Use of Community of Practice for In-Service Government Teachers in Professional Development

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Abstract. This study is a descriptive analysis of information and communications technology (ICT) enabled community of practice (CoP) groups of teachers in the rural state of Assam, and in Kolkata city in the state of West Bengal, India. Fifty-four teachers completed a 4-month certificate course in ICT and education offered in blended mode by the Tata Institute of Social Sciences, Mumbai. After a 30-hour face-to-face workshop, there were 60 hours in distance mode where the teachers worked on assignments, reflected through online platforms, and actively participated in an online CoP group using WhatsApp. A WhatsApp chat analysis tool analysed conversations in these two groups. This paper gives descriptive information about the WhatsApp data using attributes of the messages.

Keywords: Community of Practice, ICT in Education, Integrated Approach to Technology in Education (ITE), Teacher Professional Development, Natural Language Processing, WhatsApp Analysis.

1   Introduction

The students of the 21st century are already experiencing new forms of economic and sociological changes which information and communications technology (ICT) is contributing in society. The education system needs to equip students with knowledge to help them develop skills and attitudes to fit the needs of the 21st century. Changes have been made at school policy level and OECD countries are working to install networks in schools, connect them to the Internet, and ensure a workable configuration of multimedia computers, educational software, technical support, and ICT-competent teachers [1]. The teacher should not only be equipped with technology skills but also with the knowledge of effectively integrating ICT in the curriculum.

Currently, teacher professional development in India is often designed and administered through a top-down approach, and face-to-face training is often unconnected. Formal professional development activities have their challenges in offering a continuous learning process, but informal knowledge sharing methods such as a community of practice (CoP) can offer a much longer experience through an effective platform.

Lave and Wenger [2] created the notion of 'communities of practice', which refers to groups of people who share a concern, set of problems, or a passion about a topic,

and who deepen their knowledge and expertise in this area by interacting on an ongoing basis. Research continually indicates that providing continuous support and promoting interaction among teachers are keys to successful teacher professional development. Many researchers have reported the benefits of CoPs in teacher professional growth. Online environments enable people to communicate at any time; thus, Herring, Barab, Kling, and Gray [3] have suggested the creation of online communities of teachers as a new professional development model.

2   Context of the Paper

The initiative to integrate digital technologies into the curriculum and instructional plans of teachers in government schools and learning centres was launched in 2012 under the Integrated Approach to Technology in Education (ITE), an initiative of Tata Trusts. Adopting a largely constructivist pedagogical framework, the initiative seeks to improve teaching and learning processes and foster authentic and project-based learning for older children and adolescents in some of the most underprivileged geographical regions in India [4]. In ITE, the students are the producers of their own knowledge and not merely consumers of technology resources prepared for them [5].

Teacher professional development is central to this approach, which is offered by the Centre for Education Innovation and Action Research (CEI&AR) at the Tata Institute of Social Sciences (TISS). ITE teacher capacity building at CEI&AR offers a 4-credit certificate course in ICT and education to in-service government teachers and teacher educators. The 4-month course follows a blended module, with face-to-face and online distance and implementation modes. Post certification, teachers are classified as master trainers who then help provide training and expand the reach to other schools. An online CoP platform plays an important role in this process and teachers use this platform to share their reflections, images of lesson plan implementation, ask for suggestions on their lesson plan, exchange ideas, etc., during and after the course.

3   Objective and Method

The objective of this paper is to analyse the frequency, preferred time of participation, and characteristics of the most active participants in two online CoP groups of teachers. The paper also intends to understand the relationship between active participation in the CoPs and relevant ITE practice in the classroom.

For the analysis, two of the certificate course groups on WhatsApp were considered, where teachers had spent about two years on their respective WhatsApp group, after the certificate course was completed. These CoP groups were formed during the face-to-face workshops and consisted of teachers, teacher educators, and one or two government officials, ITE supporting organisation and TISS resource team members in Kolkata and Assam. The Kolkata group had 43 participants including 25 teachers and the Assam group had 55 participants including 27 teachers. The conversation from these two groups were exported in text format. Each message in the conversation consisted of fields such as time-stamps, the sender's name/telephone number,

body of the message, and an indicator for media files. Using this structure, a browser-based tool was developed which rendered the analytics of the chats [6]. The tool provided descriptive information of numbers of messages sent by a user, numbers of media files sent by a user, most occurring words in the conversation, a time-wise histograms for distribution of frequency of messages in a day, and a date-wise histogram for distribution of frequency of messages throughout the conversation. The number of messages and media files sent by a user was found from the frequency of occurrence of usernames. For the analysis of the most occurring words in the conversations, the minimum length of the word to be considered was three characters, while the most commonly occurring words in English (known as stopwords) were excluded from the analysis [7]. The timestamp was used to analyse date-wise and time-wise distribution of messages in conversations.

4 Analysis

For analysis of conversations, chats were split into four periods for both groups: during the face-to-face workshop (P1), during the course (P2), in the first six months after the course (P3), and after the course for the six months to October 2019 (P4). Descriptive statistics for these periods show some notable observations, mentioned in later sections. Table 1 shows numbers of messages and media exchanged in different periods.

Table 1. Number of messages during different periods in Kolkata and Assam.

Period	Kolkata		Assam	
	Messages	Messages with media	Messages	Messages with media
P1 (During F2F workshop)	138	22	240	54
P2 (During the course)	6,809	2,414	3,579	1,084
P3 (six months after the course)	2,125	811	1,075	332
P4 (after P3 till October 2019)	482	275	2,541	912

4.1 Time

Analysis of P1 is not reported here, since teachers were working together for four days in face-to-face mode. Across the periods after P1, a rise in the number of messages was observed during lunchtime in the schools in Assam (12pm) as well as Kolkata (2pm). During P2 and P3, in the Kolkata group active times were 1am, 2-3pm, 6pm and active times for the Assam group were 12pm and moderately active at 4-6pm. During P2 and P3, the chat shows that teachers have mostly shared about assignments and their implementations. During P4, the active hours remained almost the same as P2 and P3.

4.2 Dates

During P1, active participation was observed amongst teachers and facilitators and sharing of both text and media files was observed. During P2, the main peaks in frequencies of messages in both groups were observed during the cluster trainings where teacher educators were the resource persons. During this period, the Kolkata group shared images and videos of implementation and had discussion about implementation of the project, while in the Assam group, there was an active discussion related to submission of lesson plans and assignments and navigating the Moodle platform.

As the course ended, the number of messages in the WhatsApp group reduced. During P4, the maximum peak for number of messages in the Kolkata group occurred when the TISS-ITE team visited (204 out of 2,125 messages) which consisted of media and messages related to ITE implementation by teachers where ITE team members also participated by giving feedback or posing questions. In the Kolkata group, a drop in the number of messages (by about four times) was observed in messages exchanged between P3 (2,125 messages) and P4 (482 messages). During the same periods, the number of messages in Assam showed an opposite trend. The number of messages in the Assam group increased to 2.7 times to P2 (912 messages) from P4 (332 messages). Frequent visits by the facilitator in Assam for monthly meetings and follow up meetings on continuous professional development activities could be the reason for these sustained discussions in the group.

4.3 Most Frequent Words Used in the Chat

During P2, the most commonly occurring words across both the groups were "lesson" (13.7% for Kolkata and 14.1% for Assam) and "plan" (12.1% in Kolkata and 8.8% in Assam). During P3, the words "student" (17.3% in Kolkata and 16.2% in Assam) and "share" (6.6% in Kolkata and 6.2% in Assam) occurred quite frequently in both groups. During P4, "students" still continued to be one of the most used words in both groups (17.3% in Kolkata and 6.2% in Assam). In the Assam group, the word "sharing" was most prominently used (14.5%).

4.4 CoP Heroes

Top contributors of groups who were most active in at least three periods were referred to as "CoP Heroes". In Kolkata, four teachers (one female and three male) and in Assam, three teachers (one female and two male) were identified as heroes (see Table 2).

Table 2. Participation and performance of CoP heroes in Assam groups.

Teacher	P1 (240 messages)	P2 (3,579 messages)	P3 (1,075 messages)	P4 (2,541 messages)	Lesson Plans Implemented after the course	Course grades
T1 (M)	7 (2.91%)	151 (4.21%)	7 (0.65%)	85 (3.34%)	5	A-
T2 (F)	5 (2.08%)	16 (0.44%)	89 (8.27%)	120 (4.72%)	3	A+
T3 (M)	11 (4.58%)	15 (0.41%)	51 (4.74%)	46 (1.81%)	4	A-

5 Summary

The results of the analysis indicated that teachers usually prefer lunchtime for WhatsApp chats. Further analysis can reveal if lunchtime was preferred on school days or in holidays. Posting videos for discussion, the TISS-ITE team visit from Mumbai, or other visitors and ITE events, boosted sharing and discussions in groups in both states. Further analysis is required on content of the chats; the most frequent words used highlight that the CoP provided a convenient platform for teachers to communicate with other teachers and facilitators to share their ITE related work. CoP heroes were found to be excelling in the course and most had implemented ITE activities after the course.

References

1. Ananiadou, K., Claro, M.: 21st century skills and competences for new millennium learners in OECD countries. OECD, Paris, France (2009).
2. Cameron, J., Wenger-Trayner, B., Wenger-Trayner, E., Hart, A., Buttery, L., Kourkoutas, E., Eryigit-Madzwamuse, S., Rathbone, A.: Community-university partnership research retreats: A productive force for developing communities of research practice. Co-producing research: A community development approach. (2018).
3. Herring, S. C., Barab, S., Kling, R., Gray, J.: An approach to researching online behavior: Designing for virtual communities in the service of learning. (2004).
4. Charania, A.: ITE manual. Sir Dorabji Tata Trust, Mumbai, India (2012).
5. Charania, A.: ICT in education: indicators for meaningful integration in government schools. Learning Curve 30, 18-22 (2018).
6. Sumegh, P.: Whatsapp_plots, Gitlab repository, https://gitlab.com/sumeghhp/whatsapp_plots, last accessed 20/05/2020.
7. Nixon, R.: Learning PHP, MySQL & JavaScript (5th ed.). O'Reilly Media, Inc., Sebastopol, CA (2014).