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REVIEWED BY
Alisa Belzer,
Rutgers, The State University
of New Jersey, United States
Jörg Schwarz,
Helmut Schmidt University, Germany

*CORRESPONDENCE
Aydin Yücesan Durgunoğlu
adurguno@d.umn.edu

SPECIALTY SECTION
This article was submitted to
Educational Psychology,
a section of the journal
Frontiers in Education

RECEIVED 13 April 2022
ACCEPTED 27 July 2022
PUBLISHED 12 August 2022

CITATION
Durgunoğlu AY, Cantürk M, Kaya U,
Yazıcı B and Şahin K (2022) Moving
to remote learning in adult education:
Challenges and solutions of limited
technological resources
and capabilities.
Front. Educ. 7:919639.
doi: 10.3389/educ.2022.919639

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Moving to remote learning in adult education: Challenges and solutions of limited technological resources and capabilities

Aydin Yücesan Durgunoğlu^{1*}, Meltem Cantürk², Uğur Kaya²,
Betül Yazıcı² and Kübranur Şahin²

¹Department of Psychology, University of Minnesota Duluth, Duluth, MN, United States, ²Anne Çocuk Eğitim Vakfı (Mother Child Education Foundation), Istanbul, Turkey

COVID-19 pandemic has caused disruptions in educational systems; hence, educators have developed innovative ways to address this new reality. Around the world, many adult education programs try to reach women who could not complete their education because of poverty and sociocultural issues, such as patriarchal barriers. COVID-19 was especially challenging for such lifelong learning programs because they operate with limited technological resources and work with learners with weaker digital proficiencies. In this paper, we describe how we rapidly adapted our face-to-face empowerment program for women to remote learning despite technological limitations. We also discuss the outcomes as evaluated by pre- and post-tests, participant observations and interviews. We finish by summarizing the successes and challenges of addressing this new reality in education.

KEYWORDS

literacy, numeracy, lifelong learning, adult education, women's empowerment, remote learning

Introduction

Around the world, a sizeable group of women could not complete their education because of poverty and sociocultural issues, especially patriarchal barriers. Many lifelong learning and adult education programs try to reach those women, because when women are more educated and participate more fully in their communities, there are significant impacts on the wellbeing of children and families, the economic vitality of a country and even on reducing conflict (Kabeer, 1999; LeVine et al., 2011; Weitzman, 2018).

COVID-19 pandemic was a serious setback for all students in formal education, but it was devastating for non-formal education programs because they operate with limited technological resources and usually work with learners with weaker digital proficiencies. In this paper, we describe our experiences in how we rapidly adapted a face-to-face

program to remote learning for a disadvantaged population. We share what we learned about moving to remote learning under technologically limited conditions and what the outcomes were. We also summarize the successes and challenges of addressing this new reality in education. Although there is a growing literature on standards for and the techniques to develop the digital literacy skills of adults (Vanek and Harris, 2020), the pandemic forced us to adapt the program with no time to teach learners about digital tools and instead to rely on the existing resources and capabilities of the women.

Under the umbrella of Mother Child Education Foundation (AÇEV), a non-governmental organization in Turkey, we have developed and implemented many literacy and numeracy programs for women (Durgunoğlu et al., 2003). A recent extension added a strong empowerment component to existing literacy and numeracy programs. The new program called Hayat Dolu Buluşmalar (POWER Program) targeted young women from low socio-economic backgrounds, with less than 8 years of schooling. The goal was to help women to get empowered to move themselves and their communities forward with the support of non-formal education. We assume that empowerment requires certain capabilities, such as literacy, numeracy, critical thinking and technology skills so that women can access societal resources (health, education, employment, etc.), express themselves in their communities, and participate in decision-making processes. Therefore, we embedded the empowerment topics (e.g., valuing self as a human being, women's rights, using technology effectively, preventing child-age marriage and childbearing) into reading, writing, critical thinking and math activities in the group. POWER Program consisted of 18 weekly face-to-face sessions, each lasting 3 h, across a 4-month period. We gave detailed pre- and post-tests to assess growth.

In each group, there was first a discussion of the topic of that session (e.g., violence against women), asking women their observations and thoughts; thus, activating women's background knowledge. Then, a text from the program textbook was read and critically discussed, followed by deep comprehension and application exercises (e.g., busting myths about why violence occurs and ways to address it). Next were math exercises and the discussion of the assignment for next week.

The first evaluation of the POWER Program (Durgunoğlu and AÇEV, 2018) indicated significant increases in the women's literacy and numeracy skills, self-confidence and participation in decision-making at home (Öztan et al., 2021).

However, with COVID-19, these in-person classes had to be discontinued. Because most women did not have computers or internet connection in their homes, but had smartphones; we rapidly pivoted to a WhatsApp (WA)-based version of the program using smartphones (Kavanaugh et al., 2013) and started implementing it. This new version had the following characteristics: (a) We had small groups of three to seven

women meeting *via* WA for 45 min every week because of the group size limit of WA (b) We had to reduce the number of sessions from 18 to 10; thus, had a program that lasted two and half months This was partly due to the constraints of the workplace and partly because the small group sizes required more teacher effort (c) A telecommunications grant enabled us to provide mobile data plans so that women could use WA without hurting their budgets (d) We curated existing YouTube videos on empowerment and math topics and asked women to watch them at home to supplement the work we did in the WA groups. (e) Before the program started, we mailed the textbook and other relevant paperwork to the participants. (f) During each online WA meeting, as before, women read the anchor text from the textbook, answered its comprehension questions and discussed the main points of the topic, followed by an applied exercise about the topic and finally reviewed the math topic of the week and reviewed the and the math exercises in the textbook. (g) The pre- and post-tests had to be shortened and were given by testers over the phone.

In this paper we first describe the qualitative and quantitative data from two POWER Program groups, as well as the observations of the WA meetings. In addition to short pre- and post-tests that were given to the participants, the first author joined the WA discussions every week and took extensive field notes. She also interviewed the participants from one of the groups 2–3 months after the education program had ended.

Methods

Participants

Participants were all women from two different cities in Turkey. Group 1 ($n = 6$) was from a city in the southeast and Group 2 ($n = 6$) was from a city in the northwest. Women in Group 2 were working full time in a textile factory, whereas the women in Group 1 were not employed outside of the home. Across both groups, only half of the women reported having a computer at home. However, all, except one, had smartphones and internet access (The one who did not have a smartphone borrowed a family member's phone during class time). Across both groups, the age of women ranged from 20–47 ($M = 34$). Except for one, all women had children ($M = 2.3$). All had completed between 5 and 8 years of education ($M = 6.75$ years). Of the 10 married women, the husbands had completed between 5 and 16 years of education ($M = 8.8$). When asked why their education was interrupted, only two reported being uninterested in school. The others described economic difficulties, families preventing them from going to school, and immigrating from another country. When asked why they were interested in attending this education program, nine said for improving themselves, learning new things, developing their self-confidence, doing something different. Three were

hoping to better support their children. At the end of the 2.5 months, three women in the second group did not complete the education program. One had a family emergency. The second left to get married (but later attended a second cohort). The third was moving to a different city. Both groups were taught by experienced POWER Program educators who had taught in-person POWER Program groups multiple times, so they only needed to learn about remote delivery as they were already familiar with the content and the approach of the program.

Materials and procedure

Before the education program started, we gave the participants a demographics questionnaire and a pre-test on the phone. We gave the pretest by including the paper copy of the test within the education program materials that were sent to the learners' homes. The learners were not given any indication that this was a test or that it should be examined ahead of time. We called the participants and asked them to take out the paper and give us the answers as we talked with them. The pre-test had two reading comprehension questions. In the first question, learners first read two sentences about a girl who wanted to fly, followed by a question about why she wanted to do that. The second question had three sentences describing the similarities between bird and reptile eggs and asked learners to summarize the two similarities. There were two general knowledge questions about societal support systems for women. One asked about what one can do upon hearing a neighbor experiencing domestic violence. The second question asked about how to help a 14-year-old who wanted to continue her education, but whose father wanted her to get married. On math, there were six questions, addition, subtraction, multiplication, and two problems: (a) calculating the new salary of a worker when given a 10% raise and (b) expressing as a fraction how much of the cake in the picture was eaten. The same tests were given at the end of the education program as post-tests.

Data analysis

Quantitative data

Reading, math and knowledge pre- and post-test scores were compared (see [Table 1](#)). Because the sample sizes are too small, the data were analyzed using non-parametric statistics. On the reading test, seven of the nine learners showed positive changes (Wilcoxon signed-rank test showed $Z = -1.807$, $p = 0.071$). The median scores were four for pre-test and five for post-test. Math and knowledge tests did not show significant changes. This is partly due to the fact that the pre-test scores were already at ceiling levels and there was no room for growth. Hence, shortening the tests to deliver over the phone led to truncated ranges.

Qualitative data: Discussions during the WhatsApp meetings

Most interesting discussions occurred when women shared their experiences and opinions, both before and after reading the empowerment texts. Brief examples are given below to illustrate that although they were in a WA meeting, women were able to discuss deeply some difficult topics. The examples below are from both groups of women and are organized around some of the units in the curriculum (women's own statements are in italics; all names are pseudonyms).

Effective communication

All women reported becoming aware of the communication mistakes they have noted in themselves and in others, such as not listening and getting angry quickly. Women in Group 2 brought examples from the workplace "*We don't have effective communication in the workplace. Nobody listens to another; lots of stress, no patience.*" They also complained about how line supervisors bark orders at some workers but treat others more kindly. They articulated how so many problems in the workplace occurred because of lack of respect and consideration for each other.

The devastating effects of child marriage

Mercan gave the example of her own mother who got married at a very early age and today still played with her grandchildren's dolls as she never had such toys of her own. Nuran talked about how she got married very early and regretted it.

Uses of technology and cyber bullying

The women shared many observations of youth spending a lot of money on games, and cases of identity theft and swindling.

Gender equity

Sevcin gave the following example to gender discrimination: "*A man said that they were altogether five siblings. In fact, there were nine children in the family, but he did not count his four sisters.*"

Division of labor at home

This topic generated a lot of discussion and immediate results. Participants highlighted how fathers can be role models for overcoming traditional gender roles in division of labor in the homes. Many women integrated the lessons from effective communication into requesting more help around the house from their family members. One favorite topic was calculating the cost of unpaid care and domestic work, invisible labor that women provide at home.

Valuing oneself as a person

When they documented what they in one day, Necla said "*I realized that I never set aside a time for myself.*" In the

TABLE 1 Mean scores on literacy, math and general knowledge pre- and post-tests.

Name *did not complete	Reading pre max = 6	Reading post max = 6	Math pre max = 18	Math post max = 18	Knowledge pre max = 6	Knowledge post max = 6
Hayat*	5		18		4	
Nurten	3	5	18	18	2	6
Türker	5	5	18	18	4	4
Sevcan	3	4	18	18	5	6
Necla*	5		15		6	
Züleyha*	3		15		1	
Tuğçe	4	6	15	15	5	6
Özcan	3	5	9	18	6	5
Ayşe	5	6	18	18	6	6
Serap	5	6	15	15	4	6
Mercan	5	6	18	18	6	6
Nuran	4	6	12	18	6	6
Number showing positive change	7/9 significant		2/9 not significant		4/9 not significant	
Number showing no change	1/9		7/9		4/9	
Number showing negative change	1/9		0/9		1/9	

*The names are pseudonyms.

unit about women-friendly communities, they expressed the need for more green space, easier access to healthcare, feeling safe on the streets.

Children's rights

The unit on keeping children in school and children's rights resonated. Sevcan gave the example "I started working at 14. When I came home, I would go out and play with my friends." They all mentioned their strong wish to get their daughters to stay in school. Tuğçe gave the example of how she was taken from middle school when her breasts started appearing. There were many good examples of using effective communication when interacting with children.

Domestic violence

In this unit, women discussed what constitutes violence (physical, verbal, economic, sexual). However, the discussion was always based on the text, no personal examples were provided in this unit.

Qualitative data: Interviews conducted 2 or 3 months later: Growth and empowerment

One question in the demographic survey given at the beginning of the program asked women what their goals and plans for the future were. In Group 1 no one had specified a goal for the future. In Group 2, who were women working in the textile sector, five out of six had some specific goals such as to continue with their education, get their driver's license. This indicated that Group 2 was already working outside of the house and had a better sense of personal development opportunities. Therefore, it was more informative to see what changed in Group 1. Several months after the education program ended,

we contacted the six women from Group 1 by phone. We asked if they saw any changes in themselves, if others noticed any changes in them and if they had some future goals. Although empowerment is very difficult to define and measure (Kabeer, 1999), perceived changes and growth; making plans for one's future, thus implying agency; and awareness of societal constraints can be indicators of empowerment. Hence the following quotes illustrate these themes.

Serap said that she is making no effort to continue with her education because she has young children. However, she stated that her communication with her children was now different. She asks both her son and daughter to help with housework ("not my husband, he cannot change"). She started reading her education program books while her children were reading theirs. She also stated that her self-confidence increased tremendously. She has shared what she learned with a close relative and reported that this relative also showed some positive changes in how she treats her children. She also stated that doing something for herself was really important.

Tuğçe: She is expecting her fourth child, so although she was planning to get her driver's license, she had to post-pone it. She regrets not continuing with her schooling. She is using better communication techniques with her children. However, when she tried to suggest some techniques to her husband, he said "Are you my teacher now?" She also has a 10-year-old who is very angry. When discussed more, it became obvious that as the daughter is beginning to develop, the family started keeping her in the house and she became angry when she could not play outside any longer and act like the child she really is.

Ayşe: She stated "My self-confidence improved. I want to open a bakery. My husband owns his business and sells dried fruit and spices. He also sells on the Internet. I started making a regional delicacy, a filled cookie. I designed the boxes with 12 slots to put these cookies, so they won't break. We started selling them on the Internet." (Note: On the Internet page these cookies are featured

prominently, and receive good feedback, but their baker is not named or credited). Ayşe also showed a strong awareness and action goals when she said *“I got married at 17 because of family pressure. Luckily my husband turned out to be a good man and supported me. I am very strongly against girls marrying young.”*

Nuran: *“I went through vocational education to become a private security officer. I also drive a motorcycle. With two friends, we applied to complete the classes to get our high school degree. I am the main breadwinner, so I am working hard. I convinced a friend and she got her middle school diploma.”*

Özcan: She has three children and one with a chronic illness. *“I could not take any steps for education, yet I am better at convincing people and making decisions”* She decided and bought a piece of furniture by herself and was amazed that nobody objected; in fact, they liked it. *“This amazed me and made me feel like I can do this. I encouraged my aunt in the village not to get her daughter married at a young age for dowry money.”*

Mercan: (This was from discussion she had with the tester during the posttest, not a separate phone interview) *“This education program added so much to my life. I wish it were longer. I have applied for my driver’s license and to take classes to get my middle school diploma.”*

Discussion

The qualitative and quantitative data showed that despite considerable challenges, this program was effective in empowering the women who participated. The learners had considerable barriers as they lived in cultural contexts which seriously limited their choices, educational opportunities, gave them heavy caregiving responsibilities, all under difficult economic conditions. The education program was short and delivered remotely with very limited technological resources. Despite these challenges, we addressed serious topics and could see significant changes in women’s literacy skills, communication proficiencies, decision-making abilities, and overall self-confidence.

Observed challenges and what worked

Limited technology resources

WA and YouTube were the two resources that women could access and use easily, given their existing social practices. Women were already using the Internet to shop, to look for medical information, etc. and using WA to interact with family members. Therefore, the first consideration was to repurpose for education the tools that were used for social and recreational needs. Women sent their assignments as attachments in WA messages. They took pictures of their written work and submitted those. The cost was another barrier and we gave weekly data plans to address that, while letting women know that it was provided weekly and only if they attended

consistently. WA meetings could be noisy, so the educators encouraged taking turns in a deliberate manner.

Multiple responsibilities of women

All women had significant responsibilities at home, shouldering the biggest share of housekeeping and caregiving tasks. This also meant that there was a lot of commotion at home. In Group 2 women also worked 6 days a week and believed that Sunday was the only time they could rest. We accepted some interference from the household as women participated in the weekly face-to-face meeting. For example, we observed Necla discretely breastfeeding her baby while participating in the discussion. We also emphasized that this was a special time for women to set aside for themselves, to do something for themselves as a human being rather than a mother/sister/wife/daughter. One important factor was flexibility. At times when they had family responsibilities, they requested changing the meeting days/times. Educators asked for feedback from the group and changed if all agreed.

Difficulties of independent work

This program required women to do some work on their own. They did not have enough time and energy to do that. Therefore, we relied on short videos and encouraged them to spread the work throughout the whole week. We also kept written homework to one or two short exercises every week. We used multimedia to make women’s lives easier, for example some assignments could be sent as audio or video recordings, instead of written. As writing practice, we encouraged women to keep a diary and write their thoughts, but that was not received very well as Türker said *“I don’t want others to learn what I think and feel.”*

Encouraging persistence

When women are overwhelmed by their responsibilities, an educational program can be a burden and reduce attendance. Every class had 3–6 learners and this was a blessing because teachers got to know the learners very well and could keep in touch with them, encouraging them to persist. They had to find creative ways to encourage attendance. Once Serap’s husband came home and thought that Serap was neglecting the children while taking this education program on WA. He forbade her to attend any longer. The teacher talked with the husband’s sister and through her encouraged him to change his mind. Serap started attending. The second teacher working with women in the textile industry encouraged them to stretch and relax before starting the education program as these women were physically quite tired.

Content and approach

The content had to be relevant to people’s lives and interesting. Effective communication was always a favorite as they could see its impact very quickly. Math topics were received very well. They enjoyed refreshing what they had

learned in school (e.g., division) and the ability to use those skills in shopping and budget management. They also preferred interactive question-answer discussions rather than a teacher lecturing. Empowerment topics were couched within literacy and numeracy instruction and that worked better because developing basic skills was also important for the women.

Collecting evaluation data

Remote instruction makes it almost impossible to collect evaluation data. To solve this problem, we delivered the printed pre- and post-test to the learners in the package with their textbook, but did not give any indication that they were tests. Normally the tests are longer, but we had to shorten them considerably because they were asked over the phone. Experienced teachers (but not the learners' own teacher) called the learners and asked them to do the test over the phone without any help from family members. This limited how many items could be on the tests.

To summarize, although short and delivered under challenging technological conditions to women who are already under a heavy burden, the program was still very effective and well-received. To end with a quote from Sevcan: "I took some education programs in the workplace, so I thought this would be the same and was hesitant about joining. This was very different. I learned so much."

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation

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and institutional requirements. Written informed consent for participation was not required for this study in accordance with the national legislation and the institutional requirements.

Author contributions

AD and MC developed the curriculum. BY oversaw the revisions and implementation. UK and KŞ provided data collection and analysis support. AD conducted the observations. All authors contributed to the article and approved the submitted version.

Acknowledgments

We thank our volunteer instructors, field monitors, and most of all the learners, for their interest and contributions.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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