

Teachers and Professional Development: New Contexts, Modes, and Concerns in the Age of Social Media

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Abstract: The papers in this symposium together address new contexts, modes and concerns related to teaching and teacher professional development in the age of social media, with a particular focus on the socio-technical affordances and challenges of social network sites and teachers' perceptions and experiences. The presentations included in this symposium offer a multi-faceted and international view on the topic, highlighting both opportunities and challenges. Expected outcomes are a critical evaluation of the value, implications, and generality of the work presented to the field as well as an outlined agenda for future research on teaching with these new media and design work related to teachers' professional development.

Keywords: teachers, social networking sites (SNS), professional development, learning

Introduction

Symposium focus and issues addressed

Educational researchers and professionals have recognized the potential of social media, such as social network sites (SNS), to transform learning in and out of classrooms (Manca & Ranieri, 2012). Educational design initiatives have shown that engineered Facebook applications support discussion and knowledge building in informal (Greenhow et al, 2015) and formal learning settings through introducing informal elements (Tsovaltzi et al, 2014). However, we know less about teachers' perceptions, practices, and concerns related to teaching with these technologies or related professional development (Forkosh-Baruch & Hershkovitz, 2014). Indeed, the field has struggled to both understand the new cultures of learning arising in these "open environments" and connect them with educational practices that typically emphasize closed learning environments and teacher-centered pedagogies. We seek to make these connections visible through this synthesized set of papers. Symposium outcomes will be a better understanding of professional development in social networking sites as learner-empowering environments.

Online networking in social network sites (SNSs) like Facebook (FB), is the dominant technology-mediated, leisure-time activity among teenagers worldwide (Rideout, Foehr & Roberts, 2010). Most SNSs share common characteristics, including: 1) uniquely identifiable profiles that consist of user-supplied content and/or system-provided data; 2) (semi-) public display of connections that can be traversed by others; and 3) features that allow users to consume, produce, and/or interact with user-generated content provided by their connections on the site (Ellison & Boyd, 2013, p. 7). Unlike studies in the learning sciences that have focused on isolated technology-based learning environments, open SNSs, generally not designed for instructional purposes, offer expanded vistas from which to study cultures of learning and teaching, mechanisms for teacher knowledge development and sharing, and ultimately, new modes for teacher learning and research opportunities.

In spite of their merits, SNSs are largely perceived in the public discourse as platforms for social interaction devoid of learning (Whiting & Williams, 2013). Educational policies restrict the use of SNSs, some even ban them, while others are vague and unhelpful. We propose a different approach – evidence based – focusing on the interaction between teachers and students as key for the effective usage of SNSs for learning; as a result, we will highlight in the symposium the need for incorporating SNS in teacher professional development and their exposure to the different aspects of SNSs in education, e.g. cognitive, emotional, social and ethical.

Significance to Learning Sciences and relevance to conference theme

This set of papers aims to provoke conversation on how learning scientists can advance timely, usable research that informs policy debates surrounding social media in education, as well as the design of teacher professional development (TPD). The papers explore a prototypical case of a social medium – Facebook. They employ observations of spontaneous Facebook use and controlled studies with engineered Facebook applications that blur formal and informal learning. They thus strive to understand with bottom-up and top-down approaches how social media influence the dynamic interaction between and role of the different stakeholders of schooling.

Range and coherence of papers

The papers in this symposium together scrutinize the use of social media in teaching and TPD. They address new contexts, modes and concerns of learning and teacher-student interaction in the age of social media, with a particular focus on the socio-technical affordances and challenges of social network sites and teachers' perceptions and experiences with them. Contribution 1, a review of a decade of empirical work, provides a 'state-of-the-field' viewpoint on learning and (preservice and inservice) teaching with SNSs. Building on this overview, the second contribution extends collaborative learning and argumentation theory to examine teachers' argumentative knowledge construction and development of communication skills in a field study of closed Facebook groups affiliated with a TPD seminar. The paper critically considers the best design for SNS-environments that advance professional communication as a compliment to traditional face-to-face TPD. The third paper compares teachers' perceptions of teacher-student SNS-mediated communication to that of students; it highlights their differences and raises critical issues that must be addressed in leveraging new media cultures for formal teaching objectives and in designing relevant TPD. Extending this work, the fourth paper examines whether and how secondary school teachers and students use SNS technology for learning and other school-related purposes *spontaneously*; it further illuminates the differences and potentially problematic contradictions in teachers' and students' practices and values that must be factored into TPD designs.

Symposium format

The symposium will commence by introducing the importance and potential of the topic. Next each contribution will be presented, emphasizing its key points and controversies. A central aim will be to evaluate and synthesize the different and overlapping perspectives represented in the papers. The discussant, Joseph Polman, a leading learning sciences researcher, has examined professional identity and the design of new media environments; he maintains a critical view of current assumptions regarding learning and teaching with social media and is, therefore, aptly suited to help us assess the value, implications, and generality of the work presented to the field and sketch an agenda for future related research on learning and teaching and design work related to TPD.

Learning and teaching with social network sites: A decade of research in education

Christine Greenhow and Emilia Askari

The increasingly widespread use of social network sites to expand and deepen one's social connections is a relatively new but potentially important phenomenon that has implications for teaching, learning and TPD in the 21st century. This paper reviews the educational research, including a scan of over 1600 identified articles to present the state-of-the-field and provide a launching off point for the symposium's additional three papers. This paper reviews empirical work on learners and teachers' perceptions and processes of using social network sites in K-12 settings and beyond with what impacts on pedagogy, students' learning, or TPD.

Method

To illuminate the potential benefits and dilemmas of designing educational practices with new media, such as social network sites, a select review of research articles published in refereed journals between 2004 and 2014 was undertaken. Boote and Beile (2005) outline several categories to which the reviewer must attend in conducting a quality literature review, such as: coverage (having criteria for inclusion and exclusion); synthesis (summary, analysis, and synthesis of selected literature); and significance (discussion of the implications of the existing research). A first criterion was that the article had been published in the last 10 years (2004-2014). A second criterion for inclusion was that the article had been published in peer-reviewed journals dedicated mostly or entirely to the topic (i.e., technology integration/Internet in education) or in high quality general education journals (e.g., *Review of Education Research*, *Journal of Learning Sciences*, etc.). Because a scan of these journals yielded few results, the scan was expanded, using Scopus, ERIC, Education Full Text and Web of Science databases to identify additional peer-reviewed articles published from 2004 through 2014.

From the range of potential articles, an initial content analysis was conducted to separate them into the following categories: description, literature review, empirical research, and editorial/commentary, while excluding specific article types like book reviews and research abstracts (Klein 1997). Because this review was primarily concerned with the state of empirical research, studies that were more conceptual in nature or those with little evidentiary support were excluded. In addition, articles that focused on social media generally, but did not address social network sites specifically, were eliminated. To establish the quality of selected articles, empirical articles needed to demonstrate: (1) clear statement of research questions; (2) claims and interpretations grounded in evidence and theory; and (3) systematic documentation of procedures (Freeman, deMarrais, Preissle, Roulston & St Pierre, 2007). Our scan of selected journals and database queries yielded a total of 24 empirical peer-reviewed journal articles deemed appropriate for review.

Results and discussion

Five themes were evident in the reviewed studies ($N = 24$); the studies focused on: students' informal learning outside of school; students' formal learning in schools and classrooms; connections between in- and out-of-school learning; and preservice and inservice teachers' perceptions and practices. Furthermore, selected studies were summarized and categorized according to the four types introduced by Roblyer (2005) as studies most needed to advance the technology in education sub-field. These include studies that establish the technology's effectiveness at improving student learning; investigate implementation strategies; monitor social impact; and report on common uses to shape the direction of the field. The most prevalent type of study conducted was research on common uses and studies that investigated implementation strategies in formal learning settings. The least common type of study was research that established the technology's effectiveness at improving student learning and several studies did not fall within the framework. Implications for the design of future research and teacher education initiatives are discussed (See Greenhow & Askari, 2015 for the full review).

Using social networking sites to support teacher-trainees professional development: The role of socio-cognitive conflict and argumentation

Dimitra Tsovaltzi, Thomas Puhl, and Armin Weinberger

Social media like SNS can empower lifelong professional development. They are often spontaneously used by teachers as platforms for professional discussion as they seek professional development that goes beyond applying appropriate subject-matter teaching methodologies. Study programs also offer seminars to this end, e.g. to improve teachers' communication skills. They commonly teach communication theories in order to influence teachers' communication attitudes and communication skills. However, attitudes tend to be stable (Erber, Hodges, & Wilson, 1995) and teacher trainees have pronounced negative attitudes towards the need for good communication skills (Ihmeideh & Al-omari, 2010). Attitude change presupposes long-term deep learning and conflict awareness (Erber, Hodges, & Wilson, 1995). Deep learning can be obtained through Argumentative Knowledge Construction (AKC), which is the deliberate practice of elaborating learning material by constructing formally and semantically sound arguments with the goal of gaining argumentative and domain-specific knowledge (Weinberger & Fischer, 2006). SNSs may offer a platform for socially embedded argumentation processes that can lead to socio-cognitive conflict and seize benefits for the teacher-student interaction in social media and beyond. However, the argumentation quality in SNSs can be poor and alternative perspectives are regularly disregarded. Can incorporating SNS in TPD help teachers improve their knowledge about and attitude towards communication skills?

Scripts are socio-cognitive structures that specify, sequence, and distribute learners' roles and activities in collaborative learning scenarios, e.g., by prompting learners to warrant their claims. Scripts can improve processes and outcomes of argumentative knowledge co-construction (Weinberger, Stegmann & Fischer, 2010). *Group Awareness Tools* (GATs) aim to foster domain-specific knowledge by visualizing covert information about the group — e.g., highlighting conflicting opinions in discussions — and can enhance the collaboration process, like socio-emotional and motivational processes (Buder & Bodemer, 2008). While GATs can make learners aware of their own and their partners' attitudes, thus making differences salient, scripts can help analyze lines of ongoing argumentation and model adequate argumentative processes. GATs rely on high self-regulation skills that empower teacher-learners but may be too subtle, whereas scripts externally regulate argumentative practices but may be too directive. Their interaction over time may help teacher trainees deeply analyze the domain, elaborate alternative perspectives, scrutinize and maybe adjust them.

Method

In a long-term 2×2 field-study, with factors GAT and argumentation script, we used Facebook, a prominent SNS, to complement face-to-face teacher training seminars on communication theory with online argumentative discussions over 9 weeks. 105 German teacher trainees filled out a weekly case-based questionnaire, to capture their communication attitudes based on cases from social interactions in the school. Each seminar was accompanied by one Facebook group, where students had to discuss problem cases based on the theories they learned. The seminar’s leaning goals were that teacher trainees gain deep knowledge on communication theory and in turn, become more multi-perspective and less goal-oriented, but keep a balanced attitude based on the situation. Students in the GAT conditions saw a graphical visualization of the result of the communication questionnaire presented in a Facebook application. It depicted their communication attitude in relation to others’ reported attitudes in order to make conflicts salient. Students in the argumentation script conditions received a weekly argumentation script in the form of feedback to arguments posted in the Facebook group. They had to pick and “like” the best argument. The feedback evaluated the epistemic (theoretical concepts and relations) and the formal (reasoning and evidence) argumentation quality for two selected arguments. Participants in the control condition merely discussed in their Facebook group. Domain-specific knowledge was assessed by the course exam containing definitions, facts, and higher order discursive processes like theory-based interpretations and arguments. Process analysis was based on epistemic and formal quality of arguments using an adapted version of Weinberger & Fischer's framework (2006). Attitudes were measured with the communication attitude questionnaire along two dimensions, as revealed through factor analysis (Puhl, Tsovaltzi, & Weinberger, 2015): multiperspective vs. goal-oriented.

Results and discussion

A repeated measures ANOVA showed a significant effect for the interactions between time with epistemic quality, $F(6;606)=3.81$; $p<.001$; $\eta_p^2=.10$, and with formal quality, $F(6;606)=1.88$; $p=.015$; $\eta_p^2=.053$. Descriptive statistics show that the epistemic quality did not change for the control group but increased for the argumentation script. Formal quality also increased only for argumentation script and decreased for the control group (Figure 1). An ANOVA for domain-specific knowledge showed significant main effects for the factors GAT, $F(1;98)=11.24$; $p=.001$; $\eta_p^2=.10$, and argumentation script, $F(1;98)=23.44$; $p=.001$; $\eta_p^2=.19$, and an interaction between them, $F(3;102)=4.89$; $p=.029$; $\eta_p^2=.05$. The control learned less, $M=34.08$, $SD=6.53$, followed by the GAT, $M=39.81$, $SD=5.42$, the argumentation script $M=41.34$, $SD=4.38$, and the combination condition, $M=42.52$, $SD=4.33$. The domain-specific knowledge correlates with mean of epistemic quality of arguments over the eight times $r(102)=.29$, $p=.03$, and the mean of formal quality of arguments $r(102)=.36$, $p<.001$. When we take the influence of these process variables on domain-specific knowledge into account in an ANCOVA, there is a significant effect of condition, $F(1;3)= 7.07$; $p<.001$; $\eta_p^2=.18$.

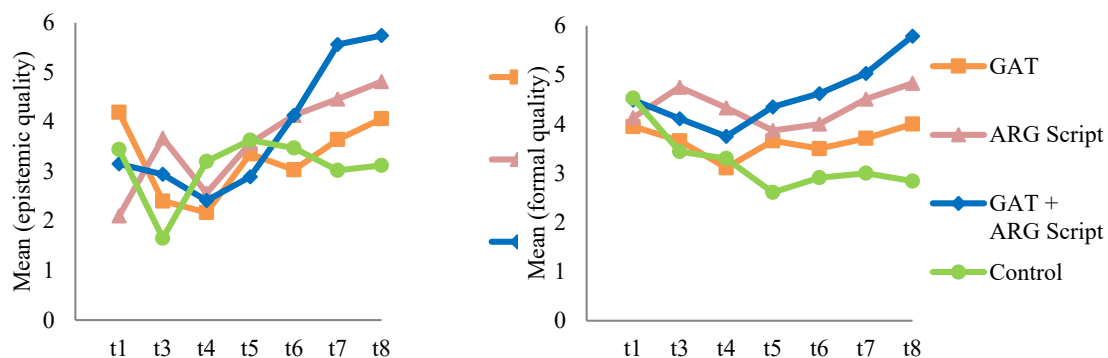


Figure 1: Epistemic and formal quality of argumentation (weekly measurements)

Using a repeated measures ANOVA, we found a significant main effect on communication attitude change over the seminar period for the goal-oriented dimension, $F(8;800)=14.2$; $p<.001$; $\eta_p^2=.12$, which showed decreasing attitudes, but no significant effect for the multi-perspective dimension, $F(8;800)=2.87$; $p=.003$; $\eta_p^2=.02$, or for the interaction between time and group. Descriptively, attitudes increased on the multi-perspective dimension for the combination condition, and post-hoc contrast showed a significant difference to the argumentation script only condition $t(100)=2.35$; $p=.023$; $d=.64$. There was a negative correlation between attitude change in the two dimensions $r(104)=-.28$, $p=.003$, and between the significant change in the goal-oriented dimension and the knowledge outcome $r(101)=-.24$, $p=.016$.

The GAT and the argumentation script, implemented in Facebook, influenced teacher-trainees' knowledge outcomes and increased the argumentation quality. The argumentation script had a larger influence, but its combination with the GAT showed the best results. Scripts seem to be more promising regarding formal quality of argumentation, although both formal and epistemic quality influences knowledge outcomes. The negative correlations of attitude change with knowledge outcomes are in line with the learning goals of the seminar. The results reveal benefits of combining cognitive instructions, in the form of scripts inside a Facebook group, with making learners aware of socio-cognitive conflict in order to self-regulate their argumentation, gain deep knowledge and re-evaluate their attitudes given a longer time period. However, contrary to the positive influence on knowledge outcomes, the combination of salient socio-cognitive conflict and cognitive directions for argumentation in SNSs seems less beneficial for assuming a more multi-perspective attitude. Thus, the desired effects of empowering teacher-learners' meaningful professional discussion in social networking environments might be dependent on the learning goal and learning context.

Teachers' and students' perceptions of positive and negative aspects of SNS-mediated communication: Implications for professional development

Arnon Hershkovitz and Alona Forkosh Baruch

Today's young people have outpaced educational policies and institutionalized practices, creating digital epistemologies and out-of-school learning opportunities for themselves with social media while educators and policymakers struggle to catch up. Teacher-student relationships are generally believed to be vital for the well-being and academic development of students within schools (Sabol & Pianta, 2012); however, many educational stakeholders express ambivalence regarding the value and implications of teacher-student communication on social networking platforms, which typically extend beyond school boundaries. On the one hand, teachers are encouraged to recognize students as whole entities, addressing not only their academic achievements but also their emotional lives, social needs and general well-being (Moll, Amanti, Neff, & Gonzalez, 1992). On the other hand, teacher-student communication on SNSs—(where students display social, emotional, academic and other aspects of themselves) (Greenhow & Robelia, 2009)—has been prohibited in many countries and school districts. Research that advances understanding of the positive and negative aspects of teacher-student, SNS-mediated communication may yield insights that assist educators and teacher educators in designing TPD opportunities that promote the critical evaluation of practice and policy necessary to address this gap.

Method

In two quantitative studies, launched in 2013-2014 with teachers ($N=180$) and students ($N=667$) from secondary schools in Israel, we examined teachers' and students' perceptions of the positive and negative aspects of teacher-student interactions via Facebook, collected via open-ended response questions. Responses to questions about positive aspects were coded based on Ang's TSRI axes (2005), specifically: Satisfaction and Instrumental Help (a single statement could have been coded by more than one axis). Responses to questions about negative aspects of teacher-student, Facebook-mediated communication were analyzed following a bottom-up approach, identifying categories of reference. This iterative process was done jointly by the two authors and resulted with seven categories, as described in the next section.

Results and discussion

Examples below refer to teachers' responses to the following question: "In your opinion, what are the downsides of teacher-student connections on Facebook?"

1. **Technology and Socio-Technology.** "A teacher will never be able to know what stands behind the kid's words on Facebook, because what the kid says is, in most cases, false, and you can only know it by the kid's body language." (T267)
2. **Violation of Equal of Opportunities.** "Breaking anonymity. [Also,] not all the teachers are connected [to Facebook]." (T144)
3. **Lack of Borders.** "The option of getting into each other's personal aspects. Crossing borders " (T156)
4. **Identity and Anonymity, or Inappropriate Behavior.** "Endangering the teacher by blaming her or him in an instance in which a student posts negative information—such as violent content, drugs/alcohol, depression and suicidal tendency—on knowing about it and not intervening" (T34)
5. **Teacher-Student Relationship.** "Facebook ruins the morality and the purity of the teacher-student relationship" (T95)

6. **Exposure to Information and Privacy.** "The teacher will be radically exposed to his students, especially with regard to his personal and family matters." (T99)

7. **There Are No Negative Aspects.**

Quantitative analysis of the responses to the aforementioned question is demonstrated here. This question was answered by 507 students and 170 teachers. Note that a single student's response could have been coded under multiple categories. Results are summarized in Table 1.

Table 1. Comparison of frequencies of categories for teachers' and students' responses regarding negative aspects of teacher-student, Facebook-mediated communication

	Teachers (N=107)	Students (N=507)	Z, Effect Size
Technology and Socio-Technology	2 (1.2%)	24 (4.7%)	2.09*, r=0.08
Violation of Equal of Opportunities	3 (1.8%)	33 (6.5%)	2.38*, r=0.10
Lack of Borders	69 (40.6%)	82 (16.2%)	6.61**, r=0.27
Identity and Anonymity, or Inappropriate Behavior	22 (12.9%)	89 (17.6%)	1.41
Teacher-Student Relationship	46 (27.1%)	90 (17.8%)	2.62**, r=0.11
Exposure to Information and Privacy	86 (50.6%)	227 (44.8%)	1.32
There Are No Negative Aspects	12 (7.1%)	57 (11.2%)	1.56

* p<0.05, ** p<0.01

Results show significant differences between teachers' and students' perceptions regarding four categories. Students mentioned more equal opportunity aspects than teachers (6.5% compared to 1.8%, $Z=2.38$, at $p<0.05$); also, students mentioned more technological/socio-technological aspects than teachers (4.7% compared to 1.2%, $Z=2.09$, at $p<0.05$). On the other hand, teachers mentioned the lack of borders more than students did (40.6% compared to 16.2%, $Z=6.61$, at $p<0.01$); also, teachers mentioned relationship issues more than students did (27.1% compared to 17.8%, $Z=2.62$, at $p<0.05$).

Studies of SNS-mediated communication out-of-school have established Facebook's affordances for enhancing students' sense of social belonging, well-being and life satisfaction (Ellison et al., 2007; Greenhow, Burton & Robelia, 2011), all of which could be beneficial to their academic persistence, achievement and graduation. However, differences in teachers' and students' perceptions of teacher-student, Facebook-mediated communication help surface disruptive (or transformative) issues that must be considered when leveraging new media cultures for formal learning aims (e.g., lack of boundaries and inability to verify information pose challenges to the teacher's role as source of authority in the classroom) (Maranto & Barton, 2010). SNS-based communication pose ethical dilemmas (Chen & Bryer, 2012); hence, related teachers' professional development should include exposure to actual ethical dilemmas and debate on resolution. Finally, these results suggest that policymakers should consider diversity within the teacher community, as well as among students, in their perceptions of teachers' role (e.g. academic roles, social roles, roles related to emotional support).

Teenage knowledge sharing in WhatsApp and Facebook groups

Christa Asterhan and Edith Bouton

Educational researchers and professionals have recognized the potential of SNSs to transform learning and teaching practices, inside and outside classrooms. Educational design initiatives have shown that specifically developed Facebook add-ons can support knowledge building and discussion in informal (Greenhow et al, 2015) and formal learning settings (Tsovaltzi et al, 2014). However, we know little about whether and how secondary school teachers and students use SNS technology for learning and other school-related purposes *spontaneously*. Research shows that teenagers and secondary school teachers interact in SNSs. Some of these teacher-pupil interactions serve social-relational purposes (Asterhan & Rosenberg, 2015; Hershkovitz & Forkosh-Baruch, 2013). Others serve psycho-pedagogical purposes, such as adult patrolling and monitoring of the virtual social sphere or detecting and providing emotional support for individual emotional distress (Asterhan & Rosenberg, 2015; Ophir et al, submitted). Some teachers also report that they use SNSs for instructional purposes (Asterhan & Rosenberg, 2015). There is then reason to believe that teenage students also use ubiquitous SNSs for academic and school-related purposes, yet little is known about these practices. This paper presents findings from a multi-method line of studies that highlight different aspects of teenagers' WhatsApp and Facebook groups for learning, study, and other school-related purposes, and the role of teachers in these groups, if any.

First, we conducted an exploratory pilot study, which included in-depth interviews with teenage students from different high schools in Israel (Bouton & Asterhan, 2013) and about 50 logged transcripts of SNS study group interaction. Based on these two data sources, we concluded that online peer-to-peer dialogue on academic content and other forms of “collaborative learning” was extremely rare. In fact, teenagers’ spontaneous use of SNSs for academic purposes was primarily characterized by *peer-to-peer sharing* of learning materials. Sharing of knowledge is a very broad term, especially in the digital age, when documenting, copying and distributing knowledge and knowledge sources is easily done (John, 2012). Knowledge sharing has been studied extensively in fields such as business management (Acquisti & Gross, 2006), organizational counseling (Tsai, 2014) and economics (Taylor, 2002). However, peer sharing of schoolwork and learning materials has not received much attention in educational research. While *sharing and discussing ideas* is viewed as a cornerstone of learning (e.g., Resnick, Asterhan & Clarke, 2015), *sharing learning materials* is often viewed as an inferior form of cooperation, promoting superficial learning strategies.

In the next two studies, we then set out to further explore the different ways in which teenagers share knowledge for school-related purposes in SNS study groups. The overall aim was to answer six “W” questions: the *whether, where, when, what, why* and *who* of peer knowledge sharing in SNS study groups. To this end two survey studies were conducted in the Fall of 2014 ($N = 205$; 41 items, 11 open items) and Spring of 2015 ($N = 517$; 91 items, 7 open items) on two different representative samples of Israeli, Hebrew-speaking teenagers aged 15-18 yrs old. We summarize the main findings of the two studies combined:

- *The scope of sharing, or whether?* Most teenage students (86%) reported being members of SNS study groups in either Facebook or Whatsapp or both (88% in > 1 group). Almost all teenagers admitted to having shared at least “some learning materials” during the school year and believed that it helps improve grades. Four-fifth of respondents regarded the use of SNSs for schoolwork purposes favorably.
- *Where do they share?* Most respondents (86%) chose WhatsApp as the most convenient SNS platform for study groups, while 6% preferred Facebook . Three quarters of teenagers who are members in SNS study groups reported that their teachers are members of at least one of these groups.
- *When do they share?* Interestingly, most teenagers indicate that they do not share without being asked first by one of the group members (64% for own sharing, 81% for sharing by others).
- *What do they share?* Based on the pilot study findings, we distinguished between five different types of knowledge sharing for school-related purposes: (1) administrative messages, (2) snapshots of whiteboards and other teacher-created materials, (3) student-created summaries (of lessons or reading), (4) copying of homework and other assignments (i.e., cheating); and (5) online peer tutoring and learning. Teenagers reported that they frequently encounter administrative messages, snapshots and peer learning in SNS study groups, and significantly more so than copying or student-created summaries ($p < .001$). We also asked them what type of shared materials they themselves use most. Responses showed that they use administrative messages more than any other type ($p < .003$), except for peer learning.
- *Why do they share?* Based on student responses to open items in the first survey study, six different motives for sharing were identified: helping others to succeed, improve positive self-concept, quid pro quo (secure receiving help in future), gaining social stature, and lack of effort. In study 2, self-identified knowledge brokers (central sharing figures in their own SNS groups) indicated that the most frequent motive for sharing was to help classmates to succeed, and least frequent motive, to gain social stature.
- *Who are the sharers?* Regression models showed that cooperative-collectivistic views, self-efficacy and mastery learning goals predicted teenagers’ knowledge sharing in SNS study groups. No correlation was found between competitive-individualistic views and sharing. Amongst students who do not endorse a quid pro quo motive, competitiveness was negatively correlated with sharing behavior, whereas a positive correlation was found for those who believe in future pay-offs of sharing.

In the fourth we conducted interviews and focus groups with 86 teenage students from a range of backgrounds to better understand the workings of WhatsApp SNS groups in classrooms. We highlight one main finding relevant to this symposium topic: many teachers initiate official “classroom Whatsapp groups” which they believe encourage civil communication (because of adult presence) and improve group cohesiveness (Bouhnik & Deshen, 2014). However, our findings reveal that in addition to these formal groups, which are mainly used for teacher-led communications, students open “shadow” groups, excluding the teacher and without

his/her knowledge. Often, these include a subset of students, usually excluding less popular kids, are considered more important and active, and provide a podium for critiquing what happens in the “official” groups.

Based on the four studies presented here, we reach several conclusions. First, teenage knowledge sharing in SNS study groups is a widespread phenomenon, primarily through WhatsApp. Second, sharing administrative messages and snapshots are the most common types of knowledge sharing, but online peer helping and help-seeking is also present. While the first two types of learning materials are mundane, the third type holds the most promise, may be “upgraded” by giving students better tools and guidance on how to improve peer learning interactions. The findings also indicate that existing concerns about SNS study groups as hotbeds of cheating (i.e., share homework solution, exams) and study shortcuts (i.e., relying on others’ summaries) proved to be only partly founded. Finally, teachers should be aware of the existence of student-initiated, self-organized SNS shadow groups in their classrooms, which have quite different sets of norms and goals. Future research should compare our findings to additional student and teacher populations, track student and teacher behavior in real-time and focus on what individuals do with all these shared learning materials.

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