finding their own solutions first. Another drawback which the students perceive during the academic use of the application is 'deletion of the messages'. It is often viewed as a big issue especially by the students who cannot follow the group for some reasons and want to access the course material later. The deletion of the media in the messages is particularly because of the memory limits of the smartphones. When the sender deletes the message or the media in the message, it becomes impossible for the others who want to access the message later. However, in the researches conducted on the use of other social networks and mobil devices, it is also reported that students may get distracted and the time for their studies may get negatively effected depending on the use (Kusnekoff, Munz, & Titsworth, 2015; McCoy, 2013, 2016). Bouhnik and Deshen (2014) also state in their study on the use of WhatsApp that these problems may occur and in order to prevent shift in perception, students resort to silencing the group. They also add that the students demand the solutions from their teachers instead of trying themselves and this is perceived as a problem by the teachers.

The influence of this technology which has found a place in education as well, has increased with the merging of internet and mobile technologies (Wang et al., 2013). By the help of technologies which enable asynchronous and synchronous communication, the format of the interaction has changed as well and the reflections of this change have soon started to appear in education (Eryaman, 2006; 2007). That the asynchronous and synchronous interactions via different communication tools have vital importance in students' education process (Drange, Sutherland, & Irons, 2015), contribute positively to their hapiness and learning outputs and let them have positive experiences are cited in

the researches (Friesen & Kuski, 2013). It is well known that one of the major component that increases the quality of the education in an online environment is interaction. On the other hand, it is suggested that the social networks, when designed according to the principles of science and information, could yield to revolutionary changes in the field of education (Zaidieh, 2012). At this point, it is believed that it will be useful to use WhatsApp in education, which lets asynchronous and synchronous communication used in mobile technologies, has the features that can be regarded as social network and used by the masses. Though there are benefits and drawbacks identified in the study or their frequency may vary depending on the purpose it is used, the groups that students themselves formed, can operate like informal collaborative environment.

The suggestions made according to the results are below:

- By taking into consideration its benefits and drawbacks, the use of WhatsApp and the like in education as subsidiary technology should be supported.
- The use of WhatsApp in education process purposefully is important and at this point the possible problems should be minimised by sensible guidance.
- From the fact that WhatsApp is acclaimed by great masses, similar researches with groups including the teachers should be made.
- This study which was conducted with Secondary school 10th grade students at the ages of 15-17, should be conducted with other grades, and ages as well.

References

- Akarasriworn, C. (2011). *Students' knowledge construction and attitudes toward synchronous videoconferencing in an online collaborative problem-based learning environment* (Doctoral dissertation). University of Northern Colorado, United States. Retrieved from <http://search.proquest.com/docview/919523309?accountid=11054>
- Andreassen, C. S. (2012). Development of a facebook addiction scale. *Psychological Reports, 110*(2), 501-517. doi: <http://dx.doi.org/10.2466/02.09.18.PR0.110.2.501-517>
- Arteaga Sánchez, R., Cortijo, V., & Javed, U. (2014). Students' perceptions of Facebook for academic purposes. *Computers & Education, 70*, 138-149. doi: <http://dx.doi.org/10.1016/j.compedu.2013.08.012>
- Barczyk, C. C., & Duncan, D. G. (2013). Facebook in Higher Education Courses: An Analysis of Students' Attitudes, Community of Practice, and Classroom Community. *International Business and Management, 6*(1), 1-11. doi: <http://dx.doi.org/10.3968/j.ibm.1923842820130601.1165>
- Bosch, T. E. (2009). Using online social networking for teaching and learning: Facebook use at the University of Cape Town. *Communicatio: South African Journal for Communication Theory and Research, 35*(2), 185-200. doi: <http://dx.doi.org/10.1080/02500160903250648>
- Bouhnik, D., & Deshen, M. (2014). WhatsApp goes to school: Mobile instant messaging between teachers and students. *Journal of Information Technology Education: Research, 13*, 217-231. Retrieved from <https://eric.ed.gov/?id=EJ1040352>
- Bouta, H., Retails, S., & Paraskeva, F. (2012). Utilising a collaborative macro-script to enhance student engagement: A mixed method study in a 3D virtual environment. *Computers & Education, 58*(1), 501-517. <http://dx.doi.org/10.1016/j.compedu.2011.08.031>
- Boyd, S. (2003). *Are you ready for social software?* Retrieved from http://www.stoweboyd.com/message/2006/10/are_you_ready_f.html
- Boyd, D. M, Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication, 13*(1), 210-230. doi: <http://dx.doi.org/10.1111/j.1083-6101.2007.00393.x>

- Cain, J., & Policastri, A. (2011). Using Facebook as an informal learning environment. *American Journal of Pharmaceutical Education*, 75(10), Article 207. doi: <http://dx.doi.org/10.5688/ajpe7510207>
- Christofides, E., Muise, A., & Desmarais, S. (2009). Information disclosure and control on Facebook: are they two sides of the same coin or two different processes? *CyberPsychology & Behavior*, 12(3), 341–345. doi: <http://dx.doi.org/10.1089/cpb.2008.0226>
- Chu, R. J. (2014). Empowerment Online: Feminist Adult Learning Strategies. *Creative Education*, 5(3), 141-144. doi: <http://dx.doi.org/10.4236/ce.2014.53022>
- Church, K., & de Oliveira, R. (2013). What's up with whatsapp? Comparing mobile instant messaging be-haviors with traditional SMS. *Proceedings of the 15th International Conference on Human-computer Interaction with Mobile Devices and Services* (pp. 352-361), ACM New York, USA. doi: <http://dx.doi.org/10.1145/2493190.2493225>
- Corbin, J. M., & Strauss, A. C. (2007). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage Publication.
- Dewald, J. F., Meijer, A. M., Oort, F. J., Kerkhof, G. A., & Bögels, S. M. (2010). The influence of sleep quality, sleep duration and sleepiness on school performance in children and adolescents: a meta-analytic review. *Sleep Medicine Reviews*, 14(3), 179-189. doi: <http://dx.doi.org/10.1016/j.smrv.2009.10.004>
- Drange, T., Sutherland, I., & Irons, A. (2015). Challenges of interaction in online teaching: a case study. 3. *International Conference on E-Technologies and Business on the Web*. Paris, France. Retrieved from <http://sdiwc.net/digital-library/challenges-of-interaction-in-online-teaching-a-case-study.html>
- Dunne, A., Lawlor, M. A., & Rowley, J. (2010). Young people's use of online social networking sites: a uses and gratifications perspective. *Journal of Research in Interactive Marketing*, 4(1), 46-58. doi: <http://dx.doi.org/10.1108/17505931011033551>
- Eryaman, M. Y. (2006). A hermeneutic approach towards integrating technology into schools: Policy and Practice. In S. Tettegah & R. Hunter (Eds.). *Technology: Issues in administration, policy, and applications in K-12 schools*. Elsevier Science Publications.
- Eryaman, M. Y. (2007). Examining the characteristics of literacy practices in a technology-rich sixth grade classroom. *The Turkish Online Journal of Educational Technology (TOJET)* 6(2), 26-41.
- Fewkes, A. M., & McCabe, M. (2012). Facebook: Learning tool or distraction? *Journal of Digital Learning in Teacher Education*, 28(3), 92-98. Retrieved from <https://eric.ed.gov/?id=EJ972449>
- Fischer, Y. (2013). *The Facebook is dead – long live WhatsApp*. De Marker. Retrieved from <http://www.themarket.com/technation/1.2126492>
- Friesen, N & Kuskis, A. (2013). Modes of interaction. Michael Grahame Moore (Ed.), *Handbook of Distance Education içinde* (pp. 351-371). Routledge.
- Goodband, J. H., Solomon, Y., Samuels, P. C., Lawson, D., & Bhakta R. (2012). Limits and Potentials of Social Networking in Academia: Case Study of the Evolution of a Mathematics Facebook Community. *Learning, Media and Technology*, 37(3), 236-252. doi: <http://dx.doi.org/10.1080/17439884.2011.587435>
- Greasley, K., & Ashworth, P. (2007). The Phenomenology of “approach to studying”: The University Student’s Studies within the Lifework. *British Educational Research Journal*, 33(6), 819-843. doi: <http://dx.doi.org/10.1080/03075070802597184>

- Grosseck, G., Bran, R., & Tiru, L. (2011). Dear teacher, what should I write on my wall? A case study on academic uses of Facebook. *Procedia Social and Behavioral Sciences*, 15, 1425-1430. doi: <https://doi.org/10.1016/j.sbspro.2011.03.306>
- Harrison, M. A., & Gilmore, A. L. (2012). U txt when? College students' social contexts of text messaging. *The Social Science Journal*, 49, 513-518. doi: <http://dx.doi.org/10.1016/j.soscij.2012.05.003>
- Irwin, C., Ball, L., Desbrow, B., & Leveritt, M. (2012). Students' perceptions of using Facebook as an interactive learning resource at university. *Australasian Journal of Educational Technology*, 28(7), 1221-1232. Retrieved from <https://ajet.org.au/index.php/AJET/article/view/798/98>
- Isacsson, A., & Gretzel, U. (2011). Facebook as an edutainment medium to engage students in sustainability and tourism. *Journal of Hospitality and Tourism Technology*, 2(1), 81-90. doi: <http://dx.doi.org/10.1108/17579881111112430>
- Johnston, M. J., King, D., Arora, S., Behar, N., Athanasiou, T., Sevdalis, N., & Darzi, A. (2015). Smartphones let surgeons know WhatsApp: an analysis of communication in emergency surgical teams. *The American Journal of Surgery*, 209(1), 45-51. doi: <http://dx.doi.org/10.1016/j.amjsurg.2014.08.030>
- Junco, R. (2012). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers & Education*, 58, 162-171. doi: <http://dx.doi.org/10.1016/j.compedu.2011.08.004>
- Junco, R., Heiberger, G., & Loken, E. (2011). The effect of Twitter on college student engagement and grades. *Journal of Computer Assisted Learning*, 27, 119-132. doi: <http://dx.doi.org/10.1111/j.1365-2729.2010.00387.x>
- Karasar, N. (2008). *Bilimsel Araştırma Yöntemi* (18.Baskı). Nobel Yayın Dağıtım, Ankara.
- Ke, F., & Kwak, D. (2013). Online learning across ethnicity and age: A study on learning interaction participation, perception, and learning satisfaction. *Computers & Education*, 61, 43-51. doi: <http://dx.doi.org/10.1016/j.compedu.2012.09.003>
- Kuh G. D. (2009). What student affairs professionals need to know about student engagement. *Journal of College Student Development*, 50(6), 683-706. doi: <http://dx.doi.org/10.1353/csd.0.0099>
- Kusnekoff, J., Munz, S., & Titsworth, S. (2015). Mobile Phones in the Classroom: Examining the Effects of Texting, Twitter, and Message Content on Student Learning. *Communication Education*, 64(3), 344-365. doi: <http://dx.doi.org/10.1080/03634523.2015.1038727>
- Lampe, C., Wohn, D. Y., Vitak, J., Ellison, N. B., & Wash, R. (2011). Student use of Facebook for organizing collaborative classroom activities. *Computer-Supported Collaborative Learning*, 6(3), 329-347. doi: <https://doi.org/10.1007/s11412-011-9115-y>
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33(1), 159-174. doi: <http://doi.org/10.2307/2529310>
- Lee, S. (2015). Analyzing negative SNS behaviors of elementary and middle school students in Korea. *Computers In Human Behavior*, 43, 15-27. doi: <http://dx.doi.org/10.1016/j.chb.2014.10.014>
- Lemola, S., Perkinson-Gloor, N., Brand, S., Dewald-Kaufmann, J., & Grob, A. (2015). Adolescents' electronic media use at night, sleep disturbance, and depressive symptoms in the smartphone age. *Journal of Youth and Adolescence*, 44(2), 405-418. doi: <http://dx.doi.org/10.1007/s10964-014-0176-x>
- Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). *Social media and young adults*. Washington D.C.: Pew Internet & American Life.

- Leonardi, P. M. (2014). Social media, knowledge sharing, and innovation: Toward a theory of communication visibility. *Information Systems Research*, 25, 796-816. doi: <http://dx.doi.org/10.1287/isre.2014.0536>
- Li, M., Deng, Y., Ren, Y., Guo, S., & He, X. (2014) Obesity status of middle school students in Xiangtan and its relationship with Internet addiction. *Obesity (Silver Spring)*, 22(2), 482-487. doi: <http://dx.doi.org/10.1002/oby.20595>
- Lim, J., & Richardson, J. (2016). Exploring the effects of students' social networking experience on social presence and perceptions of using SNSs for educational purposes. *Internet And Higher Education*, 29, 31-39. doi: <http://dx.doi.org/10.1016/j.iheduc.2015.12.001>
- Madge, C., Meek, J., Wellens, J. & Hooley, T. (2009). Facebook, Social Integration and Informal Learning at University: 'It Is More for Socialising and Talking to Friends about Work than Actually Doing Work. *Learning, Media and Technology*, 34(2), 141-155. doi: <http://dx.doi.org/10.1080/17439880902923606>
- Madhusudhan, M. (2012). Use of social networking sites by research scholars of the University of Delhi: A study. *The International Information & Library Review*, 44(2), 100-113. doi: <http://dx.doi.org/10.1016/j.iilr.2012.04.006>
- Mahdi, H. S., & El-Naim, M. E. (2012). The effects of informal use of computer-mediated communication on EFL learner interaction. *Studies in Literature and Language*, 5(3), 75-81. doi: <http://dx.doi.org/10.3968/n>
- Marshall, C., & Rossman, G. B. (2006). *Designing qualitative research* (4th edition). Thousand Oaks: Sage Pub.
- Maxwell, J. A. (1996). *Qualitative research design: An interpretative approach*. Thousand Oaks, CA: Sage
- Mazman, S. G., & Usluel, Y. K. (2010). Modeling educational use of Facebook. *Computers & Education*, 55(2), 444-453. doi: <http://dx.doi.org/10.1016/j.compedu.2010.02.008>
- McCoy, B. R. (2013). Digital distractions in the classroom: student classroom use of digital devices for non-class related purposes. *Journal of Media Education*, 4(4), 5-14. Retrieved from <http://digitalcommons.unl.edu/journalismfacpub/>
- McCoy, B. R. (2016). Digital Distractions in the Classroom Phase II: Student Classroom Use of Digital Devices for Non-Class Related Purposes. *Journal of Media Education*, 7(1), 5-32. Retrieved from <http://digitalcommons.unl.edu/journalismfacpub/>
- MEB (2015). *Millî Eğitim İstatistikleri, Örgün Eğitim 2014-2015*. T.C. Millî Eğitim Bakanlığı Strateji Geliştirme Başkanlığı, Ankara. Retrieved from http://sgb.meb.gov.tr/istatistik/meb_istatistikleri_orgun_egitim_2014_2015.pdf
- Mills, N. (2011). Situated learning through social networking communities: The development of joint enterprise, mutual engagement, and a shared repertoire. *CALICO Journal*, 28(2), 345-368. doi: <http://dx.doi.org/10.11139/cj.28.2.345-368>
- Mitchell, K. (2012). A social tool: Why and how ESOL students use Facebook. *CALICO Journal*, 29(3), 471-493. doi: <http://dx.doi.org/10.11139/cj.29.3.471-493>.
- Morse, J. M., Mayan, M., Spiers, J., Barrett, M., & Olson, K. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, 1(2), 1-19. Retrieved from https://sites.ualberta.ca/~iiqm/backissues/1_2Final/pdf/morseetal.pdf
- Muñoz, C. L., & Towner, T. (2011). Back to the "wall": How to use Facebook in the college classroom. *First Monday*, 16(12). doi: <http://dx.doi.org/10.5210/fm.v16i12.3513>

- Nguyen, D. T., & Fussell, S. R. (2016). Effects of Conversational Involvement Cues on Understanding and Emotions in Instant Messaging Conversations. *Journal of Language & Social Psychology*, 35(1), 28-55. doi: <http://dx.doi.org/10.1177/0261927X15571538>
- Oberg, A., & Daniels, P. (2013). Analysis of the effect a student-centred mobile learning instructional method has on language acquisition. *Computer Assisted Language Learning*, 26(2), 177–196. doi: <http://dx.doi.org/10.1080/09588221.2011.649484>
- Papacharissi, Z., & Mendeson, A. (2011). Toward a new(er) sociability: Uses, gratifications and social capital on Facebook. In S. Papathanassopoulos (Ed.), *Media perspectives for the 21st century* (pp. 212–231). London, UK: Routledge.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, California: Sage Publications.
- Piriyasilpa, Y. (2011). See You in Facebook: The effects of incorporating online social networking in the language classroom. *Journal of Global Management Research*, 7(1), 67-70. Retrieved from <http://gmjournal.uqam.ca/documents/GMRJ-V7N1-JUN2011-67-80.pdf>
- Rosen, L. D. (2010). *Rewired: Understanding the i-generation and the way they learn*. New York, N.Y: Palmgrave Macmillan.
- Ross, C., Orr, E. S., Sasic, M., Arseneault, J. M., Simmering, M. G., & Orr, R. R. (2009). Personality and motivations associated with Facebook use. *Computers in Human Behavior*, 25(2), 578–586. doi: <http://dx.doi.org/10.1016/j.chb.2008.12.024>
- Ryan, G., & Bernard, H. R. (2000). Data management and analysis methods. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (pp. 769–802). Thousand Oaks, CA: Sage
- Sánchez, R. A., Cortijo, V., & Javed, U. (2014). Students' perceptions of Facebook for academic purposes. *Computers & Education*, 70, 138-149. doi: <http://dx.doi.org/10.1016/j.compedu.2013.08.012>
- Selwyn, N. (2009). Faceworking: exploring students' education-related use of Facebook. *Learning, Media and Technology*, 34(2), 157-174. doi: <http://dx.doi.org/10.1080/17439880902923622>
- Shih, R.-C. (2011). Can Web 2.0 technology assist college students in learning English writing? Integrating Facebook and peer assessment with blended learning. *Australasian Journal of Educational Technology*, 27(5), 829-845. doi: <https://doi.org/10.14742/ajet.934>
- SimilarWeb (2016). *Mobile App Ranking*. Retrieved. Retrieved from <https://www.similarweb.com/>
- Smith, J. A., & Eatough, V. (2007). Interpretative Phenomenological Analysis. In E. Lyons ve A. Coyle (Eds.). *Analysing Qualitative Data in Psychology* (pp. 35-50). Los Angeles: SAGE Pub.
- Statista (2016). *Statistics and Market Data on Mobile Internet & Apps*. Retrieved from <http://www.statista.com/>
- Sultan, A. J. (2014) Addiction to mobile text messaging applications is nothing to “lol” about. *The Social Science Journal*, 51, 57–69. doi: <http://dx.doi.org/10.1016/j.soscij.2013.09.003>
- Tavşancıl, E., & Aslan, E. A. (2001). *İçerik analizi ve Uygulama Örnekleri*. Ankara: Epsilon Yayınları.
- Towner, T., & Munoz, C. L. (2011). Facebook and education: A classroom connection? in Charles Wankel (ed.) *Educating Educators with Social Media (Cutting-edge Technologies in Higher Education, Volume 1)*. Emerald Group Publishing Limited, 33–57. doi: [http://dx.doi.org/10.1108/S2044-9968\(2011\)0000001005](http://dx.doi.org/10.1108/S2044-9968(2011)0000001005)
- Wang, J., Doll, W. J., Deng, X., Park, K., & Yang, M. G. (2013). The impact of faculty perceived reconfigurability of learning management systems on effective teaching practices. *Computers & Education*, 61, 146-157. doi: <http://dx.doi.org/10.1016/j.compedu.2012.09.005>

- Wang, Q., Woo, H. L., Quek, C. L., Yang, Y., & Liu, M. (2012). Using the Facebook group as a learning management system: An exploratory study. *British Journal of Educational Technology*, 43(3), 428-438. doi: <http://dx.doi.org/10.1111/j.1467-8535.2011.01195.x>
- Wu, P., & Hsu, L. (2011). EFL learning on social networking site? : An action research on Facebook. *8th Annual Teaching and Learning Conference*. Elon, NC: Elon University
- Wimmer, R. D., & Dominick, J. R. (2003). *Mass Media Research: An Introduction* (7th ed.). Belmont, CA: Wadsworth.
- Yıldırım, A., & Şimşek, H. (2008). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri* (6.Baskı). Ankara: Seçkin Yayıncılık.
- Yang, Y., Wang, Q., Woo, H. L., & Quek, C. L. (2011). Using Facebook for teaching and learning: a review of the literature. *International Journal of Continuing Engineering Education and Life Long Learning*, 21(1), 72-86. doi: <http://dx.doi.org/10.1504/IJCEELL.2011.039695>
- Young, A. L., & Quan-Haase, A. (2009). Information revelation and internet privacy concerns on social network sites: A case study of Facebook. *Proceedings of the fourth international conference on communities and technologies*. Pennsylvania: ACM, 265-274. doi: <http://dx.doi.org/10.1145/1556460.1556499>
- Zaidieh, A. J. Y (2012). The use of social networking in education: challenges and opportunities. *World of Computer Science and Information Technology Journal (WCSIT)*, 2(1), 18-21. Retrieved from <https://pdfs.semanticscholar.org/76e2/1d0c5cc14238463a09eec33d5d06573a32d2.pdf>
- Ziegler, S. G. (2007). The (mis) education of generation M. *Learning, Media and Technology*, 32(1), 69-81. doi: <http://dx.doi.org/10.1080/17439880601141302>