A Transition towards Digital Home Visits in Social Care and Home Health Care during the Corona Pandemic

Karin Ahlin
Computer and System Sciences
Mid Sweden University
Östersund, Sweden
e-mail: karin.ahlin@miun.se

Magnus Zingmark
Health and Social Care Administration
Östersunds City, Sweden
e-mail:
magnus.zingmark@ostersund.se

Thomas Persson Slumpi
Computer and System Sciences
Mid Sweden University Östersund,
Sweden
e-mail: thomas.persson@miun.se

Abstract— **During the pandemic, physical meetings were supposed to decrease as much as possible to avoid the virus to spread. Before the pandemic, the physical meeting favoured social care and home health care in Sweden. One solution was to digitize as many of these meetings as possible. Therefore, we investigated this transition in a web survey, including questions with predetermined and open-ended answers. The web-survey was sent to co-workers in home health care and social care in a middle-seized municipality in Sweden. The results showed that not all meetings could be transformed, like meetings with citizens with hearing or cognitive impairments. Challenges related to the transformation were instability in technical equipment, the professionals' and citizens' knowledge of handling technical equipment, and access to technical equipment support. Despite this did the co-workers digitize meetings whenever possible, adding operational and problem-solving attitude to the transformation. Due to this study's limitation, like respondents from one municipality and the pandemic's length, we intend to investigate further and understand the development of the transformation and how knowledge in the area increases.**

Keywords- digitization; social care; home health care; pandemic; physical meeting; digital meetings.

I. INTRODUCTION

In Sweden, the municipalities have the responsibility to provide social care and, to some extent, home health care. As a consequence of social distancing during the corona pandemic, ordinary home visits in social care and home health care needed to be reduced in Swedish municipalities. To compensate for this reduction in meetings In Real Life (IRL), digital technology for communication and meetings could be considered an alternative as a way of upholding continuity in an extraordinary situation [1][2]. However, before the corona pandemic, digital technology was only used to a limited extent by professionals in municipality-based social care and home health care in Sweden [3]. Some of the implementations and deployments of digital technology have also been criticized for being more of an end in itself than means for improved care [4]. It has also been found that turning a physical event into a digital one requires adaptation [5][6], to overcome challenges.

Some of the general challenges to use of digital technology that have been reported are problems with technical equipment, knowledge on how to handle technical equipment, access to support for technical equipment, and support from management [7]. Specific challenges in the domain of social care and home health care are privacy while communicating and caretakers' access to individually adjusted technical equipment [3]. Added to these challenges is the process of transition from physical meeting to digital meeting where not all meetings can be transformed and maintain high quality.

Thus, in the transition from traditional IRL home visits to ICT-based (Information and Communications Technology) home visits, there is a need to better understand challenges experienced by professionals in social care and home health, how they deal with these challenges and how they experience the possibility to digitize meetings. Therefore, the purpose of this study was to explore the transition toward increased use of digital home visits in social care and home health care in a Swedish municipality.

The paper is organized as follows: Section II presents a literature review on digital transformation and its challenges, Section III contains the method, and Section IV the results from the survey. Section V is a discussion, referring to the results and the literature review followed by the conclusion in Section VI.

II. LITERATURE REVIEW

Digital technologies have been found possessing a great transformative power, affecting the ways we communicate, consume, and create [8]. It has even been established those digital technologies no longer just can be viewed as mirroring the physical reality, but in some cases are what shapes the physical reality [9]. The digital transformation is therefore an established concept that [10] propose the following definition for:

Digital transformation is a holistic effort to revise core processes and services of government beyond the traditional digitization efforts. It evolves along a continuum of transition from analog to digital to a full stack review of policies, current processes, and user needs and results in a complete revision of the existing and the creation of new digital services. The outcome of digital transformation efforts focuses among others on the satisfaction of user needs, new forms of service delivery, and the expansion of the user base. [10, p.12]

Even though digital technologies have a transformative power, the actual transformation will not start on its own. There are several different challenges that need to be addressed for the transformation to take place.

One challenge is for the users to adjust to the new digital setting [6]. The authors of [11] discuss the importance of assigning time for negotiation of boundaries and form adaptation strategies, such as how many participants can take part in a digital activity. Another important part is to practice and become familiar and comfortable with the approach, like putting on and using the camera. The users can partly get familiar with the technology through preparation- and familiarization activities [11] or practice sessions [12]. The users can also become familiar by adjusting, redesigning, or creating whole new versions of the activity to align with the digital technology used [1] [12]. The users need to become what [13][14] label technology ready. However, the authors of [7] argue that technology readiness is no longer a fundamental challenge. The argument for this is, according to [7] that those digital technologies have become a natural part in both the workplace and the private sphere. People have simply become more experienced in using this type of technology. However, there are also studies that indicates that technology readiness still is a big challenge [11][12][15] [16][17].

A second challenge is to make everyone socially present [18]. In a physical meeting, the social presence comes naturally as you occupy a physical space with your body. In digital meetings presence does not come as easily. There is a great chance that participants become blind and invisible to one another [19]. The lack of presence can emerge from having problems in participating in discussions [5] or feeling removed from the discussions all together [2]. But also, according to [15], due to lack of cues, difficulties in determining who was speaking, and difficulties in capturing others´ attention. Everyone needs to be involved [2][15].

Several research works, such as [7][20] emphasize the instability in the technology itself as the most evident challenge. Instability in technology creates disturbances and one way of avoiding unnecessary disturbances is to follow the advice of [21] and keep technology simple, but also clarify the technological requirements [13]. Even though technology is kept simple, disturbances might still occur like problems with the audio [2][12][13][15] different forms of lag [5], computer freezes [2], slow Internet connection [13], slow up-date [2], fragmentation or delays in screen sharing [15], loss of access to online spaces [11], etc. Disturbances might be due to the technology as such, but might also be due to a lack of knowledge of how to manage the technology [6][16]. Thus, it is necessary to plan for support [2][20][21]. Because even if the case is that all involved might be skilled users of technology, issues might arise that the users cannot solve on their own. The support might also concern, besides traditional troubleshooting of the technology used [11], setting up the new environment and its content [12][15].

A fourth challenge is directly related to the last part of the section above because management has an important role not only in the shaping of fundamental premises for distance collaboration [7][19], but making all users visible. In fact, [19] argue that good management is one of the most critical factors in distance collaboration.

III. METHOD

To address the purpose of the study, a web-based survey was conducted during April 2020. The study was conducted in a mid-sized Swedish municipality with approximately 64000 citizens. The municipality is sparsely populated, beside one city, two smaller communities and a vast rural area. In addition to the responsibility for social care including home care and special housing, the municipality´s health and social care administration also had the responsibility for home health care for citizens with a high level of care needs, e.g., for citizens with extensive home care or special housing. The professionals involved in the provision of social care and home health care were district nurses/nurses, physiotherapists, occupational therapists and social workers working and care staff.

A. Procedure and Data Collection

The respondents included in this study were district nurses/nurses, physiotherapists, occupational therapists and social workers working within the health and social care administration. A web-based survey was distributed by email through managers in the organization to all physiotherapists, district nurses/nurses, occupational therapists and social workers (i.e., the professional conducting needs assessment before social care is granted). The survey included questions related to access to and knowledge about ICT and views on possibilities and challenges toward using ICT. The survey included questions with fixed answers, as well as open-ended questions. The survey questions are included in Appendix 1.

In all, 82 professionals responded to the survey: district nurse/nurse (n=21), physiotherapist (n=16), occupational therapist (n=26), social worker (n=19). The majority worked within home care (n=46), in special housing (n=14), with clients with developmental disabilities (n=19), with daily living support for clients with neuropsychiatric diagnosis (n=2).

B. Analysis

The questions with predetermined alternatives for answers were analyzed and presented with descriptive

statistics [22]. These questions were focused on which modes of communication the respondent had access to, e.g., telephone by landline, smartphone, laptop, stationary computer, and how he/she had used the different modes of communication. The three open-ended questions discuss possible meetings to digitize, meetings viewed as not possible to digitize, and challenges while digitizing meetings. The three open-ended questions were initially approached on an overall level to get familiar to the answers [23]. After our initial analysis, we further explored the material and categorized answers. The categorization was based on the answers, reflecting an inductive analysis [24]. This detailed analysis gave us a deeper understanding of the material and, e.g., for the question about meeting possible to digitize, gave us thirty-four categories, ranging from the interprofessional meetings without citizens to recruitment interviews.

IV. RESULTS

The descriptive statistics include the answers to questions about access to equipment, experience in using different modes of communication, and potential in using ICT. The answers to the open-ended questions include views on possible and meetings not possible to transform, as well as hindrances in transforming meetings.

A. Access to ICT and potential to use ICT

Overall, access to different types of equipment for communication was good; all respondents reported access to at least one piece of technical equipment that allowed digital communication. Eighty-one (99%) respondents had access to a smartphone, 63 respondents (64%) had access to a laptop, 34 respondents (41%) had access to a stationary computer, 33 respondents (40%) had access to a telephone by landline.

All professionals had access to some type of communication software; we found the type varied across participants. One was Microsoft Outlook for daily use of communication via email and calendar bookings and another was Skype for business. The latter had been available for more than 4 years and Microsoft Teams had begun being used during 2019. The professionals used the software Procapita for internal communication regarding care planning. A larger proportion of the respondents had experience in using Microsoft Teams than Skype: for verbal calls 23 vs. 2 (altogether 30%), for video calls 38 vs. 4 (altogether 51%), and for written communication 50 vs. 2 (altogether 61 %).

In relation to the question about sufficient knowledge, 28 respondents (34%) consider that they lacked sufficient knowledge about ICT, 22 (27%) that they had sufficient knowledge whereas 31 (38%) had good or very good knowledge. Twenty-nine respondents (35%) considered that they had no access to the equipment required whereas 53 (65) considered that they had sufficient, good or very good access to the equipment required. Thirty-two respondents

(39%) considered that they had no access to sufficient support, 25 (30%) that the support was sufficient and 25 (30%) that access to support was good or very good.

B. Views on possibilities and challenges

The qualitative analysis illustrates a clear difference between possible meetings and non-possible meetings. The proposals for possible meetings from each respondent clearly exceed the meetings viewed as not possible to digitize. The suggestions for possible meetings are mainly internal meetings, where the suggestions include follow-ups, planning, and consultations. The limitations described are about the citizen not having access to the right technology, if the citizen is suffering from cognitive impairment or that the home visit includes some form of physical activity such as taking care of wounds.

1) Meetings viewed as possible to digitize

The answers to the questions which meetings could be digitized cover all of the described meeting categories, such as internal or external personal meetings, staff meetings concerning citizens, or meetings with citizens. Many of the respondents expressed answers related to three or four categories in their answers, implying that the respondents have a solution-oriented attitude towards digital meetings. Some of them even describe how they are conducting such meetings, where one example is assessments:

> *"...It doesn't go as fast or with the same fingertip feeling, but everyone gets help. Assessments are done via photo; I write what angles I need and body parts that need to be included in the picture. Since "my" staff at all the accommodations understands and appreciate that I do this, it has been very good."*

Among the number of meetings that are listed as digitizable, most are meetings where citizens are not participants in the meetings, such as interprofessional meetings without citizens or professional meetings (only a profession). After that, many of the respondents' state that meetings where citizens are discussed, so-called care planning, case meetings or follow-up, can be digitized. Even meetings that could be considered to need physical interaction, home visits, are listed as possible digitizable meetings. The conditions specified in the opportunity to digitize home visits and other visits with citizens are that everyone has access to and knowledge of digital aids and that the citizen does not have a hearing impairment or suffers from cognitive impairment. Some respondents also stressed that meetings with citizens with dementia also can be digitized, with help from relatives or home care staff.

"Citizens who do not have a long-time dementia / cognitive impairment and can handle a phone. In some cases, this can be solved with the help of home care staff."

Several respondents state that there must not be too many participants included in internal meetings, regardless of whether they are focused on issues related to citizens or purely staff meetings, if these meetings should be possible to digitize.

2) Meetings viewed as impossible to digitize

When it comes to meetings that are viewed as impossible to digitize, these mainly relate to meetings with citizens where the physical meeting must take place. The respondents emphasize several such meetings, like palliative care, taking care of wounds, injections, sampling, or testing of technical aids at home. In all these meetings, the physical meeting was considered a prerequisite for the task to be performed and completed satisfactorily for the citizen.

The meetings that were considered to be somewhat possible to digitize were those that were about trying out or changing something in relation to technical aids needed in the home. The reasoning around these issues indicate that it was both a question about assessing practical situations related to the home care staff´ tasks, as well as the opportunity to try out the technical aid itself. Despite the challenges described, one respondent has resolved the need for physical meetings during the pandemic as follows:

"I have solved individual settings for technical aids "semi" - I meet the staff at the entrance with current aids, set up the wheelchair based on the staff's description and supervise how the leg rests are to be adjusted. I follow up from home, if something needs to be fixed, we decide the time at the entrance when staff comes with the aid in question [...] The staff is so much better now and observant of good/bad sitting, for example than ten years ago."

Another respondent describes that there is a need for other routines during, for example, delivery of technical aids in order to be able to digitize home visits:

"Testing of aids can be more difficult. This includes the delivery of aids that today cannot be made to the citizen's home but are delivered to the prescriber. Sees a potential that some testing can take place in the home environment depending on; what type of aid it is, the support around the

person and change in delivery options for aids."

Other meetings that are viewed as difficult to digitize are those where the citizen suffers from cognitive or hearing impairments. Several respondents are frank on the difficulties to digitize such meetings. Another perspective is that some respondents view internal staff meetings as not suitable to digitize and relate it to the importance of the physical contact during and after a meeting. Several respondents emphasize education as hard to digitize, both for newcomers and education for experienced colleagues. One respondent expresses it like this:

"Training where practical method teaching needs to take place, e.g. training for substitutes regarding transfer and nursing in general, as well as training at lifting, product display from companies where practical screwing, adjustments and settings are to be tested."

3) Challenges while digitizing meetings

The respondents emphasize several challenges with digitizing meetings, where some of them are technical challenges, lack of knowledge, both own knowledge and in the citizen, work assignments that cannot be digitized, and security.

Technology problems arise when access to the "right" technology is missing. Examples include the cases when the technology the user is equipped with is too old and heavy, or there is a limited access to critical documentation systems from outside the workplace, or the network fails on a regular basis. Sometimes, these problems force users to find workarounds:

"I come across small things every day at work from home that get frustrating about technology or anything else that limits. For example, I can't get video calls on teams via my laptop but I had to download teams on the mobile for that bit. "

Another challenge is related to the lack of knowledge of how to use technology. Quite a few communicate uncertainty when it comes to their own knowledge of technology, and that this is a challenge for digitalization. Another aspect of lack of knowledge is related to a shifting knowledge level within work groups. This causes an imbalance between individuals, which hampers efficient use of digital technology. A third aspect is citizens' lack of knowledge in combination with a lack of resources, especially when it comes to older citizens. They often lack

resources, such as Internet connection or the hardware such as a computer or tablet.

Some respondents especially point to older citizens who have dementia or other cognitive impairment. These impairments cause problems with managing technology or even understanding that it is an ongoing meeting when no one else is physically present. The quality of the meeting is viewed as decreasing and the care workers are afraid of losing or misunderstanding important information from the citizens.

"In a profession where a lot is about dialogue and getting the citizen's perspectives and involving them, it is a challenge to get good communication and good meetings through distance independent technology. This is primarily due to the fact that the target group of older people generally does not feel comfortable with technology, and because of some functional impairments make it difficult to communicate as it is."

More often the respondents described the physical meetings as the basis for their work and that these cannot be changed to digital meetings. The challenges presented are mainly two aspects of the physical meeting that it is difficult to transfer to the digital meeting. The first is that it is challenging to create confidence in digital meetings; for example, the body language does not proceed in the same way. One respondent frames it like this:

"Being able to establish a good and trusting relationship is a fundamental factor in my work, and it can be challenging to instil confidence and incorporate nuances and people's small and physical reactions through video and conversation when you have not met them."

Some of the respondents refer to security as a challenge. They refer both to the content of the meeting, such as personal information, and to the security requirements regarding privacy that software must fulfil. Often, they referred to colleagues' statements, preferable safety officers, while discussing security.

V. DISCUSSION

Before the corona pandemic, ICT was used, but only to a limited extent by professionals in social care and home health care in the actual municipality. The rapid shift towards a wide-spread use of ICT can thus be considered a new initiative in the municipality and as such, the community readiness model [25] provides a framework that can help us understand to what extent the organization was

prepared to initiate such change. The results indicate that in relation to ICT use, the municipality´s readiness was situated towards the earlier phases described in the framework. In order to move forward towards enhancing the readiness to implement health promoting initiatives, some strategies could be helpful. These strategies include different modes of informing the community to increase knowledge and raise awareness of the issue, e.g., by newsletters, media and meetings, conduct local surveys and focus groups to discuss issues and identify strategies [26].

Overall, the results indicate that a large proportion of the professionals in the context of Swedish social care and home health care find ICT a feasible way to conduct meetings in face of the corona pandemic. However, based on the answers related to the potential in ICT, a lack of knowledge, and/or support, reported in 1/3 of the sample, seem to be a factor limiting the use of ICT. As indicated by a 99% access to smartphones in the sample, it can be argued that knowledge and support in how to make optimal use of digital technology requires training not just providing equipment to the co-workers. This study, like other studies, shows that technology readiness is a challenge [2][15] and that training and support need to be planned and prioritized.

The results indicate that practical routines, e.g., how technical aids are delivered could be supported by the use of ICT. While technical aid could be delivered directly to the citizens, the process of practical testing, assessment and follow-up could in some instances be made digitally. However, issues related to a safe handling of technical aids is a complex issue that need to be further explored to ensure a high quality of services.

Instability in technology has been researched and covered as one of the most evident challenges for more than one decade (see, e.g. [2][20]). Focusing on the rapid development of ICT, it is surprising that this is still a major challenge in the empirical material, both from the statistics and the open-ended questions. Providing respondents with stable Internet connection and required equipment shouldn't be a problem these days since it was emphasized earlier by [13].

The empirical material shows that instability in technology is handled by work-arounds, even when it is necessary to use private equipment. Handling and solving the problem is of the highest priority.

For the 2/3 of the sample who can and are using ICT-based solutions, social presence is highlighted as an important feature of meetings. Therefore, meetings with no involvement of the citizens are argued as the easiest to digitize, as well as meetings with few participants. In contrast, some results indicate that also meetings with citizens actually can be digitized. Building on a solution-oriented attitude towards digital meetings expressed by some respondents, it seems as if the question of digitizing meetings with citizens is somewhat of a greyzone. If the professional is confident in finding ICT-based solutions and

the citizen has sufficient knowledge or can access support from staff or relatives, a wider range of meetings can be digitized. One argument for meetings without citizens could be that the citizens they meet often suffer from some kind of impairment, such as dementia or problems hearing. For citizens with functional limitations, their social presence in a conversation is often said to require a physical meeting. For citizens with functional limitations, the digital meeting requires at least colleagues or a relative. Today, social presence solely refers to citizens without impairments, excluding parts of the population. One argument for not digitizing meetings with a lot of participants is that everyone's involvement is at risk [2][15].

Management support is often referred to as a prerequisite for transforming from physical to digital meetings [2][20]. Of interest is therefore that very few of the respondents mention management's support as a challenge. One reason for that could be that the initial phase of the pandemic required operational action to solve the situation, resulting in totally new ways to handle meetings via distance collaboration. The drastic change that the pandemic entailed forced the individuals to solve their daily assignments and there was little time for asking for strategies or discussing with managers.

VI. CONCLUSION

During the pandemic, the transition towards using digital meetings, like home visits, in social care and home health care in Sweden increased. Therefore, we investigated this transition by a web survey including both ended and open-ended questions. Based on the results from the survey, some challenges to use ICT were reported including problems with instability in technical equipment, the professionals' and citizens' knowledge on how to handle technical equipment, and access to support for technical equipment. Added to this is the process of transition from physical meeting to the digital meeting where not all meetings can be transformed to keep high quality, such as meeting with citizens with hearing or cognitive impairment. Despite these challenges, the overall impression was that the respondents used digital meetings whenever possible and saw a lot of potential in the transition from physical to digital meetings. Their handling and perspectives were operational, solving problems when they occurred and not waiting for strategies or management instructions.

1) Limitations and further research

This study is limited to one mid-sized municipality in Sweden and focuses on some work roles while digitizing meetings, such as home visits. The results indicate interesting results to dig deeper into to digitization of meetings, with or without citizens, as well as what the activities that can be conducted during those meetings. As such, should this study be viewed as an initial step to dig deeper into the digitization and its challenges, as well as how they are embraced. Another limitation is that the

conclusions are based on the co-workers' impressions after a short time period of digitization. Our impression is that this knowledge is increased over time and thereby how to digitize, as well as what can be digitized. Therefore, is it of further interest to detail investigations on various perspectives on meetings that can be digitized and the challenges related to digitizing them. One way of doing that is to focus on one group of work roles, as well as deepen the empirical material by interviews. Another interesting focus is that of the shown operational bottom-up perspective on handling the digitization and further investigating operational, as well as management views on the digitization of social care and home care.

REFERENCES

[1] Q. Wang, C. Huang, and C. L. Quek, "Students' Perspectives on the Design and Implementation of a Blended Synchronous Learning Environment", Australasian Journal of Educational Technology. 2018, 34(1), pp.1-13.

[2] C. P. White, R. Ramirez, J. G. Smith, and L. Plonowski, "Simultaneous Delivery of a Face-To-Face Course to On-Campus and Remote Off-Campus Students", TechTrends. 2010, 54(4), pp. 34-40.

[3] The National Board of Health and Welfare. E-health and Welfare Technology in the Municipalities by 2020, https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2020-5-6779.pdf, 2020.

[4] S. Frennert, "Lost in Digitalization? Municipality Employment of Welfare Technologies", Disability and Rehabilitation: Assistive Technology. 2019, 4(6), pp. 635-642.

[5] P. Rogers, C. R. Graham, R. Rasmussen, J. Olin Campbell, and D. M. Ure, "Case 2: Blending Face-To-Face and Distance Learners in a Synchronous Class: Instructor and Learner Experiences" Quarterly Review of Distance Education. 2003, 4(3), pp. 245-51.

[6] O. Popov, "Teachers' and Students' Experiences of Simultaneous Teaching in an International Distance and On-campus Master's Programme in Engineering " The International Review of Research in Open and Distributed Learning. 2009, 10(3), pp. 1- 17.

[7] P. Bjørn, M. Esbensen, R. E. Jensen, and S. Matthiesen, "Does distance still matter? Revisiting the CSCW fundamentals on distributed collaboration" ACM Transactions on Computer-Human Interaction (TOCHI). 2014, 21(5), pp. 1- 26.

[8] S. Aral, C. Dellarocas, and D. Godes, "Introduction to the Special Issue—Social Media and Business Transformation: a Framework for Research ", Information Systems Research. 2013, 24(1), pp. 3-13.

[9] R. L. Baskerville, M. D. Myers, and Y. Yoo, "Digital First: The Ontological Reversal and New Challenges for IS Research", 2019. MIS Quarterly. 2020, 44(2), pp. 509-523.

[10] I. Mergel, N. Edelmann, N. Haug, "Defining Digital Transformation: Results from Expert Interviews" Government Information Quarterly. 2019, 36(4), pp. 1- 16.

[11] M. Bower, B. Dalgarno, G. E. Kennedy, M. J. W. Lee, and J. Kennedy, "Design and Implementation Factors in Blended Synchronous Learning Environments: Outcomes from a Cross-Case Analysis" Computers & Education. 2015, 86, pp. 1 – 17.

[12] K. Kear, F. Chetwynd, J. Williams, and H. Domelan, "Web Conferencing for Synchronous Online Tutorials: Perspectives of

Tutors Using a New Medium" Computers & Education. 2012, 58(3), pp. 953-963.

[13] Y. J. Park and C. J. Bonk, "Synchronous Learning Experiences: Distance and Residential Learners' Perspectives in a Blended Graduate Course ", Journal of Interactive Online Learning, 2007, 6(3), pp. 245-264.

[14] G. M. Olson and J. S. Olson, "Distance Matters" Human–computer interaction. 2000, 15(2-3), pp. 139 – 178.

[15] M. Bower, M. J. Lee, and B. Dalgarno, "Collaborative Learning Across Physical and Virtual Worlds: Factors Supporting and Constraining Learners in a Blended Reality Environment "British Journal of Educational Technology, 2017, 48(2), pp. 407 – 430.

[16] M. Chakraborty and S. Victor, "Do's and Don'ts of Simultaneous Instruction to On-Campus and Distance Students via Videoconferencing ", Journal of library administration. 2004, 41(1-2), pp. 97-112.

[17] Q. Wang, C. L. Quek, and X. Hu, "Designing and Improving a Blended Synchronous Learning Environment: An Educational Design Research ", The International Review of Research in Open and Distributed Learning, 2017, 18(3), pp. 99 – 118.

[18] E. Szeto and A. Y. Cheng, "Towards a Framework of Interactions in a Blended Synchronous Learning Environment: What Effects Are There on Students' Social Presence Experience?", Interactive Learning Environments, 2016, 24(3), pp. 487-503.

[19] G. M. Olson and J. S. Olson, Working Together Apart: Collaboration over the Internet, San Rafael, CA, Morgan & Claypool Publishers, 2014.

[20] G. M. Olson and J. S. Olson, "Bridging Distance - Empirical Studies of Distributed Teams "In: D.F. Galletta and P. Zhang, editors. Human-computer interaction and management information systems, Applications, ME Sharpe, 2006, 6, pp. 117 – 143.

[21] J. M. Zydney, P. McKimmy, R. Lindberg, and M. Schmidt, "Here or There instruction: Lessons Learned in Implementing Innovative Approaches to Blended Synchronous Learning", TechTrends, 2019, 63(2), pp. 123-132.

[22] J. Creswell, Research Design Qualitative, Quantitative and Mixed Methods Approaches Fourth Edition. Fourth ed. Los Angeles, Sage, 2014 .

[23] G. R. Gibbs, Analyzing Qualitative Data. Vol 6, SAGE, 2018

[24] Q. M. Patton, Qualitative Research & Evaluation Methods. 3rd ed. Thousand Oaks, Sage Publications, 2002.

[25] E. R. Oetting, J. F. Donnermeyer, B. A. Plested, R.W. Edwards, K. Kelly, and F. Beauvais, "Assessing Community Readiness for Prevention" International Journal of the Addictions, 1995, 30(6), pp. 659-683.

[26] R. W. Edward, P. Jumper-Thurman, B. A. Plested, E. R. Oetting, and L. Swanson, "Community Readiness: Research to Practice", Journal of community psychology, 2000, 28(3), pp. 291-307.

Survey questions:

1. What is your profession?
2. Which are your main activities while working?
3. What technology for distance-independent meetings do you have access to in your work?
4. What types of distance-independent solutions have you used to conduct VOICE CALLS?
5. What types of distance-independent solutions have you used to conduct VIDEO CALLS?
6. What types of distance-independent solutions have you used to conduct WRITTEN CONVERSATIONS / CHATS?
7. What type of meetings/contacts do you see can be handled through distance-independent technology?
8. What type of meetings/contacts do you see can NOT be handled through distance-independent technology?
9. To what extent do you have access to the knowledge/equipment/support you need?
10. Shortly, is there anything that you think of that can support the use of distance-independent technology?
11. Finally, we ask you to describe what challenges you see in using distance-independent technology?