

The Role of Blogs In Studying The Discourse And Social Practices of Mathematics Teachers

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ABSTRACT

This paper introduces a rationale for change in roles and practices of the participants in mathematics education MA courses and their instructor, based on the integration and use of a web log, both as a medium for asynchronous communication, and as a mechanism for provoking professional reflection, through changes in the discursive style and the social practices of participants. It reports research carried out with 48 mathematics teachers, as students of two six-month academic (MA) courses. A framework for research and practice in on line learning (Garrison & Anderson, 2003) is related to theoretical constructs from the fields of mathematics education and online learning and is used as a first analytical filter. In terms of identifying kinds of discourse, the analytical categories used have aided in clarifying specific patterns. The first seems to be that of the development of different writing genres and the informal discursive style embedded in teachers' narratives. The second is the effort of participants to engage in communicatively demanding situations, adopting different roles and behaviours. These roles and behaviours are summarised in three profiles: the "blog enthusiast", the "blog frequent visitor" and the "blog sceptic".

Keywords

Web logs, Professional development, Discourse, Mathematics teachers

Introduction

Rebecca Blood (2003) defines web logs (abbreviation: blogs) as "personal or organizational web pages organized by dated entries, with newer items posted to the top of the site, usually consisting of links, media, commentaries, personal thoughts, essays, papers and ongoing discussions".

Blogs can be published by a single or multiple authors, with varying editing permissions, and, according to Bartlett-Bragg (2003), exhibit five representative features: personal editorship, a hyperlinked posting structure, frequent updates, free public access to the content via the Internet and archived postings. O' Donnell (2005) refers to the blog's "idiosyncratic rhetoric", which "transforms the textual experience into an epistemologically challenging game", while Mortensen and Walker (2002) argue that the blog reverses the "tyranny of logical argumentation" by imposing the organization of posts in chronological order.

Since 2000, when these tools became widely available, a surprisingly wide variety of blog uses can be observed in the higher education and research arenas. In the field of higher education in particular, where online asynchronous communication has taken place, either through email or discussion boards, blogs have been used in a number of different roles, which have both extended and in some instances replaced existing online communication tools (Farmer 2004). This has triggered recent research indicating the usefulness of blogs as communication and/or cognitive tools for specific disciplines, such as language learning (Ward, 2004), journalism and communication studies (O' Donnell 2005), academic research (Mortensen & Walker, 2002), law, higher education in general (Williams and Jacobs, 2004), and teachers' professional development (Carraher, 2003). There seems, however to be a gap in the related literature with regards to the potential and possible role/s of blogs in the professional development of mathematics teachers and the possible change they may bring about in roles and practices currently employed, both by students and lecturers.

Oliver et al (2005), in their report of empirical studies of the impact of ICT on roles and practices in higher education, underline the significant relationship between subject and discipline area and the specific use of technology it evokes or encourages. These authors, having carried out research on a national scale in the UK higher education system broadly recognize two main types of technology use: a) Physics, Engineering and Mathematics and b) Social Sciences (such as Politics, Languages and applied Social Sciences). For the first category, the use of digital resources was closely related to the use of specialist software, (use of images, including moving and 3-D images and simulations). For the second category, the interest focused on the use of particular types of web based materials. What the authors consider as noticeable is that *“maths and science based subjects did not direct students towards journal use of any kind until the final stages of an undergraduate program, whereas social science and arts students were more likely to make use of journals and e-journals throughout their degree”* (p.36).

On the issue of the added pedagogical value online learning, Kynigos, Dimaraki and Trouki (in press-a) claim that if it is intended to be meaningful, research cannot be restricted to communicational tools per se, without a rationale supporting this communication, addressing the need of *“weaving together tools and learning process”*. On the issue of educational uses of blogs in particular, O’ Donnell (2005:1) argues that they *“should not be seen merely as a technological tool for teaching and learning but as a situated practice that must be brought into appropriate alignment with particular pedagogical and disciplinary practices”*.

Framework Of The Study

In line with the above arguments, this study introduces a rationale for the introduction of blogs in two six-month, post graduate academic courses for teachers of mathematics. Its basis is the premise that learners’ personal worlds (reflective and meaning focused), as well as the shared world (collaborative and knowledge focused), if associated with a purposeful and structured educational environment, could provide a worthwhile learning experience (Garrison et al., 2000). This premise has been further elaborated by Garrison and Anderson (2003), as a framework for research and practice in the field of on line learning, identifying three key elements as decisive of any successful on line educational environment: social presence, cognitive presence and teaching presence, defined as follows:

➤ social presence

“When participants in an online course help establish a community of learning by projecting their personal characteristics into the discussion — they present themselves as "real people." The authors identify at least three forms of social presence: affective (expression of emotion, feelings and mood), interactive (reading, attending, understanding, thinking about other's responses) and cohesive (responses that build and sustain a sense of 'belongingness', group commitment, or common goals and objectives).

➤ cognitive presence

“The extent to which the professor and the students are able to construct and confirm meaning through sustained discourse (discussion) in a community of inquiry”. It is demonstrated by introducing factual, conceptual, and theoretical knowledge into the discussion, the value of such responses depending upon the source, clarity, accuracy and comprehensiveness of the knowledge.

➤ teaching presence

“Teaching presence is the facilitation and direction of cognitive and social process for the realization of personally meaningful and educationally worthwhile learning outcomes”. There are two ways that the professor and the students can add teaching presence to a discussion: 1) by facilitating the discussion and 2) by direct instruction.

Cognitive presence relates to the learners’ personal worlds, social presence focuses on learners’ shared world, whilst teaching presence insures a structured, purposeful learning environment for the other two elements to coexist. In the following sections, social and teaching presence are related to the potential of the blog for changing existing social roles and practices. Cognitive presence is related to changes in participants’ discursive style.

Use Of Blogs For Change In Social Roles

In educational practice integrating digital media, there is an increasing interest in the study of changing social practices and roles (Oliver et al., 2005; Price et al., 2005). Especially in higher education, technologies allowing asynchronous communication to occur among students and tutor expand the existing communicational and interaction patterns. Furthermore, such technologies also seem to impact on the traditional role of the university instructor. Research in this area (Lairson, 1999, in Price et al, 2005) indicates that, by adopting “on line” extra materials and integrating them to their lessons, academics re-conceptualise their roles and, in certain cases, adopt new ones.

Moreover, the interest in social practices is also a prevalent one in the research community of mathematics education, manifesting itself as a shift to a “*social approach to research in mathematics education*” (Hoyles, 2001, p.273). Having generally accepted that the social context affects the nature of learning activities and outcomes (Resnick, 1991), researchers now study the social and discursive practices of mathematicians. Solomon (1998) goes as far as to recognise the social practices of mathematics as “constitutive of its meaning”.

With regards to blogs’ social dynamics, recent research has shown that they engender a new form of social interaction on the web (Marlow, 2004). Hiler (2003, in Williams & Jacobs, 2004) has characterised them as “the killer app”, in terms of their capacity to engage people in collaborative activity, reflection, knowledge sharing and debate. They “*provide a genuine audience, that is authentically communicative, process driven, peer reviewed, provides a dis-inhibiting context and offers a completely new form with un-chartered creative potential*” (Ward, 2004 p.3). Mortensen and Walker (2002, p.253), based on Heim’s approach on the ways in which word processing affects thought process, claim that “*the way one expresses self in a blog reveals something about the way he or she thinks, which would not be explicit in another medium*”.

Furthermore, Boyd (2003) introduces the term “social software”, juxtaposing it to project-oriented collaboration tools and Learning Management Systems (LMS), and characterising blogs as a good example of this dynamic. He argues that social software is based on supporting the desire of individuals to affiliate, their desire to be pulled into groups to achieve their personal goals, in contrast to the groupware approach, where people are placed into groups defined organizationally or functionally. Having analysed blogs’ communicational attributes, the same author claims that they allow for the creation of new social groupings and the arousal of new social conventions. Bartlett-Bragg (2003) also pinpoints the differences between blogs and centralised, organisational systems (LMS), concluding that:

“Through the use of blogs, it is suggested that teachers and learners are becoming empowered, motivated, reflective and connected practitioners in new knowledge environments. The balance between individualised and centralised technologies is restored”.

This research examines the particular changes in roles and practices of the students and instructor of the particular research setting, under the lens of the constructs of social presence and teaching presence of Garrison and Anderson’s framework. In a traditional university lecture, all three forms of social presence (affective, interactive and cohesive) may be present. However, time constraints and the disruption of flow of content delivery don’t allow for a great degree of manifestation of interactions of this kind. In addition, the introduction of the blog raised the issue of complicating the role of the instructor. The double metaphor of “facilitator of discussion and direct instructor” included in teaching presence existed before the tool integration, but further expanded through the use of the new medium. A central issue, thus, for this research was if the use of the blog allowed for changes in the social orchestration of the courses, in terms of affecting the existing patterns of communication among students-peers and the role of their lecturer.

A View On Blogs As Personal And Professional Instruments

The instrumental approach stems from the field of cognitive ergonomics, embracing an ecological view of human activity with artefacts, based on Rabardel’s elaboration of the key Vygotskian concepts of mediation and activity theory (Guin & Trouche, 2005). It presupposes a clear distinction between a technological artifact and the –one or multiple- instruments that people are inclined to build out of this artifact. According to Lagrange et al. (2001, p.6) “*While the artifact refers to the objective tool, the instrument refers to a mental construction of the tool by the user*”.

Thus, an instrument consists of “*the artefact and the modalities of its use, as elaborated by a particular user*” (Mariotti, 2002, p.702). Artifacts per se, though bearing certain affordances, do not incorporate instrumental value, but rather become instruments through a generative and complex process triggered by the user, which has been characterized as “instrumental genesis” (Verillon & Rabardel, 1995). This process results in the construction of “personal schemes of use” (Artigue, 2001, p.4), the latter functioning as organisers of the activity of the user and pointer of how the artefact has actually been used in a given situation. As different and coordinated schemes of use are successively elaborated, the relationship between user and artefact evolves (Olivero, 2002, p.50).

Rabardel proposes a conceptualisation of instruments as “private and social entities” (Guin & Trouche, 2005). Schemes are also social because they have characteristics that are both shared and widespread in communities. Therefore, Rabardel considers designing instruments as an activity distributed by designers and users, evoking the idea of *conception in use* (ibid.).

In the light of the suggestion that the instrumental perspective could be considered as a design factor for teachers’ professional development (Kynigos, in press-b; Guin & Trouche, 2005), the question of whether blogs would be appropriated by teachers after the end of their courses arose. Hastings (2003) points out the duplicitous nature of the blog, which can be, “*a frequently posted list of interesting web sites, or a personal diary of events and thoughts, or a combination of the two (among many things)*” (Hastings, 2003:1). Mortensen & Walker (2002) see blogs as “existing on the border between what’s private and what’s public” and consider a blog as “good”, if it contains a tension between the two spheres. Blogs constructed by teachers after completing their obligations as MA students and returning to their classrooms are considered as personal and social schemes, because of the characteristic of blogs to promote an interplay between the social and the individual “voice”. Having experienced the creation of a group, classroom blog, shifting to a personal use of the tool would provide interesting insights on the issue of the degree to which the particular audience conceptualised the use of a specific “artefact”, as a personal and professional “instrument”.

However, adopting blog use for personal or professional purposes isn’t necessarily an effect of using them throughout a course, especially for mathematicians, who are not accustomed to this mode of communication. Bartlett Bragg (2003) introduces a five step model of blog use by students in higher education, which begins by just adopting the use of technology (stage 1), to fully appropriating it and creating “knowledge artefacts” (stage 5). O’ Donnell (2005) identifies specific “hurdles”, not so much as discrete phases but as parallel tracks, to move from willing volunteer to competent blogger. The above considerations were taken in mind whilst designing a non-obligatory blog publishing seminar during the course, which would unburden any teacher interested in further using the tool from potential technical problems.

Potential Of Blogs For Teacher Reflection

In mathematics education, the shift towards socio-cultural and discursive approaches (Lerman, 2001) has increased the interest on communicative acts and performances of scientists and mathematicians, and in particular on their rhetorical practices (Ernest, 1999), with a parallel concern with writing genres (Marks & Mousley, 1990). With regards to the prevailing discourse in mathematics, van Oers (2001, p.278) argues that it is governed by rules that are “*systematic, consistent, symbolic and abstract*”. As MA students and school teachers, mathematicians have to “*obey to specific and rigid stylistic criteria that mathematical knowledge representations or texts are required to satisfy within the research mathematics community*” (Ernest, 1999, p.76). These disciplinary restrictions affect the way mathematicians write for each other. Pimm (1989, p.42) refers to this way as a “problem”: “*Reading mathematical writing is extremely difficult [...] Elegance is measured in part by brevity and in part by simplicity. Accessibility plays no part*”.

Solomon and O’ Neil (1998) claim that any deviation from the standard discourse used in scientific subjects would appear as a “challenge to dominant literacies”. As Ernest (1999) warns, such an approach would involve a major shift in genre and rhetorical demand, away from an impersonal, standard code, towards a more personal account of mathematical investigation. This would allow for other, not very common genres to develop. According to Solomon and O’ Neil (1998), mathematics utilizes a number of genres: descriptive, procedural, explanatory, expository and

narrative. However, the authors point out that the prevailing genre in mathematics classrooms is the recount genre, as a mere recollection of events.

With regards to the rhetoric induced by blog use, O' Donnell (2005, p.3) characterizes it as "idiosyncratic", and states that it "*transforms the textual experience into an epistemologically challenging game*". Mortensen and Walker (2002) specifically refer to the organization of posts in chronological order and argue that this feature reverses the "tyranny of logical argumentation" (a term introduced by Roland Barthes).

The above features were considered as crucial to designing writing tasks for the teachers, which would "perturb" their roles and practices, by encouraging deviations from their usual discursive style. In the language of rhetoric and communication, the specific writing tasks were aimed to be "ill-structured problems", the latter defined by Flower et al. (1989) as a rhetorical situation, in which the subject has no clear instructions on how to proceed to a solution. In contrast to "well structured problems" (e.g. games) where there exist written, coherent rules, there are no ready made solutions for writing problems. Adopting a view that differentiates authoring from mere publishing (Streitz, 1994), writing is seen as a complex problem-solving and design activity. The whole composition venture aimed at operating as a mechanism for reflection and self-evaluation, through a change in the mode and medium of communication previously employed.

In addition to the wording of the writing tasks, deliberately non-directive and open-ended, the role of technology was also left implicit. A basic premise of the blog use rationale was that teachers don't learn effectively if they adopt the "manual style" of learning a piece of technology, making the technology itself the object of study and rote learning the functionalities of the tool. It is much more effective for teachers to learn in a contextualised, theme-based style, where technical know-how comes gradually as the need arises from the problem situation at hand (Kynigos, 2003). Whenever teachers were found to participate in a design including facing a "problematic situation", where the role of technology was not predefined, the problem did not "solve itself" by pushing a button or proof reading a manual, but through discussion and experimentation with the technological tool (Kanstrup, 2003). During the process of involvement with the problem, several methods, models and theories are tested before a proposed solution is reached. This form of problem solving could be better conceptualised through the metaphor of "bricolage" (Lévi-Strauss, 1969), used to depict this rationale for the craftsman (Harper, 1987) and technician (Orr, 1996) professions. Kanstrup (2003) proposes the exploitation of this idea within the teaching profession, claiming that this view is not far from that Schön's "reflective practitioner". Teachers' work with technology is, according to this view, considered as a "reflective dialogue with materials" or, "bricolage".

Research Questions

Based on the ideas discussed in the previous sections, the research questions formed were the following:

- *What was the nature of the discourse teachers developed on the blog? Does it differ from commonly accepted norms in mathematics research?*

By the term "discourse", we refer to the ways teachers write both about their subject, and its pedagogy, while addressing to a "real" audience, thus adopting an approach perceiving the two kinds of growth (mathematical and pedagogical content knowledge) as an integral part of teacher growth (Shulman, 1986; Kynigos, in press).

- *Which changes in social roles and interaction does blog use evoke, both for the students and for the instructor?*

Change in social roles refers to schemes emerging during blog use by the students themselves, and not the actual groupings assigned by the instructor –the latter were conventional, so as to organise and structure the activity.

- *Has blog use evoked any change in the participants' future professional practices?*

This question refers to the degree of tool appropriation, as a "scheme of use" created by the particular audience.

Methodology

An influential idea informing the research methodology is that of “design” in learning (Cobb et al, 2003; The Design Based Research Collective, 2003; Kynigos, 2002b), an emergent paradigm for the study of teaching and learning processes in authentic and contextualized environments, integrating the use of technology (Collins, 2002). According to this framework, good design should lead to a system which is stable enough, to serve initial design and flexible enough, to correct and expand it (Kynigos, 2002a). A crosscutting feature of this approach is its highly interventionist nature, as it aims at deliberately engineering specific learning situations –differing from traditional ones- in order to study them and has been characterised as “a test bed for innovation” (Cobb et al, 2003, p.10). These educational interventions are viewed holistically, as “enacted through the interactions between materials, teachers and learners” (The Design Based Research Collective, 2003, p.5). They often entail the use of new resources, such as software applications, and commit in promoting understanding the relationships among theory, designed artefacts and practice (ibid.).

This research is considered to be bearing the above characteristics. However, having in mind that design research is rather an informing rationale than a specific research technique and thus relies on techniques from other paradigms, and since the data we needed to collect were of a qualitative nature, we have employed the case study approach. The latter is recommended by Creswell (2002) if the problem to be studied “relates to developing an in-depth understanding of a “case” or “bounded system” (p. 496) and if the purpose is to understand “an event, activity, process, or one or more individuals” (p. 496). Our purpose was to gain an insight into a particular learning situation.

Data Collection Instruments, Participants And Procedure

The research audience comprised of a total of 48 individuals, participating in two courses, the one focusing on the teaching and learning of mathematics, and the second on teaching and learning of mathematics with technology. The courses’ duration was one academic semester. The rationale underlying the course structure is based on the premise that teacher education is perceived as professional development activity addressing teachers’ epistemologies, practices, pedagogies and subject-related knowledge (Kynigos, 2003). Students were introduced to the “class blog” at the beginning of the semester, and were assigned specific writing tasks addressing their epistemological and pedagogical beliefs as well as their subject related knowledge. What they were assigned to do was publish their answers to open-ended questions and problems on the blog, make their ideas explicit and “readable” by others, and also comment on the work of their peers. They were expected to use the blog as a “problem space”, where they would represent the problem under consideration, and also their route towards a viable solution. They were also encouraged to share opinions and engage in discussion, posting on each other’s entries on a regular basis, and there was frequent reference and browsing of the site by the instructor. During the course, they were offered a non-obligatory seminar for constructing blogs for their own classrooms.

The data collected were written transcripts from the participants’ entries, observation notes, informal interview transcripts and a final evaluation questionnaire.

Analytical Framework

The Garrison and Anderson (2003) framework was used as a primary filter for data analysis. Cognitive presence was related to the research question on the changes in social interaction and the role of the instructor. Cognitive presence was related to the question on the kind of discourse developed by teachers. Data was first labelled according to this scheme, whilst the issue of blog appropriation as a personal or professional instrument was examined through the observation of the evolution of three individual cases, in which students took the initiative to design their own blogs.

This filtering led to shaping a first idea of the basic emerging social and discursive patterns. However, in the course of the analysis, new elements situated in the specific research setting appeared. Such an element is the social act we identified as frequently occurring, that of narration, which was not included in the initial Garrison and Anderson’ s framework. Any narrative, however relative to a previous post, cannot be considered as a response to it, but rather as a personal account. Furthermore, we identified two kinds of narratives: single stories, narrated by individual

teachers; and emerging collaborative constructs, shaped by multiple authors, in a the course of a specific time span of conversation. This led us to refer to Shulman's (1987) categorisation of teachers' narratives as: a) experiential, b) interpretive of a situation, c) reflective and d) transformative, each category being more important than the previous one in terms of professional development. For the purposes of this analysis, teachers' narratives were examined through this lens.

Findings

On social presence

All three forms of social presence seem to co exist in the participants' entries and comments, with interactive and cohesive forms as the most frequent.

Excerpt 1 is a representative example of interactive presence, formed around a given problem:

EXCERPT 1:

Post of student A. to a scenario of use of specialised software for Geometry, posted by student S.

"This is a very good idea, S. Now, knowing this relation (that of angle f to the central angle w of the polygon), we could help our students a little, to build this program (they must know, of course, what is an external angle):

to polygon:n:a

repeat:n [m :a d 360 / :n]

end

Using the variation tool they could augment the sides, that is, to make a shape with angles, then a one with 20, then one with 40, etc, and make the assumption that as n augments (keeping x at a fixed value), our shape tends to become a circle".

Answer of student S

A., you seem to be inside my mind. I didn't mention this, because I consider it as a different teaching unit. As for the external angle, it is in fact the angle of the turtle turn, and that is something pupils can "discover" by themselves. Thanks a lot for your comment.

This interaction indicates understanding and thinking about each other's responses in the given problem. Student A responds to student S's teaching idea by extending it, the latter expressing her agreement and resonance.

The student's response in excerpt 2 shows a continuity –in the form of reciprocity- in communication flow:

EXCERPT 2:

You are absolutely right, and this is a question I expected someone would ask.

It can therefore be considered as a sample of cohesive presence, indicating a sense of group commitment, in the form of an expectation of a particular response.

Excerpt 3 is one of the very few samples of affective presence. The student comments on his colleague's teaching idea (on class inclusion, with a real-world problem on the issue of the weight of a lorry and its contents)

EXCERPT 3:

This is an interesting and realistic teaching idea, especially bearing in mind that, in the case of class inclusion, many young children start dividing, in order to solve such a problem. Have you thought of the possibility that the little boy would want to burn his father's lorry?

The student extends the cognitive issue of class inclusion by connecting it to a hypothetical event, employing his sense of humour, a basic element of cohesive presence.

On teaching presence

Both two forms of data, written and oral (from classroom observation), indicate a certain degree of teaching presence, both in terms of facilitating the discussion, and by direct instruction. An instance of the first case is shown in excerpt 4 below, presenting the instructor's reaction to a students' entry on the role of the teacher:

EXCERPT 4:

Post by student N:

The role of the teacher is to offer the proper stimuli, which can aid the small explorers personally construct knowledge.

Instructor's comment:

Hmm... Sounds good to me, but, who acts this way? Where is this prescribed? Does the school and education community agree with it a) on a theoretical and b) on a practical basis?

This expression of teaching presence triggered a long discussion, which oriented students towards using more precise examples for supporting their theoretical views.

On cognitive presence

Cognitive presence is quite frequent in tasks related to the design and presentation of small teaching units, after working with specific software, as well as similar tasks not involving the use of technology.

Excerpt 5 is a response of a two-member group to a colleague who had posted a comment on their teaching idea:

EXCERPT 5:

M., no, we don't agree. The reason we posed the question in this form is because we wanted our problem to resemble the writing style of Margaret Donaldson, since, at the lesson, we had commented on the fourth chapter of her book "Children's Minds", which refers to class inclusion. If you look at the bottom of page 45, you'll see the following two questions [written in English]:

**Are there more red steps to go to the chair or more steps to go to the table?*

**Are there more steps to go to the chair or more steps to go to the table?*

It comprises a reference to specified theoretical knowledge, with clarity and accuracy, declaring their source.

On teachers' narratives

The majority of the teachers' narratives were experiential, such as the one in excerpt 6 below:

EXCERPT 6:

Triggered by the problem [instructor name] posed during the lesson, I recalled a problem which had perplexed me during the years of my early youth, its solution having demanded many hours of my precious sleeping time. At a later time, as I was skimming through the literature, I realized that this particular problem had been posed (as an exercise of competence) by the great Fermat to Toricelli, who solved it immediately, followed afterwards by many others, in various ways (this fact pointing once more, to my triviality).

Narratives like this are frequent, as individual stories not intending at evoking any specific kind of interaction.

Another form of narrative are stories embedded in the course of a debate, such as excerpt 7, being the 6th comment in a row of 9, responding to a question on the pedagogical value of using software in mathematics:

EXCERPT 7:

At a school, after a lesson (a show) with sketchpad on the trinomial: A 15-year-old pupil says to a peer: "Hey, is this maths? He (the teacher) was pushing some buttons and there was a curve which went up, down, then became blue, red, thin, thick...it was fun". I leave the comments to you.

Using the form of a "self explanatory" small narrative, this student reacts to previous posts of her colleagues.

Discussion

The results from the preliminary analysis are of an indicative character and can by no means give clear or definitive answers to the issues posed by the research questions. However, in terms of identifying the kinds of discourse cultivated in the class blog, and the changes in roles and practices, the analytical categories used have aided in clarifying certain emerging patterns. The most significant seems to be that of the informal discursive style, and the effort of participants to engage in communicatively demanding situations, avoiding some of the conventions of the mathematics writing style they are acquainted with through their schooling and university experiences.

With regards to the discourse developed, when assigned to answer open-ended questions addressing their views on their subject and its pedagogy, teachers use the explanatory and expository genres, to outline personal judgements and develop arguments. These writings show a structured cognitive presence, as teachers enrich the discussion with a combination of factual, conceptual and theoretical knowledge. However, as they become more comfortable with blog use, and are assigned more complex tasks -such as the collaborative design (in small groups) of a teaching unit, they employ the procedural genre to describe their methods. When their work is commented upon, either by posing a question or by stating disagreement, they declare their sources and carefully describe their rationales.

Despite the employment of a variety of genres, what can be characterised as informal discursive style is mostly evident in the quite unexpected number of teachers' narratives, which cover a range of functions and extend the spectrum of Shulman's (1987) categorisation, in the sense that some of them aren't single, individual stories, but emerge collaboratively, in a time span of conversation lasting from two to three months.

With regards to the emerging forms of social interaction there has been enough evidence to indicate that mathematics teachers can engage in "warm" debate, provided with the appropriate stimuli, declaring both cohesive and interactive presence, and, in some cases, even affective. The social norms developed relate to the degree of appropriation of the blog by the teachers. Based on empirical observation carried out so far, and on the daily maintenance of the class blog, the researcher has come to identify specific profiles with certain behaviors, which have affected activity and post frequency on the blog. Their presentation as "profiles" sheds light in the ways their behaviours shaped new social roles for the students.

a) "blog enthusiasts", embracing blogs as frequent practice (posting almost on a daily basis and fervently commenting on others' entries) and expressing a vivid interest in learning more about this technology and using it in their own lessons. This group formed a minority of three students, who were supported in setting up their own blogs and are currently, after the end of the course, in contact with the researcher, so that their progress can be further recorded and studied. These cases will, at a later stage, provide answers to the research question about the "instrumentalisation" of blogs, that is, whether they can be appropriated by teachers as personal and professional instruments, even if this is not a course prerequisite.

b) "blog frequent visitors", who are inclined to visit the blog quite often, but not to comment or contribute to a discussion, but merely to print course materials or observe on going activities or debates. This category is the last to respond to a blog assignment, and present a more rigid form of written work, indicating less spontaneity and task engagement.

c) “blog skeptics”, who have anonymously expressed their doubts in the questionnaires, as to what exactly this kind of activity has to offer them, but, have seemed to feel obligated to contribute, seeing their presence as a course obligation.

With regards to the change of role of the instructor, there is evidence that much of what was previously done in these courses was merely replicated through the blog, but there are also indications that the use of the tool has provoked reflection on his behalf, too. His main preoccupation is the issue of sustainability of the blogging practice, considering the technical and administrative load entailed in its implementation.

Further work needs to be completed to inform a more thorough analytical framework, providing a clearer synthesis of the initial framework to the situated elements that the specific context brought to surface, such as the role of narrative in teachers’ interactions. The instruments used to pursue this aim are the quantification of data (frequency of visits and percentages of posts related to the analytical categories), the analysis of the final “blog evaluation questionnaire”, addressed to the students at the end of the course, in conjunction with the observation notes and informal discussion transcripts of the researcher.

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