

Older Adult Online Learning during COVID-19 in Taiwan: Based on Teachers' Perspective

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Abstract

Since the world was affected by the epidemic in 2020 and older adult education was still going on. Adult teachers encountered challenges during the transformation from physical to online teaching. This study examined the difficulties and coping strategies that adult teachers experienced when transitioning to online teaching. This study used a qualitative research approach to understand the transformation of adult teachers' online teaching experiences during the epidemic. Researchers conducted semi-structured one-to-one in-depth interviews with 10 adult teachers who experienced the transition from physical to online teaching and had at least 2-year-experience of teaching older adults. The study findings are listed as follows: 1) Adult teachers encountered difficulties, including older learners did not have the required equipment nor stable connections, not familiar with operating phones to participate in online classes, extra burdens for older learners' vision resulted in learning drop-outs, and the lack of experience in operating the equipment that disturbed the courses, the decreased learning quality worsened the learning situation. 2) Adult teachers coped by asking family members to assist with the equipment, demonstrating and taking pictures of the steps, spending more time preparing for teaching, and using various teaching methods to enhance the interactions. This study found that adult teachers need to adapt their teaching strategies to the characteristics of older learners to transition from physical to online teaching. Particularly, solving equipment and technological issues will allow older learners to achieve the goal of "nonstop learning".

Keywords: *online learning, older adult education, pandemic, adult teachers*

1. Introduction

The COVID-19 (Coronavirus disease 2019) epidemic has affected countries

world-wide, causing drastic changes in people's lifestyles and consumption patterns and shifting the way they learn from face-to-face physical classes to online instruction. Taiwan reached the peak of the epidemic in May 2020, and the Ministry of Health and Welfare (2020) announced that many facilities, including adult education learning facilities, needed to suspend services to ensure the safety of learners. However, the Ministry of Education Taiwan (2021) has proposed a "no classes, no school" policy that requires schools at all levels to switch to distance learning to protect students' rights to receive instruction. Taiwan's older adult education does not require the continuation of learning services. However, studies have shown that the lack of continuous participation in learning activities during middle and old age can accelerate the physical and psychological decline, as well as social withdrawal and social isolation (Wang & Hoshi, 2015). Therefore, despite the epidemic's impact, some adult teachers voluntarily try switching from physical classes to online instruction so that older adults can continue to learn.

According to the National Development Council Taiwan (2019) survey, the older people are, the less they use computers and the less they are able to use the Internet. 89.3% of middle-aged and young adults aged 50-59 are online, while 74.6% of those aged 60-64 are online. The Internet usage rate among middle-aged and young adults aged 50-59 is 89.3%, while the rate for those aged 60-64 is 74.6%, and only 43.5% of the elderly aged 65 and above have experience of using Internet. The results show that older adults have lower information literacy. Therefore, it will be a challenge for adult teachers to change the teaching format from physical to online. This study aims to investigate the difficulties and strategies adult teachers encounter when switching to online teaching.

2. Literature Review

COVID-19 has catalyzed a paradigm shift for teachers to make online teaching the new norm. However, for older learners of the baby boomer generation, their different levels of familiarity and mastery of technology impose limitations on

the change in teaching style (UNESCO, 2020; Wang et al., 2020), online learning environments, and online learning situations. In terms of hardware and software, older learners are not familiar with the operation of devices such as computers, microphones, or cameras (Castilla et al., 2018; Czaja & Lee, 2018; Czaja et al., 2006; Sharit et al., 2003) and have little experience in using computer devices in online courses (Pozdnyakova & Pozdnyakov, 2017), and a lack of ability to troubleshoot equipment and software problems (Carpenter & Buday, 2007; Melenhorst et al., 2006; Moore & Hancock, 2020), resulting in frustration and lack of confidence due to equipment operation problems before they even start learning (Carpenter & Buday, 2007; Melenhorst et al., 2006; Moore & Hancock, 2020). Becker (2004) also pointed out that unstable internet connection quality and insufficient internet speed cause delays, which are a major factor in interrupting older learners from continuing their studies, not only interrupting their learning and concentration, but also potentially interfering with the entire course (Moore & Hancock, 2020). Secondly, although online teaching is not limited by time, space, and other factors, it is more flexible and free. However, the interaction and communication between teachers and learners or learners and peers are reduced (Iwai, 2020).

These problems are related to the fact that older learners are unfamiliar with hardware and software, making it difficult to express their learning status and need promptly during the online learning process. Similarly, it is not as easy for adult teachers to grasp learners' learning conditions and problems as it is for physical classes (Pozdnyakova & Pozdnyakov, 2017). Thereby making it more difficult for instructors to tailor the content, strategies, and pace of instruction to individual differences, which may reduce older adults' willingness to learn or negatively affect learning outcomes.

Online teaching support systems and support measures are effective strategies for adult teachers to address teaching dilemmas. Family support from young family members living with the teacher is the most critical (Adams et al., 2005; Tsai et al., 2017). White & Weatherall (2000) suggest that when younger generations in the family are willing to help older adults access the Internet or

resolve difficulties with accessing the Internet, the family can be more supportive. White & Weatherall (2000) suggest that intergenerational interactions are enhanced when the younger generation in the family is willing to help the older adult with Internet access or difficulties. Not only does this help older adults continue to learn and improve their technological capabilities (Sixsmith et al., 2022), but it also reinforces positive attitudes toward aging among younger family members (Jones, 2011). The administrative support provided by the teaching team is also an important factor. For example, technical staff can provide assistance over the phone (Zirkle, 2004), administrative staff can produce easy-to-follow instructions or videos (Bitterman & Shalev, 2004; Naditz, 2005; Zaphiris et al., 2007), unpack the steps of online learning and demonstrate them (Martínez-Alcala, 2021; WHO, 2011). Alcala, 2021; WHO, 2015; Xie et al., 2011). These measures will increase the willingness of older adults to participate and also serve as an important reference for future online learning for older adults in times of distress.

Frey & Alman (2003) emphasize that interactivity is the key to teaching and learning. In particular, online instruction is difficult to integrate learners into the teaching atmosphere, so meaningful instructional design and feedback (Dennen & Bonk, 2007; Kaur, 2020; Williams, 2002) is needed to allow older adults to feel like they are in a classroom with teachers and students. This will enhance peer interaction and a sense of belonging and makes them willing to stay engaged. The content can also be presented in various ways in response to the online environment. Using thematic teaching to motivate learning, along with images, photos, or short videos (Xie et al., 2011), older learners can quickly understand and grasp the key points of learning and easily improve their concentration. For learners who are behind in their progress or for more difficult learning topics, the content should be broken down into easy-to-understand units (Martínez-Alcala et al., 2021) to gradually guide older learners through the learning process and reduce the difficulty of learning. In this way, the learning process of older adults will be more effectively facilitated to provide a better learning experience and effectiveness.

In summary, to reduce the social degradation and social isolation of the elderly due to COVID-19, Taiwan's adult teachers have voluntarily changed their teaching style to online teaching. However, online teaching is undoubtedly a major challenge for the elderly, with a serious information gap. Most relevant studies focus on formal education, but the impact on adult teachers is rarely explored, and their dilemma and response strategies are worth exploring.

3. Method

This study adopts a qualitative research method of phenomenological inquiry into the meaning of experience and focuses on the nature and structure of experience to explore the respondents' online teaching experience (Merriam, 2002) and obtains empirical data on adult teachers through semi-structured in-depth interviews (Packer, 2011). This kind of phenomenological interview is based on describing and sharing to understand the structure and nature of the respondents' experience and constructing the phenomena that emerge from the personal experience in terms of the meaning of the concepts or phenomena shared by the respondents (Marshall & Rossman, 2014).

3.1. Participants

The researcher used purposive sampling to select respondents with online teaching experience to obtain data collection effects (Merriam, 2002). The study was conducted with teachers at the Taiwan Learning Center for the Aging, who had been teaching older adults for at least 2 years and had changed from physical teaching to online teaching during the epidemic. A total of 10 teachers were selected, including 2 males and 8 females, with an average of 7.4 years of teaching experience, ranging from 2 to 13 years, and using online teaching methods such as Google meet, Line, and Facebook Live.

3.2. Procedures

This study used semi-structured interviews for data collection (Packer, 2011). The questions were phrased and sequenced flexibly to facilitate the respondents' presentation of their feelings and experiences in a natural context. The outline of the interview is: 1. What are the dilemmas of switching from physical to online teaching? 2. What are the strategies to deal with the dilemma? The researcher contacted the adult teachers from November 2021 to April 2022 to explain the purpose of the study. After the respondents agreed and signed the consent form, the interviews were conducted, and the key points were recorded. At the end of each interview, the audio files were transcribed into verbatim transcripts, and the manuscripts were then compared to the audio files to confirm the integrity and relevance of the interview data. In order to protect the privacy of the participants, each interviewee was assigned a code, the first code representing the number of years of teaching experience and the second code representing the gender of the interviewee. For example, 8-F represents female instructors with 8 years of experience in older adult education.

3.3. Data Analysis

This study adopted a continuous comparative approach to data analysis (Glaser & Strauss, 2017), emphasizing multilevel comparisons. The first comparison was between data, not only comparing different respondents to the same interview question but also comparing what the same person said during the interview or comparing events in different periods (Charmaz, 2012). Accordingly, after transcribing a verbatim transcript, the researcher reads the text once to obtain the overall concept, then gradually analyzes and codes it to form the concept and then names it, thus aggregating four levels of meaning summary, meaning unit, subtopic, and theme.

Table 1: Example of data analysis

Topic	Sub-topic	Meaningful units	Summary of Meaning
Difficulties in transforming online teaching	Inadequate information capability of learners	Lack of online learning experience	The biggest difficulty is the lack of use of Google meet.
			Never took an online course before.
		Not familiar with the operation of information equipment	Not quite operate the switch microphone and lens.
			Very unfamiliar with the use of 3C products ◦

4. Results

Difficulties encountered by the teachers of older adult education transitioning to online instruction during COVID-19 included learner and academic staff factors. The strategies adopted to address the challenges were at the hardware and software levels and the instructional strategy levels.

4.1. Learner Factors about Transitioning to Online Teaching Difficulties

The older learner encounters difficulties including inadequate information capability, lack of a good online learning environment, not to adapt to online learning, and being easily distracted in-home classes.

4.1.1. Inadequate Information Capability of Learners: Four respondents mentioned that older learners are less digitally capable and are not experienced in online learning or familiar with the operation of information devices, which

can easily interfere with the course. For example, *'some students are not very good at switching on and off the microphone and lens; as long as 1-2 people leave the microphone on, there will be interference.'* (Liang-F-5). *'The biggest dilemma for the students to switch to online learning is that they do not know how to use Google meet.'* (Gau-M-5).

4.1.2. Learners Lack a Good Online Learning Environment: Five respondents mentioned the general lack of a good online learning environment for older learners, especially the lack of internet speed to keep up with the learning process. For example, *'the bigger dilemma is the problem of an unstable network.'* (Gau-M-5). *'Students cannot keep up with the progress if they do not have enough internet speed.'* (Liang-F-5).

4.1.3. Learners do not Adapt to Online Learning: Two respondents mentioned that some older learners still prefer face-to-face physical classes and even discontinue learning because they are not used to online classes. For example, *'those who do not like online courses choose to give up, ...we lost 5-6 learners.'* (Cheng-F-8). *'People find it hard to adapt because they can't give feedback and talk in a timely manner.'* (Chen-F-5).

4.1.4. Learners are Easily Distracted In-home Classes: Three respondents mentioned that the environment of online classes at home is more relaxed and comfortable, and learners are relatively easy to get distracted by other things. For example, *'sometimes, when I talk about a key point, they may go to get a drink of water and then come back and miss it, and their concentration will be weakened.'* (Hu-F-2). *'At home, they are more free and casual in class, less serious, and easily distracted.'* (Cheng-F-8).

4.2. Academic Staff Factor about Transitioning to Online Teaching Difficulties

The academic staff encounters difficulties with real-time interaction and feedback, not being scheduled for physical operation, and tricky adjusting

teaching progress according to learning conditions.

4.2.1. Online Courses are not Easy for Real-time Interaction and Feedback:

Four respondents said that the online teaching was not as interactive as the physical class, and the learners were used to turning off the camera, making it easy for the instructor to give a one-way lecture. For example, *'the biggest difficulty is that the students have turned off the camera and microphone, leaving the teacher to speak alone on the screen.'* (Gong-F-9). *'Compared to a physical course, there is less interaction and feedback from the audience.'* (Gau-M-5).

4.2.2. Online Courses cannot be Scheduled for Physical Operation:

Three respondents mentioned that the biggest difference between the physical and online classes is the inability to arrange for hands-on practice, which tends to reduce learners' motivation and willingness. For example, *'I teach them how to make essential oils or balms in the physical class, but they can't do it in the online class because they can see it but can't touch it.'* (Gong-F-9). *'In the online classes, the students in the drawing class are more lazy to pick up the brush. They just listen to the class and don't do so much actual work...the students are not motivated to learn.'* (Hu-F-2).

4.2.3. Difficult to Adjust Teaching Progress according to Learning Conditions:

Four respondents mentioned that online teaching often does not allow them to see the status of the learners in real-time, and it is not easy to grasp the effectiveness of learning and adjust the progress. For example, *'they could not see the learners' expressions online, so it was not easy to adjust the pace or progress of the lesson according to the learning situation.'* (Liang-F-5). *'You can observe the students' drawings on the spot but can't do that in the online class. You can only take pictures of them and put them in the photo album. In addition, each student's progress varies greatly, so there is no way to control the progress.'* (Hu-F-2).

4.3. Strategies Used to Address Difficulties with Software and Hardware Equipment

The teachers of older adult education ask learners' family members to help, ask administrative staff for phone guidance, and ask the teacher or peer assistance to address difficulties with software and hardware equipment.

4.3.1. Ask Family Members to Help Improve Intergenerational Communication: Five respondents mentioned that they could not give face-to-face instruction on hardware and software operation during the epidemic, so they would first ask their family members to help them, especially their children or grandchildren who have better digital skills, to improve intergenerational communication. For example, *'if we could not go to the trainee's home to teach him/her how to operate the equipment during the epidemic, we asked the younger children of the trainee's family to help him/her with the online class.'* (Lee-F-6). *'I asked the trainees to ask their children or family members to help them download the software, so they might have the opportunity to interact with their family members, which would help them use 3C products more or less.'* (Cheng-F-8).

4.3.2. Ask Administrative Staff for Phone Guidance, Teacher or Peer Assistance: Four respondents indicated that if a learner had operational problems during the online course, the learning unit also asked administrative colleagues to provide guidance over the phone, and peers would discuss with each other. For example, *'if a learner had a problem during the course, we would ask a colleague to teach him over the phone so that he could come into the meeting room and take the class.'* (Lee-F-6). *'Students will discuss with each other, teach each other how to operate online, and help each other.'* (Hu-F-2).

4.4. Teaching Strategy by Teachers of Older Adult Education to Address Difficulties

The teachers of older adult education used teaching strategies, including

spending more time preparing to teach, designing interactive systems with online software, adjusting teaching contents and adopting theme-based teaching, and breaking down the teaching steps according to the characteristics of the learners.

4.4.1. Teachers Spend More Time Preparing to Teach: The four adult teachers pointed out that they spent a lot of time preparing for the transformation of the course to online teaching, including making online teaching materials, recording audio-visual files or videos, and so on. For example, *'at the beginning, I thought it was a new challenge, and I had to do a lot of preparation, but after preparation, I encountered new problems.'* (Gong-F-9). *'I recorded a short video of the main points of the course and put it in the group so that people who want to review or cannot go online can watch it.'* (Liang-F-5).

4.4.2. Design Interactive Strategies with Online Software: Six respondents mentioned that online teaching needs to design interactive strategies with learners in the course to stimulate learners' responses in order to avoid one-way course teaching. For example, *'the question-and-answer section can be interactive by drawing points or raising hands on the message board.'* (Huang-F-13). *'I would ask someone to open the camera to sharing, not just let me sing a monologue, ...they open the camera to let me know they are serious about the lesson.'* (Gong-F-9).

4.4.3. Adjustment of Teaching Contents and Adoption of Theme-based Teaching: Four respondents said that in response to the change in teaching style, they would adjust the teaching content, time schedule, content, and theme arrangement to meet the needs of online courses. For example, *'the original five senses experiential course could not be presented online, so it was changed to pictures or puzzles, such as asking students to give feedback online on the numbers they saw.'* (Chen-F-8). *'After switching to online teaching, there was a period of confusion, after which some apps were added to increase the diversity of teaching.'* (Gong-F-9).

4.4.4. Break Down the Teaching Steps According to the Characteristics of the Learners: Three respondents said that they would break down and guide the teaching content and steps so that learners can follow along and are more willing to participate in learning. For example, *'I have to tell them how the fingering is, the second sheet explains the right-hand practice and the left-hand practice, the third sheet can add the left and right-hand variations, and the fourth sheet can be played with music, the breakdown steps should be very careful.'* (Chen-F-5). *'In the beginning, we taught them to use Google Meet in Line first and then to bring it step by step.'* (Gau-M-5)

4.5. Discussion

Adult teachers interviewed noted that older adults are a group with a relatively large information gap (National Development Council, 2019). They do not know how to operate equipment such as computers, microphones, or cameras (Castilla et al., 2018; Czaja & Lee, 2018; Czaja et al., 2006; Sharit et al., 2003), lack of stable Internet speed at home (Becker, 2004), and the online classes are often interrupted by equipment and cannot be conducted smoothly (Moore & Hancock, 2020). Before teaching a class, the teacher must assist the older adults with hardware and software issues, such as enlisting the help of a young family member living with the teacher (Adams et al., 2005; Tsai et al., 2017), telephone coaching from administrative colleagues, or peer-to-peer discussions (Zirkle, 2004). This facilitates interaction between the young and old generations (White & Weatherall, 2000) and enhances seniors' technological capabilities (Sixsmith et al., 2022). In addition, because seniors are unfamiliar with online software (e.g., Google Meet), it is not easy for adult teachers to interact with them in real-time when teaching online (Iwai, 2020) or even evolve into one-way teaching. Not only does this reduce learners' concentration (Becker, 2004), but some seniors also dislike and do not adapt to the online teaching style. This situation has prompted adult teachers to spend more time preparing for online instruction. Such as creating online teaching materials and recording audio and video files or videos (Xie et al., 2011) to stimulate older adults' motivation through various teaching methods. Or design online interactive strategies (Dennen & Bonk,

2007), such as group discussions, dialog box messages, hand-raising, and sharing in turns. To increase communication with and among older adults (Frey & Alman, 2003), we have successfully created an interactive atmosphere and a sense of belonging.

Online instruction is more flexible and free than physical classes, although it transcends time, space, and other factors. In addition, it is difficult to see the status of older adults in the classroom in real-time, and it is not easy to adjust the teaching pace for each learner individually (Pozdnyakova & Pozdnyakov, 2017). This forced adult teachers to re-examine their prior teaching experience and find teaching strategies suitable for the online format. These include adapting the content, timing, and design of instruction to fit the characteristics of older adults (Kaur, 2020; Williams, 2002) and guiding older adults to focus on learning topics through thematic instruction or one-by-one steps (Martínez-Alcala et al., 2021) to enhance learning outcomes.

In response to COVID-19, changing the teaching method from physical to online has caused many dilemmas for Taiwan's adult teachers and older learners. It has forced adult teachers to try to overturn the obstacles and find strategies for online teaching, successfully allowing seniors to achieve the effect of "nonstop learning" and demonstrating a new form of older adult education in the epidemics.

5. Conclusion

This study examines adult teachers' difficulties and coping strategies in changing from physical instruction to online instruction. The conclusions include: 1) the difficulties encountered by adult teachers in changing from physical instruction to online instruction include: older learners do not have relevant equipment or stable networks, not familiar with operating cell phones to participate in online courses, which is a load on their vision and therefore drop out of learning activities, and their lack of experience in operating the devices interfered with

the courses, resulting in a decrease in the quality of learning and an inability to grasp the learning situation easily. 2) The adult teachers adopted the strategies of asking family members to help test the equipment, disassembling, demonstrating, and taking pictures of the operation steps for the learners, spending more time preparing for instruction, and using multiple teaching methods to enhance the interactivity of online learning. The results of this study can be used to improve the teaching strategies of adult teachers and be used as a recommendation for future training programs for adult teachers.

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