ENGENDERING DIGITAL LEARNING TO ENHANCE ONLINE INTERACTION IN CONTINUING EDUCATION

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Abstract

Skill building for increased employability, relevance at work or for promotion drives continuing education through flexible learning modes such as digital learning. However, digital learning research continues to focus on formal learning institution, where technologies and learners are more sophisticated than in continuing education. Participants demonstrate gendered differences in ability to access and use online tools and platforms, exacerbating marginalization and lack of inclusiveness. In our training sessions, men dominated: the triple roles of women and girls, access to technology and perception of social position resulted in lower levels of participation during plenary, and in ranking of overall. training experience. Subsequent training utilized synchronous and asynchronous innovations- including heavy use of chat, spider web discussion, pairing of participants to brainstorm before joining breakaway groups, integration of WhatsApp and group email for mobile-based assignments and to preview learning material. Assessment of difference in access and participation was based on length of attendance in sessions, use of feedback streams, and post training evaluation. Results indicate that use of multiple approaches positively impacts on attendance and interaction, and leading to higher attainment of learning goals. These findings show that engendering digital learning technologies facilitates inclusion of technologically disadvantaged learners in informal, low-support settings.

Keywords: Gender, Inclusion, Innovations, Course Design

Introduction

Kenya has seen an exponential increase in the demand for skills acquisition and upgrade through lifelong learning. This demand is mostly from young people seeking to better their chances for getting into employment or into formal learning institutions, and also by those adults who require additional skills. Lifelong learning was first defined by Faure (1972) as education provided for adults after they have left the formal education system, consisting typically of short, part-time courses. It is career related and continuous (London, 2011). However, these definitions, do not encompass education required for 21st century skills such as critical thinking, cooperation, or digital and technological expertise: these are cross cutting and not directly related to a specific career.

Continuing education can also be non-formal. The Basic Education Act of Kenya (Republic of Kenya, 2013, 9) defines non-formal education as "any organized educational activity taking place outside the framework of the formal education system and targets specific groups/categories of persons with life skills, values and attitudes for personal and community development". The Act limits continuing education to skills and trades and adult literacy in formal school-type settings. Yet non-formal settings such as workshops and in-house capacity building reach audiences with key skills, attitudes and knowledge audience.

Adult learners in non-formal education face individual, cultural and structural constraints in participation and potential to benefit from learning (Nyatuka and Ndiku, 2015; Desjardins and Rubenson (2013). Desjardins and Rubenson examined cross-national patterns of participation in adult education in the Nordic countries. They concluded that there were three main constraints to participation: situational due to personal life circumstances; institutional due to practices and procedures that inhibited or prevented participation; and dispositional due to personal attitudes and ideas of self-efficacy.

This paper examined the experiences a specific sub-set of the adult learning community. Their personal life circumstances included being out of school and being resource constrained. At the time of the study they were constrained by the restrictions of the lockdown of the Covid-19 pandemic in 2021. They also faced personal barriers such as balancing between work and classes, cultural barriers to learning in mixed sex and age, as well as language barriers and inability to comprehend formal language used in class. Flexible learning modes such as digital learning offer the best option for busy adults, but digital learning research continues to focus on formal learning institutions, where technologies and learners are usually more sophisticated than in continuing education.

The Directorate of Adult and Continuing Education in Kenya coordinates and manages programs and activities in the adult education sector, yet has no policy on adult and continuing education. The policy provisions found in Sessional Paper 1 of 2019 (Republic of Kenya) state that Adult and Continuing Education is provided through four programs: Basic Literacy Programme, Post Literacy Programme and Continuing Education Programme, and through community

education and empowerment. Continuous professional development is used only in the context of teachers, while community education and empowerment are not defined, Service associations decide the skills their members need therefore training is not standardized, is of short duration, and participants only receive a certificate of attendance.

Bandura's theory of Human Agency defines self-efficacy as functional self-awareness (Bandura, 1997). Self-belief determines behavior, including choosing to engage in learning and the effort put in thereafter. Bandura's theory is based in behaviorism, but Pandarero, Jonssson and Botella (2017) add that self-efficacy is also a function of emotions, thus contributing to motivation and persistence. In formal education the motivation to succeed is partly extrinsic- the need to pass examinations, regulated by teachers and a regimented time schedule. In non-formal education learners decide if they want to attend, and how much they will participate due to intrinsic motivation- desire to learn, willingness to make the time, and a measure of opportunity cost for engaging in economic activities.

Digital platforms mitigate loss of learning opportunities, but access to technology impacts on ability to take advantage of ODEL The Kenya ICT Policy aims at every Kenyan accessing reliable, affordable, high-speed broadband connectivity, acknowledging that ICT can expand, improve life-long learning and retrain or in-service the existing workforce (Republic of Kenya, 2019). Data from the World Bank showed that in 2019 only 23% of the Kenyan population uses the internet despite an 85.2% internet penetration (Statista, 2020). This implies that very few Kenyan adults have the capacity and capability for technology based learning. The 2021 GSMA report found a 7% gender gap in favor of men owning a mobile phone, and a huge gender gap of 42% in mobile internet use. Most people do not own a computer: The GSMA reported that mobile phones continue to be the primary way people, particularly women, access the internet. Women are 23% less likely to own a smartphone.

Covid-19 had an unprecedented effect on mobile phone ownership and use. The GSMA (ibid) reported that Kenya was the only survey country where the gender gap in mobile internet use had widened, from 34 per cent in 2019 to 42 per cent in 2020 (p.20). Women's mobile internet use remained the same, their mobile phone ownership decreased and the proportion of women who own a smartphone did not increase. Charles Kare Wanjohi, Director of the Consumer Business at Safaricom, Kenya's largest service provider, finds "little value in selling a phone that does not have access to the internet because real transformation of women's lives comes from having access to and using the internet." (GSMA, 2019). Women cited three main barriers to having and using mobile internet: affordability, relevance and lack of digital skills. These three barriers reflect the constraints as posited by Desjardins and Rubenson (2013) and discussed earlier.

Meta-analyses of research on cognitive processes suggest no large or significant differences in cognitive ability between males and females. Controversially, early researchers found that learning styles probably differ by gender (Belenky et. al., 1986; Philbin et. al., 1995; Sadler-Smith, 1999). However, most research was really not about gender differences but about sex differences Recent studies focused on gender differences in ODEL. Yu (2021) states that females may be more successful than males because they were more persistent and committed and had stronger self-regulation. Korlat, et.al (2021) goes beyond the binary to examine both biological sex and gender role self-concept in order to investigate the role of gender in different components of digital learning. Their informative article concludes that "sex differences in digital competence, attitudes, and motivation are becoming less prevalent, indicating a narrowing of the gender digital gap". In addition, since IT is seen as a masculine field, so is the self-perception of competency, competition, adaptability and independence in online learners. This research surprisingly showed that feminine students exhibited higher levels of competence beliefs, intrinsic value, and engagement in digital learning compared to masculine students. In contrast, Cuadrado-Garcia, Ruiz-Molina and Montoro-Pons. (2010) did not find any significant gender differences in learning, but there was an increase in motivation and interaction for females when there was increased teacher support. Their results also showed lower competence beliefs and intrinsic value for digital learning with increasing age.

Methodology

Population Characteristics

The sample was self-selected, comprising participants taking part in a pilot of a facilitator's manual. Sixty youth who had formed cooperatives in service sectors that ranged from educational drama, garbage collection, general welfare and housing were trained online on gender and governance. The aim of the training was to ensure that participant

associations were gender equitable, and to build awareness of how gender mainstreaming would improve the organizations and the lives of members. The modal age range of participants was 25 to 30 years.

Content Characteristics

Seven modules and with thirty-one topics on gender and governance developed for face to face teaching were modified for online learning. The main mode of presentation was Power Point, with discussions and breakaway sessions. Participants were encouraged to provide input through examples and questions as this was experiential learning.
Four training sessions were conducted over a six-month period in 2021. Each session lasted four half days from 8.00 am to 12.45 pm covering on average 14 topics per session. A technical team kept track of participants, following up on absentees or those who dropped off during the day. Participants were provided with mobile data to ensure that they were able to log in and participate in all sessions.

Discussion

The data that is presented in this paper was gathered from a practitioner point of view. It answers the question: how can facilitators engender pedagogical approaches in online education?

Experiences during training

Participants logged in daily and initially indicated that they faced numerous technology-related challenges. While some had smartphones, only one or two had personal computers. Access to shared computers such as in cyber cafes was not possible due to strict social distancing rules. Women more than men self-reported that they did not own a smartphone and therefore needed to borrow one for the hours of the training, limiting full participation and access to materials. With the small screens on a mobile phone it was problematic to view presentations or each other. Wait time to use a shared smart phone and fluctuations in access were cited by women more often than men. During the first session delays were experienced due to unfamiliarity with Zoom Meetings App and participants needed repeated explanations from the technical team on how to fill out and submit the pre-test on Google Forms. Typing into the small keyboard also posed challenges for participants.

There were no significant gender differences in logging on in time for sessions, and both men and women tended to multi-task, attending to family or business as they learned. However, men were more likely to post an excuse for lateness or absence on the WhatsApp Group page than women. Women more often requested that tasks they had missed and handouts be posted to the group to be read later. Between 11.30am and 1pm, more women missed sessions given their reproductive role necessitating they cook and feed their families or pick up younger children from school. One stay-a- home dad balanced between care-giving and learning.

With regard to participation in learning, women dominated the question and answer through Chat, while men verbalized their responses by asking questions and offering suggestions while content was being presented. It was clear that men were not afraid to take a controversial stance regarding gender issues. Literature shows that women are socialized to be agreeable and non-confrontational even when they do not agree with a particular concept (Prakash, 1992; Cooper-White, 2019). Rovai (2001) and Chan et al, (2013), found that men were much more likely than women to adopt an assertive online tone, in contrast to a more supportive and helpful approach by women. Rovai and Baker (2005) argue that women seek to establish intimacy, whereas men often seek to establish a hierarchy. Women were more vocal in breakaway groups, which indicates that they preferred the intimacy of the smaller group. males were more likely to use video during sessions and expressed a desire for face to face training. Research findings show that females tend to speak less frequently and confidently than their male classmates in educational settings. For example, females read and posted more messages on the course bulletin board (Bostock & Lizhi, 2005; Gunn, McSporran, Macleod, & French, 2003). Compared to males, females established a stronger sense of community, and perceived more learning in an online learning environment (Rovai & Baker, 2005). In addition, more females preferred online discussion to face-to-face discussion (Bostock & Lizhi, 2005).

Enhancing Online Interaction

Observations during the first training session pointed to low participation particularly by women, frequent requests for handouts and dropping off of participants to attend to family or work-related issues. In order to improve delivery, subsequent training utilized synchronous and asynchronous innovations.

The chat function offers great possibilities for increasing participation. The group was able to comment in real time without interrupting the facilitator. By the end of the session the technical team would read out the posts, allowing for further discussion, as well as clarification from the facilitators.

Spider web, a free flowing discussion between participants with minimal intervention from the facilitator, was used to increase interaction. This is the Harkness approach to learning, named after the American businessman and educational reformer Edward Harkness. The approach assumes learners can direct their own learning and that the teacher or facilitator should allow the authentic voice of the student to be heard and provide encouragement, build confidence, and embed positive attitudes (Williams, 2014). Spider web discussions were used during action planning. The participants were given a task based on the template in Fig.1

ACTION PLAN TEMPLATE

Purpose: To create a "script" for your implementation of a training program.

Directions: 1. Using this form as a template, develop a work plan for each goal identified through the needs assessment process.
2. Discuss with group members to ensure clarity and collaboration.

Main Goal:

Action Steps *What Will Be Done?*	**Responsibilities** *Who Will Do It?*	**Timeline** *By When? (Day/Month)*	**Resources** *A. Resources Available* *B. Resources Needed (financial, human, political & other)*	**Potential Barriers** *A. What individuals or organizations might resist?* *B. How?*
Step 1:			**A.** **B.**	**A.** **B.**
Step 2:			**A.** **B.**	**A.** **B.**
Step 3:			**A.** **B.**	**A.** **B.**
Step 4:			**A.** **B.**	**A.** **B.**
Step 5:			**A.** **B.**	**A.** **B.**

Evidence of Success *(How will you know that you are making progress? What are your benchmarks?)*

Evaluation Process *(How will you determine that your goal has been reached? What are your measures?)*

Each association worked offline to populate the template outside of workshop hours, e-mailed to the technical team and shared in plenary and on WhatsApp. The action plans were critical to ensure that associations are making measurable strides towards gender equality and enable follow-up and support from facilitators. Asking the participants to create tailor-made solutions to their own issues generated free flow of ideas and the input of each group member. Quoting Savin-Baden and Major (2004), Williams (ibid) states that spider web discussions set problems that require independent research and discussion within a team. The team achieves a practical goal that enhances the acquisition of concepts and ideas.

Pairing or triads of participants to brainstorm before joining breakaway groups was encouraged especially when a health break was imminent. Since each association had at least two members attending, they would, for example, brainstorm on whether their association gender policy was adequate, or on how they could increase female participation in leadership of the association. In the breakaway groups, supported by the facilitators and the technical team, the pair would then share with others from a different association, amalgamate their ideas and share in plenary. The breakaway group can be seen as a safe place where participants were able to voice their opinions without feeling inadequate. Cook (1996) states that when adults make the decision to enter a program, self-efficacy can be supported

by acknowledging doubts, hesitations, or anxieties about learning and by encouraging them of their ability to learn. (p. 37).

Integration of WhatsApp and group email for mobile-based assignments and to preview learning material was another innovation. Modules were presented through Power Point in 30 minute to 1-hour sessions. When content was complex or longer than was possible to effectively present in the time given, facilitators used lecture method and participants often tuned out. Cooper and Richards (2019) place the attention span of adults at 15-20 minutes after which retention of lecture information is negatively impacted by interference and working memory. When a learner hears something new they rely on working memory and full attention to process the information and integrate it with what they already know or believe. Too much new information interferes with integration and the learner experiences interference- an inability to effectively incorporate the information meaningfully and efficiently. Wilson and Korn (2007) disagree with this estimate, asserting that many of the studies suffer from methodological problems, subjective observation and do not pay attention to individual differences.

In 2010 Neiles, Mertz and Fair conducted a study among undergraduate students in three different chemistry classes whose findings support the short attention span of adults. Students self-reported lapses in attention using a clicker when they realized they had been inattentive. Researchers measured the average length of the students' reported attention lapses, as well as the relationship between attention lapses and various pedagogical methods used by each professor. Results indicated firstly, that attention lapse was 1 minute or less, but attention lapses occurred at an average of every five or six minutes. As the lecture progressed the attention lapses were more frequent and by the end of the lecture lapses occurred every two minutes. As a facilitator this information is critical: engaging students in active learning followed or preceded by short lectures retained student interest and attention. Therefore, instead of teaching complex material over a longer period of time, loading material onto the WhatsApp platform or emailing the students handouts with summaries, we were able to then use question and answer and short discussions to go over the material. With the reopening of spaces after the Covid-19 closures we were able to retrain using the same material, focusing mainly on attitude and behavior change group and individual activities in face to face sessions.

Conclusion

The International Commission on Education for the Twenty-First Century noted that lifelong learning assists people, countries and regions to achieve sustainable development. Non-formal learning offers out of school adult learners an opportunity to acquire knowledge, skills and attitude that are useful in their personal lives and for their careers. What this paper shows are possibilities for packaging pedagogical approaches that take into consideration the unique circumstances of such adult learners.

In engendering online learning to enhance interaction, the goal is not to develop distinct pedagogies for women and girls, but to use the ways in which participants learn to innovate and provide tailor-made solutions. The practice showed that women were less likely to participate in plenary discussions, and were more likely to share personal information. Using breakaway sessions gave them the chance to speak in a safe environment, which encouraged men to also share too. When reproductive and economic responsibilities interfered with continued attendance, handouts were sent out on email or posted in the WhatsApp group. In addition, having open ended discussions to create an action plan allowed full engagement in a collegial manner- we did not observe any power plays based on gender and in subsequent training men and women challenged each other on gender biases, sexism and leadership practices.

The pedagogical approaches we used were not an invention: these techniques were packaged to the participant's needs so as to ensure both males and females received the full benefit of participating in the workshops. Assessment of difference in access and participation was based on length of attendance in sessions, use of feedback streams, and post training evaluation. Results indicate that use of multiple approaches positively impacts on attendance and interaction, and leading to higher attainment of learning goals. These findings show that engendering digital learning technologies facilitates inclusion of technologically disadvantaged learners in informal, low-support settings.

More research is needed into the ways in which men and women learn online. There is not enough data yet to definitively answer questions comparing women's and men's learning styles, and to develop theories to exclusively inform course. Faure's contention, which we echo here, is that adult (non-formal) learning should be studied in the same systematic fashion as the learning of children and adolescents (1972; 119). Without scientific rigor the results may not be acceptable for theoretical and practical generalizations. Data is needed to understand the dynamics of

gender and education for diverse adults, in creating theoretical frameworks to enhance online interaction. Thirdly, given the amorphous nature of training offered by NON-Governmental and community organizations research is needed to understand what curriculum development and pedagogy models can be adapted or developed for digital learning and gender inclusivity. Practitioners and Governments may do well to focus on building the capacity of institution to design, implement and monitor novel approaches and interventions in ODEL and address the barriers to full and effective adult participation

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