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Experiences in distance education and practical use of ICT during the COVID-19 epidemic of Slovenian primary school music teachers with different professional experiences

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A B S T R A C T
The aim of this study was to determine the influence of music teachers' professional experience on ICT use in Slovenian primary education before and after the proclamation of the COVID-19 epidemic. We collected data using an online questionnaire; eighty-three music teachers participated. We divided them into three groups with different professional experiences. The results show that music teachers with less professional experience used ICT more and had fewer problems than those with more professional experience. The creative ICT use of music teachers in primary schools today has a significant impact on the quality of learning objectives, motivation and efficiency.

1. Introduction

The emergence of the coronavirus disease COVID-19 in 2020 has dramatically changed the lives of all people. This change also affected education systems worldwide very quickly. Most educational institutions have tried to find new ways to accommodate pedagogical approaches in a timely manner. The barrier of the lockdown has accelerated the adoption of digital technology (Michigan, 2020). COVID-19 has become a catalyst for educational institutions worldwide to look for innovative solutions in a relatively short period of time (Tam & El-Azar, 2020). Without much time to think about pedagogical details, all learning has been redirected online as everyone has had to self-isolate in their homes (Sloan, 2020).

According to Digital 2020 reports, more than 4.5 billion people used the internet in 2020, while social media users have surpassed the 3.8 billion mark. Nearly 60 percent of the world’s population was online (Kemp, 2020).

UNESCO reported that 1.5 billion children and young people in 195 countries were affected by school closures due to the pandemic. Half of all students had no access to computers, and more than 40 percent were without internet access in their homes. Most schools in affected areas found workarounds to continue classes, but the quality of learning depends heavily on the level and quality of digital access (UNESCO, n. d.).

While virtual classes on personal tablets may be the norm in Hong Kong, many students in less developed countries rely on lessons and assignments sent via WhatsApp or email (Tam & El-Azar, 2020).

The epidemic period was and still is a crucial time also for the teaching profession. With training or planning, an entire generation of teachers has effectively gone digital. According to Gary A. Berg (Simonson & Berg, n. d.), distance learning, also called distance education, e-learning, and online learning, is a form of education in which the main elements are the physical separation of teachers and students during instruction and the use of various technologies to facilitate effective communication between students and teachers and between students and students. As a result, schools have had to create or accelerate online education plans to get teachers and students up to speed with the latest technology as quickly as possible. A collection of software applications and platforms to facilitate online education was already in place, although further enhancements were needed to make these tools more convenient for use and learning (Dignan, 2020).

In spring 2020, the Education Week Research Center surveyed K-12 educators nationwide in the U.S.A. about how school closures due to the coronavirus have affected the role and use of technology in K-12 education. More than eight out of 10 teachers felt that their ability to use technology had improved and that they became better, more innovative educators as a result. Some of them planned to continue using the latest
tools after their buildings reopened. Most taught at least partially online, and half taught exclusively online (Bushweller, 2020).

While web technology and the growing EdTech industry have greatly enhanced e-learning, only those with access to broadband Internet service and computers have benefited. The COVID-19 shutdown has highlighted and exacerbated the existing digital divide around the world. In addition to supporting students in the classroom, today’s education leaders must also work to bridge the gap between the digital “haves” and the “have-nots” so that all students, from kindergarten through college, have equal access to education that can advance their job prospects and improve their lives (The evolution of distance education in 2020, 2020).

We note that the unplanned and rapid shift to online learning without training and with little preparation has illuminated many benefits despite some problems. Learning with ICT support can encourage more interactivity among students and provide opportunities that may not have been possible before. The integration of ICT use in education will certainly continue to accelerate and is certainly essential for generations to come. Traditional classroom learning can go hand in hand with ICT support (Sloan, 2020).

Jinyoung (2020) explains some advantages and disadvantages of online learning that are essential for further discussion. For example, it does not depend on being in a specific physical location, which increases the participation rate. In addition, online learning can be a convenient means of communication between participants and instructors since they do not have to meet in person. The limitations of online learning may vary depending on the technological abilities of instructors or participants to access online sites and use computers. These limitations are more evident with younger children or pupils who may not have online access or have little experience with online learning tools such as computers (Fedynich, 2014; Wedenoja, 2020). An additional limitation to consider is that online learning and access by young children requires adult supervision and thus adult availability and participation (Schroeder & Kelley, 2010; Yoon, Leon, & Lee, 2012). Furthermore, online learning may not provide sufficient or appropriate opportunities to engage young children who require more interactions and hands-on activities to focus and learn compared to adult learners (Jinyoung, 2020).

Marshall, Shannon, and Love (2020) stated that teachers of music, art, and physical education in the United States face unique challenges. It is not easy to teach elementary students engaging music lessons without being physically together because they miss the basics of music education. Several art teachers feel that even when their students had access to technology, the Internet, and other materials such as pencils, they often lacked the necessary art materials to participate in the types of classroom activities they would normally assign.

Daubney and Fautley (2020) discuss the impact of the pandemic COVID-19 on music education in schools, focusing on the UK, one of the few areas where all children and young people are expected to receive a generalist music education. A potential concern for post-lockdown is that children and young people will have had very different experiences of musical activities and learning during lockdown, and there could be a considerable disparity between the haves and the have-nots when schools finally reopen. Carrillo and Flores (2020), in their literature review of 134 empirical studies on online teaching and learning practices in teacher education, identified several relevant facets of the papers, such as Interaction among participants, Online communities, Teacher participation or engagement, and that some studies focus on the practical in the context of online teacher education in terms of experiences that are procedural and conceptual in nature, but believe that additional research on experiences about the practicum and other procedural domains (e.g., music, Visual Arts, or Physical Education) would be welcome.

2. Distance education of music lessons in Slovenian primary schools between the epidemic

A similar situation to the world happened in Slovenia after March 12, 2020, when the government accepted the epidemic declaration. Children were no longer in the classroom and all teachers started distance education by using different digital platforms (Li & Lalani, 2020). We notice an expansion of many ways to communicate and collaborate with the help of ICT technology (Purdue Online, n. d.). In order to successfully implement ICT-driven distance education, teachers must first understand and be comfortable with the technologies they are using. They need to be given opportunities and training to acquire new knowledge, which can be possible by promoting training programs within the working institution (Gupta, 2017). Online learning with the effective use of ICT can be a great tool to personalize and visualize learning for students, which is an essential ingredient for effective learning. This arouses the curiosity of students to learn more and it also helps teachers to impart knowledge to students much more effectively. It is important to stress that online learning can never replace the skills that a student learns in school. We can only learn skills like social skills, teamwork, and other important skills like empathy in a group setting (Raveendran, 2021).

We emphasize that years of work and experience are an essential part of quality teaching. The fundamental role of the teacher in the school education system is teaching, which includes its integrated personal, professional and social dimensions. (Javornik Krecic, 2008; Ropar & Moretti, 2013; Valencič Zuljan, 2001). A teacher’s professional development is an evolving, lifelong process (Patton & McMahon, 2006, pp. 52-61), changing under new guidelines (Niemi & Kohonen, 1995) and consequently changing teachers’ views. The teacher, as the custodian of his professional development, can influence himself. Likewise, the school as an organization can influence him in a number of ways (Erculji & Trunk Sirca, 2000, p. 6). The crucial segment in the teacher’s career is also professional experience. Over the years, teachers gain the necessary professional experience that has a holistic influence on the creativity of their individual development plan and the design of teaching.

In the Slovenian educational system, a primary school music teacher at the subject level can be someone who has completed the university program Music Education or Bologna Master’s Degree in Music Education (Rules on the level of education of teachers and other professionals in educational programmes of primary schools, 2015). If we take a closer look at the programs that educate future music teachers, we can find two programs, a study of Music Education at the University of Ljubljana, Academy of Music and Music Education at the University of Maribor, Faculty of Education. In the above mentioned study programs we notice that not much importance is given to ICT knowledge. At the University of Ljubljana, Academy of Music, there is a general competence of information literacy · use of ICT in education that students should acquire, but no specific subject can be identified. In the master’s courses we find the subjects Multimedia 1 and 2, where students acquire general knowledge about ICT (Master’s study programs 2nd level University of Ljubljana, Academy of Music, n. d.; Presentation booklet of the 2nd level master’s study program Music pedagogy, n. d.; Undergraduate study 1st level University of Ljubljana, Academy of Music, n. d.). Similarly, in the curriculum of the Faculty of Education UM Music Education we find a specific subject on Information and Communication Technology (Learning unit Information and communication technology, n. d.). Some knowledge of digital literacy and ICT use in music education is also integrated into the basic didactics subjects.

For in-service training of teachers in Slovenia, there is a formal path and informal training offered by various institutions. The formal route, implemented by the Slovenian Ministry of Education, Science and Sport, is governed by the Rules on the selection and co-funding of further education and training programmes for educational professionals (2017). They determine the scope and co-financing programmes of in-service education and training, the conditions, ways and procedures of
in-service education and training of educational professionals and school principals, a list of programmes offered and financing of the programmes, as well as the content, form and administrative regulations. In addition, a catalogue of in-service training programmes for pedagogical professionals is published every year. In Fig. 1 we present the trend of the programmes offered in the fields of music education, ICT in education and ICT in music education.

The general analysis shows that there are quite a number of programmes offered in the field of music education (some areas of training offered - school choir, knowledge assessment, music fairy tales, didactic music games, gifted students, social dimension in music teaching and learning). If we look at the programmes offered in ICT in education in general, we find that they have increased in the years following the epidemic. Also in terms of content, we can see that in the last two years there is much more training on the use of interactive learning materials, on improving digital literacy, on the use of different digital tools, on ICT in didactics and on social interaction, and not only on general ICT or digital literacy. However, in relation to ICT in music education, not many programmes were offered. In the school year 2020/2021 there was only one - Creating music and music projects using digital technology. In the current school year 2021/2022, we find four programmes - Using Digital Technology in Performing and Creating Music, Creating Music and Music Projects Using Digital Technology, Computer Instruction in Music Theory, and Creating Music and Music Projects - individual online instruction. We find that there is an increasing trend of programmes in ICT in music teaching, which is of utmost importance for the acquisition of digital literacy of music teachers in primary schools.

Since, as we can see, there is not much emphasis on ICT knowledge in the mentioned study and in-service training programmes, we can assume that the struggle to switch from face-to-face to distance education in music education depended to a large extent on teachers’ self-study and in-service professional development. In the period between March 12 and June 1, 2021, when the Slovenian government officially announced the end of the epidemic, also music teachers in primary schools held classes via distance education, regardless of whether or not they had sufficient knowledge to use ICT effectively or whether they had already used this type of technology in music teaching. Consequently, whether they wanted to or not, the music teachers gained valuable experience in this area and increased their digital literacy, which, we note, is very important for further teaching in the post-epidemic period (Bohak Adam & Metljak, 2021).

3. Problem and research questions

The lack of targeted pre-service teacher education in digital literacy and ICT knowledge, specifically in music teaching, and the shift to distance education due to the epidemic could evoke different emotions in teachers about their work in using ICT in the classroom. Since years of professional experience can also influence one’s reaction to the given situation, we tried to answer the following research questions:

- What was the level of ICT use in music teaching before and after the epidemic according to different professional experiences?
- What was the level of ICT knowledge and digital literacy before and after the epidemic according to professional experience?
- How did music teachers with different professional experiences respond to distance education?
- How did music teachers with different professional experiences acquire basic knowledge about ICT use in music teaching and how did they improve it during the epidemic?
- What are the advantages and disadvantages of distance education observed by teachers after they experienced distance education due to the epidemic?

4. Method

A quantitative research approach was used with a descriptive and causal non-experimental basic research method. An online questionnaire was prepared and emailed to Slovenian primary school music teachers through various channels in September 2020 and was open for 14 days.

All together 83 Slovene primary school music teachers participated in the research. A fifth of them was male and 80.7% female (Table 1).

They had between 1 and 40 years of professional experience as teachers, with an average of 20.54 years.

The data were exported and processed for statistical analysis using the SPSS programme. Descriptive statistics of attributive (frequency and percentage) and numeric (mean and standard deviation) variables is presented. For inferential statistics, the chi-square test of the independent hypothesis or the Kullback 2 test, when the conditions for chi-square are not met, the paired samples t-test and ANOVA were used. Valid percentages are used; data are presented in tables.

5. Results and discussion

As we were interested in differences in terms of years of professional experience as a teacher, we divided the sample into 3 subgroups. Namely, those with 1–5 years of professional experience, those with 6–15 years, and those with 16 years or more (Table 2).

We wanted to know the extent to which teachers with different professional experiences had used ICT in music teaching before the COVID-19 epidemic.

There were no statistically significant differences regarding the years of working as a teacher and the percentage of ICT use in class before epidemic (Table 3) and also the most often purpose of use (Table 4). Nevertheless, we can see in the sample data that younger teachers, if we can assume that younger participants have less professional experience, have used more ICT in class than older ones. Regarding the purpose of use, all groups used ICT most frequently for presenting videos.

After the epidemic was declared, distance education was the only way to continue school, even for music teachers. We were interested to know if they had any problems transferring to online music teaching and how or if they had improved their knowledge of ICT use and digital literacy (Table 5).

| Table 1 |
|--------|
| Sample by gender. |
| Gender | f   | %  |
|--------|-----|----|
| Male   | 16  | 19.3 |
| Female | 67  | 80.7 |
| Total  | 83  | 100.0 |

3 Further in text – before epidemic.
We find no statistically significant differences between teachers with different professional experience regarding having problems with ICT in distance education during the COVID-19 epidemic. Nevertheless, the sample data indicate some differences: younger teachers with 1–5 years of professional experience had fewer problems than the other two groups. They only had problems in meeting the curriculum objectives (45.5%), compared to teachers with 6–15 years of experience, who had the same problem in 17.6%, and the last group, namely teachers with 16 years or more of experience, who had in almost 29 percent (28.8%). A quarter of the teachers in the two more experienced groups also had technical problems and about 10% in communicating with students. The group with the most experience also reported some other problems, such as students’ unresponsiveness and ignorance or lack of knowledge in using ICT.

We also asked participants to self-assess, on a 5-point scale from very poor to very good, their knowledge of ICT use in music teaching class.

| Table 2 | Years of professional experience as a teacher by subgroups. |
|---------|----------------------------------------------------------|
| Years   | f  | f% |
| 1–5     | 11 | 13.6 |
| 6–15    | 17 | 21.0 |
| 16 or more | 53 | 65.4 |
| Total   | 81 | 100.0 |

| Table 3 | ICT use in music teaching before COVID-19 epidemic regarding years of professional experience and values of Kullback $\hat{I}$ test. |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Professional experience | Didn’t use | Less than 50% | 50%–69% | 70%–89% | 90% or more | Total |
| 1–5     | f 1 | 2 | 1 | 5 | 2 | 11 |
| f% 9.1% | 18.2% | 9.1% | 45.5% | 18.2% | 100.0% |
| 6–15    | f 0 | 5 | 3 | 3 | 6 | 17 |
| f% 0.0% | 29.4% | 17.6% | 17.6% | 35.3% | 100.0% |
| 16 or more | f 3 | 19 | 14 | 9 | 8 | 53 |
| f% 5.7% | 35.8% | 26.4% | 17.0% | 15.1% | 100.0% |
| Total   | f 4 | 26 | 18 | 17 | 16 | 81 |
| f% 4.9% | 32.1% | 22.2% | 21.0% | 19.8% | 100.0% |

$2\hat{I} = 9.963$; df = 8; p = .268

| Table 4 | Most often use of ICT at music class before COVID-19 epidemic regarding years of professional experience and values of Kullback $\hat{I}$ test. |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Professional experience | Didactic aide for own work – playing audio recordings | Didactic aide for own work – playing video recordings | Didactic aide for own work – showing presentations | As an aid to student work (creating, …) | Other | Total |
| 1–5     | f 1 | 4 | 3 | 1 | 1 | 10 |
| f% 10.0% | 40.0% | 30.0% | 10.0% | 10.0% | 100.0% |
| 6–15    | f 4 | 7 | 3 | 2 | 1 | 17 |
| f% 23.5% | 41.2% | 17.6% | 11.8% | 5.9% | 100.0% |
| 16 or more | f 12 | 23 | 5 | 4 | 6 | 50 |
| f% 24.0% | 46.0% | 10.0% | 8.0% | 12.0% | 100.0% |
| Total   | f 17 | 34 | 11 | 7 | 8 | 77 |
| f% 22.1% | 44.2% | 14.3% | 9.1% | 10.4% | 100.0% |

$2\hat{I} = 3.909$; df = 8; p = .865

| Table 5 | Did teachers with different years of professional experience have any problems with ICT at music class in distance education after epidemic was declared and values of Kullback $\hat{I}$ test. |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Professional experience | No | Yes – I had technical problems with using ICT | Yes – I had problems in how to reach curriculum goals (performing, listening, creating) | Yes – I had problems with communicating with pupils | Yes - other | Total |
| 1–5     | f 6 | 0 | 5 | 0 | 0 | 11 |
| f% 54.5% | 0.0% | 45.5% | 0.0% | 0.0% | 100.0% |
| 6–15    | f 8 | 4 | 3 | 2 | 0 | 17 |
| f% 47.1% | 23.5% | 17.6% | 11.8% | 0.0% | 100.0% |
| 16 or more | f 16 | 12 | 15 | 4 | 5 | 52 |
| f% 30.8% | 23.1% | 28.8% | 7.7% | 9.6% | 100.0% |
| Total   | f 30 | 16 | 23 | 6 | 5 | 80 |
| f% 37.5% | 20.0% | 28.8% | 7.5% | 6.3% | 100.0% |

$2\hat{I} = 14.597$; df = 8; p = .067

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1. Source Ministry of Education, Science and Sport Slovenia (https://paka3.mss.edus.si/katis/Uvodna.aspx).
and their digital literacy before and after the epidemic (Table 6).

We find that music teachers self-assess their ICT knowledge higher for the post-epidemic period (M = 3.58) than for the pre-epidemic period (M = 3.40). The difference is statistically significant.

We wondered whether knowledge assessment improved in all subgroups of the sample (Table 7).

As we can see, music teachers in all subgroups self-assessed their knowledge about the use of ICT in music teaching higher after the epidemic, but only in the most experienced group of teachers with 16 years of experience or more was the difference statistically significant (Mbefore = 3.15; Mafter = 3.37).

We identified a similar trend in assessment of digital literacy before and after epidemic (Table 8).

The difference in music teachers’ digital literacy ratings before and after the epidemic is statistically significant. They self-assessed their digital literacy higher after the epidemic (M = 3.67) than before (M = 3.43). However, when looking at the subgroups of the sample according to professional experience, statistically significant differences, as in knowledge assessment, are only found in the group of music teachers who have the most professional experience (16 years or more) (Table 9). Assessment was higher after the epidemic, which is essential for their further teaching.

In relation to the subgroups’ self-assessment of digital literacy (see mean in Table 9), we also wanted to test whether there were statistically significant differences between the subgroups in the period before the epidemic and after the epidemic. The ANOVA (see Table 10) for the before and after epidemic self-assessment between subgroups show that the differences were indeed statistically significant, and according to the post hoc tests, both showed statistically significant differences between the group of teachers with 16 years or more of professional experience and the other two groups; they self-assessed their digital literacy lower than the other two groups. As expected, the teachers with the least professional experience or, as we can assume, the younger teachers, estimated their digital literacy the highest (see Table 9).

We also asked teachers about their education or training on the safe and critical use of ICT in the classroom. First, we asked them about their education before the epidemic (Table 11). We note statistically significant differences between subgroups with different professional experience in education for safe and critical use of ICT in the classroom prior to the epidemic. The results suggest that more younger teachers were taught about the topic in their studies (45.5%); the other two groups in in-service training content (6–15 years 43.8%; 16 or more 61.5%). That they hadn’t received any training or educate on the topic was least reported by those with the most experience (23.1%) and more by those with 6–15 years of experience (43.8%) or 1–5 years (36.4%).

Naturally, we wanted to know if and how music teachers had increased their knowledge of distance education during the epidemic (Table 12).

When asked about the acquisition of knowledge for distance education during the epidemic, we did not find statistically significant differences between subgroups with different professional experience. In all groups, the majority of teachers increased their knowledge through self-study, but slightly more in the group of least experienced teachers (63.6%). Of the most experienced teachers (36.5%), slightly more than the other two groups (1–5 years 27.3%, 6–15 years 25.0%) participated in organized education or training, which was the second most common response. Only a few teachers indicated that they did not need to upgrade their knowledge at all. In addition, the responses in the “other” category also give us some insight into the epidemic situation. Teachers stated that they help themselves with mutual support, web tutorials for new applications, and self-commitment because there was lack of in-service training in the workplace.

When asked if they would like to have more training on the safe and

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Table 6

| N | M | St. dev. | t | df | p |
|---|---|----------|---|----|---|
| **Before** | 81 | 3.40 | 1.01 | -3.162 | 80 | .002 |
| **After** | 81 | 3.58 | .95 | | | |

N = numerus; M = mean; St. dev. = standard deviation; t = value of paired samples t-test; g = degrees of freedom; p = probability value.

Table 7

| Professional experience | N | M | St. dev. | t | df | p |
|-------------------------|---|---|----------|---|----|---|
| **1–5 years** | 11 | 3.91 | .70 | -1.000 | 10 | .341 |
| **6–15 years** | 16 | 3.75 | 1.00 | .808 | 15 | .432 |
| **16 or more years** | 52 | 3.15 | .10 | -3.060 | 51 | .004 |

N = numerus; M = mean; St. dev. = standard deviation; t = value of paired samples t-test; g = degrees of freedom; p = probability value.

Table 8

| N | M | St. dev. | t | df | p |
|---|---|----------|---|----|---|
| **Before** | 81 | 3.43 | 1.01 | -4.642 | 80 | .000 |
| **After** | 81 | 3.67 | .94 | | | |

N = numerus; M = mean; St. dev. = standard deviation; t = value of paired samples t-test; g = degrees of freedom; p = probability value.

Table 9

| Professional experience | N | M | St. dev. | t | df | p |
|-------------------------|---|---|----------|---|----|---|
| **1–5 years** | 11 | 4.18 | .75 | -1.000 | 10 | .341 |
| **6–15 years** | 16 | 3.94 | .85 | -1.861 | 15 | .083 |
| **16 or more years** | 52 | 3.12 | .98 | -4.173 | 51 | .000 |

N = numerus; M = mean; St. dev. = standard deviation; t = value of paired samples t-test; g = degrees of freedom; p = probability value.

Table 10

| Levene Statistic | ANOVA | Tukey HSD Post-Hoc Test |
|------------------|-------|-------------------------|
| F | p | F | df | p | Professional experience |
| **Before** | .419 | .659 | 8.932 | 2 | .000 | 1–5 | 6–15 | .782 |
| 1–5 | 6–15 | 16 or more | .003 |
| 6–15 | 16 or more | .008 |
| **After** | .210 | .811 | 7.146 | 2 | .001 | 1–5 | 6–15 | .903 |
| 1–5 | 6–15 | 16 or more | .01 |
| 6–15 | 16 or more | .014 |

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2 Further in text – after epidemic.
critical use of ICT in music teaching, there were statistically significant differences in terms of years of professional experience. As might be expected, more respondents with 6–15 years of professional experience (62.5%) and with 16 or more (64.7%) would like more training on this topic in the future than respondents with 5 years or less (9.1%), as they rated their knowledge of ICT use and digital literacy lower and some had problems with distance education (Table 13).

We also asked music teachers two open-ended questions about the advantages and disadvantages of ICT use in music teaching and analysed them in relation to their years of professional experience. Teachers with 1–5 years of professional experience stated as advantages analytical and critical use of ICT. Teachers with 6–15 years of experience gave the fewest responses regarding the disadvantages of ICT use teaching, which is essential. Three crucial areas of music education are teaching, which is essential. Three crucial areas of music education are

performing, listening and creating. We emphasize that these three areas must be interwoven. Consequently, music teachers should regularly incorporate them into their music lessons, also supported by the innovative use of ICT.

Table 11
Did teachers have any education on safe and critical use of ICT in classroom regarding their professional experience before the epidemic and values of Kullback 2I test.

| Professional experience | No | Yes – pre-service education | Yes – in-service education | Yes – education in free time | Yes – other | Total |
|-------------------------|----|-----------------------------|---------------------------|-----------------------------|------------|-------|
| 1–5                     | f  | 4                           | 1                         | 7                           | 0          | 11    |
| f%                      | 36.4%| 45.5%                       | 18.2%                     | 0.0%                        | 0.0%       | 100.0%|
| 6–15                    | f  | 7                           | 1                         | 7                           | 1          | 16    |
| f%                      | 43.8%| 6.3%                        | 43.8%                     | 6.3%                        | 0.0%       | 100.0%|
| 16 or more              | f  | 12                          | 1                         | 32                          | 2          | 52    |
| f%                      | 23.1%| 1.9%                        | 61.5%                     | 3.8%                        | 9.6%       | 100.0%|
| Total                   | f  | 23                          | 7                         | 41                          | 3          | 79    |
| f%                      | 29.1%| 8.9%                        | 51.9%                     | 3.8%                        | 6.3%       | 100.0%|

$\chi^2 = 24.047; df = 8; p = .002$

Table 12
If and how did music teachers upgrade their knowledge on distance education regarding years of professional experience during epidemic and values of Kullback 2I test.

| Professional experience | Didn’t need to upgrade – already highly competent | Didn’t upgrade – didn’t find it important | Upgraded knowledge with self-learning. | Upgraded knowledge in organised education and training | Other: Total |
|-------------------------|-------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|-------------|
| 1–5                     | f 0                                             | 1                                         | 7                                      | 3                                                  | 0           | 11     |
| f%                      | 0.0%                                            | 9.1%                                      | 63.6%                                 | 27.3%                                              | 0.0%        | 100.0% |
| 6–15                    | f 1                                             | 0                                         | 9                                      | 4                                                  | 2           | 16     |
| f%                      | 6.3%                                            | 0.0%                                      | 56.3%                                 | 25.0%                                              | 12.5%       | 100.0% |
| 16 or more              | f 1                                             | 0                                         | 28                                     | 19                                                 | 4           | 52     |
| f%                      | 1.9%                                            | 0.0%                                      | 53.8%                                 | 36.5%                                              | 7.7%        | 100.0% |
| Total                   | f 2                                             | 1                                         | 44                                     | 26                                                 | 6           | 79     |
| f%                      | 2.5%                                            | 1.3%                                      | 55.7%                                 | 32.9%                                              | 7.6%        | 100.0% |

$\chi^2 = 8.093; df = 8; p = .424$

Table 13
Would teachers wish to have more training in safe and critical use of ICT in music class regarding years of professional experience and values of Chi-square test.

| Professional experience | Yes | No | Total |
|-------------------------|-----|----|-------|
| 1–5                     | f   | 1  | 10    | 11    |
| f%                      | 9.1%| 90.9%|100.0% |
| 6–15                    | f   | 10 | 6    | 16    |
| f%                      | 62.5%|37.5%|100.0% |
| 16 or more              | f   | 33 | 18   | 51    |
| f%                      | 64.7%|35.3%|100.0% |
| Total                   | f   | 44 | 34   | 78    |
| f%                      | 56.4%|43.6%|100.0% |

$\chi^2 = 11.685, df = 2, p = .003$
teaching in which respondents with different professional experience believe will implement in the future. The differences between the subgroups were not statistically significant. Nevertheless, we can see that the majority of music teachers with 6–15 years of professional experience (60.0%) and 16 years and more (51.0%) will use ICT in 50–69%, in the youngest group one fifth gave this answer. More music teachers with 1–5 years of professional experience (50.0%) will use it in more than 70% and less, about a quarter, of the other two groups will use it in this percentage.

When we compare the percentage of ICT use in the music classroom before the epidemic and in the future assessment for the whole sample, we can see that there are statistically significant differences (Table 15).

In the future, there will be fewer teachers using ICT in 50% or less (23.0%) than before the epidemic (37.3%). However, the number of teachers using ICT more than 70% will also be lower in the future (28.4%) than before the epidemic (39.8%). In the future, most (48.6%) of them will use it in 50%–69% compared to 22.9% before. We can see that teachers will use ICT more than before the epidemic, but not in a very high percentage.

6. Conclusion

The outbreak of coronavirus disease (COVID-19) worldwide and in Slovenia and the subsequent declaration of the epidemic had a significant impact on changes in music education in primary schools. During this period, teachers used distance education, and the innovative and practical use of ICT became one of the most important requirements of modern society and the only option for continuing the educational process. Consequently, music teachers had to find new options for a qualitative change in music teaching, which was a unique challenge for teachers and students.

This unplanned and rapid shift to distance education has revealed many benefits, despite some problems. Online learning significantly supports traditional classroom learning, promotes interactivity, communication and collaboration between students and teachers, and offers new practical opportunities for the use of ICT in education. On the other hand, this type of learning can be an inconvenient means of communication between participants and teachers as they do not meet face-to-face, and has other limitations such as problems with ICT infrastructure at home and lack of knowledge in using online learning tools. It can be a big problem to teach music lessons in primary schools without meeting face-to-face as the basics of music education for students are also singing and playing instruments live.

In the period between March 12 and June 1, 2021, when the Slovenian government officially announced the end of the epidemic, music teachers in primary schools delivered lessons at a distance, whether or not they had sufficient knowledge to use ICT effectively or whether they had already used this type of technology in music lessons before.

In our study, we were interested in differences in the transfer to distance education in terms of years of professional experience as a music teacher, since years of work and experience is an essential part of quality teaching. We divided the sample into three subgroups - music teachers with 1–5 years of professional experience, those with 6–15 years, and those with 16 years or more. The sample results are indicating that younger teachers used ICT before the epidemic more than older ones, but the difference is not significant. Regarding the purpose of use, all groups used ICT most frequently for presenting videos. In the future all teachers will use ICT more than before the epidemic, but not in a very high percentage.

In terms of problems with ICT in distance education during the COVID-19 epidemic, the sample data indicate that younger teachers with 1–5 years of professional experience had fewer problems than the other two groups. A quarter of teachers in the two more experienced groups had technical problems and some had problems with communicating with students. Music teachers statistically significantly self-assessed their ICT knowledge higher after the epidemic than before. A similar trend was found in the assessment of digital literacy.

Regarding the training on safe and critical ICT use in the classroom before the epidemic, 45.5% of younger teachers had training on this topic as part of their degree the other two groups more as part of in-service training, the difference is statistically significant. In all groups, most teachers increased their knowledge through self-study. Teachers stated that they helped themselves with mutual support, web tutorials for new applications, and self-study because there was no on-the-job training.

As might be expected older teachers (more experienced) are more likely to undertake CPD in the future than those with five years or less

| Table 14 | ICT use in music lessons in the future regarding years of professional experience and values of Kullback $\hat{I}$ test. |
|----------|---------------------------------------------------------------|
| Professional experience | Won’t use | Less than 50% | 50%–69% | 70%–89% | 90% or more | Total |
| 1–5 | f | 1 | 2 | 2 | 3 | 2 | 10 |
| | % | 10.0% | 20.0% | 20.0% | 30.0% | 20.0% | 100.0% |
| 6–15 | f | 0 | 2 | 9 | 1 | 3 | 15 |
| | % | 0.0% | 13.3% | 60.0% | 6.7% | 20.0% | 100.0% |
| 16 or more | f | 0 | 1 | 25 | 10 | 3 | 49 |
| | % | 0.0% | 22.4% | 51.0% | 20.4% | 6.1% | 100.0% |
| Total | f | 1 | 15 | 36 | 14 | 8 | 74 |
| | % | 1.4% | 20.3% | 48.6% | 18.9% | 10.8% | 100.0% |

$\hat{I} = 12.055; df = 8; p = .149$

| Table 15 | ICT use in music lessons before the epidemic and in the future and values of chi-square test. |
|----------|---------------------------------------------------------------|
| Professional experience | Didn’t/Won’t use | Less than 50% | 50%–69% | 70%–89% | 90% or more | Total |
| Before | f | 4 | 27 | 19 | 17 | 16 | 83 |
| | % | 4.8% | 32.5% | 22.9% | 20.5% | 19.3% | 100.0% |
| In the future | f | 1 | 16 | 36 | 13 | 8 | 74 |
| | % | 1.4% | 21.6% | 48.6% | 17.6% | 10.8% | 100.0% |
| Total | f | 5 | 43 | 55 | 30 | 24 | 157 |
| | % | 3.2% | 27.4% | 35.0% | 19.1% | 15.3% | 100.0% |

$\chi^2 = 12.594; df = 4; p = .013$
ICT use in class between the COVID-19 epidemic. The purpose of this activity of music teaching, which is essential. Three essential areas of use of ICT in music teaching because it might reduce the fundamental learning. One of the critical problems is the danger of the predominant analyses of ICT use should be applied to individual sections of lessons as happening in practise and what are the teachers listening enrichment through videos, faster information transfer, greater or indirect financial interest in the subject matter discussed in the version.

The development and maintenance of digital literacy for music teachers is now an urgent necessity and a prerequisite for lifelong learning. One of the critical problems is the danger of the predominant use of ICT in music teaching because it might reduce the fundamental activity of music teaching, which is essential. Three essential areas of music teaching are performing, listening and creating. We emphasize that these three areas must be interwoven. Consequently, music teachers should regularly incorporate these areas into music lessons, but can be supported by innovative use of ICT.

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Tina Bohak Adam: Conceptualization, Investigation, Project administration, Supervision, Writing – original draft, Writing – review & editing, Visualization, Validation. Mira Metljak: Formal analysis, Investigation, Methodology, Resources, Supervision, Writing – original draft, Writing – review & editing, Visualization, Validation.

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