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One-On-One Technology Mentoring for in-Service Teachers: The Experiences of Future ICT Coordinators

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Abstract

With the increasing demands of technology integration by the institutions, educators felt the need to develop themselves professionally. In this study, as a way of professional development, we focused on one-on-one technology mentoring for in-service teachers because the experiences of mentors would shed light on professional development programs in the context of both mentors' progress and mentoring in-service teachers. Mentors for teachers were assigned to facilitate teachers' ICT usage and ICT integration skills. The mentorship implementation lasted two semesters with 42 mentors' participation. The determination of the content of the mentoring process was completely based on the needs and interests of the teachers. After the implementation, the perceptions and experiences of the mentors were asked and coded through content analysis. According to the analysis, the responses of the mentors were grouped into five main categories; (a) affordances of the technology mentoring process, (b) the contribution of the project to the teachers, (c) the contribution of the project to the mentors, (d) the challenges experienced by the mentors, and (e) the weaknesses of and the suggestions for the mentoring process. The findings of this study indicated that future ICT coordinators believed that one-on-one technology mentoring in real school settings is an effective way not only for training in-service teachers but also for creating awareness of being an ICT coordinator and developing ICT mentoring skills.

Keywords: *Teacher professional, Development, Secondary education, Improving classroom, Teaching, one-on-one technology, Mentoring*

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Background to the Study

Adopting information and communication technology (ICT) has long been debated among educators, educational leaders, and researchers (Liu et al., 2019). At the same time, technology integration is one of the key challenges of 21st-century teaching and learning environments and is a complex process in terms of educational change. Despite the huge potentials of ICT for learning, teachers use ICT for paperwork, designing instructional materials, or transmitting knowledge, and they do not integrate technology into teaching and learning environments at the desired level (Gorder, 2008; Hill & Uribe-Florez, 2020; Tondeur et al., 2016). According to Ertmer (1999), there are two types of barriers to effective technology integration by teachers: first-order barriers refer to external factors not directly related to teachers, such as lack of access to technology, limited support, and insufficient teacher training; and second-order barriers refer to internal factors, related to teachers, such as confidence in the use of technology and perceived values of technology in teaching and learning.

Both teachers' ICT skills and the instructional uses of these skills in technology-enriched learning environments are crucial for teachers' technology integration (Bergeson & Beschorner, 2020; Hill & Uribe-Florez, 2020; Kaur, 2020; Paje et al., 2021). Lack of professional development in these areas negatively impacts ICT integration. Providing professional development can enhance not only teachers' attitudes and beliefs towards ICT but also their knowledge and skills in ICT (Baran, 2016a; Hew & Brush, 2007; Kaur, 2020).

Long-term professional support had positive effects on teachers' skills, confidence, and comfort in technology use for teaching (Alemdag & Erdem, 2017; Blocher et al., 2011; Hilton & Canciello, 2018). Hill and Uribe-Florez (2020) mentioned that this support should be "continuous support for teachers throughout the school year and during the school day to address needs that may arise in the classroom" (p. 10). They also reported that technology use of the participating teachers' students for learning purposes increased. Sullivan et al. (2018) created a peer-learning community to support faculty in technology-enhanced pedagogy for a research project. After two years of professional development, they reported that the participant faculty learned from the experiences of their colleagues, their knowledge in instructional technologies increased, and they integrated technology into their classrooms.

ICT Supports at Schools in Different Countries

Teachers are generally supported by ICT experts, namely ICT coordinators, on a school basis to accomplish teachers' professional development for successful technology integration. An ICT coordinator is a person who is responsible for the technological infrastructure of the school, supports the school's ICT policy, and coordinates ICT tasks among stakeholders of the school (Tondeur et al., 2009). They are assigned to provide technical support, plan school-based change for ICT integration, and promote ICT-integrated education (Devolder et al., 2010). The support in teachers' own context is a crucial incentive to increase technology integration at schools (European Commission 2013). Furthermore, the European Commission (2019) report revealed that the higher the availability of ICT coordinators and teacher training at schools, the higher the frequency of ICT-based activities. Therefore,

supporting and training teachers by ICT coordinators are of great importance in using technology in the teaching and learning process successfully at schools (Akbaba-Altun, 2006; Avidov-Ungar & Shamir-Inbal, 2017).

Support of ICT coordinators around the world shows a variation in practice. For example, in the United States (Ronnkvist et al., 2000), around the 2000s, 87% of schools had ICT coordinators; but only 19% of them were working full-time. Besides, most of the coordinators had additional jobs, such as classroom teachers, network coordinators, or media specialists. A more recent study (Hill & Valdez-Garcia, 2020) conducted with 201 physical education teachers in the U.S. indicated that most of the teachers were satisfied with the technological support provided by ICT coordinators. According to the results of that study, 77% of the teachers got technical support from the district ICT coordinator and 70% of them from the in-school ICT coordinator. In addition to technical support, 65% of the teachers received instructional support from the district ICT coordinator and 59% from the in-school ICT coordinator. Besides, teachers are also supported during the integration of technology through grants and projects in the US. For example, in the Technology Infusion Project conducted by Davis (2003), pre-service teachers were paired with practicing teachers to mutually support each other's development in integrating technology in an appropriate way.

ICT coordinators are committed to implementing ICT integration at schools, selected among teachers who are good at technology, technology-driven pedagogical issues, technology integration into curricular subjects, and teachers' training. For instance, Avidov-Ungar and Shamir-Inbal (2017) mentioned that in Israel, ICT coordinators, most of whom were not computer teachers, were to complete a 60-hour in-service course on innovative Web tools and ICT-related pedagogy and lead an organizational change for ICT integration. In their previous study in Israel, they also found that the ICT coordinators who showed higher performance in terms of technological and pedagogical aspects led to a transformation in teachers' teaching approaches (Avidov-Ungar & Shamir-Inbal, 2013).

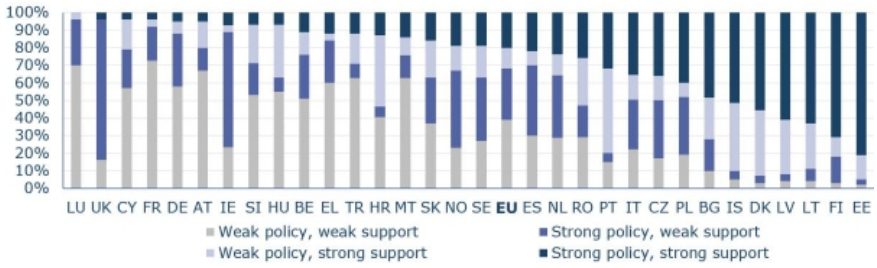

Figure 1: Percentages of students by school type in terms of policy and support (European Commission, 2019, p.108)

Information Technology Related Mentoring

Recent studies indicated that teachers' professional development and ongoing support are needed to increase teachers' effective technology integration (Kopcha, 2012). Different

institutions have implemented tutorials, technology training programs, workshops, conferences, webinars, professional learning communities, and mentoring programs to enable educators to integrate technology into their classrooms effectively. However, previous studies have presented confounding results about the effectiveness of these professional development endeavors on technology integration. For example, Tweed (2013) indicated that teachers are likely to transfer what they learned in these professional development environments into their teaching environment. On the other hand, some researchers stated that the outcomes of professional development programs for technology integration had not been fully realized because they are developed as one-shot events, and they mostly focused on theoretical knowledge instead of hands-on practices (Aslan & Zhu, 2016; Çetin, 2016; Karaseva et al., 2018; Paulus et al., 2020). One of the reasons for the failure of these trainings is that they ignore teachers' needs, pedagogical approaches, and learning context (Rokenes & Krumsvik, 2016).

Affordances of the Technology Mentoring Process

Mentoring is a process helping mentees to gain personal development through the exchange of wisdom, support, reciprocal teaching and learning, and guidance between mentors and mentees (Parsloe & Wray, 2000). In mentoring practices, the interaction between the participants is reciprocal. In other words, mentees mostly seek support about a topic they need help with, and mentors provide support. Therefore, the mutual communication between the mentor and the mentee contributes to their knowledge, skills, and reflective thinking during the mentoring process. As a result, a collaboration between the mentor and the mentee develops (e.g., Alemdag & Erdem, 2017).

Technology mentoring is applied to provide technology-related professional development for teachers. The main goal of technology mentoring is to meet educators' individualized needs in the process of their adaptation for technology integration into teaching and learning practices (Pamuk, 2008). The positive impacts of mentoring on teachers' classroom and time management skills, socialization, adoption of the norms and standards, and teaching skills have been reported (Hobson et al., 2009; Malderez et al., 2007). Developing programs based on educators' needs, motivation, concerns, and contexts improves their level of integration of technologies into classroom practices (Baran, 2016a). When the mentoring program is not developed based on mentees' specific needs, mentees might not want to follow the sessions regularly and lose their motivation on the content of the program (Gunuc, 2015).

Contribution to Teachers

Mentoring is considered to be an effective training method for the professional development of teachers related to technology integration. Kopcha (2012) pointed out that mentoring helps teachers overcome technology barriers, improve their technology integration knowledge and skills, and develop a clear vision for using technology for instruction. Professional development of teachers with mentoring and ongoing support was found to be effective for improving teachers' technology-related knowledge and skills (Liu et al., 2015). Koh and Chai (2014) and Lowther et al. (2008) reported that mentored teachers used technology more frequently and felt more confident in using technology in the classroom than non-mentored

teachers. Furthermore, Baran (2016a) expressed that ongoing technology-related mentoring leads faculty members to design their courses with new instructional technologies. Previous studies also emphasized that mentoring had been a promising way of increasing teachers' or faculties' technological-pedagogical-content knowledge (TPACK) (Jaipal-Jamani & Figg, 2015; Koh, 2020; Mourlam, 2017).

Mentoring has also been found to have emotional effects on teachers in terms of technology integration. For example, mentoring has the potential to eliminate teachers' anxiety about using ICT in their teaching environment. Blocher et al. (2011) found that teachers who participated in a mentoring program are no longer afraid of technology in the classroom, view technology more positively, and think of ways of using technology for designing materials, teaching, and evaluation. Mentoring for teacher professional development has the potential to reduce the feeling of isolation, increase confidence and self-esteem, enhance problem-solving and self-reflection, and develop professional learning (Hobson et al., 2009). Mentoring motivates teachers both intrinsically or extrinsically through hands-on activities and interaction with peers, teachers, and students (Yoon et al., 2018). The higher the consideration of teachers' needs and characteristics in a mentoring program, the higher the teachers' satisfaction with the program (Alemdag & Erdem, 2017).

Contribution to Mentors

As emphasized above, the benefits of mentoring are mutual between mentors and mentees. For mentors, practicing future-related work in advance helps to gain experience in doing the tasks in relation to the future job. Korthagen (2004) expressed that mentoring is beneficial for mentors in several ways. First of all, it helps mentors construct their identities as the person of that job (Bullough, 2005). During mentoring programs, mentors get the opportunity to develop specific skills and confidence in helping others. Moreover, they develop a sense of belonging to the field. Bullough and Draper (2004) pointed to the emotional aspects of mentoring such that mentoring not only supports specific skills but also feeds the feelings. In addition, Iancu-Haddad and Oplatka (2009) found that most of the benefits of mentoring for mentors are emotional, including feelings of satisfaction. Bower-Phipps et al. (2016) found that mentors gain practice in developing a competent teacher, explicit mentoring of one another, reflecting on mentoring, and teaching explicitly. Frydaki and Mamoura (2014) highlighted that mentoring provides an informal learning community for mentors and a reflective stance as a colleague. The findings of Yu et al. (2018) indicated that mentoring helped graduate student mentors to improve essential professional development skills through continuous collaboration and communication, develop a deeper understanding of technology integration in specific teaching contexts, and establish collaborative relationships with faculty mentees through individualized support. Besides, Pamuk and Thompson (2009) identified the perceived benefits of one-on-one mentoring in four categories: technical, academic, pedagogical, and professional. While working with mentees on technology uses in teaching, mentors benefited a great deal if they witnessed their mentees' use of technology in their related tasks (e.g., in teaching) (Baran, 2016b).

Difficulties in Mentoring Processes

Although there are various affordances of one-on-one technology mentorship and contribution to both mentors and mentees, some difficulties may still arise during the mentoring process. For example, in different studies, various challenges related to the content in the mentoring process were mentioned, such as discontinuing the previously planned content, not covering the subject in detail, unattractive content for the mentees, mentees being at least as knowledgeable as mentors (Gunuc, 2015), mentors not competent in some subjects that mentees request (Gunuc, 2015; Yu et al., 2018), and mentors' limited knowledge of technological resources appropriate for mentees' subject areas (Konca & Tasdemir, 2018; Yu et al., 2018). Similarly, some researchers have mentioned various logistic challenges such as the mentors/mentees having difficulties in continuing the process (Baran, 2016a; Gunuc, 2015; Iancu-Haddad & Oplatka, 2009), using only a small part of the planned time in some meetings (Gunuc, 2015), and a lack of a suitable working environment (Gunuc, 2015). Similarly, some researchers mentioned teaching difficulties such as mentors' fear of failure due to unforeseen problems that may arise in meetings (Gunuc, 2015; Iancu-Haddad & Oplatka, 2009), a decrease in mentees' motivation as the process progresses (Doukakis et al., 2019; Gunuc, 2015), and mentors' difficulties in managing the process (Gunuc, 2015).

Weaknesses of and Suggestions for the Mentoring Process

Despite its benefits, researchers pointed out some limitations of the technology mentoring process. The mentoring approach requires much effort and contextual support of teachers while they are developing technology integration skills (Dysart & Weckerle, 2015). Researchers (Dempsey & Christenson-Foggett, 2011; Redmond, 2015) also noted the negative effect of insufficient time and high workloads of teachers in the effective implementation of the mentoring process. The workloads of mentor teachers increase as a result of their routine teaching roles (Lee & Feng, 2007). Bullough (2005) reported that mentor teachers sometimes experience feelings of insecurity, nervousness, and inadequacy with the act of being observed by mentees. Alemdag and Erdem (2017) pointed out that the interaction breaks by the mentees as the support seekers may negatively influence the effectiveness of the process. It is also suggested that this situation might have decreased the mentors' motivation. In addition, they pointed out that the quality of interaction between the mentors and mentees is a critical point in starting and maintaining the mentoring process.

Method

Research Design

This study inquired about the experiences of future ICT coordinators in the technology mentoring process with middle school teachers. Within this purpose, the mentors' perceptions about the mentoring process were examined. A qualitative approach (Merriam, 1998) was used to answer the research questions because it allowed researchers to identify common patterns of the technology mentoring process based on the future ICT coordinators' experiences. Specifically, a case study design within qualitative approach (Creswell & Plano Clark, 2007; Yin, 2003) was embraced to detail the perceptions of the mentors as each mentor experienced their own ways of the mentoring process.

Participants

The mentors in the study were the senior students enrolled in a compulsory course at the Department of Computer Education and Instructional Technology at a university in Turkey. After graduation, the students studying in this department can work as computer science teachers, ICT coordinators in K-12 schools, instructional designers, and/or experts in ICT-related jobs. The study included 21 male and 21 female technology mentors aging between 21 and 24. Before the study, the mentors did not have any official experience of technology mentorship.

Mentoring Process and the Context

Mentors worked together with middle school teachers (as mentees) during two academic semesters in line with the teachers' needs, wishes, and preferences. The contents of the technology mentoring programs with teachers were arranged in the form of personal development, professional development, and material support in line with the requests of the teachers. The one-on-one technology mentoring process was conducted weekly at the time intervals determined by the mentors and the teachers together at the schools where teachers worked. Besides weekly meetings, the teachers could contact the mentors anytime to get on-time help or ask for their demands for the following meetings. The teachers' specialties were mathematics (N=16) and language (N=26) teaching, and they were from three different schools located in the same district as the university. Teacher-mentor matching was done by randomly assigning teachers from the discipline chosen by mentors.

This study constitutes the sub-dimension of a more comprehensive project in which improving the ICT coordinator skills of mentors and teachers' technology integration was targeted. One of the outputs of this study (Top et al., 2021) was found that teachers' requests from the most to the least emerged as learning software programs, designing teaching materials, workload support, and technical support. Another result of this project revealed that technology-related TPACK structures of the teachers had increased significantly through one-on-one mentorship (submitted). Therefore, we excluded these dimensions from the scope of this study and solely focused on the technology mentoring process through the eyes of mentors.

Mentors Job Definition

This study was conducted by five researchers, one of whom was the course instructor, one was a specialist in language teaching, one in mathematics teaching, and two in instructional technologies. The researchers shared the list of resources, programs, and applications that can be used for teachers' professional and personal development with the mentors before the study begins. Mentors were able to identify their topics from this list or any other source based on the choice of their assigned teacher. Mentors were asked to post information about the mentoring process online so that other mentors could see the reports. When teachers requested instructional materials to use in their lessons, mentors were required to receive feedback from researchers before handing over these materials. Feedbacks to the documents were created by experts (mathematics or language teaching based on teacher's specialty) and instructional technologists. The instructor of the course bi-weekly examined the online posts of the mentors, and the necessary warnings and notifications were provided to the relevant mentor.

Data Collection and Analysis

The data used in this study consisted of technology mentors' answers to the open-ended questions about the process. A conventional content analysis was conducted for the data (Hsieh & Shannon, 2005) since the qualitative interpretation of the codes was central to the coding process rather than the counts. First, the responses were coded by at least two researchers individually, and then compared among the coders. This coding phase was inductive because the codes were generated during the analysis and derived from the data. After defining codes and categories, all the researchers discussed until they reached a final consensus for each code and category (Gläser-Zikuda et al., 2020).

Results

The coding procedure yielded that the responses of the mentors could be grouped into five main categories; (a) affordances of the technology mentoring process, (b) the contribution of the project to the teachers, (c) the contribution of the project to the mentors, (d) the challenges experienced by the mentors, and (e) the weaknesses of and the suggestions for the mentoring process. Firstly, we focused on the affordances and the strengths of the mentoring process; then, it was found that both stakeholders – the teachers and the mentors – benefited from the process, and we attempted to determine at which points the process contributed to the teachers and the mentors; the challenges encountered by the mentors were reported; and finally, the weaknesses of the project from the perspectives of the mentors were listed with their suggestions. In the following, the findings related to these dimensions are given with excerpts from the data. While reporting the results, pseudonyms are used to ensure anonymity.

Contribution to the Mentors

The mentors found an opportunity to meet teachers in real settings, at schools, and they could act as a mentor based on real needs of the teachers so that we believed that they had benefited from the study. As mentioned above, the main objective of this project was to train teachers on technology in a one-on-one mentoring implementation; however, the mentors also developed themselves. The analysis showed that the mentors had experiences as IT mentors, they improved their collaboration and communication skills, they developed professionally, they improved their technological and pedagogical knowledge, and finally, they were satisfied with the outcomes.

First, the mentors participating in this study were expected to work as IT mentors when they graduate. They would be appointed to the state schools, or they would be hired at private institutions, and they would help other teachers from various branches to integrate technology in their classrooms. In this study, almost all the mentors stated that they experienced how to help other teachers with real-world problems. Mel mentioned this point as "Working with different teachers and being able to solve their problems and problems together with them and helping them was the best part. At the same time, we are already seeing the problems we may face in the future" so that the mentors could see the outcomes of ICT integration because the teachers shared their experiences after the implementations.

While acting as IT mentors, the mentors practiced teaching a tool to another teacher so that they noticed that knowing and using a tool was utterly different from teaching the features of the tool. They worked with teachers who had various technological competence. Some teachers were good at using technology, so the mentors had to focus on advanced features. On the other hand, some teachers were novice users of technology, so the mentors explained the basic functions of the ICT tools. This way of mentoring helped them to develop their pedagogical knowledge. The statements related to pedagogical knowledge were frequently observed in the data. For instance, Max stated that "I learned various software programs and transferred my knowledge to another person so that I could claim that this project helped me to gain experience.

Contribution to the Teachers

In the affordances of this mentoring process, the mentors mentioned that the teachers benefited from the process. The mentors in this study were asked at which points this process contributed to the teachers they worked with; so, the contribution of the mentoring process to the teachers was based on the observations of the mentors. Although few mentors claimed that there was no change in teachers in terms of technology use, most of the mentors acknowledged that they observed some improvement in teachers. These changes were classified into four categories. The first two categories were overlapping with the objectives of the study. As for the primary purpose of this study, the mentors observed that the teachers improved themselves in terms of their basic technological skills and ICT use for education. For example, respectively, Linda stated that "she [the teacher] is now constantly using Google Drive in her daily life and does not hesitate to use Office programs, and most importantly, she uses it more accurately and easily"; and Mona stated that "he [the teacher] learned how to make the lesson more understandable and more enjoyable thanks to animation preparation [tools], using a blog, website, and different quiz preparation programs.

The third category was related to the attitudes of the teachers. At the end of the study, it was claimed by the mentors that the teachers were more open to the new ideas related to technology uses for both educational and personal purposes. Some teachers allocated more time to explore the details of the tools. Some teachers allocated more time to explore the details of the tools. John claimed that

> *I think our teacher started to spend more time on technology. Our teacher, who is curious about technology, stated that he repeats the activities we have done and that he has found another program and progressed in time because 3D paint was not enough after a while.*

Finally, the mentors declared that the teachers were satisfied with the outcomes of the study. According to the mentors, teachers believed that they could use technology more effectively in their teaching. For example, Ella said, "I believe that our teacher is generally happy with the tools I introduced. I tried to show all the details, and she listened to me willingly. I could claim that the process was effective in terms of learning tools".

Challenges in the Mentoring Process

Although some mentors claimed that they had no difficulty in the mentoring process, we were not surprised to hear some challenges throughout the training. At the end of the data analysis, these challenges could be classified into three categories, namely content, logistics, and teaching-related difficulties. The content of the training sessions was determined by the mentors and the teachers in collaboration. While some teachers had some ideas about the ICT tools and their needs, some had very limited ideas about the potential uses of ICT for personal and/or educational purposes. If the teacher was a novice user of the technology, the mentor was reluctant to find a topic for each week. Also, if the teacher did not have any idea about the use of technology in their field and the mentor was not competent enough in the teacher's area, the mentor had difficulties in finding a topic for each week. Luke's words showed that "finding a new program for each week was challenging". He also stated that "the process was somehow affected negatively when the sources were limited". Moreover, the mentors needed more time to design a session for introducing the tool to the teacher. The mentors had limited time for the preparation, and they mentioned this issue as one of the challenges in the project. Although some mentors felt the need for a list of ICT tools beforehand, this contradicted the nature of one-on-one mentoring since it should be based on the teachers' needs and interests. Among the challenges related to the content, the mentors had some doubts about the contribution of content to the teachers. One of the mentors was not sure whether the tool would be useful for the teacher.

Another challenge was logistics-related problems, which were observed in two ways. First, a few of the mentors complained about the location of the schools. They had to use public transportation to reach the school if they were living on the other side of the city. Second, they had difficulties in finding a convenient time to meet teachers. During the weekdays, the teachers had a tough schedule, and they could not allocate time at weekends so that they could only meet during the breaks, or sometimes they had to cancel the meetings at the last minute. In addition, communication issues sometimes caused problems related to the planning of the meetings. Two of the mentors mentioned that they had difficulties while communicating with the teachers. John clearly summarized the challenges with “time and distance issues”.

Finally, as one of the main categories of challenges, the mentors stated that they had some problems or difficulties in teaching. Although they mentioned that their pedagogical knowledge improved in the process, they also had difficulties while teaching. First, the mentors were anxious during the period because they were unsure whether they could teach the tools to an adult partner. Before this project, they did not have any experience in working with adults. Indeed, mentors reported that they could hardly teach the features of some tools to the teachers. In addition to these, the study was a voluntary basis for the teachers; that is, the teachers participated in this study voluntarily. However, in time, some of them could lose their willingness to continue the project and take roles in the tasks, which was a challenge for the mentors. For example, Lisa mentioned that “the only problem during the process was the teacher's unwillingness to participate”.

Weaknesses and Suggestions of the Mentoring Process

While most of the mentors claimed no weaknesses in the study, a few presented some points to be considered for future studies. It was found that the shortcomings in the study were somehow in parallel with the challenges mentioned by the mentors in the previous section. This finding means that the mentors thought that the problems and difficulties encountered in this study were mostly the weaknesses of the process itself. The flaws of the study were listed as logistics-related issues, the design of the project, and teacher-related problems, and the mentors suggested some recommendations for these weaknesses.

Logistics-related issues were mainly about the location of the schools, the place for training, and the availability of the teachers for meetings. The schools were considered to be outside the city center, so the mentors had some difficulties while transporting to the schools. Moreover, the mentors and the teachers usually worked in the teachers' room, which was quite noisy during the breaks. Another logistics-related issue was the availability of the teachers. The teachers were complaining about their schedules, and this was reflected in the statements of the mentors. The teachers could hardly find a suitable time to meet and work on the tools. These points were mentioned by John as follows:

> *The shortcomings of this project were time and distance. There were some problems related to the scheduling, and the meetings were organized in the teachers' room which caused attention problems. I believe that the process should be designed more carefully and appropriate rooms should be allocated in the future.*
>
> *In the excerpt above, the mentor suggested that the administrators could arrange a meeting room that was quiet and silent while working with the teachers. Moreover, it was also recommended that the assigned schools be chosen among the schools with easy access.*

Another shortcoming of the study mentioned by the mentors was about the project design. This project was designed as a two-semester-long study, and the teachers remained the same. The mentors believed that one semester could be enough for the teachers because the teachers got bored towards the end of the second semester; or, different teachers could be invited for the second semester. They stated that the implementation period could be shortened in future studies to be more successful. Moreover, weekly trainings were found to be very loaded by the mentors. They recommended that the training be held once a fortnight or a month to handle the content more efficiently.

The final shortcoming was about the teacher-related issues. The motivation of the teachers decreased over time, as mentioned in the excerpt above. Even the enthusiastic teachers at the beginning of the study were demotivated in time because they could not find enough time to practice. Moreover, the teachers would like to learn as many ICT tools as possible without covering their details. Interestingly, some teachers had some prejudices about the technology, which was quite challenging to overcome. As for the suggestion, the mentors stated that the trainings should be followed-up in time so that it could be better to observe the development of both mentors and teachers, and only the teachers who committed themselves to the study should be accepted in future studies.

Conclusion

Based on the result of the study, it can be said that mentors and mentees have mutual benefits during a one-on-one mentoring process as a teacher training approach. This study also advocated that - in the eyes of the mentors - both agencies improved themselves in terms of several areas which are important for technology integration at schools. Mentors reported that they benefited from the project in different ways, such as having experience as an ICT mentor, increasing collaboration and communication skills, developing their pedagogical and technological knowledge, and being satisfied with their mentoring.

The contribution of the project to the teachers pointed out by the mentors are an increase in basic ICT knowledge and ICT usage in their teaching, being open to technology, and feeling of satisfaction with their use of technology. This finding is crucial for individualized technology-related (ITR) mentorship because, as the experts and providers of knowledge on technology, the mentors evaluated the process of their own mentorship and realized the positives and shortcomings of the process. Mentors reported the positive features of the project as content based on teacher needs and interests, effective communication and management, mutual learning, and one-on-one teaching. On the other hand, logistics, project design, and teacher-related problems emerged as the shortcomings of the process. This kind of awareness through the eyes of mentors is very valuable in constructing their identities as ICT coordinators.

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