

Self-initiated Technology-mediated Professional Development Activities: A Small-scale Qualitative Study with Eight English teachers in Bangladesh

Received 21 March 2022, Accepted 03 Feb 2023, Published online: 06 Mar 2023

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DOI: <https://doi.org/10.36832/beltaj.2022.0601.07>

Journal homepage: <https://www.journal.belta-bd.org/>

Abstract

The role of technology in teacher's professional development has been frequently reiterated in various globally utilized frameworks of continuing professional development (CPD). Research shows that technology provides numerous benefits when professional development activities are teacher-initiated. However, research on Bangladeshi teachers' self-initiated tech-based professional development seems limited. This small-scale study investigated the initiatives undertaken by the higher education English teachers in Bangladesh and how engaging in such activities contributed to their professional development. Following a qualitative design, the study used semi-structured interview with eight English teachers working in different public and private universities in Bangladesh. A thematic analysis of the data revealed that teachers undertook initiatives including connecting with teaching associations, navigating online resources, attending MOOCs, and blogging which resulted in increased confidence, augmented digital skills, and an awareness of the pedagogical use of technology. The study drew several implications for teacher-initiated technology-mediated professional development.

Keywords: Technology, professional development, self-initiatives, higher education

Introduction

Continuous professional development (CPD) is an “ongoing process and a commitment to lifelong learning” the aim of which is to “remain abreast within the profession” and advance professional knowledge, skills, and competence (Moonasar & Underwood, 2018, p. 48). Professional development activities (PDA) open a new horizon by enabling teachers to become aware of the teaching skills and knowledge they need to develop. Besides, technology provides high-quality content and resources (Lightfoot, 2019) since teachers can access materials and tools to develop their skills and content knowledge through various online platforms. The role of technology in professional development is not new. Gaible and Burns (2005, p. 2), for instance, consider technology as “a catalyst for new forms of teaching and learning in and outside the classroom.” Several globally utilised frameworks of CPD for English and other subject teachers also acknowledged the potential of technology in professional development (Lightfoot, 2019).

Professional development activities for language teachers in Bangladesh amid the COVID-19 pandemic occurred in various formats. The researcher’s personal observation and informal discussion with colleagues indicated that the teachers working in higher education in Bangladesh undertook various initiatives, driven by their personal interests and professional needs. The transition to remote teaching also accelerated the need to engage in professional development activities (PD) since teachers were expected to master the technological skills and execute them in remote teaching (Shackleton, 2021). Despite the numerous challenges posed by the lack of access and facilities (Shrestha et al., 2021), teachers participated in more formal webinars, online workshops, and conferences as well as in informal activities such as independent reading, action research, blogging, reflective journaling, and informal discussion. Nevertheless, studies on self-initiated professional development activities in Bangladeshi context are limited, which is why the early career teachers are often not aware of the possibilities that technology might offer in advancing their professional learning. Therefore, this small-scale qualitative study has been undertaken which explores the initiatives towards technology-mediated professional development undertaken by teachers working in different universities in Bangladesh. The study contributes to the literature by reporting on the potential of technology in teacher’s professional development at a time when institutional support was inadequate. Precisely, the study seeks to answer the following research questions:

1. What technology-based professional development initiatives did the teachers undertake amid the pandemic?
2. How did participation in technology-based professional development activities benefit their professional development?

The Need for Self-Initiated Professional Development

Teacher’s professional development is a continuous process of their personal and professional learning and linked to their various “contextual realities, personal characteristics, and pedagogical practices” (Shackleton, 2021, p. 14). Effective professional development is integral for university teachers “to keep pace with change and to review and renew their knowledge, skills and visions for good teaching” (Day, 1999, p. 2). Such multi-faceted learning can take place inside or outside the workplace and can take the form of more formal learning through the ministry of education’s orientation to teachers, involvement of professional teaching associations, or informal learning by individual teachers’ initiatives. Hayes (2019) affirms that teacher-initiated professional development typically occurs in response to a perceived need by teachers for additional knowledge and skills relevant to their professional and personal lives and often occurs due to their self-motivation and willingness to learn (ibid).

Teacher's self-initiated professional learning can be traced back to self-directed learning (Louws et al., 2017). Knowles (1975) defines self-directed learning as a "a process in which individuals take the initiative, with or without the help of others" (p. 18). He further states that people who take the initiative in learning (proactive learners) learn better than the passive learners. Louws et al. (2017) also affirm that such learning "should not be understood as a solely individual activity but rather is informed by the problems teachers experience in practice and their own learning (p. 172). In describing the benefits of teacher-initiated professional development, Minott (2010) argues that it helps teachers to upgrade themselves with the latest knowledge and skills resulting in "personal growth and life-long learning" (p. 328). Self-initiated professional development can also be utilised to address personal needs, particularly in contexts where local professional development activities are insufficient due to financial and technological resources and contextual behavioural barriers (Minott, 2010, p. 329). For instance, teachers can advance their professional learning by utilising online resources accessible to them despite fewer initiatives by local institutions. If the nature of and involvement in professional learning is not predetermined by the institution, teachers can explore opportunities considering their personal interests and professional needs. Likewise, Norris (2019, p. 2) suggests that taking charge for professional development means developing an awareness of the required teaching skills and professional knowledge. Self-initiated professional learning, thus, is flexible as it allows teachers to consider their interests and preference of what they want to learn and how.

Technology in Teacher's Professional Development

The availability of the Internet and the emergence of Open and Distance Education played significant roles in technology-mediated professional development. With the advent of Computer-assisted language learning (CALL), CALL professional development has received greater importance in language teacher education (Son, 2018; Hubbard, 2008). CALL professional development may serve various purposes including helping teachers learn "how to integrate technologies into teaching practice, develop techno-pedagogical competencies, and evolve with changing tools, methods and learners" (Yadollahi, 2015) which should lead language teachers to develop CALL proficiency, as asserted by Son (2018, p. 10). In recent years, professional development activities often occurred in CALL-based environments. Likewise, the emergency remote teaching (ERT) due to the COVID-19 pandemic has created a "unique and new set of contextual realities" as it has made tech-based development indispensable yet challenging to achieve in low-resourced contexts (Shackleton, 2021, p. 14). Lightfoot (2019) maintains that technology facilitates professional learning by providing access to content, resources, and tools, and by upgrading the technical skills and an understanding of the pedagogical application. In other words, teachers develop technological pedagogical content knowledge (TPACK), a framework proposed by Mishra and Koehler (2006) based on Shulman's (1987) Pedagogical Content Knowledge (PCK) which suggests that successful technology integration happens when teachers possess a balanced knowledge of technology, content, and pedagogy.

The use of technology-mediated professional development for teachers in low-resourced contexts has been a focus of research in recent years (Lightfoot, 2019; McAleavy et al., 2018). The resources and materials developed by teachers and educators worldwide can be immediately used and shared among local groups of teachers in such contexts. It can assist when access to technology and the Internet are in place. Also, McAleavy et al. (2018) states that such professional development offers possibilities for more cost-effective distance models of learning and flexibility for teachers to access resources at their own pace. The following section presents some existing technology-based professional development opportunities that teachers in low-resource contexts can benefit from.

Trends in Tech-mediated Professional Development Activities

The Internet provides numerous resources for independent learning for language teachers. Some of these are as follows.

Online Communities

The role of teachers' online communities in their professional development seems undeniable as they can provide opportunities and resources for teachers' personal and professional learning and growth. Johnson (n.d.) also emphasises on the potential of such communities for language teachers' professional development. Various online communities have spurred in recent years through the medium of interactive virtual conferences (e.g., by the International Association of Teachers of English as a Foreign Language (IATEFL), Teaching English to Speakers of Other Languages (TESOL) Elevate, Nepal English Language Teachers' Association (NELTA), blogs (e.g., by the British Council Teaching English, Teaching English to Speakers of Other Languages (TESOL) International Association, independent researchers), and other discussion forums. The online communities created in these platforms help enrich teachers' knowledge, skills, and expertise by "encouraging participation around ELT topics by teachers from all over the world" (ibid).

Independent Reading and Writing

Johnson (n.d.) and Norris (2019) recommend that independent reading and writing are effective means of self-initiated professional development. Teachers can access and read available online materials, journals, books, and magazines that are otherwise overpriced or unavailable in many developing countries. Similarly, writing can be as simple as keeping a diary, blogging, journaling, or it can range from short academic articles to books. Both enable teachers to develop their practice as it involves reflection and critical thinking.

Massive Open Online Courses (MOOCs)

Although it often demands much time and motivation, the proliferation of Massive Open Online Courses (MOOCs) has made it accessible and flexible for teachers to choose suitable courses. McAleavy et al. (2018, p. 18) highlight the power of such distance learning; however, they warn that MOOCs often have a low completion rate due to the high motivation it demands. Nonetheless, MOOCs are cost-effective and provide numerous resources which teachers can access easily and conveniently. The flexibility of completing and choosing MOOCs enable teachers to remain updated with their professional knowledge and hone necessary skills.

Membership of Professional Bodies

Norris (2019) further states the benefits of availing memberships of professional bodies such as local and international teaching associations. While the offered learning opportunities, collaboration, and networking are indispensable, Johnson (n.d.) warns that these might appear expensive and time-consuming for teachers.

Social Media

Social media (e.g., Facebook, Twitter) has become popular for professional development during the COVID-19 pandemic. McAleavy et al. (2018) argue that social media helps teachers take responsibility for their professional development and can promote collaboration among researchers and educational institutions from various parts of the world.

Recent Research

There are more general studies on teacher-initiated professional development activities and the role of technology as such. Pan and Gan's (2020) study reported the potential of online learning communities (OLC) and reflective journaling by EFL teachers in China. Although teachers showed a positive attitude towards tech-based PD, the lack of adequate time and resources, institutional culture, and technological support affected their learning. Similarly, Cai (2019) recorded that professional development of teachers occurred through reading online academic journals and participating in online communities that encouraged teachers to embrace the digital changes in their teaching. Trikoilis and Papanastasiou's (2020) study showed that teachers upgraded their research skills and knowledge and used research activities to support their PD during this time. Likewise, Ghimire (2020) noted that the Nepalese EFL teachers became involved with the teaching associations, participated in academic writing, and browsing the Web.

Research on tech-mediated professional development acknowledged several benefits for professional learning. While one study (Cosgun & Savaş, 2019) indicated the advantages of technology for the enhanced classroom, more studies reported advanced digital skills and technology integration. DelliCarpini (2012), for instance, instigated CALL training for TESOL teacher candidates and found that teachers developed their knowledge and skills concerning the use of technology in their classrooms. Similarly, Blocher et al.'s (2011) study on a professional development initiative suggested that teachers became more comfortable and confident in integrating technology into their teaching as they developed digital skills. Recent research by Jaipal-Jamani et al. (2018) focused on teachers who took technology leadership roles. The findings revealed that teachers acquired skills for designing technology-mediated professional development content and knowledge of teaching with technology (TPACK). Jaipal-Jamani and Figg (2015) equally observed that teachers formed a high TPACK as they learned about incorporating technology through such activities.

Methodology

Research Design and Instrument

The study undertook an interpretive paradigm by employing a qualitative approach (Richards, 2003). This is because qualitative approach is a 'person-centred' approach that studies human behaviour and experiences from the participants' perspectives while considering the complexity of the context the participants live in (Richards, 2003, p. 10). As this study explores teachers' experiences, a qualitative approach seemed appropriate to provide in-depth understanding of their professional development activities. Precisely, the study used semi-structured interview since it provides a "reassuring structure" and "flexibility" to allow probing to elicit adequate responses (Mann, 2016). The interview consisted of both close and open-ended questions and probes (see Appendix 1) relevant to answer the research questions. A pilot interview with one teacher was conducted to validate the suitability of the interview questions; the data of which were not included in this study.

Participants

The participants for this study were selected purposively and conveniently. Teachers who engaged in self-initiated professional development activities amid the pandemic were the potential participants. This included eight English teachers working in various public and private universities in Bangladesh with varied teaching experience and aged between 24-31 years. All of them have a master's degree in English Language Teaching. Among them, three teachers called themselves 'tech-savvy' whereas the rest five teachers did not use any such terms but mentioned of occasionally integrating technology. Table 1 presents the demographic information of the participants:

Table 1: Demographic information of the participants

| Participants | Gender | Institutions | Work Experience | Experience of Using Technology |
|--------------|--------|--------------|-----------------|---|
| Teacher A | Female | Public | 6 years | <ul style="list-style-type: none"> • ‘Tech-savvy’ • Used technology both for teaching and professional learning. |
| Teacher B | Female | Private | 3 years | <ul style="list-style-type: none"> • Occasionally integrated technology in teaching and professional learning • Participated in tech-mediated PD activities earlier |
| Teacher C | Female | Private | 2 years | <ul style="list-style-type: none"> • Occasionally integrated technology in teaching and professional learning • Participated in tech-mediated PD activities earlier |
| Teacher D | Male | Public | 4 years | <ul style="list-style-type: none"> • Occasionally integrated technology in teaching and professional learning |
| Teacher E | Male | Private | 2 years | <ul style="list-style-type: none"> • ‘Tech-savvy’ • Used technology both for teaching and professional learning. |
| Teacher F | Female | Public | 3 years | <ul style="list-style-type: none"> • ‘Tech-savvy’ • Used technology both for teaching and professional learning. |
| Teacher G | Male | Private | 3 years | <ul style="list-style-type: none"> • Occasionally integrated technology in teaching and professional learning |
| Teacher H | Female | Private | 3 years | <ul style="list-style-type: none"> • Occasionally integrated technology in teaching and professional learning |

Data Collection

The data were collected online using the video conferencing tool, Zoom. This was because all participants preferred meeting online considering the flexibility and convenience of interview time as well as their personal concerns regarding the Covid-19 pandemic. Among other tools, Zoom was selected as preferred by all participants. The date and time of the interview was subject to individual participant’s preference. Each interview lasted around 30-40 minutes which were also audio recorded with permission of the participants. The videorecording was avoided to maintain confidentiality of the participants’ identity. The interview was initiated by asking general questions to the participants and then giving prompts as required to elicit relevant responses (see appendix 1). Further, all interviews were conducted in English as

preferred by the participants although the participants were informed of the flexibility in using the native language, Bangla.

Data Analysis

Following a qualitative data analysis process, the data were first transcribed and then analysed. The data were transcribed using an application called Otter, and then analysed using MAXQDA, an application for coding and devising themes (see Appendix 2). Following Braun and Clarke (2012), a thematic analysis was utilised where the researcher first became familiarised with the data by reading and re-reading them. Preliminary codes were then captured and meaningful chunks from teachers' responses were identified. Here, 'descriptive' and 'in vivo' coding techniques were applied to decide patterns and later themes (Saldaña, 2013). Once the initial codes were merged into several categories, these were interpreted, and relevant themes were devised.

Ethical Considerations

The study maintained proper ethical guidelines such as informing the participants about the purpose of the study as well as their role as participants, seeking consent from them, using pseudonyms to keep their identity confidential, and seeking permission to audio-record the interview. The initial contact with the participants were established through Facebook messenger and later maintained through email.

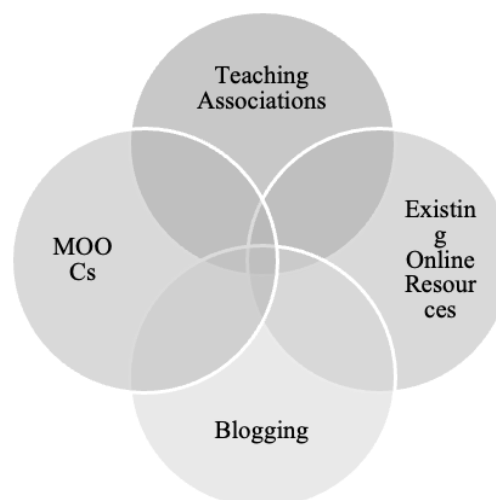
Findings

This section presents the findings of the study according to the research questions. The findings have been collated under two broader themes which are further divided into relevant sub-themes.

Teacher's Initiatives for Professional Development

Teachers' responses show various ways they supported themselves professionally during the pandemic (see Figure 1). These are cumulated under four themes and presented below.

Figure 1: Teachers' Self-initiated Professional Development Activities



Involvement with Teaching Associations. Teachers' responses revealed a significant finding where all the participants mentioned of getting involved with various teaching associations (TAs) at home and abroad

and participating in webinars, workshops, and online conferences arranged by them. The teachers expressed that they utilised the opportunity of face-to-face closure and actively participated in such events. For instance, Teacher A expressed that she participated in these activities because these were ‘accessible’ and ‘conducted online’. The knowledge received from such activities enriched her knowledge and professional learning. She stated, “it set the ground for me and made me interested in developing myself professionally.” A similar response was noted in Teacher D’s utterance who mentioned participating in online training on “different applications and their usage for teaching and assessment through various teaching associations.” It is discernible that the content of the training fulfilled his immediate needs for online teaching. Teacher B, E, and G further reported that it was only after the closure of face-to-face instruction that they felt the urge to be part of such associations. Teacher F mentioned that these fulfilled her “immediate demands of learning about online teaching.”

Navigating Online Resources. Another way teachers supported their professional development was by utilizing the available online resources and materials. Unsurprisingly, all teachers mentioned using these resources for various purposes. For instance, Teacher C commented that she participated in online training to “learn more about data collection and data analysis for qualitative and quantitative research” out of her interest. Besides, Teacher E referred to using YouTube to “get familiarized with G Suite software to help teaching process run smooth” and later disseminating this knowledge by making his own YouTube content. He mentioned,

Additionally, I am always in the lookout for using internet as a learning platform and resource to keep myself up to date with the best teaching practices. I watched lots of videos on remote teaching tips on YouTube and different blogs. Inspired by them and wanting to reach teachers like me, I started creating my own YouTube content on different apps and software.

Such involvement was meaningful for him as he claimed to be ‘tech-savvy’ and had an “abundance of online resources and internet access”. Teacher H expressed a similar view by stating that she “loved watching and learning from those YouTube videos and sources such as Scoop.it and Khan Academy.” Other participants mentioned of utilising materials in ‘World of Better Learning’ by Cambridge University, ‘Digital Pedagogy’ by Sophia Mavridi, and Google Teacher Centre.

Massive Open Online Courses (MOOCs). Attending Massive Open Online Courses (MOOCs) was another means of professional learning. Among eight teachers, five reported auditing MOOCs on learning technologies and remote teaching, although none clarified if they completed the courses. Some MOOCs mentioned were ‘How to Teach Online’, ‘The Online Educator: People and Pedagogy’ by the Open University, UK, ‘Blended Learning Essentials: Embedding Your Practice’ by the University of Leeds, UK, ‘Get Interactive: Practical Teaching with Technology’ by University of London, etc. Participants mentioned of attending these MOOCs through Coursera and Future Learn. Consequently, Teacher A stated that attending MOOCs was “an eye-opener” as she improved her digital skills. She further asserted the benefit of auditing “since earning a certificate was expensive.” Her extensive involvement with MOOCs also encouraged her to participate in more online professional development activities, as she concluded.

Blogging. Blogging was another strategy that three teachers utilised as a means of reflecting on their teaching. Teacher A commented, “inspired by other ELT bloggers, I started blogging using WordPress and Bloggers, but these were private as I was not confident in sharing my thoughts on public platforms.” Teacher B had similar responses as she expressed, “I kept my posts private because I was not sure if my ideas were right.” The extracts show that the self-initiatives undertaken by these teachers were personal, although they became interested in blogging and journaling by reading others’ posts.

Perceived Benefits of Professional Development Activities

The second finding derived from teachers' responses revealed various advantages of engaging in tech-based professional learning. These were collated under four themes.

Digital Literacy. One of the benefits teachers realised of engaging in technology-mediated professional development was developing their digital literacy. Although three teachers admitted being technology-friendly, all teachers acknowledged that learning about digital technologies through online platforms consequently enriched their knowledge of specific tools and operating them for teaching and learning purposes. Teacher C, D, and G mentioned how the newly acquired skills helped them use the tool for online classes, examination, and grading purposes efficiently. For instance, Teacher G stated, "these activities introduced me to a lot of apps and software, and I chose suitable ones for my practice. I would say these activities developed my technology skills." Teacher C, for instance, considered this learning as 'gains' whereas teacher D expressed that "learning about automated systems that would check plagiarism and calculate grades eventually saved my time a number of times." As can be seen, he perceives the use of digital technologies not only as a way of improving his digital skills but also to be more efficient in his work.

Awareness of the Pedagogical Use of Technology. Participating in technology-mediated professional development raised teacher's awareness of the pedagogical use of technology. All the teachers admitted that they realised how technology can be utilised pedagogically in the classroom. For example, both Teacher D and H acknowledged that they gained new insights into integrating technologies. While Teacher D admitted that he 'had no knowledge of using' such technologies 'for conducting classes' before, participating in tech-based activities indeed triggered his interest in utilising them for pedagogical purposes as "these activities surely improved my digital skills and my knowledge of utilising them for learning purposes." Concurrently, he developed an awareness of the fact that technologies should be chosen appropriately according to their contextual and pedagogical use which was also expressed by teacher G (see previous section). Likewise, teacher H mentioned, "I grew the belief that a combination of online and face-to-face teaching achieves the right level of efficiency and keeps us prepared for similar situations in the near future." This response shows her realisation of the long-term benefits of becoming familiar with technology.

Classroom Management. Teachers' responses shows that tech-based professional development activities improved their classroom management skills. Precisely, Teacher A believed she was able to make her classes "more flexible, engaging, and active." It can be evident in how she expressed her realisation by using words such as 'flexible', 'engaging', 'active' learning environment. Further, teacher C, D, and E articulated how they have become more efficient in assessing learners. Teacher E shared that he took less time to publish learning materials, upload content and check scripts since he became familiar with several shortcuts and processes within the software ('automated systems'). Such knowledge helps these teachers become more competent in executing major academic tasks.

Increased Confidence. Teachers' responses show that learning about different technologies through online activities and executing them in teaching eventually boosted their confidence. It was expressed by both group of teachers who considered themselves to be tech-savvy and those who did not. As Teacher B uttered, "I am comfortable with technology now. This training made me more confident in using technology for teaching." Teacher F also mentioned, "I think I can use different tools in my teaching better now as I don't feel anxious before trying out new tools anymore." This boost in confidence occurred as they first became familiar with the tools and then comfortable using them. Teacher A stated,

I am now more confident to try out new things in my class and am willing to challenge my practice. I think I am a better teacher now as I always try to incorporate new ideas in my class

and the feasibility of these according to my context and consider my students' needs. All these were possible because of my involvement in PDAs during the pandemic.

Responses from other teachers also suggest that this confidence and comfortability improved their teaching as they could incorporate them in line with the course content and learners' needs.

Discussion

Teachers' tech-based professional development initiatives revealed that despite working in different educational institutions, they participated in similar PD activities. For instance, involvement with teaching associations at home and abroad was typical among teachers. One possible explanation is that teachers availed memberships or participated in free and cost-effective activities by the teaching associations they deemed suitable to their needs. Such widespread participation could occur because it provided "a site for sharing ideas, materials, and resources, and an important emotional support in these challenging times" (Shackleton, 2021). Specifically, teachers seemed to find a way to connect and communicate with fellow teachers from around the globe. This resonates with Ghimire (2020), Pan and Gan (2020), and Cai (2019). Johnson (n.d.) affirmed that such online communities encourage "learning, collaboration, and networking" across the globe. However, the other three activities indicated a more individual approach to professional development. For instance, teachers utilised online resources, wrote blogs, or attended MOOCs as they considered them suitable to their interests and needs. Since the Internet provides ubiquitous access to an abundance of materials, this flexibility seemed to offer the opportunity to learn at their own pace and utilize them accordingly. This finding corroborates with what Lightfoot (2019) posed as the potential benefit of tech-mediated professional development. The availability, accessibility, and flexibility of online resources for professional development have been emphasized in McAleavy et al. (2018) and noted in recent studies such as Cai (2019), Ghimire (2020), Trikoilis and Papanastasiou (2020), and Cosgun and Savaş (2019). Likewise, the suitability of the courses to their immediate needs may have encouraged teachers to participate in MOOCs as one of them considered it "an eye-opener". However, the fact that they did not clarify whether they completed the courses reiterated the concern posed by McAleavy et al. (2018) about the low-completion rate due to the lack of motivation. Further, the fact that reflective blogging supported individual learning of teachers and enhanced their practice is comprehensible since it involves reflection and critical thinking (Norris, 2019; Johnson, n.d.). Individual learning through reflective writing can be a steppingstone for professional development and is validated in literature (McAleavy et al., 2018; Johnson, n.d.) and recent findings by Pan and Gan (2020) and Ghimire (2020).

The various initiatives derived from teachers' responses seemed to have similar potential for them. For instance, they acknowledged becoming more technology literate, cultivating an awareness of the pedagogical use of technology, being more confident, and enhancing classroom management skills. Technology-mediated professional development upgraded digital skills irrespective of being tech-savvy or non-tech-savvy teachers. However, it appeared to benefit the teachers more who are technology-friendly; for, they took the leadership roles and trained other teachers on remote education during the pandemic. It echoes Jaipal-Jamani et al.'s (2018) findings that specifically reported on leadership roles through tech-mediated professional development. For non-tech-savvy teachers, technology orientation seemed to boost their confidence and make them comfortable choosing the appropriate tools in teaching. Unsurprisingly, most studies (DelliCarpini, 2012; Blocher et al., 2011) affirm that teachers honed their digital literacy due to participating in such activities. Literature (Lightfoot, 2019; McAleavy et al., 2018; Minott, 2010) frequently expressed such potential of participating in technology-mediated professional development; for it seems undeniable that teachers will learn about the operation and function of various technologies. It looks relevant to the other findings where teachers admitted to growing awareness of the pedagogical use of technology and confidence in using them. It also supports Mishra and Koehler's (2006) notion of technological-pedagogical content knowledge (TPACK). One possible reason teachers

developed TPACK could be because they were not aware of the pedagogical and contextual use of technology earlier. It may be due to the lack of orientation towards technology integration. The awareness of TPACK has been noted in Lightfoot (2019), DelliCarpini (2012), Jaipal-Jamani et al. (2018), and Jaipal-Jamani and Figg (2015). Blocher et al. (2011) also reported increased confidence and comfortability around the use of technology due to participating in tech-mediated professional development. The findings related to improved classroom management skills cohere with studies such as Cosgun and Savaş (2019) and Lightfoot (2019). It seems justifiable as Mishra and Koehler (2006) indicated that successful technology integration retains better classroom learning.

Implications of the Study

Several implications regarding technology-based professional learning can be drawn from this study.

First, the study implied that accessibility, flexibility, and expense influenced the professional development initiatives undertaken by teachers. For instance, research on professional development activities for teachers in low-income contexts can provide valuable insights into the effectiveness of such activities. It is undeniable that ensuring affordable cost and better access to online resources would inspire teachers to undertake more initiatives to continue their professional learning. Besides, it demands further investigation if participating in fewer activities has any relation to their overall professional development.

Second, most of the self-initiatives reported in this study involved self-study or individual learning. Approaches such as these are immensely self-motivated. In such cases, it would be imperative to encourage teachers to engage in tech-based professional development since the benefits are noteworthy (Son, 2018; Hubbard, 2008). Local teaching associations can also promote professional development activities that foster individual learning. Besides, encouraging self-motivated teachers to disseminate the knowledge they gained from their initiatives would further benefit teachers aiming to support their own professional development.

Then, undertaking self-initiatives readily involves an awareness of responsibility for professional development. Additional research on motivation for teacher-initiated professional development and the factors affecting their participation would provide more comprehensive knowledge on self-initiated professional development. Although teachers in this study reported enhancing their TPACK and consequently providing enhanced learning due to technology integration, it demands further research as to what extent this was effective for the students.

Conclusion and Limitation

This study explored self-initiated technology-based professional development activities undertaken by the higher education teachers in Bangladesh as well as the benefits it had on teachers' professional learning. Responses from the semi-structure interviews with eight teachers demonstrated that teachers undertook similar initiatives despite working in different educational institutions. By engaging in such activities, teachers reported augmenting their digital skills, growing awareness of the pedagogical use of technology, boosting their confidence in integrating technology, and acquiring better classroom management skills. The study recommended that ensuring cost-effective access to the online resources and materials would advance teachers' participation in professional development activities. The study also recommended motivating teachers to undertake self-initiatives and suggested the need for further research regarding the factors affecting teachers' participation in professional development.

Finally, the study has several limitations. First, this study used a semi-structured interview method to collect potential data. A follow-up through email or mini-interview could have provided further insights into teachers' self-initiated professional development. The study also has a limited number of participants

due to which the findings indicate subjective responses of the participants and thus, cannot be generalised. Moreover, as an ‘insider’ in the researched context, this study might have exhibited more subjective interpretations despite several attempts made for unbiasedness. However, following Richards (2003), cautions have been taken by being transparent and making informed decisions to retain the validity and reliability of the data whenever possible. Thus, the study provided an in-depth understanding of participants’ experiences regarding their tech-based professional development activities. Despite the limitations, the study would be beneficial to both prospective and in-service teachers and educators interested in augmenting their professional knowledge and skills and willing to take initiatives for their professional learning.

Declaration of Conflicting Interests

The author declares that there is no conflict of interests.

Acknowledgement

I would like to thank the teachers for taking the time to participate in this study.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

Ethics Statements

I, hereby, state that I have conducted the research and prepared the manuscript following the protocol of research and publications ethics. I am solely responsible if any deviation or mistake (in content and language) is identified in the manuscript.

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Appendix

Appendix 1

Interview Protocol

1. As a teacher, what does professional development mean to you?
2. Do you take advantage of any technologies for your professional learning?
3. Were there any initiatives taken by your workplace (department, university, etc.) to support your continuing professional development (CPD) during the Covid-19 pandemic? Could you please describe them?
4. Apart from the institutional interventions, did you take any initiatives on your own to develop your professional knowledge and practice?
5. Could you describe each of these in details?
6. Prompts based on their responses
 - a. MOOCs, teaching associations, blogging, journaling, online resources, and research
7. What made you participate in such activities on your own?
8. Do you think participating in these activities benefitted you in any way... met your professional needs, etc.? Please describe them in detail.
 - a. Prompts as required
9. Did you face any challenges while participating in such activities on your own?
10. Is there anything else you would like to share with me about your professional development activities?

Appendix 2

Dataset and Examples of Coding in MAXQDA

**Codes and Themes
Thematic Analysis**

Thematic analysis-- Steps:

1. **Familiarizing ourselves with data**
2. **Preliminary Codes** that capture what is being said --- Question by question: Identifying meaningful chunks in the data.
3. **Higher order codes** --by merging the preliminary codes **into several categories**. Merging codes that relate to one another. --- interpretations of the codes.
4. **Themes** ==> Involve active interpretation of the codes that have been grouped. Develop insights into the relationships between themes.
5. Report of findings.

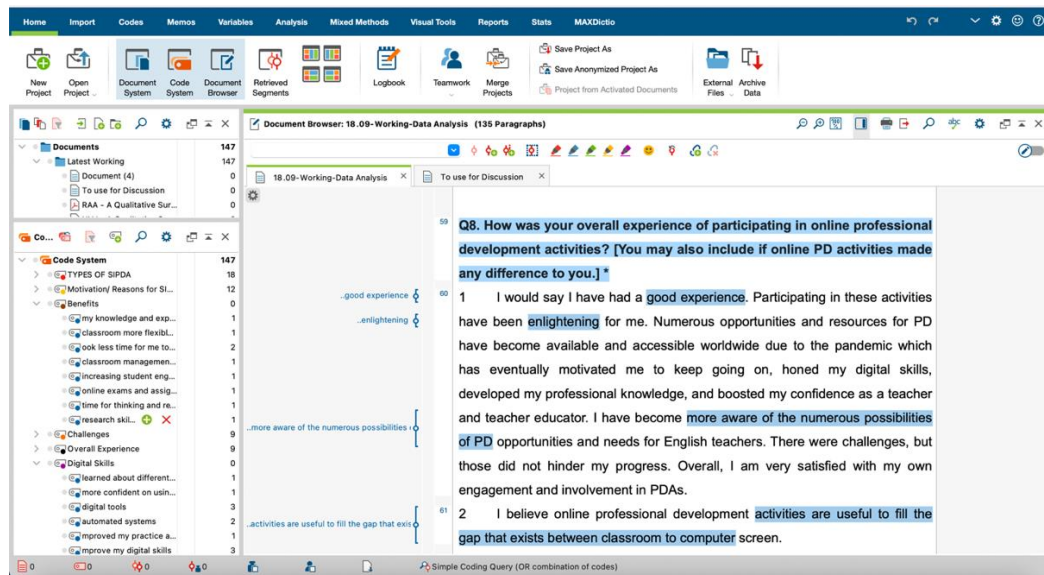


| | Questions | Codes | Higher order codes | Emerging Themes | Themes |
|---|---------------------------|--|--|---|--|
| 1 | Types of SITPD activities | IATEFL webinars & workshops, conferences ### 1 Reading blogs by other ELTops ### 2 Blogging (privately) ### 3 Online journaling ### 4 Attending MOOCs ### 5 YouTube tutorials ### 6 Being a Google Certified Educator ### 7 Familiarizing oneself with G Suite applications ### 8 Webinars by Bangladesh English Language Teachers Association | Teaching association Reading Blogs Journaling MOOCs YouTube License & certification Tutorials Teaching association | 1. Support from local & international TAs 2. Utilizing existing online resources - YouTube tutorials - MOOCs - Online certification - Reading blogs & websites | Getting involved with local & international teaching associations Navigating existing online resources Reflective writing Conducting classroom research |

| | | Self-motivated to widen the horizon of my knowledge | Gain knowledge | - Encouraged to use tools | |
|---|------------------------|---|---|---|---|
| | | Got some time apart from teaching which I could invest in research | Time for investing in research | | |
| | | | | | |
| | Questions | Codes | Higher order codes | Emerging Themes | Themes |
| 3 | Realized benefits | my knowledge and expertise about my discipline has expanded classroom more flexible, engaging, and active Took less time for me to publish learning materials, due to being familiar with several shortcut and smart processes within the software Classroom management, test management Increasing student engagement in the class Online exams and assignment Time for thinking and researching during this pandemic Research skills, specifically data analysis | Knowledge and expertise Better classroom Classroom related > uploading materials, etc. Classroom management, test Student engagement Exams, tests Time for researching Research skills | 1. Content knowledge & expertise 2. Classroom management - Upload materials - Online exams - Student engagement 3. Research time & skills 4. Digital skills 5. TPACK | TPACK Digital literacy Research skills & time Classroom management |
| 4 | Encountered challenges | Drained and overwhelmed at some point | Exhaustion/ fatigue | 1. Online fatigue - Exhaustion | Online fatigue & speed |

| MAXQDA 2020 | | 30/9/21 | |
|---|---|---|--|
| Benefits\look less time for me to publish learning materials, | ook less time for me to publish learning materials, | Latest Working\18.09-Working-Data Analysis: 45 - 45 (0) | |
| | due to being familiar with several shortcut and smart processes within the softwares | Latest Working\18.09-Working-Data Analysis: 45 - 45 (0) | |
| Benefits\classroom management, test management | classroom management, test management | Latest Working\18.09-Working-Data Analysis: 46 - 46 (0) | |
| Benefits\increasing student engagement in the class | increasing student engagement in the class | Latest Working\18.09-Working-Data Analysis: 46 - 46 (0) | |
| Benefits\online exams and assignment | online exams and assignment | Latest Working\18.09-Working-Data Analysis: 47 - 47 (0) | |
| Benefits\time for thinking and researching during this pandemic | time for thinking and researching during this pandemic | Latest Working\18.09-Working-Data Analysis: 48 - 48 (0) | |
| Benefits\research skills, specifically data analysis | research skills, specifically data analysis | Latest Working\18.09-Working-Data Analysis: 49 - 49 (0) | |
| Challenges\drained and overwhelmed at some point | drained and overwhelmed at some point | Latest Working\18.09-Working-Data Analysis: 52 - 52 (0) | |

6



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