"WHATSAPP, TEACHER?" - STUDENT PERSPECTIVES ON TEACHER-STUDENT WHATSAPP INTERACTIONS IN SECONDARY SCHOOLS

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ABSTRACT

Aim/Purpose	In this paper, we analyze the phenomenon of "classroom WhatsApp groups", in which a teacher and students from a particular classroom interact with one another, while specifically focusing on the student perspective of these interactions.
Background	The instant messaging application WhatsApp enables quick, interactive multimedia communication in closed groups, as well as one-on-one interactions between selected group members. Yet, very little is known about the extent, nature, and purposes of these practices, the limitations and affordances, the type of discourse and conflicts that develop in these spaces, and the extent to which it affects teacher-student interactions outside of WhatsApp (e.g., the social climate in class, the teacher's status, teacher-student and student-student relations), especially from the students' perspective.
Methodology	Our methodology combines questionnaires, personal interviews, and focus groups with Israeli secondary school students (N = 88).
Contribution	The present study adds to the expanding body of empirical research on social media use in educational settings by specifically focusing on a heretofore under-exposed aspect, namely, secondary school student-teacher communication in the popular instant messaging application WhatsApp. We report on findings from the student perspective and discuss the advantages and limitations of this form of communication sphere, and on the social functions of the different classroom WhatsApp groups in secondary school students' everyday life.

Findings	The combined findings reveal that classroom WhatsApp groups have become a central channel of communication for school-related topics. It is used primarily for organizational purposes (sending and receiving updates and managing learning activities), as well as a means for teachers to enforce discipline. Students mentioned many advantages of WhatsApp communication, such as easy access, the ability to create communities, the ability to safeguard personal privacy, and the communication format (written, mediated, personal, or group). However, they also recognized limitations (i.e., communication overload) and challenged teacher ability to monitor and affect student interactions in social media, even when they are present in these WhatsApp classroom groups. Finally, we report on the role of parallel, sans-teacher WhatsApp groups, which are characterized as back stage discourse arenas that accompany the front stage offline classroom activities and the "official" classroom WhatsApp group.
Recommendations for Practitioners	The combined findings of this study indicate how WhatsApp-based, joint teacher-student groups can serve a variety of educational purposes, namely, organizational, instructional, and educational-disciplinary. In addition, and in spite of teachers concerns, students are aware of the challenges inherent to the use of WhatsApp for communication with their teachers. Some of the main characteristics that prevent teachers from using other ubiquitous digital communication media, such as Facebook or Twitter, are not relevant when it comes to WhatsApp. Both teachers and students view WhatsApp as a favored channel of communication because of the low exposure to personal information and minimal invasion of privacy.
Future Research	The qualitative methodology of this paper limits the ability to generalize the current findings to other contexts and population groups. Future research should preferably explore the generalizability of our findings to larger sections of teenage populations. It should also explore similarities and differences with other age groups. Finally, the present study was set in a particular country (Israel). Local norms of cellphone use and of appropriate teacher-student interaction, as well as locally developed media domestication patterns, may differ from country to country and/or from one cultural group to another. Future research should then include and compare the current findings with data from different countries and cultures in order to complete the picture.
Keywords	teacher-student communication, secondary school, WhatsApp, social networks technology (SNT), media in education

INTRODUCTION

Social network technologies (SNTs) encompass a wide variety of web-based and mobile applications that allow individuals to create, engage with, and share content in digital environments through multi-way communication (boyd & Ellison, 2007; Davis, Deil-Amen, Rios-Aguilar & Gonzalez Canche, 2012). The main characteristics of SNTs can be summarized by the 5 C's: communication, collaboration, community, creativity, and convergence (Friedman & Friedman, 2013). Given the widespread popularity of ubiquitous SNTs (Brenner, 2012), many teachers and instructors have come to use these platforms to communicate with their students. SNT-based teacher-student communication complements and sometimes even replaces more traditional communication channels, such as face-to-face, email or school-supported learning management systems (LMSs) (e.g., Andersson, Hatakka, Grönlund, & Wiklund, 2014; Asterhan & Rosenberg, 2015; Mazer, Murphy, & Simonds, 2007; Schwarz & Caduri, 2016).

In spite of increasing scholarly interest in SNT-based communication in educational contexts, very few have focused on the use of ubiquitous Mobile Instant Messaging (MIM) applications, such as WhatsApp, in secondary school settings. WhatsApp has become one the leading messaging applications on cell phones worldwide and is used by teachers and teenagers alike. However, little is known about the nature and the content of secondary school teacher-student WhatsApp communication. According to medium theory (Meyrowitz, 1996), the features and affordances of a communication medium shape the patterns of discourse between interlocutors, as well as the nature of the relationships that develop as a result (Robert & Dennis, 2005). Since the features of WhatsApp and other SNTs (e.g., Facebook) are distinctively different, in the present study we aim to provide in-depth descriptions of the what, why, and how of teacher-student communication through WhatsApp in Israeli secondary schools. We focus on the student perspective of this practice and document what they perceive as the advantages and limitations of this communication format, as well as the role of teachers in this space. Prior to presenting the specifics of our study and the research questions, we first present short literature reviews of (a) research on secondary school teacher-student interactions through SNTs, (b) WhatsApp as communication medium. and (c) research on WhatsApp in secondary school settings.

LITERATURE REVIEW

TEACHER-STUDENT SOCIAL NETWORK TECHNOLOGIES INTERACTION

There is much debate about the ethical, pedagogical, and social ramifications of the increasing prominence of SNTs in classrooms and schools, both in popular media outlets as well as in academic literature (e.g., Chang-Kredl & Kozak, 2017; Fewkes & McCabe, 2012; Greenhow, Robelia & Hughes, 2009; Hew, 2011; Junco & Cotton, 2012; Kirschner & Karpinski, 2010; Smith, 2016). However, the majority of existing research has focused on adult, higher education (e.g., Deng & Tavares, 2013; Hew, 2011; Jones, Blackey, Fitzgibbon, & Chew, 2010; Junco & Cotton, 2012; Kirschner & Karpinski, 2010; Manca & Ranieri, 2016; Wang, Woo, Quek, Yang, & Liu, 2012), on researcher-initiated interventions (e.g., Puhl, Tsovaltzi, & Weinberger, 2015; Wang et al., 2012), or on the potential of such tools (e.g., DeGroot, Young, & VanSlette, 2015; Labus, Despotović-Zrakić, Radenković, Bogdanović, & Radenković, 2015; Roblyer, McDaniel, Webb, Herman & Witty, 2010; Teclehaimanot & Hickman, 2011). Few studies have investigated the actual, spontaneous use and uptake of these tools by teachers and students in secondary schools.

The present work continues a recent line of research that aims to document the ways in which secondary school teachers and their adolescent students have adopted and use ubiquitous SNTs for school-related purposes in their everyday activities spontaneously, that is: without any intervention, encouragement or support from educational researchers (e.g., Asterhan & Bouton, 2017; Ophir, Rosenberg, Asterhan, & Schwarz, 2016; Rosenberg, Ophir, & Asterhan, 2018; Schwarz & Caduri, 2016). Previous studies reported that, in spite of official, local policies forbidding teachers to interact with their students through social network technologies, many teachers use Facebook as a tool for establishing and maintaining contact with their students (Asterhan & Rosenberg, 2015; Forkosh-Baruch, Hershkovitz, & Ang, 2015; Hershkovitz & Forkosh-Baruch, 2013).

Based on a combination of qualitative and quantitative data from teachers, three main functions for teacher-student Facebook interaction were identified (Asterhan & Rosenberg, 2015): academic-instructional (i.e., expanding learning beyond the classroom, managing and organizing school-related activities), social-relational (i.e., lowering thresholds for contact and deepening relationships, to understand and know more about their adolescent students), and psycho-pedagogical purposes (i.e., adult monitoring and patrolling the virtual sphere and detecting personal distress, reaching out to specific students). Teachers also identified several dilemmas and conflicts that arise from Facebook-based communication with students. For example, whereas they mentioned their increased availability for students as one of the major advantages, the boundaries between work and leisure have become

more blurred as a result. Another dilemma concerns the desired extent of exposure to (and of) private, personal information in Facebook. Finally, they expressed concerns that the mere act of "befriending" a student and the informal interaction style common to Facebook may blur the distinction between the institutionalized roles and norms of behaviors of "teachers" and "students".

Teacher-student communication may not be limited to Facebook, however. Recent findings suggest that the popular instant messaging application WhatsApp plays a more prominent role in today's secondary schools: In a 2015 survey on a representative sample of Israeli teenagers (Rosenberg, 2016), the overall majority (86%) preferred WhatsApp over Facebook as a more convenient platform for school-related communication with classmates. Moreover, the majority of teenagers (75%) reported that teachers are members of at least one of their different WhatsApp groups. However, little is known about the nature of these interactions between teachers and student in WhatsApp groups. In the present study, we then extend the existing research on teacher-student communication on Facebook to the WhatsApp environment.

WHATSAPP: FEATURES OF A COMMUNICATION MEDIUM

WhatsApp is a Mobile Instant Messaging (MIM) application made available to the public for the first time in 2009. Within several years, WhatsApp gained incredible popularity in many countries around the world. At the beginning of 2016, WhatsApp reported that one in every seven people on the globe uses the application (compared to 700 million users of Facebook Messenger). In Israel, around 93% of adults use the application, and the average number of WhatsApp messages teenagers receive stands at around 500 per day (Rosenberg, 2016).

WhatsApp enables one-on-one communication, as well as communication in closed, members-only groups. It facilitates interactive, multimedia discourse with quick exchanges of text, images, audio, and video on people's mobile phones. WhatsApp's popularity has been attributed to the fact that it imitates face-to-face communication best and to the sense of immediacy it affords, as messages synchronously flow between group members (Malka, Ariel, & Avidar, 2015). WhatsApp groups functions as "micro communities" (Karapanos, Teixeira & Gouveia, 2016) and establish a sense of community space, where informal communication takes place between the members of the closed group.

WhatsApp is used not only for exchanging information, but also for entertainment, and to keep in touch with friends and family (Malka, Ariel, & Avidar, 2015). Some (e.g., O'Hara, Massimi, Harper, Rubens, & Morris, 2014) view the motivation to use the application as stemming from its phatic function, that is, a desire to dwell with friends in an uninterrupted, open space of communication, even without exchanging important information. Finally, WhatsApp serves to establish and maintain one-on-one, personal relations, as well as maintain membership in social groups (Church & de Oliveira, 2013). However, some of the drawbacks that WhatsApp users have recognized are the normative expectations for immediate responses, the continuous connectivity, and the interruptions this may create (Karapanos, Teixeira, & Gouveia, 2016).

In contrast with Facebook, using WhatsApp does not require the creation of a personal profile page. Moreover, whereas Facebook friends have access to the users' personal profile information, his/her activities, friends lists, and even communication with others, this is not possible in WhatsApp (Sánchez-Moya & Cruz-Moya, 2015). Exposure to private and personal information has been cited as one of the main concerns for teacher-student communication through common commercial SNTs, such as Facebook (e.g., Hershkovitz & Forkosh-Baruch, 2013).

Calvo, Arbiol, and Iglesias (2014) compared the characteristics of 15 commercial CHAT tools and their potential for use as learning environments. They determined that WhatsApp is most suitable for learning- and study-related purposes (e.g., because enables group conversations, multimedia file sharing, easy access to conversation history, and is accessible for individuals with disabilities). Compared to popular SNTs such as Facebook messenger or Google Hangouts, WhatsApp's interface is easy and simple, an important condition for large scale uptake (e.g., Cheung, Hew, & Ng, 2008). The applica-

tion allows for immediate synchronous communication and maximal mobility (as it is installed on mobile phones), and is highly accessible to the general populace, including teachers who may perceive themselves as technologically illiterate (Calvo et al., 2014).

WHATSAPP IN SECONDARY EDUCATION CLASSROOMS

Despite the existence of official LMSs in most schools and the popularity of other commercial SNTs such as Facebook, recent findings show that both teenagers (Asterhan & Bouton, 2017) and undergraduates (Bar-Tal & Asterhan, 2017) use WhatsApp intensively for peer-to-peer sharing of study materials, for help-seeking, and for coordination of collaborative study tasks.

As aforementioned, recent study findings indicate that (at least some) teachers take part in secondary school students' WhatsApp communication (Bouhnik & Deshen, 2014; Ophir et al., 2016; Rosenberg, 2016; Rosenberg et al., 2018). However, most of the studies that deal with students-teachers interaction through WhatsApp, focus mostly on college students' settings (e.g., Amry, 2014; Hrastinski, Edman, Andersson, Kawnine, & Soames, 2014; Tawiah, Nondzor, & Alhaji, 2014). The few studies that do focus on secondary school settings have discussed its instructional potential, such as using WhatsApp for evaluating student writing performance (Allagui, 2014), for improving their reading skills (Plana, Gimeno, & Appel, 2013), and for foreign language instruction (Heng & Ling, 2014).Very little is known about the extent, nature, and purposes of these practices, the limitations and affordances, the type of discourse and conflicts that develop in these spaces, and the extent to which it affects teacher-student interactions outside of WhatsApp (e.g., the social climate in class, the teacher's status, and teacher-student and student-student relations).

In a pioneering first study, Bouhnik and Deshen (2014) made a first step towards addressing these questions by interviewing twelve teachers. Teachers reported they used WhatsApp for organizational matters (e.g., sending reminders, managing the class), for creating a positive social atmosphere in and out of class, for facilitating student-student help-giving, for didactical purposes (e.g., sharing learning materials, increasing teachers' availability to students' learning-related questions), and to help enforce discipline. They also mentioned several shortcomings, however, some of which are specific to WhatsApp (e.g., message "flooding"), whereas others have also been reported with other social media platforms (e.g., encroaching on free time, student expectations regarding teacher availability, inappropriate language use (Asterhan & Rosenberg, 2015).

In order to construct a comprehensive picture of the phenomenon, its nature and its meaning, the present study seeks to complement these first findings by focusing on the adolescent student perspective. Previous research on Facebook-based communication have revealed discrepancies between the manner in which secondary school students and teachers perceive this interaction, its efficacy, and its ramifications (Hershkovitz & Forkosh-Baruch, 2013). Furthermore, we believe that the phenomenon of joint teacher-student WhatsApp groups can only be fully understood as part of the entire repertoire of teenage WhatsApp-based communication, and especially in comparison to so-called 'parallel WhatsApp classroom groups', that do not include teachers and which teachers may not be aware of.

THE PRESENT STUDY

The main goal of the current study is to provide further insight into secondary school teacher-student WhatsApp group interactions. Our methodology is qualitative and specifically focuses on the students' perspective, while combining data from open-ended questionnaires, interviews, and focus groups discussions. Our research questions are as follows:

(1) For what purposes are the joint teacher-student WhatsApp classroom groups used, and what is the content of communications within these groups?

(2) What are students' evaluations of the functions and efficacy of WhatsApp contact with their teachers?

(3) How do the social dynamics in these groups align with the social dynamics in the classroom? Are they similar or different?

(4) What is the role of the teacher in these groups, and what are the ramifications of the online relationship with the teacher for the teachers' status within the group and in the 'real' world?

(5) What is the position of the joint teacher-student WhatsApp groups within the entirety of 'neighboring' school-related WhatsApp groups that students are members of?

METHOD

PARTICIPANTS

The research sample comprised of 88 Israeli, Hebrew-speaking secondary school students between 13 to 18 years old (M = 15.7, 51% female). (In Israel, secondary school is from age 12 to 18.) Participants were recruited via a snowball sampling strategy. The final sample included participants from 20 different Hebrew-speaking secondary schools in all, from both central and peripheral areas. Thirteen schools were regular public schools, 6 more were religious public schools, and 1 was an anthroposophical semi-private school. All students were members of at least one joint teacher-student WhatsApp class group.

DATA COLLECTION PROCEDURE

The study employed a qualitative methodology, involving a variety of data gathering tools (Fontana & Frey, 2000): questionnaires with open-ended questions, in-depth interviews, and focus groups. The snowball recruiting strategy as initiated through requests to undergraduates of Education and of Communication majors, who were asked to approach acquaintances. Each subject participated in only one of the different data collection procedures.

In stage 1, short questionnaires with open-ended questions were distributed. The questions inquired about the scope and nature of the phenomenon, the contents of communications within the groups, and the dynamics among the students and between the students and the teacher. The 38 collected questionnaires were anonymous, yet responders were requested to denote their age, gender, and the type of school they attend (public, religious public or private school, etc.). After analyzing the responses, we felt that they were informative, yet too brief to provide an in-depth insight into the workings of the phenomenon.

In stage 2, we collected additional data through in-depth, one-on-one interviews and through focus groups. These data collection strategies are especially suitable for research focusing on teenagers (e.g., boyd, 2014). These data were gathered in three formats:

(a) In-depth, face-to-face (F2F), semi-structured interviews with 12 students, spanning between 40 - 90 minutes each, and including a variety of questions derived from an analysis of the responses to the questionnaires (e.g., the advantages and disadvantages of contact with the teacher on WhatsApp groups or personal WhatsApp conversations; the participants' evaluation of WhatsApp class-group, and his perception of the impact on the relationship with the teachers).

(b) Focus groups (in-depth F2F group interviews) of 3-6 students each, and 30 students in total, distributed over 8 separate groups. These focus groups were a particularly fertile ground for discourse, discussions, and differences of opinions among the youth, and brought forth voices and views that did not come through in the individual interviews.

(c) WhatsApp focus groups. Due to our desire to reach the widest sample possible, both demographically and geographically, and due to the difficulty in coordinating F2F focus groups, we conducted

two more focus group discussions via WhatsApp. For this purpose, we approached several teenagers (whom we were referred to through previous participants) and opened two WhatsApp group especially for this purpose. After setting up the appropriate time, we posed the same set of questions, only this time through the WhatsApp group, and conducted the discussion there. The groups were closed when the focus group discussions came to an end.

ANALYSIS

All individual and group interviews were recorded and transcribed in full. The WhatsApp discussion logs were copied as is, including emoticons and special characters typical of this communication channel. All data (from questionnaires, interviews, and focus groups) were analyzed by the thematic analysis method (Berger, 2000), in order to identify and map major themes arising from the data according to the aforementioned research questions (Gaskell, 2000). The bottom-up categorization process (Strauss & Corbin, 1990) comprised of the four stages proposed by Marshall and Rossman (2014): (a) organization of research material; (b) creation of categories; (c) examination of possible preliminary assumptions; and (d) search for alternative explanations.

Table 1. Research participants by data collection method

Data collection method	Male	Female	Total
Questionnaires	22	16	38
Interviews	6	6	12
Focus Groups (F2F)	12	18	30
Focus Groups (WhatsApp)	3	5	8
Total	43	45	88

FINDINGS

The presentation of the findings is organized in five separate sections, based on the emerging themes of interview data analysis and relating to the research questions (in parenthesis): (1) The purposes of joint teacher-student WhatsApp classroom groups (RQ1); (2) the advantages and disadvantages of WhatsApp group communication in these settings (RQ2); (3) the effect of these groups on teacher-student relations (RQ3); (4) a comparison between the social dynamics in WhatsApp groups and face-to-face interactions (RQ4); and (5) the sans-teacher classroom groups (RQ5).

Student quotes are presented verbatim, translated from modern Hebrew. We specifically mention gender and age for each quote, as well as a made-up name for each interview or focus group participant. We also specifically indicate when a quote was from a face-to-face or from a WhatsApp focus group. Therefore, when a quote only includes information about gender and age it is from the questionnaire data set, and when it in addition includes a name it is from the interview protocol data set. Only when relevant, the type of school the quoted participant attended is mentioned.

Purposes and uses of classroom WhatsApp groups

All research participants, without exception, stated that they are members of more than one joint teacher-student WhatsApp, typically one group for their entire class and its homeroom teacher, and additional groups with different compositions of students and teachers of specific topics, study tracks, and so on. It seems that the use of WhatsApp groups is so well-integrated into the everyday fabric of secondary schools that in many cases it is the teacher who initiates the joint teacher-student group. Some even refer to this channel as the 'official' method to get in touch with teachers:

> *At our school, the teachers give us their mobile number at the beginning of the schoolyear so that we can send them pictures of a specific question and such. Some teachers explicitly tell us that they will respond primarily via WhatsApp.* (Itay, M, 15, F2F focus group)

The students' reports indicate that the joint teacher-student groups on WhatsApp serve a variety of purposes: organizational, instructional, and educational-disciplinary. First and foremost, teachers use this communication channel to send organizational messages, updating students about the school's ongoing activities, special events, and such. WhatsApp is also used by the teachers as a 'supporting' channel to direct students to the school's official LMS. Even though teachers are required to communicate and send updates, instructions, and assignment through the LMSs, students rarely check in on these systems. They are, however, ubiquitously available on WhatsApp: "*Sometimes the teachers even write us that they've uploaded things to the Mashov system* [the school's official LMS], *so that we can't say we weren't notified about it*" (Abigail, F, 16, F2F focus group).

In addition to such organizational purposes, WhatsApp classroom groups are also used for instructional purposes, both by the teachers' initiatives, as well as by the students'. Many students additionally indicated that the WhatsApp group enables them to turn to their peers for help to upload homework and tasks, share answers and solutions, and consult with one another ("*In mathematics, we upload exercises to the WhatsApp group and share solutions with one another, and sometimes the teacher also replies to us with answers*" (Yoni, M, 16).

Finally, students mention that some teachers also use WhatsApp to enforce discipline and to attempt to expand their options to control their students' behavior, even from a distance. According to their descriptions, homeroom teachers use WhatsApp to reprimand students following information they received about their misbehavior in one of the other teachers' classes, and for sending messages aimed at forcing attendance in cases where there is concern for absenteeism. Even though some of the interviewees specified that these WhatsApp groups also have a social function, in most cases, the main forum for interaction of the explicitly social type occur in the parallel, *sans teacher* WhatsApp class groups (see in "The Parallel Groups" section below).

WHY WHATSAPP? ADVANTAGES AND LIMITATIONS

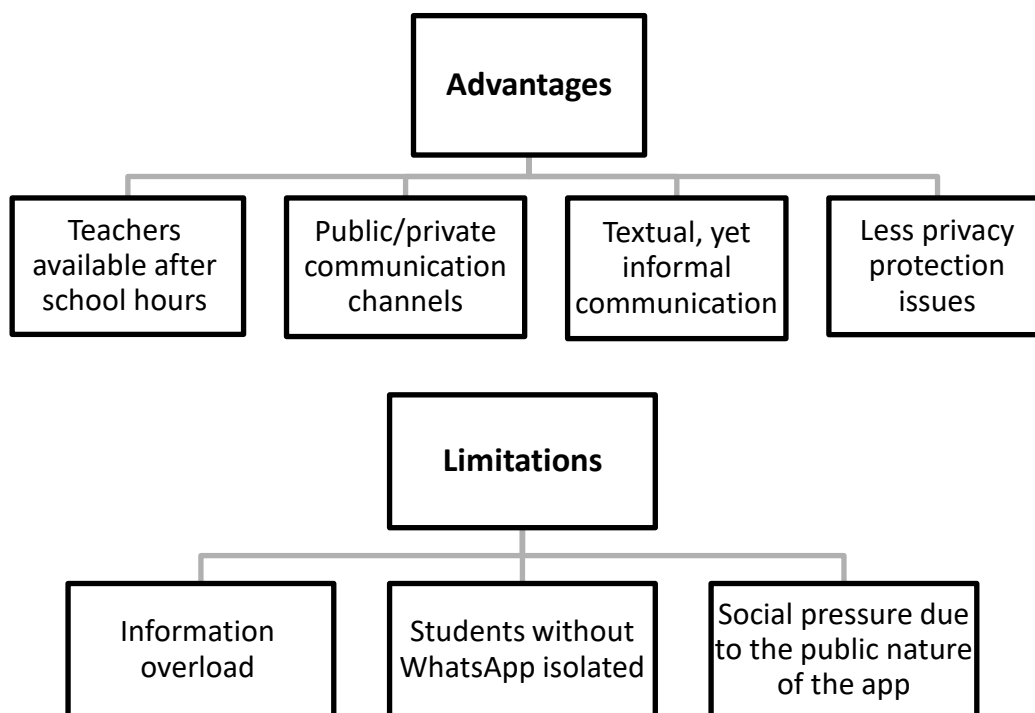Figure 1 highlights the advantages and limitations of WhatsApp.

Figure 1. Advantages and limitations of student-teacher communication on WhatsApp

The advantages of student-teacher communication on WhatsApp

Students list many advantages of using the WhatsApp class group as a channel for communication between them and the teacher. We shortly discuss each of them, accompanied with appropriate quotes.

First, WhatsApp enables teachers to be highly available to their students' questions and requests:

> *Sometimes we come to the teacher and we tell her that we'd like to talk to her, so she says that right now she's doing a lot of things, and then we have to come up to her again and again and again, and then you feel like a pest, because she'll forget you and she's also busy, so you just feel bad. But on WhatsApp, you can write to her that you want to talk to her, and she'll open up her diary and schedule [a meeting] with you at a time that's right for her.* (Miri, F, 17, F2F focus group)

This increased availability also extends to after school hours, weekends, holidays, and even during emergencies, such as terror or rocket attacks, as is evident in the following quote:

> *During the terror attacks and the abductions, it was good that she [the teacher] was available. Straight up, she sent us a message on WhatsApp saying that everyone that needs to talk or is afraid is welcome to her home for coffee and cake to talk about it, and those who live too far away from her are welcome to call her on the phone or text her on WhatsApp.* (Dasi, F, 16, WhatsApp focus group)

A second advantage mentioned by the students concerns the public nature of the WhatsApp class groups, as it enables the entire group to learn from answers given to a particular student who asked a question.

Many of the students indicate that they also use the private channel to send their teachers personal messages, such as questions or requests for help with a variety of issues. Yet, it seems that the public mode of communication enables students not only to address the group, but also facilitates students' reaching out to their teachers:

> Interviewer: *Would it be easier for you to ask the teacher things in the private channel or in the group?*
>
> Yarden (F, 16, F2F focus group): *For sure in the group. In private, I don't talk to her at all.*

In this sense, the WhatsApp groups serve as a tool that enables "avoidant communication" (Pierce, 2009). A message to the teacher in the WhatsApp group is not necessarily perceived as coming from an individual student (as it would be, if done via private message), but rather as a collective message from the entire group. Thus, the group forum is used by students to raise issues that would not be raised face-to-face or even via private message on WhatsApp; it allows them to 'hide' within the group.

Another characteristic of WhatsApp has to do with the written format of the communication and the technological mediation of the channel. Unlike voice conversations, written messages can be an asynchronous, informal channel of communication that allows for "visual anonymity" and "vocal anonymity" (Reid & Reid, 2004). Textual communication channels are characterized by lower exposure, mitigation of psychological barriers stemming from feelings of shame (for certain people or in certain situations), and high level of flexibility (Pierce, 2009). The combination represented by a written format that is asynchronous, yet has a personal tone, allows for contact and intimacy, but also for maintaining a sense of distance required for self-presentation (O'Connell, 2010) and less restraint (Cho & Hung, 2011).

These qualities play a part in many contexts where students opt to use WhatsApp to approach their teachers. For example, WhatsApp is the channel of choice for shy or introverted students, who pre-

fer the textual interface. However, it seems that other students also benefit from this characteristic of WhatsApp:

> Shiran (F, 15, F2F focus group): *In face to face conversation the teacher takes things much more seriously, and on WhatsApp it's easier to open up and write things straight up.*

> Ella (F, 16, WhatsApp focus group): *For me it's generally easier to express myself on WhatsApp, with all the emoticons, etc. :), I don't like so much to talk to teachers face to face.*

> Yaniv (M, 13, F2F focus group): *Sometimes there are things said on WhatsApp that we don't say in front of the teacher in class, like about the difficulty of the homework and the motivation to come to school.*

> Oshrat (F, 13): *Let's say you're sucking up, and I don't want to tell the teacher that face-to-face, because it's harder, so I write it to her on WhatsApp, and it's easier.*

Another important aspect of communication via WhatsApp for the students has to do with the issue of privacy. The vast majority of students reported that Facebook is rarely used nowadays for communication with teachers, due to privacy concerns:

> *On Facebook, you can see all kinds of things about me and especially about the teacher, and these are things that really kinda have to do with the personal life that neither I nor she would like us to see, and on WhatsApp all you can see is the profile picture.* (Hodaya, F, 17, WhatsApp focus group)

The limitations of student-teacher communication on WhatsApp

Students also reported several challenges stemming from using WhatsApp for student-teacher communication. A first major challenge has to do with the information overload created by the constant streams of messages that is characteristic of group communication on WhatsApp. Our data show that students are aware of the message overload teachers experience (Bouhnik & Deshden, 2014), and some of them even try to limit their correspondence within the group:

> *At first, we added the teacher to the group (…), so I told her, 'Teacher, we don't go on and on, don't worry! So she told me, 'OK, but if it gets too much for me, I'm out of there.'* (Yarden, F, 16, F2F focus group)

Participating students also described how it bothers and interferes with their own functioning, even causing students to leave the WhatsApp class groups in some cases. Surprisingly, some students blamed particular teachers for this overload, when they became too enthusiastic about it and failed to understand the "rules" for WhatsApp group communication: "*Last year, the teacher would go on and on all the time, in a bad way… She was so annoying*" (Eli, M, 16, WhatsApp focus group).

A second limitation of using WhatsApp for teacher-student communication concerns the fact that, despite the application's immense popularity in Israel, there are at least a few students in perhaps every class, who do not have WhatsApp user accounts. In cases where WhatsApp class groups are the main platform for teacher-student communication this causes such students to miss out on potentially important information. Participating adolescents did mention that class peers make an effort to update the WhatsApp-less students, but "[they] *don't always remember to keep them up-to-date about every development and change in class*," and so the non-users still feel "*out of the loop*", and with time, "*the gap grows and they miss more, which creates tension*" (Ben, M, 17).

Another limitation has to do with social pressure due to the public nature of WhatsApp group communication. Whereas this has also been mentioned as an advantage in other cases (as mention earlier), when a personal request is made by one (or more) specific members to one (or more) specific member(s) within the group sphere, this may be experienced as an exertion of peer pressure to conform. A public request for help to an identified person *obligates* this person to respond, even if he/she wishes not to. Moreover, the application enables each user to check which group members

have seen his or her sent message, which reduces the other users' perceived freedom to choose whether or not to respond with help:

> *I just left the mathematics [WhatsApp] group because there is someone annoying there that keeps asking for help, and I couldn't help her. And she pesters all the time, complains all the time. And then in class, when she told the teacher "I couldn't do it, I couldn't do it", so he tells her "Ask your friends for help, you have a group on WhatsApp!", and so she tells him, "I wrote to the group for help", and looks at me and says, "I saw that you read my message".*
> (Galit, F, 17, F2F focus group)

Despite the advantages of the mediated communication format mentioned in the previous section, students also realize that it is no substitute for face-to-face conversation. According to them, WhatsApp is unsuitable for situations in which honesty or special understanding from the teacher are required. It is also less suitable for purposes of persuasion ("*If I want the teacher to raise my grade, LOL that usually works face-to-face*", F, 17).

TEACHER-STUDENT INTERACTION IN THE CLASSROOM AND IN WHATSAPP GROUPS

Based on the data collected, we found varied and even contradicting answers to the question of whether this type of communication affects teacher-student interaction dynamics outside of WhatsApp. On the one hand, many students reported that it makes them feel closer to their teacher. They provided several reasons, such as the frequently mentioned playful discourse style and the informal content characteristic of WhatsApp communication ("*The teachers upload jokes and stuff like that and a student can also see the teacher as a different type of figure, not just someone serious and tough.*" Reuven, M, 17, WhatsApp focus group).

Others attributed this effect to the time teachers spend communicating with them outside of official school hours: "*[S]he's going home and still has room for us, to answer our questions, to read our silly nonsense. There is a matter of connection here*" (Ayelet, F, 13). They also mentioned the fact that teachers are exposed to students' personal, informal aspects of their lives: "*There is less distance than in class, because sometimes there are things that aren't related to school that girls upload, and the teacher responds to, and then we discover that she likes the same things we do, and it gives [us] a good feeling*" (Ayelet, F, 13).

Nevertheless, it should be noted that in some cases, students qualified their statements to indicate that this increased sense of closeness is limited to the WhatsApp group sphere. In class, the teacher-student relationship retains its routine, more distant nature: "*In the [WhatsApp] group, the teacher talks like [she's] a friend, but in class she's more like a teacher. On WhatsApp she's funny, adds emoticons, and in class she's more like a teacher, tougher.*" (Tal, F, 14, F2F focus group)

On the other hand, other students claim that in their case, the teacher's behavior in the WhatsApp group mirrors his/her character and typical conduct in class. That is, groups with teachers who are more "easy-going" are run in a more informal manner, while the groups with teachers who are more strict have a more distant, matter-of-fact manner:

> *Some teachers are strict, and some go with the flow. The mathematics teacher is super tough, but the English teacher - with him it's very good, there are jokes and also things that aren't related to the lessons. So in the English class WhatsApp group we tell jokes, and in the mathematics class, WhatsApp group that will not happen.* (Daniel, M, 14)

Moreover, when students detect a gap between the teacher's behavioral style in class and his/her behavior in WhatsApp, it is not regarded positively, and even met with suspicion. "*Sometimes the teacher wants to sound cool or young and it just makes her look weird, or we just don't understand what she means to say*" (Galit, F, 17, F2F focus group).

In an attempt to understand the dynamics of the teacher-student relationship on WhatsApp, students were asked whether there are any rules or boundaries that apply to the joint teacher-student groups. Most of them appeared to be aware of such rules of conduct and in some cases, these were > x laid out by the teacher:

> *When the group was established, the teacher told us in advance that it was only for learning purposes, and that she only responds after 10pm.* (Daniel, M, 14)

The findings included numerous and various examples of norm violations, such as fighting among students, coarse language, uploading offensive pictures, and more. Teachers intervened either in the WhatsApp group itself or by taking it offline. In some extreme cases, teachers banned students from the group, or even left him/herself, out of protest:

> *There was a group with a certain teacher, [in which] she got insulted by us and left the group. Girls took out their frustrations on her, and wrote these things to her, nothing really horrible of course, but still it hurt her, because that was the way some girls in class talked to her and, like, "reprimanded" her.* (Hodaya, F, 17, WhatsApp focus group)

In comparison to classroom settings, however, teachers tend to ignore such violations more often: "*In our joint WhatsApp group, the teacher doesn't interfere, and girls speak freely, there are even girls that curse, but the teacher ignores it*" (Maayan, F, 17, F2F focus group). This practice can be explained as an attempt to allow the students to have a discussion space in which they can express themselves more freely and regulate these norm violations themselves.

Teacher violations of norms for proper conduct were also mentioned, both with regard to the time as well as the content of communication (e.g., comments on what is the best type of tobacco for a hookah pipe). Some students mentioned that teachers were found to send messages late at night and even during lessons.

PEER GROUP DYNAMICS IN THE CLASSROOM AND ON WHATSAPP

Many of the students indicated that the social dynamics and interaction patterns in class are typically mirrored on WhatsApp:

> *Usually, the girls that already talk in class as it is and they are prominent ones in class, they're the ones who'll send more messages and will be more active in the [WhatsApp] group. Someone who's not active in class, will also be less active in the [WhatsApp] group.* (F, 15)

The WhatsApp class group might have an important social role when it comes to certain specific students, however:

> *Some girls are in general less socially active, so they just have the [WhatsApp] group with the class, so all the things they want to say, things I would say in any other WhatsApp group when I'm just feeling bored, they will write it in the class group, even though it's unrelated to school.* (Galit, F, 17, F2F focus group)

According to Galit's description, which was similar to those of other participating students, the WhatsApp class group has a more important role for the less popular students. Most students conduct online social interactions with their peers in a variety of sans-teacher parallel groups. For them, the 'official' class group's role is narrowed down to its purpose as a space for learning. This may be different for students in the social periphery, who are more socially isolated and often do not have entry to those informal, peer-to-peer WhatsApp groups. The official teacher-student classroom group might serve as their only social outlet in the virtual realm, where their peers are, in a certain sense, compelled to listen to them. Thus, the WhatsApp class group may be viewed as a 'replication' of the classroom space during lessons, where all members are required to be present within a certain (real or virtual) space and obligated to behave in a manner that reflects mutual respect and reciprocation.

THE "PARALLEL GROUPS": THE SANS-TEACHER WHATSAPP CLASS GROUPS

In addition to the 'official' WhatsApp class groups, all participants acknowledge the existence of active "parallel groups", which comprise (subsets of) the students in the class, but not the teacher. These sans-teacher groups, which in many cases are usually much more active than the 'official' WhatsApp class group channel of communication, serve a variety of social purposes, such as organizing student-only activities, expressing class folklore such as inside jokes, gossip, and critique about teachers, and exchanging 'behind the scenes' information:

> *In the group without the homeroom teacher, there are putdowns about teachers, and then [we] hear what goes on in the other classes' lessons and we learn new things about all kinds of teachers. Like a teacher who just yells or gives punishments for no reason, or what an exam will be like.* (F, 14)

Another use of the sans-teacher WhatsApp class groups is to take some of the load off the 'official', joint teacher-student group. The students describe a 'movement' or a 'flow' of discussions from the group of which the teacher is also a member to the parallel sans-teacher group "*to take the load off the teacher, who is flooded with messages*" (F, 13).

However, for the most part, students use these groups for social purposes: "*to coordinate with the guys when to go out [together], to talk about sports and stuff like that, and sometimes discussions also arise about more personal topics*" (Amir, M, 17, F2F focus group). Sometimes, the occurrences in the sans-teacher group accompany those of the 'official' class group, as many discussions in the sans-teacher group run in parallel and with reference to the discussions in the 'official' class group. The students interpret, criticize, and sometimes even mock the contents of messages from the joint teacher-student class group, often concurrently with the discussions taking place in that group.

Discourse in the sans-teacher groups is characterized by a sense of freedom, openness, lack of supervision, and sometimes even norm breaking. The interviewees listed many examples of offensive conduct towards students and teachers that take place in such groups: "*In the [sans-teacher] group, there are messages like, what's up, you piece of scum [sic], and various suchlike. Sometimes also ugly and immodest pictures and even offensive ones [are uploaded], and sometimes even abuse of kids from the class.*" (M, 15)

Interestingly, students' differential views of the functions and nature of the 'official' and 'unofficial' group spaces are reflected in their respective group names. For the most part, the joint student-teacher groups are given a serious, informative name, which sometime contains the teacher's name, such as "The cool 10th grade", "11th [grade] Hila", and "Daniella's Angels". The parallel, sans-teacher groups, on the other hand, have names that reflect peer culture, often combined with sarcasm, self-humor and/or negative undertones: "Special needs 12th grade", "Support group", "Sodom and Gomorrah", "To be or not to be…stupid", and so forth.

What is the teachers' place in relation to the sans-teacher class groups? It appears that, in many cases, the students try to hide from the teachers not only the contents of the discussions in these groups, but also their very existence. Some of the students found it difficult to pinpoint why they feel uncomfortable about teachers knowing that these groups exist. One of the interviewees explained that they are concerned that the teacher would think his/her students do not trust him. Others mentioned that the teachers indeed met this phenomenon with suspicion. Neria (F, 18, F2F focus group) explains:

> *The teachers know that there's a sans-teacher group, every now and then they say teasing things about the group. We can see it stresses them out sometimes, because they're afraid that later the students will make fun of them in the group, they [the teachers] think twice before they do all kinds of things.*

Typically, the two parallel groups, the joint one and the sans-teacher one, exist one alongside the other, without interference. Yet, several interviewees described exceptional instances where teachers intervened in what was taking place in the parallel group, even upon the students' requests, as is showcased in the next quote:

> *There was a time that two girls from class really put each other down saying horrible things, one wrote about the other's mentally handicapped brother, and [the latter] wrote about the former not having a father, and such. One of the students got the homeroom teacher involved and took a screenshot of the conversation, and both students were suspended.* (Yaara, F, 14, F2F focus group)

The very fact that such interventions are described as unusual is an indicator of the gap between conduct in these sans-teacher groups, compared with the 'official' groups or class itself. This gap is also evident in descriptions of recurring events referred to by all research participants, such as mistakenly posting a critical message or an embarrassing picture meant for the sans-teacher group to the joint group instead (*"Someone wrote in the regular class group that she's not coming to school on time on Thursday morning, because the [scheduled] lesson [then] is boring* [Hadar, F, 15, WhatsApp focus group]). It is worthwhile to note that, according to the students, teachers often tend to ignore such events, and do not follow-up on such slips or on intentional provocations. Through these slips, teachers get a glimpse of what's going on behind the scenes.

This gap between the 'official' group and the 'unofficial' group is also expressed in the discourse style: *"In the group with the teacher, we change it [=our writing] to a different style, with punctuation marks and no slangs [sic]. I wouldn't write to her, "teacherrrrr" with lots of r's and such, I'd write politely and correctly"* (F, 15). The 'official' classroom group is therefore something of a 'lone island' of moderate, civilized WhatsApp conversation in a sea of social media groups where youth engage in unsupervised, unconstrained discourse. However, when asked whether the way students interact in the 'official' WhatsApp class groups affects how they interact in other, sans-teacher peer groups, the participants' responses were largely negative, as is shown in the next quote by Gilad (M, 13, F2F focus group): *"No, we still curse in the other groups. In the group with the teachers [they] talk all nice, and then they curse freely in the other group."*

DISCUSSION

The findings presented here show that WhatsApp has become a central channel of teacher-student and student-student communication in Israeli secondary school classrooms. In many cases, the teachers initiate the use of this tool, and even instruct their students to contact them via WhatsApp. The joint teacher-student groups serve a variety of purposes: organizational, instructional, and educational-disciplinary. Students listed many advantages of using the WhatsApp as a channel for communication with the teacher, most of which stem from the unique characteristics of the channel, but they also mentioned several limitations and challenges. Students shared varied and sometimes contradicting perspectives on the question of whether these WhatsApp-based interactions bring teachers and students closer and whether it affects the teachers' social status and authority. Finally, it was shown how the sans-teacher parallel groups function as an integral part of online class culture, while serving a variety of social purposes, and how these are often more active than the 'official' WhatsApp class group channel of communication.

We discuss these findings and their theoretical and practical implications in the next sections: First, we compare our findings concerning student perspectives on student-teacher WhatsApp communication for school-related purposes with the empirical literature on teacher perspectives on teacher-student communication through social network technologies. Then, we discuss in further detail the affordances and limitations of WhatsApp-based teacher-student groups for the purposes they are used for.

TEACHER AND STUDENT PERSPECTIVES ON WHATSAPP CLASSROOM COMMUNICATION

Whereas in some aspects the student perspectives documented here align quite well with teacher perspectives documented in previous research (e.g., Bouhnik & Deshen, 2014; Rosenberg et al., 2018), there are also significant differences between their viewpoints. Findings from teacher, as well as student data, indicate that teacher-student WhatsApp communication is primarily used for organizational purposes, such as allowing students to receive updates, to manage their school-related activities and to support their after-school learning activities (e.g., homework activities). It also seems that teachers and students agree that using ubiquitous social media channels for study and instructional purposes has some benefits and overall regard it positively (Asterhan & Rosenberg, 2015; Hershkovitz & Forkosh-Baruch, 2013;). Previous research has shown that in times of emergency, both teachers and students turn to WhatsApp and other social network technologies to give and receive emotional support (Ophir, 2017). Finally, similar to the manner in which teachers view communication via WhatsApp as an opportunity to learn more about their students (Church & de Oliveira, 2013), students also see it as an opportunity to get to know additional sides to their teacher's personality, beyond the formal setting of the classroom.

In contrast, two gaps between student and teacher perspectives can be detected: According to previous findings, teachers list social cohesiveness as one of the (main) objectives for participating in WhatsApp and Facebook with students (Bouhnik & Deshen, 2014). According to teenage students, however, teachers rarely intervene, even when norms and rules of civilized behavior are broken (e.g., curses, offensive behavior). The data also show that the social significance of 'official' teacher-monitored class groups is mostly insignificant. While the groups are indeed inclusive by definition, it appears that the more socially significant discussions take place in the parallel, sans-teacher groups, from which certain class members are excluded.

A similar gap between teachers and students was found in the way they perceived the teacher's pedagogical role and their effect on social behaviors. Previous research has shown that one of the main teacher motives for teacher-student SNT-based communication is to add the presence of a responsible adult in these digital spheres and to exert a positive influence on students' interpersonal behaviors within and outside the media (Asterhan & Rosenberg, 2015; Bouhnik & Deshen, 2014). According to teachers, their mere presence on WhatsApp "straightens out" the students and prevents them from breaking norms of civilized behavior (Bouhnik & Deshen, 2014). In contrast, our student reports indicate that, although the teachers' presence is perceived as an attempt to cultivate appropriate norms for online communication, it has no real impact on the other WhatsApp groups or on the classroom members' behavior elsewhere. Even though largely absent in the 'official' WhatsApp class groups, the loose, grammatically imperfect, and sometimes offensive discourse takes place in the other WhatsApp groups, and especially in the sans-teacher class group.

It then appears that 'official' (with teacher) and 'unofficial' (sans-teacher) WhatsApp classroom groups serve parallel functions of communication: In the joint teacher-student WhatsApp groups, the students present their formal self, which typically tries to maintain social and linguistic correctness within a school context. Exceptions to this exist, as they do in class, but they are usually within the limits of the norm and with the expectation of teacher intervention if they do not. In contrast, communication in the sans-teacher groups is conducted in the youth's native "internet language" (Beverly, Wood, & Bell, 2008) and brings to the surface social conflicts and tensions in the peer group. It is also characterized by a sense of freedom, openness, lack of supervision, and sometimes even norm breaking. In this sense, the parallel groups function as a "third space" (Aaen & Dalsgaard, 2016), which is located and functioning in between the formal, school-related work space and the informal, social leisure space.

On another level, these groups serve as a back stage, both to the classroom and to the 'official' WhatsApp groups. In many cases, these groups accompany the activities in class and bring to the

fore students' thoughts on teachers, the classroom, and the official school business. At the same time, it functions as a space of reflection, interpretation, and discussion about the official supervised WhatsApp space, both socially and linguistically. There is a clear distinction between those two groups, but as shown in the current findings, there are some unintentional "leaks" from one group to another, which resemble Goffman's (1959) concept of "inopportune intrusions". More than anything else, these intrusions or leaks and the fact that they are recognized as such, show the different sets of norms and expectation that characterize the two types of WhatsApp groups.

The findings of this study also show that, despite the teachers' fears (Bouhnik & Deshen, 2014), students are aware of the challenges inherent to the use of WhatsApp for communication with their teachers. This is true, for example, regarding the issue of communication overload stemming from the large amount of WhatsApp messages, which is a fundamental concern for many teachers (Ahad & Lim, 2014). It appears that students are aware of the need to decrease the number of messages they send, so as not to burden their teachers. In some cases, they even purposely move some of the online discussions and activities from the joint group to parallel *sans teacher* groups to reduce the communication overload. They were also aware of the fact that teachers cannot be expected to be available around-the-clock and to respond immediately.

The issue of privacy, which is one of the major dilemmas teachers face when using ubiquitous SNTs such as Facebook (Asterhan & Rosenberg, 2015; Hershkovitz & Forkosh-Baruch, 2013), is another example of students' awareness of online challenges. Both teachers and students view WhatsApp as a favored channel of communication, because of the low exposure to personal information and minimal invasion of privacy.

When it comes to questions of teacher authority and their relationship with students, the picture presented by the findings is more complex. On the one hand, teachers' concerns about the erosion of social barriers in these media (Bouhnik & Deshen, 2014; Doering, Lewis, Veletsianos, & Nichols-Besel, 2008) are shared by some students. Some even 'accused' teachers for breaking out of their role and for behaving too personal. On the other hand, many students assert that the nature of online contact with their teachers reflects existing differences in teacher personalities and offline behavior. Moreover, even students who claim that the social distance between them and their teachers has eroded somewhat in joint WhatsApp groups agree that it has not affected F2F classroom interactions, where the existing roles and norms of behavior are retained.

AFFORDANCES AND LIMITATIONS OF WHATSAPP-BASED TEACHER-STUDENT COMMUNICATION

The data presented here also provided further insight into the relative affordance and difficulties of WhatsApp for student-teacher interaction in comparison to alternative channels. According to Media Richness Theory, the preference of a certain medium is done based on the match between its characteristics and affordances, the social context of use, and the favored mode of interaction (Kim, Kim, Park, & Rice, 2007). In line with this model, and compared to other common student-teacher communication formats (e.g., face-to-face, official LMSs), teenage students highlighted several WhatsApp features that they believe improved the communication efficiency for academic and other school-related purposes. These are (1) high and continuous user availability at all times; (2) the written, mediated communication format; (3) the ability to switch from public/group to personal/private communication channels; and (4) provision of privacy.

It then seems that WhatsApp is viewed as a preferred channel of communication, for students and teachers alike. Some of the main characteristics that prevent teachers from using other ubiquitous digital communication media, such as Facebook or Twitter, are irrelevant when it comes to WhatsApp. Studies have shown that, even though secondary school students are willing to invite certain teachers into their Facebook-based circle of friends, overall they consider Facebook as their "territory" (Hershkovitz & Forkosh-Baruch, 2013). It has been asserted that the personal, direct type

of contact that is characteristic of Facebook may be particularly suitable for teachers whose pedagogical approach aligns with this more personal style. In addition, both teachers and students have domesticated (Silverstone, 2006) only certain Facebook features for student-teacher communication, such as opening a unique teacher profile, using the closed group function instead of befriending, adapting privacy settings and filters (Hershkovitz & Forkosh-Baruch, 2013).

In comparison, it seems that WhatsApp is adopted in a more wholesome manner overall. Teacher presence in the joint WhatsApp classroom groups is perceived as more natural than in Facebook and perhaps best compares to the use of designated classroom Facebook groups (Asterhan & Rosenberg, 2015). The teacher is sometimes even an 'absent-presence' in the classroom group's discourse. Differences and gaps between teachers and students are still evident, but not regarding the very existence of this contact or in the selection of use practices, unlike in Facebook-based teacher-student communication. WhatsApp's characteristics address privacy concerns better than other popular, commercial social networks technologies (Wang et al., 2012), which make it a more compatible channel of communication in this context. Moreover, the "natural" integration of WhatsApp into the school arena should also be attributed to the enormous popularity of this communication medium among both youth and adults in Israel, as well as many other countries (Schwartz, 2016). This allows WhatsApp to side-step a problem faced by other communication technologies and channels: the need to facilitate familiarity, adoption, and adaption among teachers and/or students, which limits the use of these tools and hinders their integration into the fabric of teacher-student relations (Fewkes & McCabe, 2012).

CONCLUSION, LIMITATIONS AND FUTURE DIRECTIONS

In light of the immense popularity of social network technologies, scholars of education have begun to explore how teachers and students have come to appropriate ubiquitous communication media for school-related purposes, what the characteristics of these practices are, and what the potential consequences may be. The present study adds to this expanding body of empirical research by specifically focusing on a heretofore underexposed aspect, namely secondary school student-teacher communication in the popular instant messaging application WhatsApp. We have reported on findings from the student perspective and discussed the advantages and limitations of this form of communication (compared to others), the role of teachers and their functioning in this online space, and on the social functions of the different classroom WhatsApp groups in students' everyday life.

Although the current study advances our understanding of the role of WhatsApp-based communication in secondary school classrooms, it is not without limitations: First, a qualitative methodology was chosen for the present study to obtain rich data that could provide insights into teenage students' perceptions and experiences of WhatsApp communication in classroom contexts. This methodology does limit the ability to generalize the current findings to other contexts and population groups, however. Future research should preferably explore the generalizability of these findings to larger sections of teenage populations.

It should also explore similarities and differences with other age groups. Recent data show that the initial age for using smartphones is on a downward trend and that WhatsApp has become very popular among elementary school children as well (Traeger, 2017). It is very likely that age-related characteristics affect not only norms of student-student interaction in this medium, but also their awareness of the challenges and dilemmas involved. The role of the teacher in these groups may, therefore, be more prominent and of a more pedagogical nature. In higher education settings, on the other hand, the presence of instructors in student WhatsApp groups is likely to be less prevalent, as student-teacher relationship are overall of a more formal nature and instructors are not expected to supervise their students' peer relations and online communication.

Finally, the present study was set in a particular country (Israel). Local norms of cellphone use and of appropriate teacher-student interaction, as well as locally developed media domestication patterns,

may differ from country to country and/or from one cultural group to another. Future research should then include and compare the current findings with data from different countries and cultures, to complete the picture.

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