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TEACHERS' IDENTITY WORK IN A PROFESSIONAL FACEBOOK GROUP

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ABSTRACT

Aim/Purpose	The aim of this study is to investigate posts that deviate from the norm by receiving many more comments than likes in a teacher thematic Facebook (FB) group.
Background	Social media sites are currently becoming standard tools for professional practices. Swedish teachers use thematic FB groups as a platform for professional learning.
Methodology	Data from a large teacher FB group over a three-year period have been collected using programmatic approaches. The interactions have been analysed through a three-phased process: (1) meta-data selection criteria and computational analysis to identify in-depth discussions, (2) content selection criteria, and (3) interaction analysis of selected threads.
Contribution	FB discussions provide a platform for teachers for sharing resources and for emotional and professional support. The support and sharing do not merely constitute explicit requests, but also bring about professional discussions.
Findings	The 79 original posts that significantly deviated from the norm of the group, were formulated as questions and/or requests, which implies that they were designed to attract comments and not only likes. The original posts were organized around four themes: (1a) functionally motivated technical features, (1b) instructionally motivated technical features, (2) pedagogical ideas and premises, and (3) sharing. The nature of these unusual threads was that teachers used the thematic FB-group to share teaching material and resources

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as well as to give and receive emotional and professional support. Such sharing and support meant a transformation from working in isolation to finding a professional community. In the discussion threads the teachers displayed a variety of identities, such as active and engaged teacher, a thematic expert, or a central group member.

Recommendations for Practitioners	In terms of practical implications, teachers' competencies towards using social media platforms for collective and constructive discussions need to be strengthened. The challenge is to promote more teachers to partake in challenging such group norms in such groups so that discussions characterised by openness, debate, and constructive criticism are established.
Recommendations for Researchers	It is vital to empirically investigate teachers' online interactions as new types of collegial discussions that, while rich, could be seen as valuable even if they are unpredictable compared to well-established professional learning efforts.
Impact on Society	This study contributes with knowledge about the impacts of social media platforms as becoming standard tools for all human activities, let alone professional practices.
Future Research	Additional detailed analysis of teachers' use of social media platforms for professional purposes are needed as well as methodological competence development with regard to computational approaches such as those employed in this study.
Keywords	social media, Facebook, teachers, Goffman, identity work, computational analysis, thematic analysis

INTRODUCTION

Social media sites are currently becoming standard tools for professional practices. Teachers are no exception from such transformation of professional discourses, and research is at present pointing to both the benefits and challenges of social media use for teachers' professional work and learning (Carpenter & Harvey, 2019; Lantz-Andersson et al., 2018). In Sweden, teachers have first and foremost taken on Facebook (FB) as their platform for professional learning and sharing. The number of members and thematic groups in Facebook have drastically increased during the last decade. Most commonly, such groups are initiated and moderated by teachers in their leisure time, which brings about a discussion about the workload put into such groups by teachers. Although recognised as central by, for example, teacher unions, these self-initiated teacher groups are not yet considered part of teacher competence development efforts as the time spent on such activities is not part of teachers' working hours. In such a manner, these self-initiated discussions among teachers can be seen as addressing a gap in competence development efforts (Lantz-Andersson et al., 2018). As pinpointed by Khalid (2018, p. 530), a critical factor in enabling teachers "to get online" is having sufficient time, which indicates that it is crucial for school leaders to facilitate a culture where teachers can become part of online professional learning communities.

As previous research has shown, little time is allocated to teacher professional development in Sweden and internationally (Pettersson, 2018; Tour, 2017). The time allocated is often used for one-day seminars and lectures where the possibilities for continuous discussions are lacking. However, the work put in by teachers in initiating, moderating, contributing, and responding is invisible in a sense, and thus not considered part of or important to teachers' daily professional work. Furthermore, until recently, quite a few studies have concluded that teachers use social media as a means for rather straightforward and relatively superficial sharing and support (for an overview see Lantz-Andersson et al., 2018). This growing field of research is, to a large extent, informed by interviews and surveys with a rather instrumental focus on teachers' perceptions of the hands-on value of taking part in

groups on social media. Thus, until now, few studies have systematically analysed teachers' online professional discussions or made use of computational analysis techniques to work with very large datasets (Macià & García, 2016). We argue, however, in line with Robson (2017), that to be able to answer the question of what makes such online communities productive, close scrutiny of "the messy social realities of online interaction" (p. 1) is necessary. We have thereby addressed this gap by examining the interactions in a large teacher Facebook group through a three-phased analysis process: (1) *meta-data selection criteria*, (2) *content selection criteria*, and (3) *interaction analysis of selected threads* (Hillman et al., 2018).

The corpus we have worked with in this study is generated from a large Swedish teacher FB group that includes almost 2,970 posts and over 16,000 comments from a three-year period. The FB group is organised around the flipped classroom (FC) approach, which can be described as an instructional strategy that reverses the typical classroom learning environment by delivering instructional content for students to prepare outside of the classroom (Sams & Bergmann, 2013). As a *meta-data selection criterion*, for selecting particular interactions for detailed analysis from this very large corpus, in this study, we have chosen to focus on cases of discussion threads that appear to diverge from the norms of the group. The motivation for this selection criterion is that cases where norms are broken reveal much about those norms (cf. Latour, 2007) and indicate the presence of in-depth discussions. In particular, we used the meta-data characteristic of the threads in the corpus that generally show a relatively level balance between the number of likes and comments they have received, and scrutinised those threads that received significantly more comments than likes.

The aim of this study is therefore to investigate the kinds of posts that deviate from the norm by receiving many more comments than they do likes and, thus, occasion in-depth discussions in this thematic FB group. Analytically, this study is underpinned by frame theory from Goffman's (1959, 1974) micro-sociological and interactional perspective. The analysis procedure of content selection criteria involved several steps, including computational content analysis, to identify particularly relevant discussion threads for detailed analysis by means of Goffman's (1959, 1974) interactional approach using the concept of professional identity work. The implications of frame theory, an interactional approach and the concept of professional identity work for the analysis in this study, will be further elaborated on later. More specifically, the following research questions have guided the study:

- What characterises the posts that deviate from the norm and receive significantly more comments than they do likes in a Swedish teacher thematic FB group?
- What is the nature of the discussions that are established threads following such posts?
- How are teachers' professional identities enacted and revealed through in discussion threads that develop from posts categorised as *pedagogical ideas* and *sharing of resources*?

Following the introduction section is the literature review, followed by the methodology and the theoretical framework. The results are presented and, finally, the paper ends with a discussion.

LITERATURE REVIEW

As initially mentioned, the body of literature acknowledging the unique conditions that social media groups offer to teachers for sharing and professional support is fast growing (Bodell & Hook, 2011; Goodyear et al., 2014; Kelly & Antonio, 2016; Khalid, 2018; Lantz-Andersson et al., 2018; Macià & García, 2016, 2018; Ranieri et al., 2012; Rodesiler, 2015; Trust et al., 2016; Tsiotakis & Jimoyiannis, 2016; Wesely, 2013). Studies this far have identified two main patterns of interaction: one targeted at information *sharing* and the other focusing on social relations and *support*. The majority of these studies have recognised that teachers' sharing online promotes a sense of belonging and facilitated networking. For example, Wesely's study (2013) of K-12 teachers' perceptions of the benefits of using Twitter for professional purposes showed that the sharing of well-chosen content, so-called filtered

information (K. Davis, 2015), in bottom-up communities, supported teachers in developing an impression of themselves as teaching domain experts. However, other studies report that teachers' professional use of social media platforms involves relatively short and superficial exchanges of information (e.g., Brown & Munger, 2010; T. Davis, 2013; Kelly & Antonio, 2016; Tsiotakis & Jimoyiannis, 2016). For example, Tsiotakis and Jimoyiannis (2016) found that teachers most often used the platform "to seek information and quick answers to current instructional problems" (p. 56), which points to a prevalence of rather superficial sharing practices that seldom develop into discussions relating to their teaching practices.

Regarding social relations and *support*, which is the other main patterns identified in teachers' use of social media, Kelly and Antonio (2016) found that providing support to other teachers related to daily problems and obtaining pragmatic ways to work were the predominant focus of teachers' online interaction. This aligns with Hart and Steinbrecher (2011), who described teachers' use of Facebook as a rather straightforward way to seek collegial and professional advice. Another aspect suggested by Trust et al. (2016) is the availability of online colleagues who respond to diverse interests and needs around-the-clock, which renders it possible for teachers to develop as professionals. However, as Booth (2012) stressed, in order for professional support to be meaningful in such online communities, confidence must be actively fostered. We will argue that since there is a vast variety of platforms and group constellations that mean different things to different groups, researchers need to be careful about making generalisations that are too broad, where exaggerated benefits of such platforms and simplistic interpretations of online interaction are put forward (cf. Weseley, 2013). This implies a methodological reconsideration: instead of focusing on individual teachers' accounts of their social media use, it is necessary to empirically investigate teachers' online interactions as new types of collegial discussions that, while rich, could be seen as valuable even if they are unpredictable compared to well-established professional learning efforts.

METHODS

To collect the activity in this teacher professional FB group, we used programmatic approaches to query the Facebook database through their graph application programming interface (API). This allowed us to assemble a corpus of all the activity in the group for the three years between the group's inception in April 2012 and May 2015. These data include all posts, comments, and likes, along with usernames and timestamps for these activities. They were collected using a script written in the Python programming language and then organised into analyzable forms, such as databases, spreadsheets and hypertext documents using a series of additional scripts. Broadly speaking, analysis of these materials took place through a trace ethnographic approach (Geiger & Ribes, 2011; O'Keefe, 2015) that "combines the richness of participant-observation with the wealth of data in logs so as to reconstruct patterns and practices of users in distributed sociotechnical systems" (Geiger & Ribes, 2011, p. 1). For the purposes of this study, a trace ethnographic approach allowed us to work across the macro scale of the available platform data and micro scale of the interactions between group members. In particular, since our corpus amounts to 2,970 posts and over 16,000 comments, it became important to find ways to identify discussion threads of particular relevance for detailed interaction analysis. Computational techniques were used to find patterns that could be used to select particularly relevant threads. To inform this computational process, we engaged in a prolonged ethnographic engagement with the FB group by regularly observing the interactions to get a sense of the kinds of discussions taking place (cf. Davies & Merchant, 2007; Selwyn, 2009). This enabled us to identify possible features of the discussion threads that could then be investigated through exploratory data analysis techniques (Morgenthaler, 2009; Tukey, 1977) to check for patterns at the macro level. Following our aim of uncovering the established norms within the group, we chose to examine those threads that significantly deviated from a group norm, where the original posts that started threads generally received a relatively balanced number of likes and comments. An **original post** (common abbreviation OP, which can also mean **original poster**) opens whatever dialogue or makes whatever announcement the poster wishes. Across the corpus, the mean ratio between comments to

likes for all threads was 0.87, meaning that for every 100 likes a post received, on average, it had 87 comments. However, the relationship between the number of comments and likes has large variation across threads, with a standard deviation of 1.98 (see Figure 1).

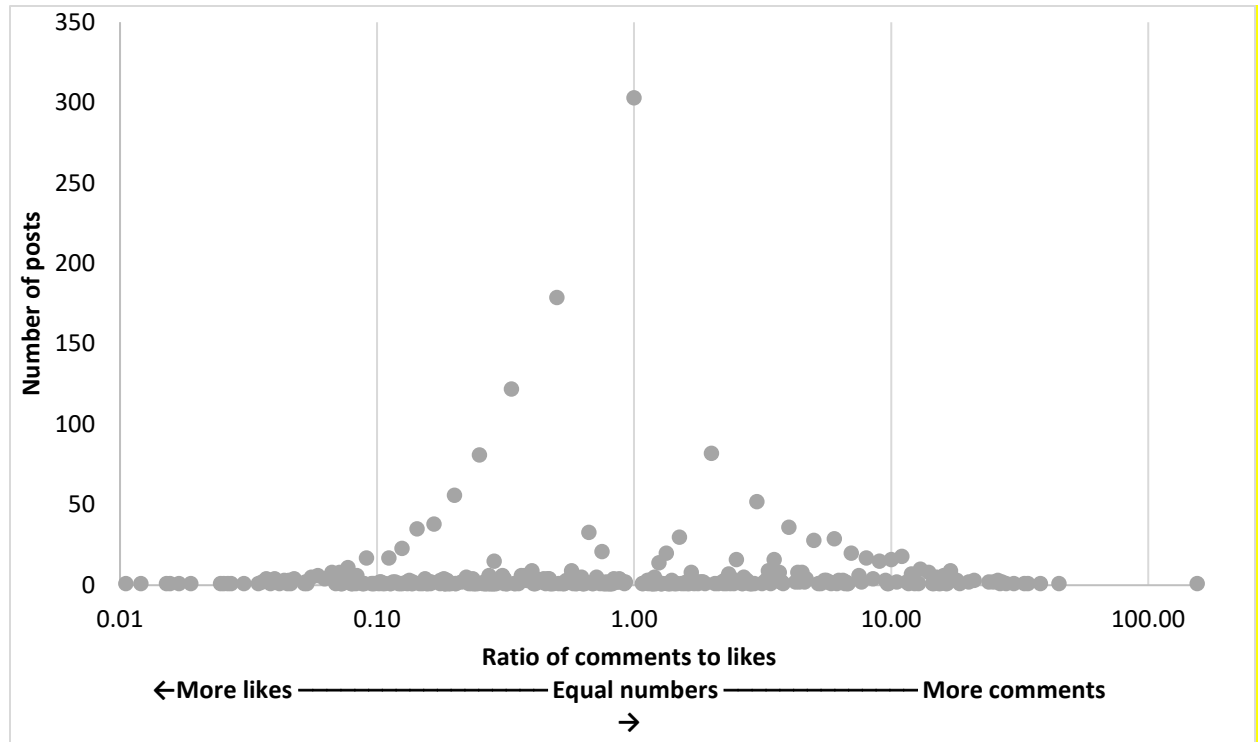


Figure 1. Distribution of posts by comment-to-like ratio

Given this large variation, it is useful to note that a strong majority of 2,291 out of 2,970 (77.14%) threads in the corpus received an equal number of or more likes than comments, but only 422 out of 2,970 (14.21%) threads received more than one standard deviation above the mean (2.85) in the number of comments to likes. These few threads with significantly more comments than likes are an unusual occurrence in the group, suggesting particular behaviour that deviates from that of the general norm for liking and commenting.

Examining the 422 threads identified as having original posts that received 2.85 or more times as many comments as they did likes, we found that many were short, consisting of only a few comments. This was a pattern that we had observed during our ethnographic engagement and one that was confirmed upon inspection of the corpus as a whole (see Figure 2).

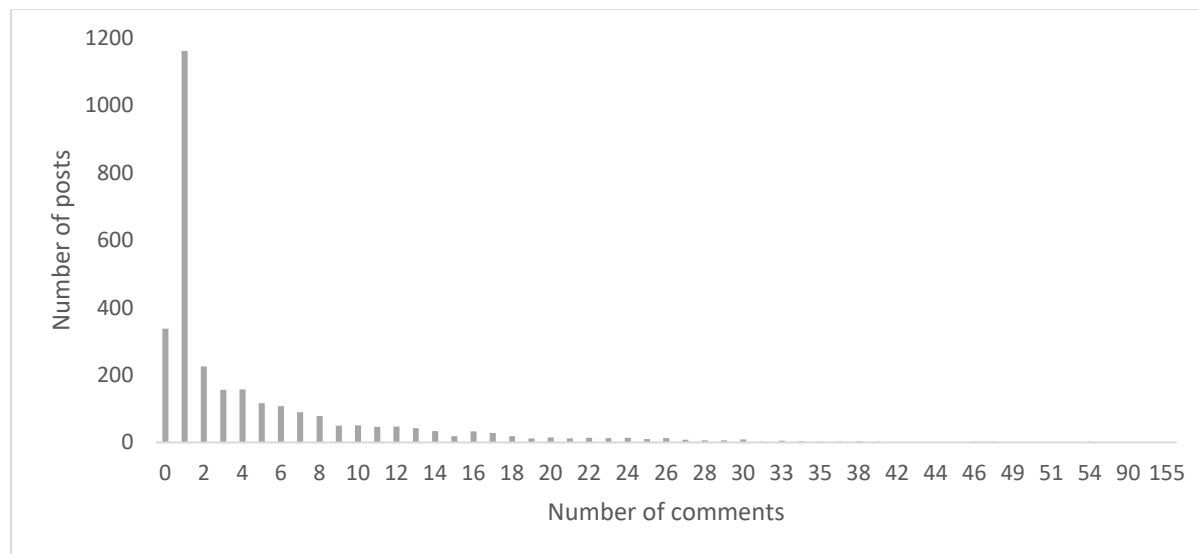


Figure 2. Distribution of posts by number of comments received

As illustrated in Figure 2, the large majority of posts in the corpus received less than five comments. Of importance to keep in mind is that an interaction pattern, categorized by rather superficial liking and sharing practices, which rarely bring about in-depth discussions, is the most common pattern in social media communication and also in the kind of professional learning interaction explored here (e.g., Brown & Munger, 2010; Lantz-Andersson et al., 2018; T. Davis, 2013; Kelly & Antonio, 2016; Tsiotakis & Jimoyiannis, 2016). To have the best possibility of identifying threads where the interactions could be used to unpack the topics and norms of the group, we chose to focus on the subset of identified posts that received more comments than the corpus mean (4.97) plus two standard deviations (15.98). Of the 422 posts identified earlier, 79 received between this threshold of 20.95 and the maximum number in the corpus of 155 comments.

Once we had selected the 79 posts that deviated from the general norm of balanced numbers of likes and comments, we began by examining the original post for each of the threads, focusing on identifying similarities and differences through thematic analysis (Braun & Clarke, 2006). First, two of the authors coded the material individually by considering aspects such as topicality, phrasing, expression, etc. From this process, several themes were initially suggested by the individual researchers. Thereafter, discrepancies between coding were discussed between all three authors and the original posts were categorized into themes. The themes were synthesized, discussed, and refined throughout the continuing process by emphasizing to creating a solid consensus and ensuring the trustworthiness of the themes (Braun & Clarke, 2006, 2019; Nowell et al., 2017). This analytical procedure continued by deciding on a final set of themes and by producing detailed and complex definitions of each theme that were also named. The thematic analysis of the selected posts for this study revealed four themes; (1a) *Functionally motivated technical features*, (1b) *Instructionally motivated technical features*, (2) *Pedagogical ideas and premises*, and (3) *Sharing* (see Table 1 below). We then screened all 79 discussion threads manually and selected one illustrative example for each theme of the teachers' interaction pattern. For the purposes of the limited scope of this study, we will focus on two of the themes; *Pedagogical ideas and premises* and *Sharing*, the other two themes have already been discussed in a previous study (Lundin et al., 2017).

Table 1. Categorisation of selected material

Themes	No of posts	Description of theme	Empirical examples
1) Technical features	44		
1a) Functionally motivated	31 (8 overlaps with 1b)	Posts where teachers asks for concrete questions and requests for specific software tools and programs; no references to experiences of using such tools	<p>Post 1 (7 likes, 22 comments)</p> <p>Hey! I am learning how to use QR codes. I need tips on how to use them in teaching. Thanks!</p> <p>Post 25 (1 like, 24 comments)</p> <p>Hi! What blog would you recommend if you want to blog flips and other instructional material?</p>
1b) Instructionally motivated	21 (8 overlaps with 1a)	Posts where teachers initiate discussions about how to use such tools in teaching	<p>Post 71 (8 likes, 102 comments)</p> <p>Anyone using Facebook to handle information to students? Would like to hear how you think it has worked.</p> <p>Post 19 (6 likes, 35 comments)</p> <p>Hi group! If you would try to help and support other colleagues to take the first steps towards using more digital tools in school. Where would you start then?</p>
2) Pedagogical ideas and premises	20	Posts related to various instructional dilemmas and choices (often linked to the theme of the group)	<p>Post 36 (1 like, 25 comments)</p> <p>How do you get all the students on track. How do you get the students involved at home? How much time do you require about the students doing at home?</p>
3) Sharing of material	15	Posts where teachers offer resources and self-produced material such as videos	<p>Post 55 (2 likes, 22 comments)</p> <p>Make your flip in the form of a book. Here is a video on how to do it:[link to Youtube video]</p>

In this study, we regard ethical considerations as *situated*, i.e., as dependent on the contingent powers of the analytical focus, methodological choices and participants involved in the activities and contexts under study (Simons & Usher, 2000, p. 11). All names of teachers have been anonymised, and their posts have been translated from Swedish to English, which make them less easily searchable.

THEORETICAL FRAMEWORK

The detailed analysis of the selected discussion threads, in this study, draws on Goffman's (1959, 1974) interactional approach. Goffman (1974) suggested that participants assess every situation they take part in and act accordingly. In turn, this reflexively produces the kind of situation that momentarily becomes established, which is conceptualised as the *framing of the situation*. We more or less implicitly ask ourselves "what is going on here?" (Goffman, 1974, p. 8). And the answer to that question then forms the relatively shared understanding that we have with the other participants in the situation. The framing thus becomes fundamental for how the interaction develops. The meaning of

an utterance, an action, or an event is dependent on how we have framed them in the specific activity, and it helps us to interpret and understand and how to continue with the activity. In such a perspective, all human interaction is seen as being orderly organised. This interaction order implies that participants tend to follow what they perceive as the current interaction and make arrangements for maintaining it (Goffman, 1983). How the framing of the situation is negotiated by the participants is crucial for researchers to consider in order to understand how the activity is understood by the participants. In this study we have focused on analysing teachers' online interaction in terms of their professional *identity work*, that is how they present themselves in alignment (or not) with other participants' expectations as well as with the established group norms. What will be shown is that in our empirical data, the struggle to maintain an interaction order implies a wish to follow the certain established group norms. These norms are made visible in how the participants, teachers in our case, align with the group as a *performance team*, by collaboratively endeavour to maintain the established group norms. Thus, in the interaction the participants employ what Goffman (1971) calls *interpersonal rituals*, i.e., they interact in line with expectations about appropriate ways of behaving in the group. Analytically, such rituals often become visible when *something is at stake*, not aligning with the group norm in the topics addressed. The function of *supportive* rituals is to assist in maintaining or re-establishing the interaction order and group norm, whereas *remedial* rituals imply, for example, participants' explanations or mitigations for statements that in some way disrupt the established norms of the group (Goffman, 1971). The use of such rituals is thus understood as part of the struggle to maintain the prevalent norm in the group. As already elaborated on, in this study, we have used these key concepts as tools to analyse the nature of the discussions that are established in threads with posts that deviate from the norm and receive significantly more comments than they do likes in a Swedish teacher thematic FB group.

RESULTS

The 79 original posts that received significantly more comments than they did likes, and thus significantly deviated from the norm of the group, were formulated as questions and/or requests and were thus designed to attract comments and not just likes, an interaction order also identified in previous research (Kelly & Antonio, 2016; Macià & Garcia, 2016). Through thematic analysis (Braun & Clarke, 2006), we categorised the 79 posts in 4 themes (see Table 1 above): (1a) *functionally motivated technical features*, (1b) *instructionally motivated technical features*, (2) *pedagogical ideas and premises*, and (3) *sharing*.

We identified that teachers explicitly asked for collegial advice and support on the use of technical features in 44 of the 79 posts (themes 1a and 1b). These posts were either *functionally* or *instructionally* motivated, regarding the large range of technical tools used as part of the FC approach. As mentioned before, findings on teachers' discussions in such posts have been reported on elsewhere (Lundin et al., 2017). Of interest for this study are the other 35 original posts and the discussions emanating from these. Of the original posts, 20 were categorised as *pedagogical ideas and premises* (theme 2) and related to various instructional dilemmas and choices that can be directly linked to the theme of the group. In the material, 15 posts comprised teachers' *sharing* (theme 3) of resources and material. Generally, a norm for sharing in this group is the promotion of self-produced materials, videos, etc., which these 15 posts deviate from as they are embedded in questions or requests and are thus designed by teachers to be commented upon. In the analysis, we will study discussion threads evolving from one original post (OP) thematically categorised as *pedagogical ideas and premises* and from one OP categorised as *sharing*, as illustrative examples of the kind of discussions that are established and how teachers' professional identity is enacted and revealed through their comments in these discussion threads.

PEDAGOGICAL IDEAS AND PREMISES

Across the discussions occasioned by original posts categorised as *pedagogical ideas and premises*, one of the recurrent topics addressed was homework. Post 23 below presents one example of how the topic homework is initiated and discussed.

Post 23 (1 like, 27 comments)

OP: Pondered together with my wise sister. How do you view the flipped classroom in today's debate about a "homework-free" school?

Comment 1

C1: A "homework-free" school will never work as long as the lesson time is not 100% effective. So, as long as part of the teaching time is spent on something other than teaching, I will continue with homework. Homework with purpose, not just for the sake of ...

Comment 2

C2: Agree with the above. Nothing wrong with thinking about things after the end of the school day. An alternative is to extend the school day so that all children have the opportunity to reflect.

In post 23, the OP relates to a recurring public debate in Sweden about the use of homework in schools. Given that the theme of this FB group assumes that students individually engage with content through 'flips' before class, such a debate about homework or not seems perhaps inevitable. The OP leans against a knowledgeable other—a "wise sister"—when introducing the topic of homework. The question that follows mainly concerns asking for or opening up a collegial discussion about how to "view" the FC approach in relation to the current debate about schooling without homework. In this manner, the question is quite carefully framed as not coming from a critic but from, to use Goffman's (1959) terminology, a teammate. However, the way in which the question is motivated (not only this teacher's sole thinking) and posed (opening up for input from more knowledgeable others) suggests that something crucial related to the group norms is at stake (Goffman, 1974).

The first teacher to comment (C1) relates the premise of non-homework schooling to the actual teaching conditions in schools today and takes a personal stance (by using "I") to homework as a necessity until lesson times become "100% effective" and are not spent "on something other than teaching." C1 points to the importance of distinguishing between plain homework and purposeful homework, thus giving precedence to the latter. Analytically, C1's comment can be seen voicing the *performance team* (Goffman, 1959) of the thematic FB-group. In Goffman's perspective "a team is a set of individuals whose intimate cooperation is required if a given projected definition of the situation is to be maintained" (p. 108). In such manner, C1's comment seems to align with the norms of the group, closely related to the declared purpose of the FC approach where flips are considered purposeful preparation and "not just for the sake of ...".

This perspective on homework as purposeful is supported by C2, who also aligns with the norms of the performance team, before linking the added value of homework as a way of reflecting on schooling to such a perspective. This additional or complementary framing of homework made by C2 can also be seen as aligning with the rhetoric of the FC approach where positioning student learning as the focus and offering a way of reframing the concept of homework are important arguments made by the founding fathers of the approach, Sams and Bergmann (2013). Some comments later, the OP motivates the initial request for a more specific discussion about homework and the FC approach:

Comment 13

OP: I asked the question precisely because I myself give homework and wants to work more flipped, but I get confused with the current debate on schooling without homework. I was thinking that in this group there were a lot of wise people thinking about this. I have given homework that is intended for individual student work, such as repetition or watching a flip.

Comment 14

C3: I fully agree with the merits of the approach, that's why I use it! But evaluations with my students say that they like the approach, but they feel that there will be more work and increased stress. It has made me think a little about the approach's problems. Perhaps it is easier if you teach lower ages as you, to a greater extent, can regulate the total workload.

Comment 15

C4: The very definition of the flipped classroom is that lesson time can be used more effectively, through students preparing with a video before the lesson. I find it hard to see that it means anything other than at home, or after school.

In comment 13, the OP motivates the initial question concerning homework and the FC approach by relying on other teachers' professionalism and greater experience with the approach, yet again presenting herself as a teammate (Goffman, 1959). The teacher's personal stance in the debate (use of "I") can analytically be seen as a *remedial ritual* where the alignment to the norms of the group is clarified (Goffman, 1971). Following this, a more critical stance is taken towards the boundaries between homework and the FC approach. First, C3 (comment 14) motivates using the approach by its merits before drawing on student evaluations where increased workload and stress are anticipated, to critique the approach. Analytically speaking, to maintain the norms of the group, C3 performs *remedial rituals* (Goffman, 1971) by nuancing the critical argument and suggesting that the approach might be more suitable for primary or middle school teachers where student "total workload" can more easily be regulated. In comment 15, the teachers are taken back to the basis of the FC approach, where homework is justified as rendering possible "that lesson time can be used more effectively." This teacher continues by plainly arguing that even if flips are preparation for class (and thus not homework per se), it is difficult to see that such preparation must be carried out "at home, or after school." While it is suggested, in the first comment in this thread, that whether or not a task is homework should be decided on by looking at its qualities, this teacher (comment 15) clearly takes a stance for flips to be considered as work that students do outside school and, therefore, as homework.

Following this, several teachers comment and agree with such a stance. The topic of municipality homework bans is also brought forward in the thread and occasions several comments on the intrusion of such bans, imposed by bureaucratic governments, on teachers' professional authority and responsibilities. However, from comment 23 below, a more substantive discussion about homework and the FC approach continues:

Comment 23

C5: I think there is a difference in homework: information with the purpose of creating understanding (flip) and to continue things previously practised in school (multiplication tables, notes) can be justifiable while homework with the purpose of learning new/relearning = working individually/catching up is to risk leaving students alone with homework. I see no major problems with homework, and that includes flips, which the student can carry out himself or herself. How did Zlatan become good at football? Well, it was not by practising only at soccer training.

In comment 23, the teacher specifically argues that there are qualitative differences between different types of homework, where some types “risk leaving students alone with homework.” C5 makes a clear distinction between providing students with (1) tasks or content not yet introduced by the teacher and (2) tasks that have been introduced and that it is thus possible to work on individually. These arguments position the teacher as one of the *performance team* (Goffman, 1959), maintaining the norms surrounding this thematic FB group where flips are to be based on instructional content familiar to students and thus are possible for them to prepare individually. This line of argument positions flips as qualitatively different to traditional homework, a position that gets lots of collegial support from other teachers in the following thread.

In analytical terms, extensive professional identity work (Goffman, 1974) is performed by the teachers in this homework discussion. The teachers taking part in this discussion align with the FC-approach by implying that flips, which, on the one hand, could be regarded as a kind of homework, should, on the other hand, be understood as something distinct. However, and importantly, this does not mean that a discussion on how to understand homework and debate its merits cannot take place in the group, but rather that efforts are made in the interaction to secure that the established norms of the group remain intact. The collegial support that is part of such norms also follows the supportive pattern identified in previous research on teacher online communities (e.g. Macià & García, 2016).

The stability of the norms in the group is seen in how teachers account for particular aspects, such as the qualities of homework, and frame their questioning in particular ways that align with the established order of interaction (Goffman, 1974) in the group. This stability of norms in relation to controversial posts relies on teachers not only responding with likes, but also commenting as part of their work to maintain professional identities. Thus, pedagogical ideas and premises that in some sense jeopardise the basic assumptions of the FC approach are examples of posts that bring about a deviation from the general norms of participation in the group where likes greatly outnumber comments on posts.

SHARING OF MATERIAL

Of the 79 original posts that received significantly more comments than likes, 15 concerned the *sharing* of resources and material. Similarly, to previous research findings, a strong sharing practice is prevalent in this group as well. However, a general characteristic of these 15 posts, compared to other sharing posts in the group, is that those 15 posts were embedded in questions and/or requests, which indicates a prompt for collegial comments. In the following, we will analyse the discussion thread following one of these 15 posts in which a teacher has shared a link to a self-produced video:

Post 22 (7 likes, 43 comments)

OP: Here is a little flip film about halves for the earlier years. Maybe this could be something?

[link to a film in a class blog]

Comments and likes are posted to this specific discussion thread during more than 45 days. This differs from what is typical for, or the norm of, how discussion threads play out, which is that they finish within one or two days. First, the OP receives many encouraging comments from other teachers for sharing the video, such as, for instance, a short collegial cheer from C1:

Comment 13

C1: Go [addresses original poster]!

Comment 13 is a typical example of how collegial support is maintained in the group, in this specific case, addressing that the OP has shared a self-produced video but without addressing the video's quality. Other teachers, such as the one in comment 15 below, also offer short congratulatory statements, but also address the quality of the content shared:

Comment 15

C2: Liked what I saw! Lovely film [addresses original poster]! :)

Analytically, comments 13 and 15 exemplify how different forms of professional support are provided in the discussion: *emotional support* and *professional support* (Goffman, 1971). For the former, instead of merely liking the post, these teachers use what theoretically can be seen as interpersonal rituals, such as supportive comments of recognition and greetings, which provide access to each other as colleagues and members of this thematic group. In comment 15 especially, professional support is more evident as the comment also addresses the quality of the material shared. Either way, the discussion involves teacher professional identity work where accounts of taking an active part in the interaction are made explicit (Goffman, 1959). In the next part of the discussion, the OP and the moderator, who is also a central participant in the group, are positioned by C3 as content experts:

Comment 22

C3: A question for you [OP] and [mod]! Do you post your videos on YouTube or anywhere else? Is there somewhere where videos can be shared similar to, for example, lektion.se ((i.e. a Swedish lesson database))...? Stupid to reinvent the wheel when there is so much good stuff to share already. Think that your films are very clear and good [OP]! Inspiring! I have now downloaded Jing. Is that a recommendation, or are there better tools? Tips please thanks

In comment 22, C3 addresses the OP and the moderator, two central participants of the group, as knowledgeable in terms of both content and technical skills, to draw on their expertise in relation to issues of where to channel and share such videos. The moderator and the OP respond to this explicit address with long comments where they both explain their experiences of working with instructional videos. Based on such extensive professional support, C3 then returns to a specific case and thus shares self-produced material, which shows how supportive interchanges such as these provide access to each other as colleagues and establish the degree of such access. Directly following this, another teacher suggests that the OP should produce a video on a different mathematical concept. The OP follows up on both of these comments by promising feedback eventually. This marks a break in the discussion thread until a month later when a teacher comments about watching one of the OP's videos:

Comment 35

C4: Just had a look at your new blog [OP] and saw what good work you had done with ones and tens in homework. I am also using SurveyMonkey when I give homework to my students. What did you do to get such good pictures? Are they just pictures that you have uploaded or what have you done?

In this manner, the original post is revisited over a month later as C4 has read the blog produced by the OP but actually comments on a different video to the one shared in the original post. This teacher gives positive feedback on the content of the video and bases such feedback on having some experience of producing videos as well. As part of such supportive interchanges (Goffman, 1971), C4 asks the OP to share more on the pictures used in the specific video addressed in comment 35. Following this rejuvenation of the thread, the final part of the discussion involves several teachers asking

and getting permission from the original poster to use material from the blog. Analytically, the teachers in this discussion thread engage in professional identity work (Goffman, 1959) performed by emotional support through commenting instead of merely liking and explicitly encouraging the original poster in sharing a video for the first time in the group. They engage in this work by offering professional support through displaying themselves as belonging to a performance team (Goffman, 1959) where they take active part in the sharing of material and resources by commenting on the content.

DISCUSSION

In this study, we have examined original posts (and their threads) that deviate from the norm by receiving many more comments than likes in a teacher professional thematic FB-group. This specific selection criterion was, as already pointed out, motivated by the fact that such threads would involve in-depth discussions and not merely routinely acknowledging or supporting by liking and that cases where norms are broken reveal much about those norms (cf. Latour, 2007). Our research interests have been to explore (1) the characteristics of such unusual original posts, (2) the nature of the discussion threads following such original posts, and (3) how teachers' professional identities are enacted in threads concerning pedagogical ideas and sharing of resources.

Characteristic for the 79 original posts that significantly deviated from the norm of the group, and social media interaction more generally for that matter, was that they were formulated as questions and/or requests. This implies that they were designed to attract comments and not just likes, an interaction order also identified in previous research (Kelly & Antonio, 2016).

However, the unusualness of this interaction order in our case suggests that teachers may be unlikely to ask complicated or unconventional questions in social media groups. This highlights the importance of what Kelly and Antonio (2016, p. 147) refer to as "champions that promote a culture of asking challenging questions." As the current study shows, despite the general character of threads in teacher social media groups, interactions where one or more teachers take on the role of "champion" by posing challenging questions do tend to produce relevant discussions. When it comes to the discussion threads that follow the particular original posts in focus in this study, our findings confirm previous research where social media groups are characterised as providing platforms for professional discussions while also highlighting the relative rareness of such exchanges. The findings also confirm studies that characterise sharing and professional support to be dominant forms of interaction on teacher social media groups (K. Davis, 2015; Kelly & Antonio, 2016; Maciá & García, 2016; Ranieri et al., 2012; Robson, 2017; Wesely, 2013) by showing that even the unusual discussion threads examined have that general character.

Similar to Ranieri et al. (2012) and Robson (2017), the present study contributes by revealing ways that teachers use social media to share teaching material and resources as well as to give and receive emotional and professional support. This study also further confirms how for some teachers sharing and support on social media means a transformation from working in isolation to finding a professional community (e.g., Ranieri et al., 2012). This is explicitly shown when C3 expresses: "Stupid to reinvent the wheel when there is so much good stuff to share already" (Comment 22: Post 22). However, as the detailed interaction analysis of the discussion threads conducted here shows, supportive and sharing practices do not merely constitute explicit questions and/or requests and answers (by comments), but also constitute pedagogical discussions pertinent to a teacher's here and now (cf. Kelly & Antonio, 2016). This is exemplified when C3 articulates: "I fully agree with the merits of the approach, that's why I use it! But evaluations with my students say that they like the approach, but they feel that there will be more work and increased stress. It has made me think a little about the approach's problems" (Comment 14: Post 23).

In the discussion threads that followed original posts that received significantly more comments than likes, our analysis shows that the teachers enacted professional identity work (Goffman, 1959, 1974).

As highlighted in the data presented in relation to the *sharing of material*, we found that the teachers employed interpersonal rituals related to being a legitimate member of the FB group as well as to the established norms of the group and further to the role of professional teacher (cf. Robson, 2017). In the discussion threads the teachers displayed a variety of identities such as being an active and engaged teacher, a thematic expert, or a central group member. In the empirical example presented here, where teachers discuss *pedagogical ideas and premises*, this identity work is carried out by means of teachers explicitly declaring support for a shared understanding of the premises that underpin the FC approach. This can be understood as alignment with the performance team of the group (Goffman, 1959). Such professional identity work is also made evident when discussing the sensitive topic of homework (post 23). In this case, the sensitivity of the topic can be seen in the remedial rituals (Goffman, 1971) that the teachers perform to balance and nuance hesitations about the concept of homework on one hand, and a collegial agreement about homework as a prerequisite for the FC approach, on the other. This is handled by introducing the idea that homework be designed and regarded in qualitatively specific ways. The findings also show that the teachers displayed identity work in ways similar to what Robson (2017) describes as social media interaction allowing teachers “to be the teacher that you would really like to be” (p. 7). In this sense, in the threads analysed here, some teachers can be understood to present themselves as “ideal teachers.”

In the empirical example of *sharing* discourse, one of the issues at stake is how to produce and share an instructional video in a professional manner. The OP and one of the other teachers involved are positioned as experts by another teacher (cf. Carpenter & Harvey, 2019). The request of this teacher is that they offer valuable insights into the way they work with such material. Such forms of professional identity work (Goffman, 1974) by more and less experienced practitioners of the FC-approach can be viewed as central organising aspect that is important for maintaining the norms of the group. What seemed at first to be a simple sharing of a video by the OP occasioned both emotional and elaborated professional support (cf. K. Davis, 2015; Ranieri et al., 2012). This implies that as part of maintaining the norms of the group, the teachers perform professional identity work in which the act of liking alone is not sufficient and where they more explicitly present themselves (Goffman, 1959) by commenting.

The availability of trace data from social interactions in online environments presents significant opportunities for interaction analysis, but also raises major *methodological issues*. Chief amongst these is navigating the sheer amount of documented interactions available. One strategy for arriving at a manageable set of relevant interactions that can be analysed in detail might be to select from the vast number available on the basis of happenstance, taking those interactions of interest that one happens to come across. This strategy may be appropriate for certain research questions, but as this study illustrates, an alternative is to take a more systematic approach to selection. This approach that can be considered to fall within the family of trace ethnographic methods, allows for patterns identifiable at the macro scale of interactions on a platform to be considered in relation to details of those interactions at a micro scale. In this study, an approach is articulated that involves a three phased analysis process that moves from examining interactional data at the macro platform level to the micro interaction level while maintaining a connection between these levels: (1) *meta-data selection criteria*, (2) *content selection criteria*, and (3) *interaction analysis of selected threads*. To effectively work in this fashion with large amounts of interactional data across levels requires a combination of computational and ethnographic analytic skills, but once an analytic “pipeline” has been established, the material can be quickly explored based on insights and ideas from ethnographic engagement with the group or practices documented in the corpus.

The growing number of teachers who participate in online professional groups like the one analyzed in this study testifies to the value of such online communities for teachers' work and professional identities. Participation in teacher FB groups involves a sense of professional and collegial belonging and enables sharing of teaching tips, apps etc., which becomes meaningful for teachers' professional work (Lantz-Andersson et al., 2018). However, there are also some critical aspects to be considered

in relation to such online communities. One issue to be addressed concerns the repertoires and norms in teachers' online communities, which tend to be embedded in a framework of normativity and ideals (cf. Lantz-Andersson et al., 2017; Peterson et al., 2019; Robson, 2017). Thus, what counts as legitimate for discussion and what kind of teacher professional identity becomes acceptable is often controlled in such groups. In terms of maintaining group norms, this can imply both a prerequisite but also a mechanism that eventually silences critical voices and thus, we argue, hinders professional work and learning.

A second critical aspect which relates to the issue of maintaining group norms is that teachers' participation in these online communities be regarded as a form of *digital labour* that predominantly takes place outside working hours on a commercial platform (Bergviken Rensfeldt et al., 2018). As the scope of the threads analysed in this study illustrates, the work of teachers to initiate, moderate, contribute, and respond can be significant. As long as such work is not considered part of daily professional work, it is in a sense "invisible." This lack of recognition for the work required to engage in the elaborated ways found in the threads analysed in this paper may present a problem for sustaining teacher professional development online communities over time. If the kinds of rich professional discussions examined here are to be encouraged, increased professional use of social media by means of "invisible" digital work, as highlighted by Khalid (2018), needs to be addressed by teachers, politicians, school leaders, and other stakeholders in terms of the implications for teachers, teaching and schooling more generally.

CONCLUSIONS

This study was conducted to shed light on the nature of discussions in a teacher professional thematic FB-group by scrutinizing original posts (and their threads) that deviate from the norm by receiving many more comments than likes. It is vital, we have argued, to empirically investigate teachers' online interactions as new types of collegial discussions that, while rich, could be seen as valuable even if they are unpredictable compared to well-established professional learning efforts.

Returning to the key issue of the character of the discussions that take place as the fruits of teachers' digital labour, the analysis presented here shows that social media groups have the potential to support rich professional discussions, but elaborated discussions are rare. Threads started with what Kelly and Antonio (2016) describe as "challenging questions" often lead to what can be argued to be elaborated discussions, making it important to find ways to support more teachers in taking on the role of "champions that promote a culture of asking challenging questions" (Kelly & Antonio, 2016, p. 147). However, as the findings of this study show, challenging questions may also result in challenges to group norms that occasion patterns of interaction that are counterproductive to the goal of rich opportunities for discussion. If teachers' digital labour on social media is to be used for professional development, attention should not only be paid to encouraging teachers to ask difficult questions, but also to strengthen teachers' competencies for using social media platforms as spaces for professional development. This study points to the necessity of further discussion about what teacher professional development should involve if not opportunities to critically reflect on norms or what is taken for granted in teaching practices, whether it concerns a specific instructional approach as in this study or other more general methods for teaching and learning. The findings of this study show that discussion of an elaborated character may be well served by encouraging the establishment of norms in teacher social media groups that lead to openness, debate, and constructive criticism that can be argued to lead to professional development, distinct from those prevalent when the same platforms are used for other purposes.

For future studies we will suggest that additional detailed analysis of teachers' use of social media platforms for professional purposes are needed as well as methodological competence development with regard to computational approaches such as those employed in this study.

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