Participatory Digital Serious Game Development to Address Sexual and Gender-based Violence in Agriculture Colleges in Ethiopia

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August 2021

A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of Doctor of Philosophy in Educational Studies

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Abstract

Ethiopia has one of the highest rates of Sexual and Gender-Based Violence (SGBV). Specifically, regarding the country's educational setting, various types of SGBV negatively affect students' (particularly females') academic performance and achievements and ultimately might lead to adverse impacts on how Ethiopia is reaching the Sustainable Development Goals. Concentrating on post-secondary institutions, specifically agriculture colleges, this study addresses the potential roles of instructors in combating SGBV. It seeks to answer the question: How can a user-responsive learning experience within a digital serious game be created to contribute to improving Ethiopian agriculture college instructors' capacity to address campus-based SGBV? The study focuses on three objectives: a) to study the use of participatory arts-based and visual methods in designing serious games, and the possible techniques to involve the game users as design partners; b) to identify how a participatory serious game design practice is understandable within a research-creation approach; and c) to deepen an understanding on how instructors might imagine themselves as agents of change within this serious game design project. The theoretical framework of this study is based on transformative paradigms and a research-creation conceptual approach. The fieldwork involved 20 instructors in four agricultural colleges located in different regions of Ethiopia. Methodologically the study applies qualitative techniques (interviews and group discussions) and participatory arts-based and visual methods, as well as participatory game universe design practices. The data contributed to the design of the serious game, *Mela* (which means "find a solution" in Amharic). *Mela* aims to be an accessible and self-educating tool to raise awareness and knowledge of agriculture college instructors regarding campus-based SGBV issues and the

potential ways of addressing them. The findings show that a research-creation approach provides a reliable background for participatory serious game design practices. Also, the study suggests a framework, Participatory Arts-based Game Design (PAGD), that contributed to the genuine participation of instructors in *Mela*'s design process. Finally, it highlights the role of narrative imagination in designing intervention programs that aim to support the idea of instructors as agents of change. Overall, this study responds to the global need for participatory problem-solving and action for empowering the local community and a deeper understanding of the interplay between SGBV and serious games in low- and middle-income settings.

Résumé

Développement participatif d'un jeu sérieux numérique pour adresser les problèmes de violence liée au genre et au sexe dans les collèges d'agriculture en Éthiopie

L'Éthiopie compte l'un des plus hauts taux de violence liée au genre et au sexe au monde (VLGS). Le contexte scolaire de l'Éthiopie en particulier cause l'émergence de VLGS variée, ce qui affecte les étudiants (surtout les femmes), leur performance académique, leurs accomplissements et pourrait finir par provoquer des conséquences négatives sur la possibilité de l'Éthiopie de réaliser ses buts de développement durable. En ce qui concerne les établissements postsecondaires, en particulier les collèges d'agriculture, cette étude se concentre en particulier sur le rôle du corps enseignant dans la lutte contre la VLGS. Le but ici est de chercher la réponse à la question: Comment une expérience d'apprentissage réagissant à l'utilisateur dans le contexte d'un jeu digital sérieux pourrait-elle être créée pour contribuer à améliorer la capacité des instructeurs de collèges d'agriculture dans leur lutte contre la VLGS sur les campus? L'étude se concentre sur trois objectifs: a) étudier l'utilisation des méthodes participatives artistiques et méthodes visuelles pour créer des jeux sérieux et les techniques possibles pour impliquer les utilisateurs du jeu dans le processus de création; b) Identifier comment le design d'un jeu sérieux participatif peut être utilisé dans un cadre de recherche-création; c) Approfondir la compréhension du rôle du personnel enseignant comme agents de changement dans le contexte de ce projet de création d'un jeu sérieux. Le cadre théorique de cette étude est basé sur le principe des paradigmes transformatifs et sur une approche conceptuelle de recherche-création. Le travail de terrain comprend 20 instructeurs dans quatre

collèges d'agriculture situés dans différentes régions de l'Éthiopie. Méthodologiquement, cette étude comprend des techniques qualitatives (des entrevues et des discussions de groupe) et des méthodes participatives artistiques et visuelles, ainsi que des pratiques de création d'univers de jeux participatifs. Les données ont contribué au développement d'un jeu sérieux, Mela (ce qui signifie « trouver une solution en amharique »). Mela a été conçu dans le but d'être un outil accessible d'auto apprentissage qui sensibilise les instructeurs des collèges d'agriculture et les informe sur les problèmes causés par la VLGS et les méthodes potentielles pouvant les résoudre. Les résultats ont démontré qu'une approche de recherche-création procure une base solide pour la création de pratique de jeux participatifs sérieux. Aussi, cette étude suggère un cadre de travail, le Design de Jeu Artistique Participatif (DJAP), ce qui a contribué à la participation sincère des instructeurs dans le processus de création de Mela. Finalement, cela souligne le rôle de l'imagination narrative en créant des programmes d'intervention qui visent à supporter le rôle des instructeurs comme agents de changement. De manière générale, cette étude répond aux besoins globaux de résolution de problèmes et de prise d'action par les communautés locales et procure une meilleure compréhension de la relation entre la VLGS et les jeux sérieux dans le contexte d'une population bénéficiant de revenus bas ou moyens.

Acknowledgements

First and foremost, I would like to express my sincere gratitude to Dr. Claudia Mitchell, Distinguished James McGill Professor and supervisor of my Ph.D. research. From the date I applied to the doctorate program at McGill until my graduation, Professor Mitchell generously supported every single step of my six years journey. I am eternally honoured to have the opportunity to be her student and work with her. Also, I would like to thank my co-supervisor, Dr. Lisa Trimble, for all her support during my Ph.D. program. In addition, I acknowledge and admire the thoughtful support of my Ph.D. advisory committee members, Ms. Angelique Mannella and Dr. Lindsay Duncan. Their helpful advice, comments, and feedback in different stages of my project assured me about my steps while moving through the final stage.

My Ph.D. research was part of a program on the sustainability of gender activities attached to the Agricultural Transformation Through Stronger Vocal Education (ATTSVE) project, funded by Global Affairs Canada. I would like to thank all the ATTSVE project's staff at the In-Country Office, Addis Ababa, for their support during my fieldwork. Special appreciation to the Gender Focal Persons and Language coordinators in the four ATVETs (Maichew, Nedjo, Wolaita Sodo, Woreta), who participated in the interviews, group discussions, participatory workshops, game-test events and were invaluable contributors to this study.

I am grateful to all hardworking members of the game development team in Ethiopia, who gathered under the D5Gamescone group and supported the technical aspect of developing Mela serious game (names in alphabetical order): Bethlehem Anteneh, Binyam Wondimagegnehu, Dagmawi Bedilu, Elias Shemsu, Fillimon Gidey, Gelila Nemie, Kirubel Girma, Mihret Tamrat, and Yared Endale. Also, I appreciate a team of Iranian freelance animators,

graphists and a game developer, who significantly contributed to refining the Mela game's final version (names in alphabetical order): Arman Ahmadizad, Farzan Talebi, Hanie Ali Hemmati, Mahmoud Afshari, and Sina Golshahi.

Throughout my Ph.D. journey, I had the honour of receiving helpful comments and advice from several people, whom I am grateful to for their time and feedback (names in alphabetical order): Dr. AbouAli Vedadhir, Mr. Babak Shahmansouri, Dr. Enguday Ademe, Dr. Giuliana Cucinelli, Dr. Lisa Starr, Dr. Mahmoud Ghazi Tabatabayi, Dr. Tigist Yeshiwas, and Dr. Manuela Ferrari. Specifically, I should thank Dr. Ann Smith for her time and kind help in providing editorial feedback on my writing and the Mela game's text. Also, the French translation of the thesis abstract was done by Nathan Samson and Yasin Zare, to whom I am grateful.

I would like to express my appreciations to my course professors (names in alphabetical order): Dr. Dale Boyle, Dr. Doreen Starke-Meyerring (Her memory will be with me always), Dr. Lynn Butler-Kisber, and Dr. Shaheen Shariff; and DISE faculty and staff for their valuable guidance throughout my program (names in alphabetical order): Dr. Steven Jordan (former DISE chair), Dr. Marta Kobiela (former Graduate Program Director), Mr. Michael Lariviere (Graduate Coordinator), Dr. Paul Zanazanian (Graduate Thesis Programs Director), and Mr. Jim Harris (who shared his brilliant insights on environmental concerns and specifically opened my eyes to the significance of endangered birds in Montreal island).

I need to thank my fellow graduate students and colleagues in McGill, who kindly contributed to creating a productive and supportive environment throughout my Ph.D. journey, specially (names in alphabetical order): Casey Burkholder, Ehaab Abdou, Fatima Khan, Haleh

Raissadat, Jennifer Thompson, Joshua Schwab Cartas, Katie Macentee, Layal Shuman, Lukas Labacher, Milka Nyariro, Mitchell McLarnon, Nesa Bandarchian, Sahar Fazeli, and Stephen Peters. Particularly, I need to mention Haleh Raissadat. I am grateful for the Zoom group writings we had together (no matter what time it was) and all academic and casual conversations that comforted the challenging writing times for me!

My lovely colleagues in the Participatory Cultures Lab created an enjoyable working environment in the Couch House, where I learned a lot from them during my Research Assistantship. Thank you, Avril Rios Torres, Leann Brown, Michelle Harazny, Ramy Gorgis, and Sadaf Farookhi (names are in alphabetical order). Also, I thank Lara El Challah, coordinator of the IMPACT project at DISE, for being such a caring person to all RAs, including myself.

I cannot ignore my friends' role in making life less stressful, more manageable and charming in Montreal while I was away from my home country and family. I am grateful to all my friends, but I especially thank Elmira Osouli, Farnaz Kermanshahi, Farzaneh Barak, Furkan Ercan, Kaveh Taban, Mostafa Aref Haghi, Nina Mehr, Samane Barjasteh Delforooz, Susan Sadraee (and her partner Antoine), and Tayebe Mohseni for all the memorable and joyful travels and nature activities we arranged together.

This project was not possible without the support of sponsors: ATTSVE project (funded by Global Affairs Canada), Fonds de recherche du Québec – Société et culture (FRQSC) (doctoral award), McGill Faculty of Education (Jackie kirk Fellowship and Graduate Mobility Awards).

In addition, this work was carried out with the aid of a grant from the International Development Research Centre (IDRC), Ottawa, Canada. The views expressed herein do not necessarily represent those of IDRC or its Board of Governors.

Regarding my family:

More significantly, I would like to acknowledge and appreciate my partner, Zeynab Yousefzadeh, who stood beside me in all times of difficulty, celebration, grief and joy, and supported me in any possible way throughout our life together since 2006.

I send my sincere love to my parents, Saeideh Yousefzadeh and Mirghadir Sadati, who always encouraged me in my decisions and provided the best support they could to ease the path for me to continue my dreams. I am deeply saddened that my father cannot see me graduate; I am eternally grateful for his generous support for my education from my childhood till now. I remember he always said any effort and cost to gain knowledge and be educated would be worth it, and treated me as he believed. I express my heartfelt gratitude to my mother's beautiful spirit and the positive energies she always sends toward me.

I devote my sincere thanks to my brothers Taher and Sajed; my parents-in-law, Javad and Hamideh; my sisters-in-law, Parastoo, Elham, Hajar and Zahra; and my brothers-in-law, Meysam, Moslem and Mohammad Hossein. Their unconditional love and support always have been encouraging for me.

Last but not least, I thank the honourable Rajabi family!

Contributions of Co-Authors

This dissertation follows the manuscript style. In this format, it is expected that some part of the information repeat across the chapters. This work includes three manuscripts, and all are co-authored with my Ph.D. research supervisor, Professor Claudia Mitchell: Chapter three, 'Participatory Arts-based Game Design: Mela, a Serious Game to Address SGBV in Ethiopia' is under review in *Loading*… (the Journal of the Canadian Game Studies Association) as a peer-reviewed article. Chapter four, 'Serious Game Design as Research-Creation to Address Sexual and Gender-based Violence' has been accepted to be published in the *International Journal of Qualitative Methods* as a peer-reviewed article. Chapter five, 'Narrative Imagination and Social Change: Instructors in Agricultural Colleges in Ethiopia Address Sexual and Gender-based Violence' is under review in the *Educational Research for Social Change* journal as a peer-reviewed article.

I have been the lead researcher of this project, from initiating the idea to conducting the fieldwork in Ethiopia and preparing the entire dissertation. This includes conducting the primary literature review to designing the research proposal, preparing the proposal, formulating the research questions and objectives, collecting data through interviews, participatory workshops, and fieldnotes, leading and supervising the game development team, analyzing the data and writing the dissertation.

My supervisor, Professor Mitchell, has always been my first reference for all my inquiries, consultations, and feedback requests. She offered her time, knowledge and experience by providing advice in the entire process I mentioned above. Specifically, in the manuscripts, she contributed to designing the structure of the papers, interpreting the data,

revising the text, and improving the argument. In chapter four she also contributed an introspective section of her own since the fieldwork carried out was part of a larger project (ATTSVE) which she directed.

CHAPTER ONE: GENERAL INTRODUCTION

Background

It was in Summer 2017 that, as a McGill doctoral student, I had the opportunity to travel to Ethiopia for an internship program that was part of McGill University's participation in a broader ATTSVE[1] project. McGill's component of this large multi-year project focused on building institutional capacity in Ethiopia's agriculture colleges to address issues of gender equity and sexual and gender-based violence (SGBV). At that time, I had never been to any African country, and I knew this would be a thrilling and fruitful adventure of great benefit to my professional life. Before starting my Ph.D. program in 2015, I had already had several years of teaching and research experience in my home country, Iran, and, after coming to McGill, I started gaining research and teaching experience in the Canadian context. So, extending this experience internationally to another level in Ethiopia was not a thing I wanted to miss. Besides, my interest in the saying, “travel a lot but avoid being a tourist!” made me confident enough to accept this opportunity.

During the internship, I had four main tasks: 1) organizing and facilitating workshops for students and instructors in four agriculture colleges on cellphilming (a participatory arts-based and visual method that involves making films on a cell phone) gender-based issues on campuses (see Sadati, 2018); 2) interviewing successful female students and staff members of

[1] Agricultural Transformation Through Stronger Vocational Education (ATTSVE) project, funded by Global Affairs Canada. www.attsve.org

these colleges and promoting them as role models[2]; 3) networking and making links with other organizations that work in Ethiopia on sexual and gender-based issues; and 4) maintaining the project's website (Gender and Leadership Community of Practice[3]) by incorporating relevant materials from the local community. Being involved in all these activities for several months provided me with an excellent opportunity to learn about the field—Ethiopia and its four agriculture colleges in different regions of the country—and to make connections with college instructors. I also took advantage of living in Ethiopia to make myself more familiar with the socio-cultural environment of the regions, an essential activity in educational and social science studies. During my internship in Ethiopia, 22 instructors, who were attached to the gender clubs of their colleges, participated in the workshops and became familiar with participatory methodologies and their mechanisms in addressing social issues. In brief, the internship helped me to increase my experience and knowledge in participatory arts-based methods, advance my research practice in an international context, learn more about diverse cultures, make more friendships and professional partnerships, and take one more step towards becoming a global citizen. However, it also exposed me to the high rates of SGBV in Ethiopia and particularly the challenges that female students experience because of various types of campus based SGBV. For example, in their cellphilms, students referred to the prevalence of the verbal and physical harassment of female students in the colleges. They also discussed how traditional and patriarchal inequality between women and men in terms of household workload negatively affects girls' academic performance (see Sadati et al., 2020). Interviews with successful women

[2] See the interview videos at www.glcopmcgill.ca/videos/

[3] www.glcopmcgill.ca

also disclosed stories of challenges and obstacles (like the effect of gender stereotypes and the devaluation of women's education) that women need to overcome in Ethiopia if they are to reach their educational and career-related goals.

These first-hand SGBV experiences I learned about in the colleges were in line with findings of academic studies that raise SGBV issues as a concern particularly in Ethiopian post-secondary institutions (see Wende, 2016). A systematic review and meta-analysis, which reviewed studies conducted between 2000 and 2017 and focused on SGBV among young females in educational institutions of five countries in Sub-Saharan Africa (SSA), reported an overall high prevalence of sexual, physical, and emotional violence, with Ethiopia as the highest (Beyene et al., 2019). Another recent systematic review and meta-analysis of 13 studies (conducted between 2002 to 2019) focused on sexual violence against female students (of schools, universities, colleges) in Ethiopia, "revealed that the lifetime prevalence of sexual violence among female students in Ethiopia was 48.93%" (Mekonnen & Wubneh, 2021, p. 11). This study showed that "nearly half of the students have faced sexual violence at least once in their lifetime" (p.11) and "[a] higher proportion of sexual violence was reported among University students" (p.13). The more I familiarised myself with the context, the more I found that SGBV is a real issue threatening Ethiopia's female students specifically in higher education (See Adinew & Hagos, 2017; Arnold et al., 2008; Benti & Teferi, 2015; Gelaye et al., 2009; Kassa et al., 2019; Mamaru et al., 2015; Meleku & Sendo, 2015; Philpart et al., 2009; Shimekaw et al., 2013; Takele & Setegn, 2014; Tora, 2013).

The internship experience coincided with my exploration for a topic for my Ph.D. research project. Having this in mind, I started thinking more about the potential of instructors

and the role they can play in promoting gender equality in their colleges[4]. A few months later (in January 2018), I was invited to be a workshop facilitator in a five-day training session for instructors of the same colleges in Ethiopia. That opportunity provided me with another chance to work closely with several instructors, interact with them (not only in formal sessions but also in informal settings like sharing break times and lunch times in the restaurant with them), and become more familiar with their personalities and careers. I found them very kind, friendly, and welcoming as well as professionally talented and well-educated in their academic fields such as Horticulture, Animal Science, and Veterinary Medicine. In terms of their situation in the organizational structure of the colleges, they had direct interaction with students (many between the ages of 17 and 21 years) and had a direct connection with their colleagues in the administration. Also, they were already involved in leading the Gender Offices, thus contributing to making a safe space for students who participated in the Gender Clubs.

The idea of working with instructors to address campus-based SGBV was in line with Fergus and Van't Rood's (2013) argument that training instructors and staff contribute to prevent SGBV at least in two ways: a) instructors and staff themselves are less likely to be perpetrators of SGBV; and b) they actively participate in creating safe learning environments. Fergus and Van't Rood (2013) also noted that SGBV negatively impacts youth education, but

[4] For the purposes of this study, gender refers to socially and culturally constructed characteristics (e.g., norms, behaviours and roles) that are associated with being biologically male or female (WHO, 2021). While discussion of gender in the West typically goes beyond simple distinctions between sex and gender to consider non-binary features, in the Ethiopian context, it is presently framed within the biological dichotomy of 'male' and 'female' features as assigned in birth, and socially constructed gender roles. These distinctions are particularly important in relation to what Lailulo et al. (2015) refer to as the Ethiopian male-dominated context, and the power dynamics between men and women, which largely privileges men. As the researchers showed, in Ethiopia "women have a lower social status compared to men" (p.2), and this causes many challenges for them, such as the lower level of autonomy and education, lack of access to resources and employment, and being violated by men in various ways.

education also has the potential to impact SGBV, with education "tending to correlate with lower levels of both victimization and perpetration in later life at the population level" (p. 7). So, theoretically, everything seemed to be in place for instructors to contribute to social change in their colleges. Practically, however, there were many obstacles to overcome.

The first obstacle was the instructors' lack of knowledge about appropriate practices or strategies to be implemented in their classes or on campus to prevent SGBV incidents and promote gender equality. This obstacle was not my discovery; building the capacity of instructors was already on the ATTSVE project's list of what had to be done. However, I noticed the substantial logistical gap that needed to be filled to ensure training and resource distribution. The fact that the agriculture colleges are in rural districts exacerbated the situation. Thousands of dollars are spent, dozens of people are recruited, and thousands of miles are travelled (by trainees, trainers, and other executive staff) to deliver the training to instructors. From my observations, and based on the reports (see for example, Starr & Mitchell, 2018), all this effort was excellent and effective in terms of bringing long-term change to the colleges, so I was not questioning the work everyone was conducting so tirelessly. I was thinking about a possible complementary solution, an additional way of providing conveniently accessible training for instructors that did not need a great deal of funding and extensive logistical support. A sustainable solution was necessary for four reasons:

a) the ATTSVE project was not going to last forever;

b) the training sessions were limited to instructors who were leading Gender Offices, so not all college instructors had the chance to participate;

c) not all Gender Officers could participate in all training sessions because of various issues, specifically the restrictions that female instructors had in relation to leaving their families for any length of time; and

d) there were between 20 and 24 other agriculture colleges in Ethiopia with almost the same SGBV issues, and the ATTSVE had targeted just 4 of them, so there was still a need to train the instructors of those other colleges.

All these thoughts led me to investigate the issue in the relevant literature and this guided me towards the idea of using digital technologies for training purposes. I considered the possibility of an interactive digital tool that every instructor could access online, or download on their computers, tablets, or phones and interact with just like as though they were in a training session. I wondered if it would be possible to use a game-based learning approach to design this tool and whether the concept of a serious game was appropriate in this context.

I also explored this idea of a serious game in the context of professional development/learning. I found that studies on effective professional learning programs for college instructors regarding SGBV issues are limited and studies with teachers show that effective programs need to be sustainable, constant, in-depth, and engaging, and traditional short-term training and so-called one-shot workshops are becoming ineffective (Broad & Evans, 2006). Krille (2020) echoed teacher participants' voices in revealing some barriers that prevent them from attending the professional learning programs, including (but not limited to) the timing of workshops, family commitments (particularly for women), the lack of quality, expense, and the distance to the workshop locations. For educators, improving performance

also means raising the level of students' achievement and this cannot be reached without creating a violence-free and safe learning environment for all students (both women and men). UNICEF (2020) has recommended including topics like violence and abuse (particularly gender-based violence) in professional development programs for educators.

In summary, considering the prevalence of SGBV issues in the four targeted Ethiopian agriculture colleges (Mitchell & Starr, 2018), and the need for an accessible educational tool to build the capacity of instructors to address SGBV issues, I developed my Ph.D. research in response to three questions.

Research Questions

My research is an attempt to answer the general question: How could a user-responsive learning experience in a digital serious game be created to contribute to improving Ethiopian agriculture college instructors' capacity to address campus-based SGBV?

This general question led me to develop three sets of sub-questions.

1. Since the serious game is meant to ensure the sustainability of the training, it needs to include design features that are not only engaging, interactive, and fun but also culturally, aesthetically, and pedagogically responsive to the needs of agriculture college instructors. How could the end-users' voices be included in the design process and ultimately in the final product? How could participatory methodologies help here? How might it be possible to involve college instructors in the serious game design process as design partners when they do not have game design/development knowledge? What could the role of the instructors be in the design process aimed at creating a serious

game to address SGBV on campus? How could the college instructors' stories contribute to the design? How could I support dialogue between instructors in the field (college campuses) and game developers in their gaming studios?

2. Creating a meaningful and engaging learning environment within a serious game that includes multimodal artistic features, is impossible unless one conducts proper research in the context. So, pertinent to two practices of creation and research, the reasonable question could address which one comes first. Should the data collection and research be the priority? Should the creation come first to facilitate the data collection? What kind of data collection method could help to bring these two practices closer together? What does this have to do with social change and addressing SGBV in the colleges?
3. What about social change? The serious game would be designed to help instructors learn techniques that can be used in classes or on campus to prevent SGBV incidents and improve gender equality. In this context, a learning environment within a digital serious game is designed to contribute to creating change that brings more peace and safety to the actual learning environments in the colleges. What could the role of instructors in this process be? How could they become agents of change? What are the perceptions of instructors of the SGBV issues and how do they envision the change? What are the SGBV-related problems of the colleges in their view? How might instructors comprehend their potential roles in combating SGBV?

Research Objectives

The main objective of my dissertation is to deepen the understanding of designing a user-responsive serious game that is meant to support Ethiopian agriculture college instructors improve their capacity to combat campus-based SGBV.

Specifically, my dissertation tries to meet three objectives:

1. to present a study of the participatory methods of designing serious games, and, more specifically, the identification of the methods that involve the game users as genuine design partners. Related to this objective, it is essential to collect accurate data that helps to design a user-responsive serious game.
2. to advance knowledge on the connection between a participatory serious game design method and the research-creation practices. In addition, this work aims, more specifically, to explore the benefits of research-creation for designing a serious game to address SGBV.
3. to study the narratives of agriculture college instructors about the current SGBV issues of their colleges, and the causes and consequences of these issues along with exploring how they might imagine themselves to be part of the change.

Overview of the Study

While significant progress in the world has been made towards achieving gender equality in educational institutions, challenges remain, and SGBV continues to be of concern in postsecondary institutions (UNESCO, 2020). Among the low- and middle-income countries (LMICs), Ethiopia has one of the highest SGBV rates, although there have been recent

improvements in the country's policies to help end violence against women (G. M. Kassa & Abajobir, 2020). Throughout the following chapters (and in the manuscripts), I indicate several studies that confirm my claims about the SGBV issues in educational institutions in different regions of Ethiopia. For example, Kefale et al. (2021) conducted a systematic review and meta-analysis on studies (published from 2000 to 2020) that focused on SGBV in Ethiopian post-secondary institutions and concluded that there is a high prevalence of SGBV in higher education settings varying from 14.3% to 76.4% in different universities/colleges. In relation to remote areas, in their study of this sub-Saharan country, Mitchell & Starr (2018) showed a high prevalence of various SGBV related issues at rural Agriculture Technical Vocational Education and Training (ATVET) colleges.

Educational settings are designed to be transformative for both women and men, but with the prevalence of SGBV, they have also been turned into hazardous places, specifically for young women. While there may be numerous entry points for interventions, a promising area is to build on instructors' potential role in addressing SGBV. However, given various restricting conditions, such as the lack of training sessions, the long distances from larger institutions, and costly logistics, agriculture college instructors rarely have access to resources or opportunities for comprehensive, timely, and proper training on SGBV. This situation calls for an innovative solution that can address the limitations of traditional training programs.

Using what Abt (1987) has called serious games in training the instructors seems to be one of the potential responses to this call (Gao et al. 2020). Serious games are games made to be simultaneously entertaining and educational. Particularly in digital versions, they create an immersive environment in which the player experiences control and agency, and, at the same

time, responsibility for their actions. This concept aligns with the constructivist pedagogical approach that defines learning as a meaning creation process from personal experience (Ertmer & Newby, 1993) through learner–environment interaction. Peng et al. (2010) noted that serious games for social change could aim to make a change in players' attitudes or only raise awareness of a social problem. Reporting on a literature review of 46 empirical studies on serious games, Zhonggen (2019) argued that serious games help learners acquire cognitive abilities and improve the positive effects of learning. According to Zhonggen (2019), serious game-based learning showed significantly more effective and prolonged engagement than non game-based learning. The population of Zhonggen's (2019) study is not well-defined, but is specifically about adult learners. Mayo (2009) stated that educational software is attractive for adult players as well. Pourabdollahian et al. (2012) also confirmed a higher level of engagement among adult players while they were playing a serious game and have echoed other studies on the potential of learning with serious games for both children and adults.

The engagement of players in the games can be extended to the game's design process by what is called participatory design approaches (Simonsen & Robertson, 2013). Kensing and Greenbaum (2013) referred to participatory design "as an emancipatory approach" (p. 27) and argued that it is a right of people to have a voice in any situation that will affect them. They highlight the significance of genuine participation that is opposed to "one-way data gathering approaches" (p. 27) and that can lead to mutual learning between experts and participants. From this perspective, participatory game design (PGD) involves the players of a game in the design process.

Although researchers have studied the use of serious games in various fields my literature review (see chapter two) shows that the potential of serious games in some critical areas remains understudied. What is missing is reference to explicitly designing serious games that a) consider college instructors as the target audience; b) address campus-based SGBV; c) use participatory game design methodologies in the design process; and d) target LMICs as design settings. In my dissertation, I address these issues and explore how participatory development of the serious game, *Mela*,[5] across four agricultural campuses created an opportunity to develop an educational game and answer the research questions.

Field Activities

Figure 1. Locations of my fieldwork activities including four agriculture colleges and two cities

[5] See www.melagame.com

I did the fieldwork[6] for my Ph.D. project over a year (from October 2018 to September 2019) in many phases during four separate trips to Ethiopia and four months of stay in various regions. The timing of my travel was dependent on two factors: a) instructors' availability (and the fact that I was avoiding taking up their time during the busy days of the academic year); and b) the preparations I needed to make between the phases (such as creating the prototype and/or developing the game). The map (Figure 1) shows the locations of my fieldwork activities that took place in four agriculture colleges (Maichew, Nedjo, Wolaita Sodo, Woreta) and two cities (Addis Ababa and Adama).

The following table includes the summary of my field activities and their locations, in chronological order from October 2018 to September 2019.

Dates of activities	Field activities	Location of field activities in Ethiopia
October 15 to November 5, 2018	• Individual interviews with 20 instructors (5 instructors in each college) • Organizing a one-day cellphilm workshop in each college	Maichew, Nedjo, Woreta, Wolaita Sodo
January 20 to January 31, 2019	Two-day participatory game universe design workshop	Adama
February 1 to February 17, 2019	Prototype development with Ethiopian game developer partner	Addis Ababa
February 18, 2019	Public prototype-test session with scholars, activists, and game designers	Addis Ababa
May 13, 2019	Prototype-test and group discussion sessions with research participants (ATVET instructors) as part of data collection	Addis Ababa
May 14 to July 2, 2019	Game development with Ethiopian game developer partner	Addis Ababa
July 3, 2019	Public game-test session with scholars, activists, and game designers	Addis Ababa

[6] Supported also by IDRC Doctoral Research Award

September 13 to 15, 2019	Meetings with the game development team and preparing for the game-play sessions with research participants	Addis Ababa
September 16 and 17, 2019	Game-play sessions and final feedback collection	Addis Ababa
September 18 to 20, 2019	Meetings with the game design team regarding the future collaborations for refining the game, and initiating the design of a website	Addis Ababa

A Note About the Game Development Team

Developing a digital game needs a composite of different areas of expertise. The game development team includes various roles such as game designer, story developer, artists (illustrator and sound developer), and programmer. Specifically, in relation to serious games, there is an additional member needed in the team; Dörner et al. (2016) referred to this member as the "domain expert" (p. 15). A domain expert brings knowledge about the serious content into the design process and works with other team members during the completion of different steps, ensuring that every aspect of the game (e.g., game mechanics, scenarios, arts, feedback system, etc.) is in line with the project's goals. From this perspective, my role in the game development team was as the domain expert. But I needed to find other members of the team as well. In consultation with my supervisor and committee members I concluded that the development team also needed to be from the same socio-cultural setting as the research participants. Thanks to the wide global network of one of my committee members, Ms. Angelique Manella, among digital-based tech communities, I was introduced to iceaddis, an Ethiopian innovation hub and tech startup incubator that was connected to the Ethiopian gaming industry. Following the advice of Ms. Manella, I also started looking for the organizers

of the Global Game Jam[7] in Ethiopia. All this effort led me to the D5gamecon group[8] that partnered with me, supporting technical aspects of the game design. D5gamecon gathered a team of people with various specialties under one umbrella to develop the serious game, *Mela*.

A Brief Clarification on Data Gathering and Analyses

As I will explain in the following chapters, the data was generated through five techniques across four phases during my project. Here I give an overview of these techniques and the ways in which I analyzed them since I believe that the limitations of the manuscript style (such as the obligation to follow journal requirements) can sometimes make it challenging to present all the information in a coherent way.

First, I used a semi-structured interview technique to learn about instructors' perceptions and knowledge on subjects such as the causes and consequences of SGBV at the colleges, the policies already in place, and details of the reporting channels for students (see Appendix 1 for full interview questions). The interviews were conducted individually with 20 instructors in their colleges, and, on average, each lasted about an hour. I typed the participants' responses on my laptop and obtained their consent to record the conversation on my tablet for later double-checking. As Noble and Smith (2015) highlighted regarding representing rigour within qualitative research "qualitative researchers aim to design and incorporate methodological strategies to ensure the 'trustworthiness' of the findings" (p.34).

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[7] "The Global Game Jam® (GGJ) is the world's largest game creation event taking place around the globe, typically at physical locations" (see https://globalgamejam.org/about).

[8] www.d5gamecon.com

So, to analyze the data, I followed the general thematic analysis steps outlined in Nowell et al. (2017): I familiarized myself with the data by reviewing the interview texts several times; generated initial codes using colour coding; created the themes and named them; searched the data to make sure I had covered everything; and, finally, generated the report (see chapter five). To achieve the trustworthiness of the findings and to use different sources of data or what is called triangulation in research (Heale & Forbes, 2013) I also reviewed other reports and surveys that already had been conducted in the same agriculture colleges (e.g., ATTSVE, 2019; Mitchell & Starr, 2018).

Second, I used a group discussion technique (as part of cellphilm production) and asked participants to think about the potential roles an instructor could play to prevent SGBV or promote gender equity in an agriculture college. I also asked them to discuss the barriers that prevent instructors from fulfilling these potential roles. In each college, while facilitating the discussion, I used a projector (connected to my laptop) to screen a blank Microsoft Word page on the wall where everyone could see it and typed in the ideas generated in the group discussion. This allowed the group members to have the collectively generated ideas in front of them and facilitated the general discussion and, more specifically, made it easier to refine, add to, or remove points, as necessary. With this, I made sure that the participants confirmed the final list of potential roles and barriers in each college. Later, I synthesized and integrated the lists of the four colleges and made one broad list (see chapter three). The technique I used was adapted from Nominal Group Techniques (NGT) in qualitative data collection. NGT involves key informants of a subject in group discussions and “allows the meetings’ participants to determine which issues require further, more in-depth inquiry and to draw attention to issues

that may have been previously unidentified" (Olsen, 2019, p. 2). NGT has been classified by Manera et al. (2019) under Consensus Methods since it "uses structured small group discussion to achieve consensus among participants and has been used for priority setting" (p. 737). With the consent of participants, I recorded the discussions for later review.

Third, I used a cellphilm production technique to involve participants in participatory story development and filming activities. Cellphilm workshops were organized separately in each college immediately after the group discussion (four workshops in four colleges). Participants selected one or two topics from the list generated in the group discussions and continued with the video production stages (e.g., storyboarding and filming). The data generated via this technique was in the form of six videos created by participants in response to the questions about instructors' potential roles in addressing SGBV in the colleges and/or barriers preventing them from addressing these issues. Later, I reviewed these cellphilms and transcribed the stories into text (see chapters three and five). I also kept the storyboards of the cellphilms (for an example, see chapter three).

Four, I used a participatory game universe development approach to organize a two-day workshop that focused on creating non-linear stories regarding SGBV issues in colleges and the ways in which instructors see themselves as agents of change in these stories. This workshop was organized in Adama, where participants from the four colleges had gathered for a broader one-week ATTSVE event. During this workshop, participants of each college formed their own group. On the first day, participants learned about the concepts of game-based learning, serious games, and the main elements of educational games and were involved in a physical game-making activity to practice their learnings. I also introduced two serious games samples—

Ayti: The Cost of Life (that I screened on the wall and then played it together with participants) and Help! The Serious Game (which participants played on the tablets provided by the ATTSVE project to their colleges). Kirubel Girma, a representative of the game design team (D5gamescon), co-facilitated the workshop. The lists of potential roles of instructors in addressing SGBV that were generated by participants of each college in group discussions were the starting point of the activities on the second day of the workshop. I printed out a hard copy of the list made by each college and provided these to the groups. I asked the participants to pick one or two topics from their lists and to start developing non-linear stories around them. Before the activity, I informed the participants to be aware that their stories might be incorporated into the future serious game, so they needed to develop stories that were based on their experiences and were realistic in their college context. The data created with this technique took the form of stories that participants developed in their groups and transcribed and illustrated on the flip charts. A representative of each group presented these stories to everyone. I recorded and transcribed these presentations (see chapter five) and kept the flip charts for further review.

Five, although my dissertation does not focus on this technique, I would like to mention, briefly, that in two separate sessions, I collected participants' feedback regarding the content and gameplay (ways of interaction with the game) of the *Mela* game. The first session was organized after the prototype development and the second session was organized after the full development of the game. The feedback helped me to understand the required modifications for the game, and to recognize the perceived usefulness of *Mela* by participants in building their capacity to combat SGBV on campuses. After the fieldwork, I continued refining the game,

and the new version was uploaded on the website in August 2021. Overall, I would like to clarify that this study's focus is on the participatory design of the serious game. Although I conducted the formative assessment during the design process, I did not have the chance to conduct the summative assessment after finalizing the game (details of the project's limitations is discussed in Chapter six). Appendix 2 shows two samples of feedback forms used in the second session.

Ethical Considerations

In August 2018, this study was approved by McGill University's Research Ethics Board II and received the Certificate of Ethical Acceptability of Research Involving Humans (File #: 27-0618). See Appendix 3 for the Research Ethics Board's approval and a sample of the consent forms that participants signed.

Overview of the Thesis Chapters

This dissertation has been organized in manuscript style and there are content overlaps throughout its six chapters. Following this introductory chapter, in chapter two I offer a literature review on serious games and participatory game design (PDG), locating my review within a brief history of games, gaming, and digital games. My literature review reveals that there are limited serious games for adults and even more limited ones for instructors specifically in the areas of training for campus based SGBV issues. Also, my review shows that PGD methods could be classified into two categories; they are used either as activities to train participants and improve some of their specific skills, or they are applied with the purpose of developing a serious game.

Chapters three, four, and five consist of manuscripts that focus on answering the research questions.

Chapter three, "Participatory Arts-based Game Design: *Mela*, a Serious Game to Address SGBV in Ethiopia", answers the first set of research questions. It focuses on the significance of involving the college instructors in *Mela*'s design process. In particular, it explains how the combination of cellphilm production (a participatory arts-based and visual method) and participatory game universe development could make the college instructors the genuine game design partners. In this chapter, I describe briefly different phases of the participatory workshops I organized in four agriculture colleges (Maichew, Nedjo, Woreta, and Wolaita Sodo) and show how these phases collectively shaped a general approach that I refer to as participatory arts-based game design (PAGD). PAGD offers an approach to serious game design in which the end-user is not just a game tester but is actively involved in the design process. This approach also helps in developing serious games that are responsive to the users' needs. Chapter three is under review in *Loading: The Journal of the Canadian Game Studies Association* as a peer-reviewed article (co-authored with my research supervisor).

Chapter four, "Serious Game Design as Research-Creation to Address Sexual and Gender-based Violence", brings the concept of research-creation to the center in response to my dissertation's second category of questions. Research-creation as an emerging practice in social science research considers different combinations of *research* and *creation* in relation to an artistic invention (Chapman & Sawchuk, 2012). In this approach both research and creation practices inform each other and evolve together. My Ph.D. research project encompasses both research in the field and the creation of a serious game as an artifact so, in chapter four, I

explain how my work is intelligible from the research-creation perspective and, at the same time, how it can act as a sample of a participatory arts-based serious game design that aims to address SGBV. In addition, I argue towards the consideration of a serious game as an artwork and I articulate *Mela*'s storytelling (including the universe, characters, trigger events, dialogues, actions, and scenes) and aesthetic features as the game's multimodal artistic compositions. I also discuss how research-creation can benefit the serious game design process by focusing on research, creation, and artwork. This chapter (co-authored with my research supervisor) has been accepted for publication in the *International Journal of Qualitative Methods* as a peer-reviewed article.

Chapter five, "Narrative Imagination and Social Change: Instructors in Agricultural Colleges in Ethiopia Address Sexual and Gender-based Violence", responds to the third set of research questions. It focuses on the concept of narrative imagination and the role of instructors as agents of change in addressing the SGBV issues of the four target colleges. In this chapter. I describe how instructors identify the current SGBV issues of their colleges along with their causes and consequences. Describing instructors' narratives, I highlight how my research participants imagined their potential role in addressing SGBV issues. My findings in this chapter focus on instructors' narratives on the SGBV issues and their own roles in resolving them. With this, I offer an analysis of how the connection between instructors' past and present affects their imagination in relation to changing the future. This chapter is a call for further attention to be paid to the role of imagination and arts-based narrative techniques in addressing social issues. Chapter five is under review in the *Educational Research for Social Change* journal as a peer-reviewed article (co-authored with my research supervisor).

Chapter six provides both my overall discussion of the three manuscripts and the conclusion. In it, I offer a summary of my findings and discuss further how my dissertation answers the research questions. I explain the contributions of my study to the field of education, talk about the limitations of my work, offer some implications for future research, and share my final reflection on my entire Ph.D. research journey.

CHAPTER TWO: LITERATURE REVIEW

Introduction

This dissertation explores the use of participatory game design methodologies in developing a serious game that is meant to address sexual and gender-based violence (SGBV) in Ethiopian agricultural colleges. This chapter reviews the relevant studies to show the existing body of knowledge and the gaps that my dissertation tries to address. Although this review focuses on serious games and especially the idea of Participatory Game Design (PGD), I start with a section where I provide a brief background for games in general and digital games particularly. I then point to some similar terms in the area of games and education to offer a little more context to what I mean by serious games. In the following section, I review the concept of serious games and specifically try to locate it within the studies related to SGBV issues, professional learning and Africa. I also refer to some limitations in this field. Then I review some of the studies that applied participatory game design (PGD) methods, and I offer my analysis by differentiating two types of PGD practices. Finally, I map out the gaps and provide a summary of the chapter.

Games and Gaming: A Brief Background

Throughout history, games have been played by children and adults for different purposes (e.g., entertainment or learning) and in diverse nations (such as ancient Egypt or Vikings) (Gannon-Cook & Ley, 2020). O'Connor (2020) referred to archeological evidence and noted that “board games predate the invention of writing” (p.12), and the oldest game (called Senet) dates back to over 5000 years ago, found in Egyptian tombs. What is evident is that

games are an undetachable part of human beings, but what is called a game? Also, what is the difference between 'game' and 'play'?

Games have been defined in various ways. Juul (2003) reviewed seven definitions from different resources published over fifty years (1950 to 2003) and offered six main features for a mechanism that can be called a game: 1) rules; 2) variable, quantifiable outcomes; 3) value assigned to possible outcomes (some outcomes are positive and some are negative); 4) player effort (to influence the outcome); 5) player attachment to the outcome (winners are happy, and losers are unhappy); and 6) negotiable consequences (possible real-life consequences). Similar to this, but with condensed numbers of features, McGonigal (2011) considered the four essential features of a game as the goal, rules, a feedback system, and voluntary participation. In his book, *The Art of Game Design*, Schell (2020) provided a list of ten qualities that a game should encompass: voluntary involvement, goals, conflict, rules, victory or failure, interactiveness, challenge, internal values, engagement of players, and closed systems. Then, putting together all these features, Schell (2020) has defined the game as "a problem-solving activity, approached with a playful attitude"(p. 47). As can be seen, most definitions of a "game" include rules as one of the main features. Adams and Dormans (2012) confirmed that most of the definitions of a game refer to rules, clarifying that "rules determine what players can do and how the game will react" (p.1). Bogost (2008) found the rules as a set of constraints that create "possibility space" (p.120) for the player. They highlighted that rules are significant because they set what is allowed and what is not within the possibility space of the game and with this, rules not only "create the experience of play—they also construct the meaning of the game" (Bogost, 2008, p.121). Rules play a crucial role in defining the playful system called

"game" and its difference with "play". Dörner et al. (2016) defined "playing" as "a purposeless, intrinsically motivated human activity without explicit rules." (p.8) Li (2014) admited the interchangeable nature of these two concepts but considers "play" as one of the aspects of "games".

Digital Games

Digital games follow the traditional game model; nevertheless, they use the capacity of the digital world in providing more technological flexibility, which can lead to more complexity in rules, more freedom and control for the players, and new versions of the games (e.g., The Sims) that rules are not clearly mentioned and are "open-ended simulation games" (Juul, 2003, p. 11). Tekinbaş and Zimmerman (2004) indicated that the difference between digital games and non-digital games is just the change in media. They wrote, "the qualities that define a game in one media also define it in another" (p. 85). Although it might be hard to assign a birthdate for digital games, Kirriemuir (2006) identified a digital edition of *Tic-Tac-Toe* (created in 1952) and a basic simulation of tennis (1958) as the earliest known digital games and then the game *Spacewar* (1962) as the "first [digital] game to be available outside a single research institute" (p.2).

Based on their primary functions, digital games generally can be divided into entertainment games and serious games (Connolly et al., 2012). Entertainment games are created mainly for recreation and amusement purposes, but serious games are designed to entertain the player and accomplish an additional agenda (e.g., education, encouragement,

health). Bergeron (2006) believed that “it’s the serious content woven into the fabric of an entertaining game that makes a serious game a success” (p. 25).

Studies have shown that there are various types and genres for serious games that are being played with different digital devices (All et al., 2016). Bergeron (2006) has identified 19 different genres based on the gameplay (the ways of interacting with games) which can be used in defining both entertainment and serious games: action (combat, sports, and/or shooting), adventure (exploration), arcade (retro), combat (hand-to-hand fighting), driving, first-person shooter (FPS), military shooter, multiplayer, puzzle, real-time simulation (RTS), shooter, simulation, sneaker, sports, strategy, third-person shooter (TPS), trivia, turn-based, and role-playing game (RPG). In RPG games, the player controls one or multiple characters in the game and storylines are stressed. As Bergeron (2006) noted, a variety of genres might cross over in serious games.

Games and Education: Terminology

Reviewing the literature reveals that scholars use different termonologies when referring to various conjunctions of games and education/learning. The main focus of this dissertation would be on working with “serious games” (which will be reviewed later), but in this section, I provide a brief definition of some other key terms/concepts, acknowledging their usage in the broader context pertinent to games and learning.

Edutainment is one of these concepts, which was formed by the combination of education and entertainment. Edutainment usually provides a simply designed and less flexible learning environment for learners to practice particular skills (e.g., solving math questions) and typically is a linear, screen-to-screen game, where the player holds a third-person perspective

(Charsky, 2010). Outcomes of the gamer's activities are clearly defined, and the challenge usually is the educational content. This type of game has been criticized for some of its features, such as applying conventional learning theories and being produced by "a narrow minded understanding of curriculum" (Egenfeldt-Nielsen, 2005, p. 9). Gaming in edutainment is usually considered "drill and practice activities sugarcoated with game characteristics" (Charsky, 2010, p.188). However, serious games are known as more sophisticated games that provide more profound learning and more engaging gameplay.

Gamification is another concept, which Nicholson (2015) stated that has been turned into being a synonym for rewards. In a straightforward definition, gamification "means making a game of something that is not a game" (Dörner et al. 2016, p. 6) and in a detailed definition, it is "using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems" (Kapp, 2012, p. 23). Gamification is used in a variety of fields, such as business, health, psychology, economy and education (Kim et al., 2018; Prince, 2013). Using game elements in non-game contexts is to improve the user's experience and level of engagement. It is argued that gamification normally (but not necessarily) is doing less than a full serious game since it is just to gemifying a non-game context with game-based concepts and/or elements (Dörner, et al., 2016).

Meta-Game refers to the whole environment linked to a particular game that happens out of the game itself. It also can refer to different meanings of a same game for different people and includes (but not limited to) "the social relations between players" (Juul, 2010, p. 121). This concept is defined as an external view of the game's content in Gee's (2007) viewpoint. He viewed a digital game as a semiotic domain and argued that there are two

different ways of looking into these domains including: internal and external views. The internal view focuses more on what happens inside the game, but the external view concentrates more on the world outside the game and "in terms of people engaged in a set of social practice" (Gee, 2007, p. 27). Internal views to the educational digital game construct the majority of works in literature in this area.

Digital Game-based Learning (DGBL) has been defined as "an instructional method that incorporates educational content into video games with the goal of engaging learners" (Kaltman, 2019). This term is very close to what is known as 'serious games' (which will be defined below), however, there is also a slight debate around target groups of each concept. Some scholars argue that DGBL is "increasingly being used to refer to the use of games in schools" (Egenfeldt-Nielsen et al., 2011, p.9), and serious games are being developed for broader goals of training and attitudinal/behavioural changes in a variety of disciplines (Connolly, et al. 2012). Related to these debates, a literature review study that has reviewed 143 papers published between 2009 and 2014 showed that during this time, the term "serious games" has been mainstreamed, but has been used also interchangeably with other terms like DGBL or Games for Learning (Boyle et al., 2016).

Serious Games

The term, serious games, was coined by Clark Abt (1987), referring to the games that are entertaining and, at the same time are educational. However, the concept of games with educational aspects dates back to Chaturanga (ancestor of chess), the first known game that was developed in the seventh century in India to use militaristic elements and strategic thinking in the context of a board game (Wilkinson, 2016). The idea of what nowadays is called serious

games existed before the invention of digital technology, and still, it is not exclusive to digital games, however, I agree with Maugard (2019) that "the contemporary view of serious games often revolves around digital games" (p.16). In this chapter, my focus would be on digital serious games.

McCallum (2012) highlighted the ultimate goal of serious games as "to achieve some change in the player", "a change in knowledge, attitude, physical ability, cognitive ability, health, or mental wellbeing" (p.2). These types of games have an explicit and carefully thought-out educational purpose and they are not intended to be played primarily for amusement. Dörner et al. (2016) argued that serious games are created with two intentions: 1) for entertainment, and 2) for achieving at least one additional goal, called characterizing goals or learning objectives. As Bergeron (2006) stated, serious games might be "the most effective means of safely learning skills and attitudes" (p.68), and there is a considerable amount of evidence that shows learning through games may last longer. In a meta-analysis that reviewed 39 articles about the use of serious games in education in a period of ten years (2008-2018), Zhonggen (2019) summarized the positive findings in the use of serious games as facilitating learners' general understanding of scientific concepts, improving teaching and learning outcome and learners' satisfaction, assisting the player to obtain cognitive skills, providing flexible learning, and improving players competency in cross-cultural communications.

Serious games for educational purposes have been a lively area of research in recent years, and scholars from a range of disciplinary perspectives have shed light on its different aspects. For example, related to social aspects of food security, Lee and Fisher (2015) reflected on the process of developing the educational game *Food Quest*, which aims to demonstrate and

transfer knowledge about the complex linkages between food insecurity, poverty, and chronic disease. This browser-based digital game has been made for Canadian youth of 12 to 18 years old. The researchers concluded, "although *Food Quest* is not (and cannot be) the most detailed and quantitatively informative resource, it does offer an innovative and engaging way to build awareness and empathetic understanding of the issues" (p. 171). Another example in this field is the game, *Food Force*, made by the UN World Food Program (WFP), which aims to teach children aged 8-14 years old to learn about the struggle against global hunger and the importance of humanitarian aid. Fisher (2017) identified this game as the beginning of using digital games in international development programs. Over six million copies of *Food Force* were downloaded and played, and it became an international success (Provelengios & Fesakis, 2011). The scope of working with serious games is extensive. In their edited book, *Handbook of Research on Serious Games for Educational Applications*, Zheng & Gardner (2017) have gathered a collection of 19 chapters on serious games and categorized them based on theoretical, cognitive and psychological, instructional design, and teaching and learning perspectives. There are also a variety of literature or scoping reviews that have focused on studies in various fileds related to serious games, such as: reviewing 42 publications on collaborative serious games to address sustainibility problems (Den Haan & Van der Voort, 2018), exploring 77 serious games designed to increase users' knowledge and understanding of sustainibility issues and sustainable development strategies (Stanitsas et al., 2019), reviewing six studies on serious games addressing childhood obesity (Dias et al., 2018), reviewing 47 studies addressing the issues of disabled people's accessibility and inclusiveness in web-based serious games (Salvador-Ullauri et al., 2020), reviewing 16 studies introducing 12 serious games

for health that incorporate medication use and safety (Abraham et al., 2020), reviewing 37 studies that feature 15 serious games within the business process management field (Machado Leitão et al., 2021), scoping review of 25 articles regarding serious games that were developed "for training oral health professionals or for health promotion in oral health" (Zaror et al., 2021, p. 95), and reviewing 96 publications featuring 58 unique games that address bullying and cyberbullying (Calvo-Morata et al., 2020). This chapter provides a brief portrait of the literature on digital serious games developed for social change, specifically around gender issues, teacher education and in developing contexts.

Serious Games to Address Issues of Gender and Sexual Health

Addressing social issues, such as gender inequality and gender-based violence, increasingly gains attention in the serious game design field. In one of the recent literature reviews, Yañez (2020) pinpointed 32 available serious games (in English and Spanish) that have been designed with educational purposes toward gender equality and related issues, such as sexism, relationship violence, LGBTQ+, or consent. They reported that the games they could locate were designed between 2010 to 2020, mostly in global north countries (e.g., USA, Western Europe, Japan) and mostly for teenager users. One of the serious games designed in Colombia for children between 12 and 19 years old is *Tsiunas*, which aims to create awareness on gender-based violence (GBV) and its different types (e.g., physical, psychological, economic, and political) and promote new types of "co-responsible non-violent masculinities" (Pabón-Guerrero et al., 2019, p. 190). For almost the same age children (11-18 years) in Barbados, the serious game, *Jesse*, was developed "to affect players' empathic responses to victims of

domestic violence, as well as raise the awareness of the impact of [intimate partner violence]" (Boduszek et al., 2019, p. 262). *Jesse* is a role-playing game in which players take roles of various characters in a family where there is a possibility of experiencing and/or perpetrating different types of violence (e.g., physical and emotional). Conducting a randomized controlled trial with their target population (children), Boduszek et al. (2019) reported "a significant increase in affective responsiveness after [exposure to *Jesse*]" (p. 260). Another game that has targeted adolescents and focused on dating violence (which includes sexual violence) is *Green Acres High* (Sorbring et al., 2015). This game was developed as an intervention for school settings in Sweden, aiming to address the "risk factors in adolescents' attitudes to abusive relationship dynamics and empowering adolescents to both take action within their own relationships and support peers' actions in reducing abuse" (p. 128). The results of this study showed positive perception among young people towards using a game as an intervention method for socio-culturally sensitive topics. Targeting school students between 8 and 10 years old, Stieler-Hunt et al. (2014) conducted a case study on *Orbit*, a digital game for preventing child sexual abuse. This case study provides some recommendations in designing serious games, such as considering the ways of bridging the game to real-life of players.

Pertinent to young target groups, Gilliam *et al*. (2016) developed and evaluated a narrative-based digital game called *Lucidity* to foster knowledge about sexual violence and health topics among youth at the University of Chicago. This study concluded that a game-based intervention denotes a practical approach in addressing sexual violence while it has the potential for educational implementations in the future. *Campus Craft* is another game for sexual assault prevention in universities by situating the players in simulated real-life scenarios.

Using participatory game design methods, scholars in Indiana University created a prototype of this game and evaluated it among the university students. Results of this study showed that "computer-based gaming may be a viable avenue for sexual assault prevention education" (Jozkowski & Ekbia, 2015, p. 1). The researchers recommended future research in this field on larger samples. In an evaluation study, Dagnino et al. (2013) focused on conducting online surveys and in-person focus group discussions to evaluate the efficacy of *What It Is?*, a game challenging sexual violence against youth in a Canadian context. This study concludes that "the game is an excellent tool for education and has significant potential to prevent and intervene in situations of sexual violence by promoting healthy, equal gender roles, gender equality, healthy relationships and healthy sexuality" (p.18).

Promoting sexual health by serious games also has been discussed in roundtables (Brown et al., 2015) and explored in other game-related studies. A systematic review and meta-analysis focused on seven studies that evaluated sexual health serious games: *Prepare*, *Web-based HIV module*, *The Baby Game*, *The Romance Game*, *Midlife Women Online*, *It's Your Game* and *Sahara* (DeSmet et al., 2015). Out of seven, six of these studies evaluated the games in the US, and the remaining one evaluated a game in the UK. Also, five of the studies targeted adolescents while the other two studied only women adults. DeSmet et al. (2015) showed that serious games interventions for sexual health promotion can have significant positive effects, although it is a rather small size in some of the studied games. Fiellin et al. (2017) also conducted a game-based intervention with minority adolescents (11 to 14 years old) in the US and confirmed the efficacy of the *PlayForward* game (for at least one year) in raising awareness and improving attitudes on sexual health.

Serious Games for Professional Learning

Newly emerging technological tools such as games and simulations can contribute to not only improving the learning experience of young students, but also preparing adults and instructors, who work with students. One of the outstanding examples of these playful digital environments for teachers is a teacher training platform, called *simSchool*. This program simulates virtual classrooms, including virtual students with artificial emotional intelligence, and creates a research and training environment for all stages of educator development (SimSchool, 2021). The studies that evaluated the effectiveness of this platform show that teachers who used the simulation, had a "stronger sense of readiness to teach" (Gibson, 2011, p. 65), mainly because they had the opportunity to practice and develop teaching skills within virtual simulated classrooms. These results confirm the possibility of developing the self-efficacy and competency of teachers by self-educating digital game programs.

Laferriere (2019) used the commercial game, *Bully* to train pre-service teachers in the US and reported that this digital platform can be considered as a pedagogical tool to educate teachers about bullying prevention and intervention in the school context. In addition, aiming to improve the competencies of future computer science teachers, Rugelj (2015) invited the students of the Faculty of Education (University of Ljubljana in Slovenia) into a two-semester game design course. The output of this program was a game as well as the learning that students gained in the design process. Examples of the improved competencies by future teachers were "the ability to determine learning objectives that are consistent with the curriculum, the selection of appropriate teaching approaches and their implementation in the learning process" (p. 456).

Serious Games in the African Context

In their literature review on the current status of the African digital games (ADGs), Blignaut and Ravyse (2018) identified 53 serious games made in Africa, 27 of them "with a distinct African quintessence" (p.431). Dividing the games based on two indicators of "creator" and "content", the researchers made a matrix including four quadrants:

> Q1: games created by Africans with current [Africa related] societal content; Q2: games created by Africans with traditional [Africa related] game content; Q3: games created by others with current African societal game content; and Q4: games created by others with traditional [Africa related] game content. (Blignaut and Ravyse, 2018, p. 432)

Blignaut and Ravyse (2018) identified 13 serious games in Q1, including *Africa Racing, Collar La Petite, Cross Dakar City, Exman3D™*, *Haki2, Kade, Moraba, Mosquito Head, Oculift, Okada Ride, Orisha, OYO, Surviving the VUVU*. Among these games, *Moraba*, has been developed in South Africa to help youth gain knowledge and understanding of gender-based violence in everyday life (Blignaut and Ravyse 2018). *Moraba* has been developed by the South African company, Afroes, with the financial support of UN Women as part of the UNiTE campaign to End Violence Against Women and Girls. This quiz-based game is compatible with mobile phones and has been adapted from *Morabaraba*, a popular board game in South Africa (Gender Links, 2011). Made in Ghana, *My Jorley* is a game containing a cascade of interventions that challenge and change Ghanaian youth (mostly men's) negative attitudes and behaviour towards sexual and reproductive health and rights (SRHR) (Leti Arts, 2016).

To address HIV, which includes gender issues as well, I could find two studies in Africa, each of which explores a unique serious game. The most recent research is a pilot randomized

control trial of the narrative-based game, *Tumaini*, with Kenyan preadolescents (11 to 14 years age) (Sabben et al., 2019). The game has been

> designed to increase age and condom use at first sex by increasing knowledge about sexual health and HIV, building risk-avoidance and risk-reduction skills and related self-efficacy, challenging HIV stigma and harmful gender norms and attitudes, fostering future orientation, goal-setting, and planning, and promoting dialogue with adult mentors. (p. 3)

Focusing on pedagogical perspectives, the other study was carried out in Uganda. Bada and Suhonen (2011) evaluated the effectiveness of two simple "drag and drop" digital games on students in the age range of 13-18 years. The researchers reported "the possibility of using computer games to impart basic knowledge of HIV/ AIDS and its prevention in schools based on the Ugandan context" (Bada & Suhonen, 2011, p. 26).

Blignaut and Ravyse, (2018) considered ADGs as a potential in the African game landscape and argued that although African game development is not comparable with global status in this field, "with the high levels of mobile phone ownership on the continent, Africans' interest in games has increased exponentially" (p.324).

Critiques and Limitations of Serious Gaming

Despite strong arguments on the effectiveness of games as educational tools in increasing skills and knowledge, in few cases researchers express various types of hesitations. As the first example, there are arguments in the literature that the effectiveness of educational games can vary based on the content and context, and a limited number of games have been evaluated in terms of their impact against conventional educational methods (McClarty et al.,

2012). While McClarty et al. (2012) confirm that research needs to resume evaluating the impact of games on learning, they also note that "[e]valuations should no longer focus on *whether* games can be used for learning. […] Instead research should prioritize *how* games can best be used for learning"(p.23). The second critique is about the differences between the game world and the real world, and the possibility of the player being misled by the illusion as a result of playing in a digital game world. Berg Marklund (2015) argued that players usually are not aware of "the principles behind the oversimplifications and compromises in the functional fidelity of objects" and this is "to be able to create the game-world, keep it accessible and engaging, and to minimize hardware requirements" (p.43). What Berg Marklund (2015) has highlighted as a critique is that players are rarely aware of these principles, which might lead to two main consequences: a) "players are thus only able to construct a superficial understanding of objects represented in games", and b) "their body of knowledge will be (perhaps unknowingly) constructed on a fundament of assumptions and compromises made during the design and development process" (p.43). The researcher concluded that the transferred knowledge from games can be "superficial at best, and fundamentally flawed at worst; which in turn means that games have the potential to be faulty, and perhaps dangerous, teaching tools" (p.43). The third critique or challenge is the financial resources of serious games and how the goals of funding agencies can influence the game's development goals. Conducting a critical textual analysis of two games *Moraba* and *Family Values* in the African context, Fisher (2017) noted "understanding the relationship between game developers and funders is necessary in order to understand how and why [Digital Development Games] work to reinforce established, and often problematic, development narratives" (p.155). Finally, Maugard (2019) stated

another challenge of digital serious games as “technological limitations” (p. 27), specifically in virtual world, because objects and characters usually lack enough realism. Similar to this, Bigdeli and Kaufman (2017) noted “logistics of educational games” as one of the disadvantages of digital educational games (p. 5). This limitation places digital serious games in a paradoxical situation. As discussed earlier in this chapter, digital technology increases the capacity of innovation and flexibility in designing game environments, but on the other hand, they come with challenges such as the cost and availability of experts and recourses, required digital literacy of participants, and the longevity issue of the digital products since they need to be updated over the time to be compatible with various platforms.

Serious Game Design: Participatory Approaches

Methodologically I selected to carry out my research using participatory methodologies and techniques. The details will be discussed in chapter three, and here I turn my angle in the literature review chapter toward the existing studies in the area of participatory game design. In this section, after a brief introduction to participatory methodologies, I introduce the concept of participatory design and then describe the studies on participatory game design.

Participatory methodologies can refer to a variety of approaches, including Participatory Action Research, Participatory Visual Methodologies and Participatory Design. Participatory Action Research (PAR) has been considered as one of the methodologies that helps in community development. Applying this methodology, community members are involved in exploring community issues and problems, identifying the strategies of addressing the issues, implementing solutions and finally evaluating the results (Boothroyd et al., 2004). Within this general concept, there is a variety of Participatory Visual Methodologies (PVM) that use

different kinds of visual tools and features, such as photos, videos and drawings to give voice to community members and make the research more inclusive and accessible (Mitchell & Sommer, 2016).

Participatory Design

Given my focus on game design, pertinent to the participatory approaches, I am particularly interested in the idea of Participatory Design (PD). In their co-edited book, *Routledge International Handbook of Participatory Design*, Robertson and Simonsen (2013) noted that PD dates back to various civil movements in the 1960s and after, when people started demanding more participation in decision-making regarding several aspects of their lives. In the book, PD is defined as

> a process of investigating, understanding, reflecting upon, establishing, developing, and supporting mutual learning between multiple participants in collective reflection-in-action. The participants typically undertake the two principal roles of users and designers where the designers strive to learn the realities of the users situation while the users strive to articulate their desired aims and learn appropriate technological means to obtain them. (Robertson & Simonsen, 2013, p. 2)

Within this framework, a voice is given to the people who will use the final production (without the need for them to know and use professional language), but the users will also learn about what is possible and what is not during the design process (Robertson & Simonsen, 2013). The main concern of PD is to engage the participants, who will be affected by the designed technology, in co-creating process of the product to make it more responsive to their

needs. One of the key ideas here is that “disempowered user groups should be empowered, and that diverse knowledge should be integrated” (Mildner & Mueller, 2016, p. 76). PD needs to be collaborative, so it contributes to building a mutual learning environment. Through participating in the process, and also sharing ideas in groups, participants gain more knowledge and learn more about the topic. Different ways of engaging users might be adopted in a participatory process, such as collecting ideas or feedback by interviews or surveys or asking people to interact with prototypes, but as Robertson and Simonsen (2013) highlighted, these practices might not be enough since the PD process should help in building a “genuine participation” of participants. With genuine participation, they refered to

> the fundamental transcendence of the users role *from* being merely informants *to* being legitimate and acknowledged participants in the design process. This role is established - for example – when users are not just answering questions in an interview about their point of view or knowledge of a particular issue, but are asked to set up, take the pen in hand, stand in front of the large whiteboard together with fellow colleagues and designers, and participate in drawing and sketching how the work process unfolds as seen from there perspectives. (Robertson and Simonsen, 2013, p.5)

PD contributes to constructing a venue for a shared understanding and mutual learning among all stakeholders of a design project. Mildner and ‘Floyd’ Mueller, (2016) noted four common ways of engaging stakeholders in the serious game design process: a) Stakeholders as users; b) Stakeholders as testers; c) Stakeholders as informants; and d) Stakeholders as design partners. The latter, is considered as the “highest level of involvement” and “the common techniques used here are contextual inquiry and participatory design” (p. 77).

Participatory Game Design (PGD)

In this section, I limit my literature review to studies that have applied participatory game design methods, particularly in designing serious games (regardless of the game topic). Tracking the use of PGD within the history is challenging, but in general, as Robertson and Simonsen (2013) provided some evidences, "the participatory design of information technology was pioneered in Europe and specially in Scandinavia as part of what became known as the workplace democracy movement during the 1970s" (p.2).

Reviewing the literature on PGD to create serious games reveals a diversity of practices. In their systematic review of 26 papers, Ismail et al. (2019) identified some trends of participatory methods in designing educational games during ten years between 2009 to 2018. They reported that the main target population in the reviewed papers were students and children, and just five studies were from developing countries, including Malaysia, Ecuador, South Africa, Colombia and Brazil. The researchers of this systematic review briefly summarized the participatory game design methods of their reviewed studies in a table (see Ismail et al., 2019, p. 136-137). Learning from their table, some of the frequently used PGD methods are: involving participants with game interface tests, interviewing or organizing focus groups for conceptual development or idea generation, observing participants' interaction with sample games or prototypes and collecting feedback, organizing workshops or training sessions with various techniques (such as online collaborative platforms or administrating drawing and storyboarding and character-based inquiries), and working with toolkits to design and test the prototype and iterating the process (Ismail et al., 2019).

Ismail and Ibrahim (2017) also organized a literature review and meta-analysis of 21 papers and books and identified the general stages and process of PGD in the studies. Although their focus is to find a suitable PGD framework for primary schools, the analysis provides an informative portrait of the existing literature in general. Ismail and Ibrahim (2017) almost identified the same practices as mentioned in the previous study, but they also clustered five main stages for a conceptual framework that they called PDEduGame: "1) Initial Study, 2) Educational Game Workshop Setting, 3) Educational Game Design Workshop, 4) Prototyping Educational Game, 5) Prototype Testing" (p.4).

My literature review of various studies that used PGD methods showed that based on their primary goals, researchers use PGD practices for two general purposes:

Focus point	**Group one: PGD as a method to develop a serious game**	**Group two: PGD as a method of data collection and training**
Main Purpose	Researchers use PGD primarily to design a game that is educational and is meant to make a change in the player	Researchers use PGD practices primarily as training activities to raise knowledge or improve participants' skills in an area
Learning experience setting	The primary aim is to create the learning experience within the serious game	The primary aim is to create the learning experience within the PGD activities
Research subject	The research subject is a serious game and constructing a fully functional game, so the data are collected from PGD as a material for game design	The subject is the participant and constructing knowledge. So PGD practice is conducted to study the participant, an approach that Kayali et al. (2015) noted as "research through design" (p.15).
Pedagogical integration	Pedagogical focus is on game mechanics	Pedagogical focus is on the workshop activities
Main concern	The main concern is the impact of the game and the change it aims to make in the broader community	The main concern is the impact of PGD workshop activities on the research participants
Final product	Usually, participants and researchers collectively create one serious game	Participants might create multiple small games

Although it is possible to find some general trends in existing practices, there is no standard way of designing serious games using participatory approaches. Each study has developed its own way of participatory design based on its context, participants, topic, available time, technology and budget. What is evident is the researchers' attempt to include end-users' voices in the design process. In the following section, I describe some of my findings from existing PGD methods, considering the two categories, "PGD as a method to develop a serious game" and "PGD as a method of data collection and training".

Group one: PGD as a method to develop a serious game

Pollio et al. (2021) conducted an innovative co-design study, working with youth between 18 to 30 years old, who reside in three Antarctic gateway cities: Christchurch in New Zealand, Hobart in Australia, and Punta Arenas in Chile. They involved their participants in the ideation and construction of a serious game, called *Antarctic Futures*, as part of an effort "to connect climate change science to localized geographies of public engagement" (p. 2). In terms of methodology, first, they organized two workshops with participants, asking them to create storyboards that helped to outline the game's overall narratives, basic plots, game mechanisms, genre, and platform. In the next stage, based on the data collected from workshops, a prototype of the game was developed by researchers. For the third workshop, Pollio et al. (2021) recruited nine other participants in Hobart (aged 18–25 years) and involved them in a three-hour workshop including various activities such as introduction to the project, providing context to the already developed prototype and presenting the game so that participants learn about its narratives and objectives. As one of the main activities of this workshop, researchers used a toolkit including prompts, and objects such as coloured markers, a variety of maps,

buttons and icons, and “asked the teams to prototype on paper alternative versions of the existing game shown earlier” (p.8). As Pollio et al. (2021) note, “the objective of the activity was to validate, and eventually rethink on the basis of the responses, two of the interface choices that underpinned the minimum viable product” (p.8). The researchers conclude that their study is one of the possible ways of bridging the end-users of a serious game with the researchers and is a sample of what they refer to as “playful futures”, confirming “the possibility of bringing the future into play, rather literally, in a game where the key narrative is built around fictional policy decisions with planetary outcomes, showing both their complexity and impact” (p.10).

Another example in this category, is the participatory design of the game, *Cologon* (colours and Polygons), which aims to be an inclusive tool that “fosters communication skills and takes into account the players diverse (dis)abilities, needs, and preferences” (Steinböck et al., 2019, p.1)**.** Working with a varied group of participants (e.g., people with diverse (dis)abilities, teachers, inclusive education experts and game designers) in Vienna, Steinböck et al. (2019) carried out their PGD method in three phases: first, they organized informal discussions with inclusive education experts and did literature reviews on this topic, second, they developed an initial prototype and evaluated it in a participatory way, and third, in a PGD workshop they continued with “discussing challenges with the participants, then playtesting the first prototype and finally collecting feedback and brainstorming on ways to improve the current iteration” (p.3).

Again in Vienna, Kayali et al. (2015) involved overall 81 children (8 to 14 years old) of two schools in arts-related PGD activities to improve the entertaining and fun aspect of their communication platform, Integrating Entertainment and Reaction Assessment into Child Cancer

Therapy (INTERACCT). This platform is meant to promote communication between clinicians and patients, and at the same time, it is expected to encourage the patients to completely follow the treatment instructions. With this approach, researchers used the PGD method to improve the design and gamified elements of the platform appropriately. In terms of the method, Kayali et al. (2015), in a two-hour workshop, provided a brief introduction of the theme and asked the participants to draw their desired characters on an island and associate adventures to their characters in a comic strip style. Researchers informed the children that their characters will be used in a digital game and provided them with two already prepared photos of the island, "a blank comic strip with six panels for drawing their characters" (p.19) and some tips regarding the potential drawing techniques. Kayali et al. (2015) found this PGD practices helpful in forming the core gameplay and visual of the game called *INTERACCT*. They also recommend the use of PD methods in the early stages of design process because as they noted "it helps to find a general direction for the design" (Kayali et al., 2015, p. 23).

In a similar method, Hieftje et al. (2014) used three techniques of Storytelling Through Graphic Illustration, My Life, and Photo Feedback Project to learn about living environments of 36 adolescents (10 to 15 years old) and their future desires as well as health related risky behaviours. In the Storytelling Through Graphic Illustration activity, researchers used an artistically created illustration as a prompt to encourage the adolescents in a focused group discussion to share their ideas and imaginations regarding the questions, such as what is going on in the picture? Or "What might this picture look like in 2 hours?" (p.7 16). In My Life activity, adolescents were given a piece of paper with a line on it and were asked to draw and write the imaginations of their lifeline over the next ten years. Finally, in Photo Feedback Project,

adolescents were given disposable cameras, including some instructions, and were asked to take pictures of their environment (e.g., home, neighbourhood), important people of their lives (e.g., friends, adults), favourite objects or styles (e.g., hairstyle) or dream future (e.g., dream car or house). The last activity provided visual material for the game development team to develop a serious game that echoes participant adolescents' lives. Hieftje et al. (2014) concluded that these three techniques "proved to be effective ways to engage young adolescents in discussions about their personal experiences and environment and were essential to the development of our HIV prevention intervention targeting minority youth" (p.721).

Some studies have involved the users of the games mostly as informants and testers. For example, working with eight females in the age range of 7 to 17 years with a rare genetic syndrome (PWS), Robb et al. (2019) first provided 15 child-friendly games to the children and asked them to play five minutes with each game and then fill-out online questionnaire. This was to assess the children's level of comprehension. Then the children were allowed to play with games for 14 days and again fill-out questionnaires. After collecting initial data, researchers developed a game prototype as a tool to train the children about task switching skills, and then asked children to play and provide feedback by participating in surveys. The game development team maintained contact with the children and their parents during the game development and refinement process.

Some studies targeted adult participants in their PGD methods. For example, to create the prototype of the serious game, *Energy Safari* (to address the Energy Transition in Groningen, Netherlands), Ampatzidou and Gugerell (2019) invited a diverse group of adult stakeholders, such as game designers, a variety of researchers from different disciplines, people

from municipality of Groningen and the city's civic initiatives, and energy cooperatives. In their participatory game prototype design, researchers created a basic prototype to provide an initial idea for the participants and then throughout multiple prototyping session asked participants to gather around that basic prototype and engage in activities that "included the adoption and debate of 'extreme' scenarios, the improvisation of new rules, and suggestions about the appearance of the game" (p. 348). They ended each prototyping session with a debriefing focus group discussion. Then the researchers analyzed the suggested ideas and game mechanisms and decided how to adopt and incorporate them in the prototype. Next, researchers repeated the same process with another group of stakeholders. Ampatzidou and Gugerell (2019) concluded with noting that PGD process "was crucial to create a balanced game prototype, with an equilibrium between the complexity necessary to address the topic, and the playability and fun expected from a game" (p.355). Another example of adult participants is the PGD project of Labonte-LeMoyne et al. (2017), who invited 31 long term and experienced users of the enterprise resource planning (ERP) software simulations from 24 universities and six countries (i.e., USA, Canada, Germany, Switzerland, Indonesia and Finland). The goal was to create a new version of *ERPsim*, which is a serious game already used by "business school students to learn business process management using an ERP system" (p.494). To develop their serious game, the researchers organized two PD workshops. In the first one, they engaged their participants in five steps, including the development of reciprocal learning, ideation process, consolidation of requirements, reviewing existing information architecture, and implementing a co-design solution. In the following workshop, researchers asked the participant to interact with the beta version of the game and involve in a conversation among the co-designers.

In the African context, the serious game, *Comer Legal: Uma Aventura Nutritional*, has been developed using PGD methods with the goal of providing a playful food and nutritional education for children, adolescents, and young adults in Guinea-Bissau (Silva et al., 2018). In this project, before creating the game, researchers conducted an extensive context analysis using various qualitative and quantitative methods. Then they created the first version of the game and presented it to a group of nutritionists to evaluate and validate the truthfulness of the nutritional information provided in the game. Then the game was presented to a group of 40 volunteers in an elementary school. After refinements and creating other versions of the game, researchers organized two gaming workshops in two different schools and overall involved 137 students in the final gameplay, feedback collection and validation process.

Group two: PGD as a method of data collection and training

Baradaran Rahimi and Kim, (2019) worked with grade 9 students of a Career and Technology Studies course at a Western Canadian school to explore how adolescents improve their skills and ideas by being involved in activities they call "interest-driven participatory design" (p.389). They asked students, who were working within eight teams, to externalize their ideas of interest by creating playable games. Students designed and developed eight different types of games in different formats, such as physical card games and digital 3D games. While students were engaged with game making activities, Baradaran Rahimi and Kim, (2019) collected data "through weekly observations, group presentations, written individual reflections on their own designs, oral and written group peer feedback, and final interviews with group members" (p. 387). The researchers supported the idea that interest driven PGD helps the students of technology classes to develop their necessary skills.

Similarly, Kalmpourtzis (2019) also asked his research participants to create their own games to evaluate the impact of PGD practice on game design skills. In this project, the students who were in kindergarten (age range of 5 to 6 years) and came from diverse socio-economic backgrounds, were divided into two groups (1 focus and 1 control), and were exposed to three different game design situations: structured, semi-structured, and free ones. Kalmpourtzis (2019) described these three situations, which all facilitated by an observer (of conversations and design process), as follow:

> When participating in structured game design situations, students were provided with already known, fully constructed, games and were asked to alter or extend them. When participating in semi-structured game design situations, students were presented with half-made games or only a portion of sets of elements of existing and already known games. During those sessions, players were encouraged to take those elements into consideration in order to create their own game creations. During free structured situations on the other hand, students were not provided with any existing game or other gaming component, while they were asked to create their own games. (p.20490)

The researcher confirmed that the PGD workshop and training had a) a positive effect on improving most of the game design skills (e.g., accuracy, correctness, originality and fluency) of the students, b) a partially positive effect on the skill of flexibility, and c) no positive effect on the skill of level of difficulty.

Using PGD methods for training purposes can be seen in other studies as well. For example, Hava and Cakir (2017) conducted a literature review on 45 research articles published during 2007 to 2017 and concluded that digital game design supports students' programming,

problem-solving, and creative thinking skills and is an “effective and innovative method in the way of students in expressing their personal and creative ideas in their artifacts” (p. 408). Their study also showed that the published articles focused on various game development tools such as Ms Kodu, Alice, Scratch, Game Maker, and Adobe Flash. Ball et al. (2021) also used PGD practices as a public engagement tool. They engaged their participants in four stages of “concept development, game design, content refinement, and game impact” (p. 13), but then they clearly stated that “instead of focusing on the game as a product and its life in the world, as is frequently the case in game studies, our analysis extends to how […] members were personally influenced by synthesizing knowledge during game development” (p. 13). In addition, Cucinelli et al. (2018) used Scratch (a programing language) in their PGD workshop, which aimed to promote and value intergenerational interactions while designing games.

There are other PGD practices that aim to evaluate the participants or test the impact of PGD in training. Examples of these practices include: the exploratory study and use of PGD activities with preschool children to study if they would “be able to express, conceptualise, and model their ideas (Voulgari et al., 2020, p. 1); the use of PGD “to encourage and capture youth reflection, discussion, and participation around news literacy topics” (Literat et al., 2020, p. 503); use of PGD to engage students to build and improve sustainability knowledge (Hourdequin et al., 2018); use of PGD activities with school children “to create game ideas that would motivate them to be physically active and learn in school” (Kostenius et al., 2018, p. 354); and use of PGD methods to engage 8–10 years old primary-school children with activities aiming to analyze and discuss “how emotions and quality of products evolve across the game

design experience, and how emotions are related to children's quality of products" (Gennari et al., 2017, p. 45).

Gaps in the Literature

As this literature review reveals, although there is a growing body of literature that recognizes the importance of engaging end-users in PGD practices and using digital serious games as educational tools for students or youth to cope with SGBV issues, there is still a need to explore how this body of knowledge could be applied to different populations, including instructors and in professional learning context. My literature review showed that most of the games and games-related studies that addressed SGBV have been designed and developed for teenagers, youth, or students, and none - to my knowledge - were designed specifically considering teachers or instructors. Also, the number of games that have been developed by African researchers and game developers regarding Africa's social issues is rare. It is also remarkable that the number of studies that apply PGD methods to develop serious games regarding SGBV and in African context and for post-secondary instructors is very limited. In brief, the literature is limited regarding PGD practices in areas such as working with adult audiences, addressing topics like SGBV and, as Ismail et al. (2019) showed, working in Low- and Middle-Income Countries (LMICs).

Applied specifcally to Ethiopia, the focus of my reseaarch is participatory design of a serious game as a self-education tool for agriculture college instructots. While scholars emphasized the instructors' potential role in addressing gender-based issues (PHMIL, 2014), Ethiopian agriculture instructors suffer from various restricting conditions, which makes it hard for them to have permanent access to resources and get comprehensive, and proper training

regarding tackling campus-based SGBV. This restricting situation prevents them from developing their capacity and experiencing timely and effective professional learning. This problematic condition calls for a new, accessible and self-educating tool that can support instructors. Consequently, developing this capacity using PGD methods is the ultimate goal of this study.

This research responds to the critiques on limited research in this field and tries to push the boundaries in the relationship between games and transforming teacher education and professional learning. Also, my project highlights the use of arts-based practices, and specifically video making by participants in the PGD process. Although some reviewed studies underlined the use of arts-making practices as part of the PGD process, none used the participatory video making as one of the techniques. In addition, the literature review showed, while visual and sound elements play vital roles in making engagement and immersive environments, less attention has been paid to the aesthetics of serious games in PGD practices. This review also highlights the significance of both process and product in PGD methods that aim to be extended as a serious game artefact. In this context, participatory process is important because it should lead to a user-responsive serious game, and the product is also important because it is expected to lead to a change in the player.

Conclusion

This chapter briefly introduces the key concepts of games and digital games, the connection between games and education, and some other main terminologies in this field. It also reviews the concept of serious games, particularly in areas of their use in addressing SGBV, as a tool for professional learning, in the African context, and their limitations and challenges.

Furthermore, the diversity of participatory game design (PGD) practices in various studies was reviewed in this chapter. The review highlights the significance of considering two different groups for PGD practices: “PGD as a method to develop a serious game” and “PGD as a method of data collection and training”. Lastly, some of the identified gaps in the literature and my work’s contribution to addressing them were discussed. This literature review confirms the significance of a need for further research on PGD practices and serious game design specifically regarding SGBV issues and by working with adults.

CHAPTER THREE: PARTICIPATORY ARTS-BASED GAME DESIGN: MELA, A SERIOUS GAME TO ADDRESS SGBV IN ETHIOPIA[9]

Abstract

The emerging body of work on participatory game design (PGD) highlights the significance of working with end-users' voices as the starting point. This is particularly critical in serious games that seek to impact social change in areas such as sexual and gender-based violence (SGBV). This article, which is based on fieldwork with 16 college instructors in four agricultural colleges in rural Ethiopia, draws together concepts of participatory visual methods (particularly cellphilming), PGD and a game universe perspective to offer an engaging and interactive approach to the design of serious games. We refer to this as 'Participatory Arts-based Game Design' (PAGD), an approach that was used to create *Mela*, a serious game to address SGBV in Ethiopian agriculture colleges. Exploring the *Mela* game's participatory and engaging design process, this article offers a framework for serious game development to address critical social change issues that go beyond the game itself. It has the potential to not only place the end-users at the centre but to recognize the critical role of engagement and immersivity in a field oriented towards impact and sustainability.

Keywords: Participatory Design, Serious Games, Sexual and Gender-based Violence

[9] Sadati, S.M.H., & Mitchell, C. (under review). Participatory arts-based game design: Mela, a serious game to address SGBV in Ethiopia. *Loading....*

Introduction

In recent years there has been increasing attention paid in designing serious games to engaging participants in the process. In this idea of Participatory Design (PD), which dates back to socio-political movements of the 1960s and 70s, where civil society demanded more participation in decision-making (Simonsen & Robertson, 2013), the main concern is to engage those who will be affected by the designed technology, in a co-creating process in order to make it more responsive to their needs. In this framework, the emerging body of work on participatory game design (PGD) highlights the significance of working with end-users' voices as the starting point. This concept aligns well with creating serious games that seek to impact social change in areas such as sexual and gender-based violence (SGBV). One of the key ideas in PD is that "disempowered user groups should be empowered, and that diverse knowledge should be integrated" (Mildner & Mueller, 2016, p. 76).

To date, challenges remain regarding how or when to involve participants in the game design process. Simonsen and Robertson (2013) refer to "genuine participation" as "the fundamental transcendence of the user's role *from* being merely informants *to* being legitimate and acknowledged participants in the design process" (p.5). Achieving this level of participation requires deeper engagement of users in the process and not just as interviewees (Simonsen & Robertson, 2013). Khaled and Vasalou (2014) also find the notion of involving end-users in the PGD process complicated, specifically in serious game design, where knowledge of the content should be coupled with the knowledge on game mechanics design. Bridging these two parts is a challenge because game design technicians might not have enough knowledge of the content, and community members and researchers (who are aware of the content) might be lacking

knowledge of game mechanics. What are the ways to facilitate this communication? How can the users of serious games be genuinely engaged in the participatory design process?

Responding to these questions, this article aims to introduce into PGD, and the field of serious games design the idea of what we term 'Participatory Arts-based Game Design' (PAGD) as an artistic and collective game creation practice. Arts-based research is defined by McNiff (2008) as:

> systematic use of the artistic process, the actual making of artistic expressions in all of the different forms of the arts, as a primary way of understanding and examining experience by both researchers and the people that they involve in their studies. (p.29).

As we highlight in our case of co-designing the serious game, *Mela,* to address SGBV in agriculture colleges in rural Ethiopia, such an approach builds on the use of participatory visual arts-based methods and tools such as photovoice and participatory video or cellphilming (cellphone + video). These tools have been used across a variety of disciplinary areas in health and social sciences, seeking to see "through the eyes" (Mitchell et al., 2018, p. 88) of participants as the starting point for addressing social issues. In this article we explore questions of how participatory arts-based tools, alongside other methods can be at the centre of the PGD? How can this work draw together the 'participatory' element of game design and the 'participatory' element of arts-based research? What do the findings tell us about the use of these approaches in relation to addressing a serious national and global issue such as SGBV and in the context of the Global South?

Serious Games for Serious Social Change

Serious games (a term coined by Abt (1987)) are (digital or board) games with entertaining aspects alongside additional agendas that create informative environments for the players/audiences. They are part of innovative educational technologies that can be a promising area for social change intervention programs.

Aligning with the focus of our design work on gender inequalities and SGBV, we note that games to address gender-based violence and sexual health have gained attention in the studies related to serious games. At the University of Chicago, Gilliam et al. (2016) developed and evaluated a narrative-based digital game called *Lucidity* to foster knowledge about sexual violence and health topics among youth. Targeting adolescent dating violence, *Green Acres High*, was developed as an intervention for school settings, aiming to address the "risk factors in adolescents' attitudes to abusive relationship dynamics and empowering adolescents to both take action within their relationships and support peers' actions in reducing abuse" (Sorbring et al., 2015, p. 128). This study's results also show a positive perception among young people towards using a game as an intervention method for socio-culturally sensitive topics. *Campus Craft* is another game aimed at sexual assault prevention within universities by situating the player in simulated real-life scenarios. Using participatory game design methods, scholars at Indiana University created a prototype of this game, where the results show that "computer-based gaming may be a viable avenue for sexual assault prevention education" (Jozkowski & Ekbia, 2015, p. 1). As a non-digital game-based learning tool, Hieftje et al. (2019) developed and tested *One Night Stan*, a social card game prototype for HIV prevention and sexual risk reduction for young black women in Connecticut, United States. The researchers did a

feasibility study and concluded that *One Night Stan* is a feasible approach for interventions that aim to help players protect themselves against HIV risks.

In the Global South, games on SGBV are limited, but there is a growing recognition of how serious games could be relevant to addressing knowledge and attitudes concerning sexual and reproductive health. Fisher (2017) carried out a comparative analysis of two digital games that address gender equity in Africa, *Family Values*[10] and *Moraba*[11]. She introduced these games as new mass communication tools to transfer relevant messages and goals to audiences. In Kenya, Winskell et al. (2018) created *Tumaini* ("hope for the future" in Swahili), a smartphone game-based intervention to address HIV among 11-14 year old participants. In Uganda, Bada (2013) adopted a participatory design approach to explore the effect of digital learning through "computer games, video drama, and virtual classroom" on HIV prevention (p.2). These studies point to the importance of 'self-educating tools' (Sadati, 2019) which rely more on participant engagement and less on access to other training resources.

Putting People in the Picture in Game Design

We take our title for this section from the book *Putting People in the Picture: Visual Methods for Social Change* (DeLange et al., 2008) and its focus on participatory visual methods in social research. Participatory methods have been applied to various fields and practices, including teaching (Joseph, 1978; Rubio et al., 2018), research (Hall, 1979; Trickett et al., 2020),

[10] Funded by USAID and created by Half the Sky Movement (HSM) to reach low-cost mobile phone users in India, Kenya, and Tanzania.

[11] Funded by Southern African Regional Office of UN Women and created by Afroes, a Kenya and South Africa-based gaming company.

developing intervention programs (Holliday et al., 2020; Nastasi et al., 2000), planning and mapping (Brown & Eckold, 2020; Calais, 1973), leadership (Mehra & Braquet, 2014), and design (Bakos et al., 1976; Huybrechts et al., 2020). A common area that certainly can gather these various fields under the concept of 'participatory' is their attention to the idea of community voice. As Chambers (2008) highlights, participatory methods, focus on changing power dynamics and contribute to transforming the communities (Chambers, 2008).

Participatory visual methods: A transformative approach

The growing range of innovative digital technologies has provided researchers with the opportunity of working with participatory methods in which the visual is key. A sample of these participatory visual methods (PVM) includes photovoice, drawing, participatory video or cellphilming, and digital storytelling (Mitchell et al., 2018). Given the critical role of 'art-making' and creative expression attached to this work, there is increased recognition of these methods and tools as arts-based as well as visual (Knowles & Cole, 2008).

Mitchell et al. (2018) argue that these approaches are particularly helpful when researchers work with marginalized groups and communities whose voices are often silenced, and in relation to issues that are difficult to put into words or are taboo and hard to discuss in public. Mertens (1999) discusses similar arguments by referring to the concept of "transformative theory and inclusive evaluation" (p. 4). As Mertens (1999) notes, the idea of a transformative paradigm is an umbrella concept that includes a variety of viewpoints including emancipatory, anti-discriminatory, participatory, Freirian approaches, and building on the perspectives of feminists, racial/ethnic minorities, people with disabilities, and people who work on behalf of marginalized groups. Creswell (2014) summarizes the major elements of a

transformative worldview as a) political, b) power and justice-oriented, c) collaborative, and d) change-oriented. He considers the transformative paradigm as an action agenda that tries to change the lives of three groups: participants, participant's affiliated institutions, and researcher(s).

Participatory visual research is particularly appropriate in a critical paradigm as a type of 'research as intervention' or research as social change (Mitchell et al., 2018, p. 21) in community-based research where resources are limited and based on local resources. In this framework, research turns into a facilitator of dialogue within the community as well as between the community and two groups: policymakers and the researchers.

Participatory Game Design

Applied to the game design field, Participatory Game Design (PGD) engages the end-user in the game creation process, which otherwise often remains limited to professional game designers. However, there is no standard way of conducting PGD, and the process can vary based on the setting or the participant's background and prior knowledge. As Sanders and Stappers (2008) note, "opinions about who should be involved in these collective acts of creativity, when, and in what role vary widely (p.6). For example, when the PGD participants have software development skills, it would be possible to engage them not only in the content development of a game, but also in developing actual digital prototypes/games. But, when the participants do not have game development knowledge, it limits the involvement possibilities. This can be seen in Bardaran and Kim' (2019) work with ninth grade Career and Technology students where they explored participants' activities through an interest-driven participatory design framework by asking them to engage in "designing and developing games in various

forms from physical card games to 3D video games" (p.391). Working with participants, who didn't have the technical game development knowledge, Cucinelli et al. (2018) used Scratch, "a popular entry-level [block-based] visual programming language that allows users from all ages to think creatively" (p.152) and engage in creating digital stories, animations and games. They aimed to enhance the engagement of the participants from just being a simple user or a tester to an active participant of a PGD process. Nevertheless, many participants recognized their lack of programming knowledge as an obstacle during their participation and some chose focusing on different parts of game design (Cucinelli et al., 2018).

Mildner and Mueller (2016) highlighted four common ways of involving stakeholders in the serious game design process: a) Stakeholders as users; b) Stakeholders as testers; c) Stakeholders as informants; and d) Stakeholders as design partners. This last point is considered the "highest level of involvement" and "the common techniques used here are contextual inquiry and participatory design" (p.77). In this framework, collaborative prototype development is a method for participatory design, similar to what Ampatzidou and Gugerell (2019) conducted in their participatory game prototyping sessions. They invited the research participants to gather around a basic prototype, developed by the research team, and involved them in different non-scripted activities, such as "the adoption and debate of 'extreme' scenarios, the improvisation of new rules, and suggestions about the appearance of the game." (p. 348).

Involving the game audience in the game design process also might take place through other practices such as design thinking and explorative design (Kayali et al., 2015), GAmified CO-design with COoperative Learning method, introduced by Gennari and Melonio (2016) to

work with primary school children, and “participatory co-design workshop”, organized by Labonte-LeMoyne et al. (2017, p. 497) to engage their participants in five steps including development of reciprocal learning, ideation process, consolidation of requirements, reviewing existing information architecture, and implementation of co-design solution.

One of the strategies for shedding light on ‘when’ and ‘how’ to involve participants in a participatory design of a serious game is to identify the design stages. The serious game design process encompasses various steps, each of which offers a potential venue to involve participants. In their Game Design for Lifelong Learning Playful Experience (GD-LLL-PE), Romero, Ouellet, and Sawchuk (2017), identify five steps in the serious game design process: a) context and learner analysis; b) game design; c) pedagogical integration; d) play; e) experience. They also recognize four perspectives that should be considered in each of these five steps: a) learning perspective; b) game universe perspective; c) gameplay perspective; and d) user experience perspective. Each of these steps and their associated perspectives (together or separately) can provide a potential venue for involving end-users in a PGD processes based on their background and prior knowledge.

Mela, a Serious Game

Building on participatory research and transformative approach and working with participatory visual and game design methods, we frame in this section a collaborative research project at Ethiopian agriculture colleges to address SGBV and contribute to building a safe learning environment for college students and staff/faculty.

SGBV in Ethiopian Post-Secondary Institutions

The Eastern Africa sector of United Nations Office on Drugs and Crime (UNODC) on 12 January 2020 reported: “violence against women and girls is still a serious problem in Ethiopia and one which is fueled by persistent gender-biased attitudes and practices” (UNODC Eastern Africa News, 2020). In Ethiopia, violence against women and girls is common throughout the country (Kassa & Abajobir, 2020) and continues to be a significant challenge and a risk to women’s empowerment (Central Statistical Agency - CSA/Ethiopia & ICF, 2017).

In patriarchal settings such as post-secondary institutions in Ethiopia, SGBV is one of the major problems faced by female students (Arnold et al., 2008; Shimekaw et al., 2013). A study among female students of Mizan-Tepi University (Henok et al., 2015) shows that two-thirds of respondents experienced sexual harassment, and one-fifth of respondents experienced attempted rape after joining the university. Other studies at post-secondary institutions in Ethiopia confirm these results: Wolaita Sodo University (Adinew & Hagos, 2017; Tora, 2013); Madawalabu University (Takele & Setegn, 2014); Hawassa University (Meleku & Sendo, 2015), Jimma University (Demise et al., 2002); Ambo University (Bekele & Deressa, 2014); and in Technical and Vocational Education and Training (TVET) colleges (Rai & Joshi, 2020).

Although there is growing recognition that learning institutions should be places for transformation (Leach & Mitchell, 2006), in much of the global research on SGBV, learning institutions are often reproducing grounds for power imbalances that result in high rates of SGBV. While much of the work at educational institutions has focused on getting at the magnitude of the problem, there are intervention programs in Ethiopian post-secondary settings that focus on several different approaches, focusing on female empowerment, peer education and policy strengthening. Tora (2013), for example, suggested creating a safe

learning environment for female students by implementing prevention and empowerment programs. Meleku and Sendo (2015) recommended anti-harassment policies in universities to prohibit all types of sexual violence, and Mat (2016) suggested Comprehensive Sexuality Education programs, emphasizing the need for broader school policy's support and the inclusion of community members. Peer education intervention programs also have been suggested by Takele and Setegn (2014) in Ethiopian educational environments.

To address the silence that often exists around sexuality (Altinyelken & Mat, 2018) there is a need for interventions that engage a broad range of community members, particularly instructors, as key players of educational institution. In so doing, the serious game, *Mela* (meaning "find a solution" in Amharic) is a self-educating tool that aims to create a playful learning experience for instructors of the agricultural colleges in Ethiopia and improve their capacity in combating SGBV on campuses. Using the transformative approach, we show how the concept of game-based learning can act as a 'research as intervention' in Ethiopian agricultural post-secondary institutions to facilitate a dialogue around gender issues and contribute to eliminating SGBV from their campuses.

Mela, a Game-based Intervention to Address SGBV in Ethiopian Agriculture Colleges

In the context of Agricultural Technical and Vocational Education and Training (ATVET) colleges, found in remote and rural areas of Ethiopia, the need for self-educating tools and resources that can engage the college community is particularly relevant. A survey at four of these agricultural colleges (Wolaito Sodo, Woreta, Maichew, Nedjo - the four targeted colleges in this article) shows that the rates of different types of sexual violence against female students

(many between the ages of 17 and 20) are very high (Mitchell & Starr, 2018). In response, some scholars emphasize the instructors' potential role in tackling SGBV in Ethiopia (PHMIL, 2014).

However, there are some challenges, especially for agricultural colleges' instructors because of various restricting conditions, such as long distances from larger institutions, where there could be professional training support, preventing them from having a consistent access to professional development. These agricultural colleges are unique in that they typically attract rural students, who live on their own for the first time and at very young ages (16 or 17), and who are younger than those in universities (students can enter colleges with only grade 10). The programming itself is specialized in that students do much of their learning at demonstration (practice) sites, where they might be particularly vulnerable since in outdoor courses students are involve in physical activities and instructors' control over the class might become minimized. Also, the fact that the majority of instructors and leaders are male means that patriarchal structures prevail. Although there are now gender structures in place in many of these institutions (such as Gender Offices or Gender Clubs), the training opportunities are few. These conditions call for innovative approaches that acknowledge the critical role that instructors, especially, can play in the lives of this demographic of young people.

Developing Mela; a Participatory Arts-based Game Design

Research Participants

In this project, the data were gathered from instructors of four agricultural colleges in four different regions of Ethiopia: Maichew (North), Nedjo (West), Wolaita Sodo (south-central), and Woreta (North-west). The number of participants in each college varied, making a

group of three instructors in the smallest group and five instructors in the largest one. Out of 16 participants, six were female, and ten were male, with the age range between 23 to 60. Participants' work experience varied from 3 to 31 years, and all of them were connected to the gender clubs of their colleges. Participation was voluntary, and the instructors reserved the right to withdraw from the process at any time during the research. The participant instructors of this research were the end-users of the *Mela* game.

Design process

The PAGD process included five main phases: a) individual interviews and cellphilm production; b) participatory game universe design workshop; c) pedagogical integration; d) prototype development and feedback collection; e) game development and feedback collection. The fieldwork, including organizing and facilitating multiple stages of design processes were led by the first author. In this article our focus is on cellphilm production and participatory game universe design.

Phase 1*: Cellphilm production:* Cellphilming is a Participatory Visual Research method (MacEntee et al., 2016; Tomaselli et al., 2010), where participants use cell phones (or other recording devices) to make short videos in response to prompts, questions, community issues or challenges. The work with comes out of a long tradition of community or participatory video (Mitchell & DeLange, 2019) and is based on a simple 'no editing required' approach[12] to making two to three minutes productions, where it is possible to complete the entire production in

[12] Monica Mak and Claudia Mitchell coined this term 'N-E-R' in a workshop at McGill University, May 2005, to describe a process of creating participatory videos based on careful planning through storyboarding an no editing apps.

only a couple of hours. The process of cellphilm workshops generally includes the following steps (Sadati et al., 2020): a) 'Introduction and objectives'; This step, includes a 'getting started' component considering the critical issues of the community, which in our case were SGBV issues in the colleges and instructors' roles in addressing them. Here, we started off with group discussions where instructors could discuss SGBV issues of their colleges, specifically around two prompts: "Instructor's potential role in addressing SGBV in the college" and/or "Barriers that prevent instructors from addressing SGBV in the college". We then went into the specific steps of cellphim production, including b) 'visual ethics'; c) 'small group work or brainstorming'; Then participants in each college, who were working collectively as a group, selected one or two of the listed items to create their cellphilms following the next steps as d) 'Storyboarding'; e) 'Filming'; f) 'Screening and reflecting'. Throughout these stages, participants engaged in A to Z of a cellphilm production including also being actors of their own scenarios.

One-day cellphilming workshops in each of the four colleges were conducted to reach two goals: **a)** to provide an opportunity to participants to generate participatory knowledge on SGBV issues in their colleges, think deeply about the SGBV situation, the reasons, the consequences and potential contributions that instructors can have in solving the issues; and **b)**, to generate a knowledge that can inform a potential digital serious game that aims to build instructors' capacity in combating campus-based SGBV. The data in this phase were gathered particularly from instructors' group discussions and video narratives.

Phase 2*: Participatory game universe design workshop:* In their GD-LLL-PE framework, Romero et al. (2017) present the concept of 'game universe' as one of the game design perspectives. The game universe concept refers to multiple aesthetic "game narrative elements

like the story, characters and settings" (Romero et al., 2017, p. 6). Game universe preferences can be influenced by participants' previous game-related experience, age, beliefs and values, aesthetics, technological favourites, or their "preferences for different forms of interactive engagement" (Romero et al., 2017, p. 5).

Involving agricultural colleges' instructors in the participatory game universe design workshop provided them with an opportunity to collectively create knowledge in the form of a game universe to be used in *Mela*. In this workshop instructors first learned about the concept and main elements of serious games and their applications in learning environments. Then, instructors of each college (as one group) selected a potential role from the list of roles that they made in phase 1 and created a possible game universe to show how that specific potential role can be practised in real life. This process included scenario writing, drawing of the settings and locations (e.g., college campus, practice site environments or office space), identifying the characters and the potential options of choice and their consequences (see Table 2).

The data in this phase were stories and their associated settings that instructors developed during the workshop to show how an instructor can support students regarding SGBV issues. The stories were non-linear, 'choose your own adventure' style, with two-choice and two-ending decisions. These stories were sources of inspiration in writing *Mela* scenarios.

Working with the discussions and stories

In **phase 1**, the production of cellphilms provided two sources of data: transcripts of group discussions and stories of instructors' lived experiences regarding SGBV issues on campuses.

Group discussions revealed a variety of issues and concerns about the potential roles of

instructors in creating an SGBV-free learning environment for students. Thematic analysis of participants' group discussions resulted in nine general themes as potential roles for instructors. For example, research participants believe "awareness creation" is one of the key roles that an instructor can play on campus, and this can be toward five groups of: female students, male students, both genders together, faculty members and staff, and the community (students' parents). See Table 1 for all general themes and their subcategories.

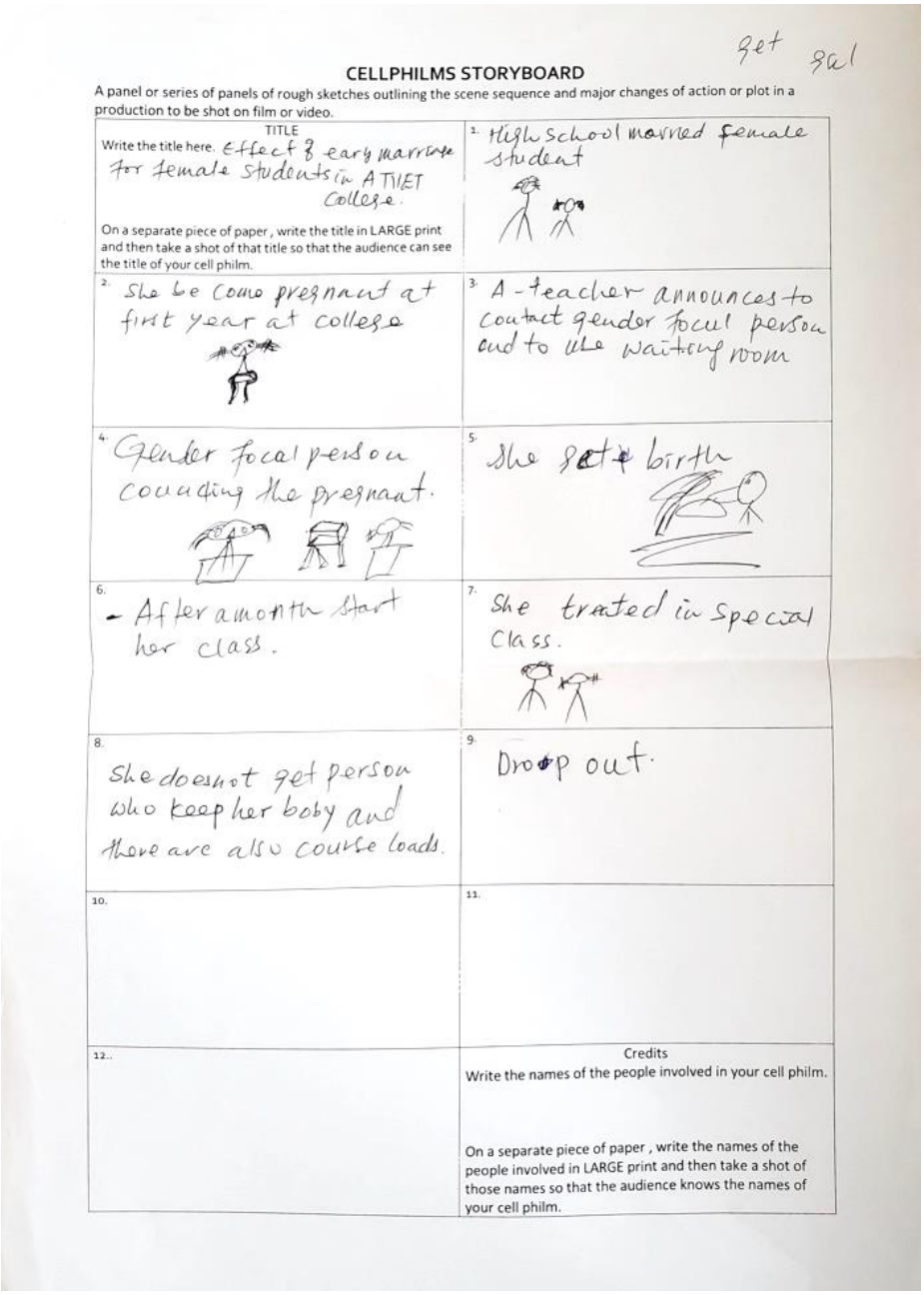
Table 1: Thematic analysis of potential roles of instructors to address SGBV on campuses

The general themes	Subcategories
Awareness creation	For male students specific (e.g., Minimizing superiority behaviour)
	For female students specific (e.g., Training on leadership skills)
	For both genders (e.g., Reporting processes for both victims and witnesses, like how to report an SGBV incident?)
	For faculty and staff (e.g., codes of professional practice)
	For community (e.g., tackling taboo issues and gender stereotypes in the community.)
Gender and HIV mainstreaming	Incorporating gender issues in the curriculum/courses
Providing extra tutorials (especial treatments)	for female students to help them to improve their academic performance
Creating a safe environment	Physical environment in practice or demonstration sites activities.
	in the courses that there is danger of chemical incidents (e.g., for pregnant females.)
	Psychological
Being Gender-inclusive	in distributing the protective resources and learning materials
	In the college registration ratio
	In designing rules and regulations
Providing Counseling and guidance to students	Considering both males and females (e.g., Consulting the females who have been harassed.)
Reporting to concern bodies	Like reporting incidents to gender office and/or student dean
Conducting research projects related to gender issues	For example, developing proposals to start projects on income-generating activities which will help female students

Supporting needy students (Specifically females)	For example, by providing stationary materials to decrease the transactional sex;

Participants also reflected on the barriers that stop the instructors from fulfilling their potential roles. Thematic analysis of group discussions regarding obstacles identified nine general factors: “lack of resources (which can lead to restricted applicability level of the knowledge)”, “lack of enough information, training and awareness”, “time shortage”, “lack of commitment in some instructors”, “cultural restrictions”, “lack of organizational structure”, “Lack of health expert”, “Shortage of financial capacity in students”, and “Lack of interest of some female students to participate in trainings”.

Creating the lists of potential roles and their barriers opened both participants’ and researchers’ eyes to the various ways that instructors could address SGBV incidents on the campuses. Each item on the list was a potential topic for a short cellphilm video. The goal of creating these videos was to learn how participants put their suggested potential roles into practice in simulated real-life situations. Due to the time limitation, in each college, participants selected one or two items from their lists to create a storyboard. In the storyboard, instructors assigned a title for their cellphilm and created a scenario divided into multiple sequences, each of which shows the event’s location, characters and incident. Figure 1 is a sample of storyboarding.



CELLPHILMS STORYBOARD

A panel or series of panels of rough sketches outlining the scene sequence and major changes of action or plot in a production to be shot on film or video.

TITLE

Write the title here. Effect of early marriage for female students in ATVET College.

On a separate piece of paper, write the title in LARGE print and then take a shot of that title so that the audience can see the title of your cell philm.

1. High school married female student

2. She be come pregnant at first year at college

3. A-teacher announces to contact gender focal person and to the waiting room

4. Gender focal person counding the pregnant.

5. She get birth

6. After a month start her class.

7. She treated in special class.

8. She doesnot get person who keep her boby and there are also course loads.

9. Droop out.

10.

11.

12.

Credits

Write the names of the people involved in your cell philm.

On a separate piece of paper, write the names of the people involved in LARGE print and then take a shot of those names so that the audience knows the names of your cell philm.

Figure 1. Sample of a storyboard; for the cellphilm: "Effect of Early Marriage on Female Students in Agriculture College"

In total, the participants created six short cellphilms (lasting between 2:05 to 3:42 minutes). In the cellphilms, participants showed their perspectives on how instructors can support female students by various forms of involvement, like 'providing advice', or guiding them through the process of reporting an SGBV incident. These pieces provided local working

material to develop *Mela*'s scenarios based on true stories. See table 2 for cellphilms' topics and their focus areas.

Table 2: Titles of cellphilms and their focus areas, created by research participants

Title of Cellphilms	***Brief Description of the Cellphilm***
Providing Advice	This cellphilm seeks to raise awareness of instructors' potential role in intervening and solving some SGBV problems of the colleges.
How to Report GBV	This cellphilm focuses on how instructors can support female students in reporting incidents to gender clubs or other concerned bodies.
Supporting Survivors	This cellphilm aims to inform instructors of their potential role as active bystanders and female students' advocates.
Rural Female Student and Communication	In this cellphilm instructors target the communication difficulties and shyness that some female students have which lead to their lack of participation in the class. The cellphilm aims to show how instructors can address this issue specifically in relation to girls from traditional settings.
Effect of Early Marriage on Female Students in Agriculture College	This cellphilm highlights two ways of supporting pregnant students (who might have difficulties on the campus and in their studies) by instructors: informing them about Gender Club facilities and providing them a special tutorial class so that the student can catch up.
Lack of Instructor's Commitment to Respond for GBV Problem	This cellphilm seeks to address the lack of commitment and sense of responsibility among some instructors regarding their college's SGBV issues.

Overall, in phase 1 group discussions provided an informative landscape of instructors' capabilities and obstacles in playing a meaningful role to prevent SGBV in agriculture colleges. Also, the cellphilms offered authentic scenarios to clarify the issues, and contributed to evolving the game universe. Learning about instructors' potential roles alongside the data from cellphilms provided useful perspectives to capture instructors' educational needs and develop the game's 'learning objectives'. For example, through these cellphilms themes of being an active bystander, effective classroom organization and management, professional code of

conduct (on-campus and off-campus), gender-responsive advocacy, breaking gender stereotypes, and cyberviolence emerged.

In **phase 2**, participants went one step further in their efforts to developing *Mela*'s game universe and especially helping to make the stories more interactive. What happened in this phase was developing more scenarios based on the list of potential roles (created in phase 1), but with two specific differences: **a)** The workshop was game-oriented, and participants developed the stories being conscious from the beginning that the stories might be used as game scenarios; **b)** The stories in the workshop were offered in a non-linear model (including branches in stories) versus cellphilms that followed a linear narration. Linear stories do not provide options for the audience to make decisions and consequently change the scenarios' directions. Table 2 provides a brief description of game stories developed by participants in the workshop.

Table 3: Game storylines developed by participants in the participatory game universe design workshop

The main theme	***Brief description of the storyline***
Instructor providing advice to students affected by SGBV	A female student approaches an instructor at her/his office regarding a male student's insulting behaviour. Here the instructor is given two options to choose: a) to call the male student and inform him about his bad behaviour or b) to ignore accepting the female student's experience as a problem. Following the first option results in conflict resolution between male and female, and choosing the second option ends with continuity of the problem and finally, a drop in female's grades.
Increasing female students' participation	An instructor asks a question in the class but notices that although the number of female students is higher than males, most of the hands that are raised to answer the questions belong to males. The instructor is given two options to choose: a) ignore and pass or b) address the situation by various options like providing chance (random chance or lady first) or encourage females to participate. If the instructor selects to skip the situation, the story ends with having female students failed or withdrawn from the course, but if selects to

	address the issue somehow, the story ends with increased participation of females in the class.
Active Bystander	In this game story, while 40 students are in the practice site, one female student was physically harassed by a male student. She did not report it to the instructor of the course, although the instructor noticed it. Now the instructor is in the position of choosing from two options: a) to ignore what happened, assuming that if there was something serious the girl would report; b) to acknowledge that there is a case and she/he needs to take action. In this scenario, the branch (a) continues with the female student no longer attending the class. The instructor contacts her friends and family to find her. Her family also starts blaming the girl. The female student feels sad and starts looking for a job. The instructor finally finds her and takes her to the Gender Office so that she can get help. In branch (b), the instructor tells the incident to another instructor, who guides the girl to the Gender Office to learn more about their services. In the Gender Office, the girl feels safe to report the harassment incident, and then the Gender Officer takes her to the class. The instructor invites the Gender Officer to the class to advise students.
"How to report, whom to report GBV"	The situation in this game story is about a female student who is on her way to the class but is stopped by a male student. The male student forces her to talk with him. The instructor who is on the way to the same class notices the situation and has to choose between two options: a) to ignore; or b) take an action. Ignoring this situation affects the female students in different aspects of her life, such as physically, academically and socially. However, in the second option, the instructor decides to talk to both students and advise both on how to solve the issue.

These stories and scenarios were generated as part of "context and learner analysis" and "game universe design" based on the GD-LLL-PE model (Romero et al. 2017, p.5).

Incorporating the data into Mela

In the pedagogical integration stage, the learning objectives were developed by the authors based on the collected data from prior phases, particularly the group discussions. In this stage, along with consulting experts from education and gender fields (in Canada and Ethiopia), various practice-based resources (e.g., toolkits, guidelines, government documents)

in the areas of gender and teacher education were reviewed with the purpose of adopting from their relevant educational content (Examples of resources include: Afolabi & Abatan, 2014; Baker, 2015; FAWE, 2018; Mlama et al., 2005; UNESCO, 2009; USAID, 2009).

Since developing *Mela* was an iterative process of "creation-as-research" (Chapman & Sawchuk, 2012, p. 19) there is no clear temporal boundary between scenario development and pedagogical integration stages. These two practices proceeded simultaneously in collaboration with a team of eight young people from Ethiopia's gaming community (D5gamecon group), who supported the technical aspects of the game design/development.

The story of this roleplaying game occurs in one academic year of an Ethiopian agricultural college, and where the player takes an instructor's role. On the first day, the player meets her/his colleagues at the faculty lounge, where instructors gathered to have the year's first meeting. While having an informal talk with colleagues, the player is invited to the college orientation session. Here is the first decision-making spot for the player to either accept or decline the invitation. Then the player enters a class to start a course. From the first weeks, the player faces different SGBV-related challenges on the campus that threaten or have an impact on female students. The challenges are offered throughout the game in the format of multiple progression options, where the player needs to make a decision from a set of alternatives. Each option has a separate consequence and can take the player into a different direction/scenario. This format enables having two different endings in the *Mela* game. The game mechanics and feedback system have been designed in a way that when the choice is more appropriate in terms of promoting gender equality or preventing SGBV issues, the player not only receives a certificate (as an incentive) but also students' grades (specifically female students' grades)

improve in the exams. This feedback system aligns with what some participants suggested in their game storylines. The gameplay duration can vary between one to two hours, but ideally a player should repeat the game to see all scenarios and collect all the certificates. As Mildner and Mueller (2016) noted, making branches in the game, where players can decide which path to follow, increases the game's re-playability and complexity.

Here we offer two samples of scenarios from the data collection phases that were incorporated into the game stories after pedagogical adjustments by the authors and gender experts.

In “Active Bystander” the course instructor witnesses a male student's using insulting behaviour toward a female student and the instructor must decide to intervene or ignore. Figure 2 shows how participants described the situation in text and in drawing of the practice

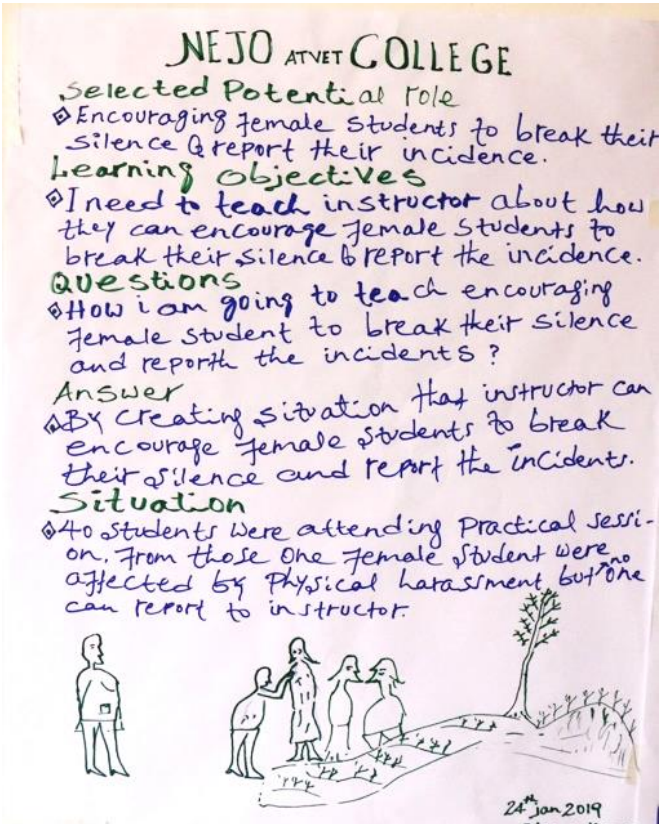


Figure 2. Text and drawing of research participants for ‘Active Bystander’ scene

site setting. The adjusted version of this story, its characters and setting, and possible options for actions were incorporated in the game within the overarching storyline context. Figure 3 shows how this story and setting (agriculture college demonstration site) were designed in the game.

Figure 3. Image for 'Active Bystander' scene in Mela game

In another example: "Female students' participation" which happens inside the classroom, the instructor asks a question and observes less participation of female students even though there are more females than males in the class. The instructor needs to decide between solving this issue or leaving it as it is hoping that it will be resolved naturally. Below,

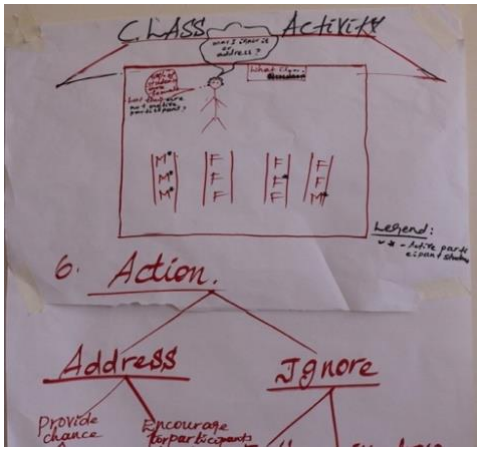


Figure 4. Lack of 'female students' participation in classroom activities' scene in participants' stories

Figure 5. Lack of 'female students' participation in classroom activities' scene in the game

Figure 4 shows a sample of participants' drawings and options for decision making, and Figure 5 shows how a similar story is presented in the game.

Although beyond the scope of this article, the design process also included two other phases of 'prototype development and feedback collection' and 'game development and feedback collection'.

Towards A framework for 'Participatory Arts-based Game Design'

Based on the process we have described in the previous sections we propose the idea of Participatory Arts-based Game Design (PAGD) as an innovative way of utilizing digital and arts-based practices to enable an authentic participation of game users in game design.

The widespread growth of digital technologies has changed the way people conduct participatory research and the way researchers "might think about involving participants in participatory processes" (Mitchell et al., 2018, p. 122). Various types of digital devices, along with online and offline platforms, pave the way for a variety of creative methodologies, specifically when the subject itself is an innovative tool like a serious game. Here we draw together PGD and Participatory Arts-based Visual methods to explore the unique features of PAGD, and how this approach addresses some critical challenges in PGD of serious games, like how and when to involve the end-users in the design process; how to make the participatory process thoroughly engaging and immersive; and how to bridge the content knowledge with game design knowledge.

In the case of *Mela*, we explore how cellphilming can provide the storylines as part of participatory game development. In the PGD literature, there are other creative ways of engaging participants in design and data collection. For example, working with adolescents,

Hieftje et al. (2014) used three innovative methods for meaningful data collection to create a health intervention videogame. First, they used a Storytelling Through Graphic Illustration method and made a professionally painted image as the centrepiece of their focus group discussions. Then they engaged their participants in the My Life activity, where adolescents envisioned their future decade on a paper by drawing a linear visual storyline. In the Photo Feedback Project method they asked participants to take pictures of their environments, peers, favourites (e.g., clothing, hairstyles), and important people and objects. Although Hieftje et al. (2014) did not refer to the concept of 'game universe perspective' in their design, their methods (specifically the Photo Feedback Project) align with this perspective by providing valuable data to be used in the script writing, character development and artwork/aesthetic of the game. The researchers recommend applying various creative strategies in engaging youth and creating meaningful interventions, so offering PAGD can be a response to this invitation.

At the heart of our idea of PAGD is the inclusion of at least one arts-based tool. As discussed above, it can take various forms, including photovoice, participatory video/cellphilming, drawing, and digital storytelling. What happens during PVMs is a process that Mitchell et al. call 'Critical Community Engagement' (Mitchell et al., 2018, p. 6). The essence of this approach is to use the visual or the arts as a common, easy-to-understand and aesthetic language to create a space, where community members collectively engage in a problem-solution discovery process, reflect on it, and turn it into a policy changing dialogue. Different PVMs have different processes to create this critical community engagement. As we identify below, PAGD enables a Critical Community Engagement process through multiple features.

Producing multimodal material: In this research, participants became involved in a research-creation process (Sadati & Mitchell, 2020), which started with creating cellphilms. These productions are original and locally-based content (SGBV issues, stories, college environment, and characters), which are valuable resources for game illustrators in creating a game environment that is authentic and realistic to the game audiences, who are the research participants. The videos' stories can also be a source of information for game script developers, inspiring them to think of scenarios that are more appropriate to game audiences' lived experiences. Following the work of Jewitt et al. (2016) and others on multimodality, the games can be read as artistic multimodal productions based on storylines, images and illustration, sound and other design features.

Immersivity: Immersivity refers to an engaging experience where people, in a sense, 'lose themselves' in the experienced environment in a way that they might not be aware of their surroundings or even of the passing of time (Jennett et al., 2008). Weik von Mossner (2020) refers to three routes of engagement and immersivity as: character, narrative, and storyworld. PVMs help in deepening an understanding of engagement in social science research. The process of 'putting people in the picture' specifically in *Mela* through cellphilming highlights the significance of these three routes of engagement as contributors to an immersive experience. The game universe design process includes these three elements and turns the process into an immersive experience both for participants and researchers.

Ownership: Through their involvement in different participatory phases of this research, the voices of participants were key in identifying the SGBV issues in their colleges. This means the participants 'own' the data and are more likely to bring the results back to their

communities for actual use on the ground. This is something Ampatzidou and Gugerell (2019) refer to, noting that the participatory game prototyping process creates a sense of ownership among the participants, which "supports the rooting of the game in the local context" (p. 347). The use of participatory arts-based visual methods to create *Mela*, with its potential to enable engagement, reflection, and taking action, supports a sense of ownership and enhances the potential for sustainability once the researcher team withdraws at the end of the project.

Leaving a tangible product in the community: Mitchell and Sommer (2016, p. 522) ask: "What happens when the researchers depart"? and they continue to ask: "how can the use of participatory visual methodologies empower participants to continue their efforts beyond the study?" Within the framework of PVMs (regardless of the technique – photovoice, cellphilm, drawing, digital storytelling), both 'product' and 'process' are important. While the 'process' helps to engage participants and collect reliable data, the 'product' or as Mitchell et al. (2018, p. 121) call the "digital artifact" is an entity that remains in the field and promotes further dialogue. This tangible outcome in PVMs can be varied based on the applied technique (e.g., photovoice, cellphilm, drawing, digital storytelling). Some of these outcomes can be shown as photos/exhibitions (*Kupitia macha va Akina mama / Through the Eyes Of mothers*, 2016), videos/cellphilms (MacEntee et al., 2016) or digital storytelling (Mitchell et al., 2018). In this way, PVMs offer a 'getting out' strategy that does not leave the community alone after the researchers depart.

Here, what is left in the community is the actual *Mela* game. In this context *Mela* is not only a self-educating tool for professional development for instructors, but also can be used as a tool to generate other types of activities (e.g., game nights, quiz nights) that are meant to

address gender-based issues of the colleges (see Sadati, 2019). This method expands the boundaries of a project's viability in the field by planting a seed (in our case, a serious game) that will grow within the community by using and interacting with it.

This process is in line with a transformative approach and the idea of research as an intervention that can be extended to the community beyond the research. Within a transformative framework, research is dialectical, and is considered as an intervention for social change. In this framework, then the researcher's goal is not just collecting or extracting the data, and what researchers leave behind after withdrawing from the field should also be taken into attention. We echo Freire (1970), who said education is not a neutral act, and believe research also cannot be neutral. Research needs to serve the oppressed and the most vulnerable, otherwise, it either serves the researcher for individual academic/professional benefits, and/or the policymakers to make more oppressive policies.

Conclusion

In this article we have argued for the idea of Participatory Arts-based Game Design (PAGD) as an approach that brings together a participatory arts-based visual method with a participatory game design process, focusing on a game universe perspective. Our experiences with the design of *Mela* show that this framework has the potential to create a venue for, as Simonsen and Robertson (2013) described, genuine participation of game users in the design process. It also can be an example of "highest level of involvement" of a "stakeholder as a partner" in designing a serious game (Mildner and Mueller, 2016, p.77). PAGD not only places the end-users at the centre but recognizes the key role of engagement and immersivity in the field, a point that is likely to contribute to ownership and promoting the game in local settings.

It involves the research participants, who do not have the programing knowledge, in an engaging game universe design process and expands their role and scope of contribution, to not be just a feedback provider in the broader game development practice.

As McEntee (2015) highlights in her reflections on gender-based violence (GBV) research in South Africa, incorporating methods like cellphilming into GBV research acts as a bridge to cover the gap between "research knowledge production and the need for community-based social change" (p. 23). This is critical when we consider the needs in colleges for self-educating tools in Low- and Middle-Income Countries (LMICs) settings, especially considering the costs required to develop a serious game.

More studies need to be conducted to explore various aspects of the PAGD method and its impact in different settings, but the initial effect here can be understood from the research participants' responses to feedback forms during two prototype-test and game-test sessions, where the majority confirmed the success of the game in reaching its goals. As also explored elsewhere (Sadati, 2019) participants' testimonials after the game-test session showed that they found the *Mela* game to be an effective tool in building agriculture instructors' capacity in addressing campus-based SGBV.

Finally, we see that there are many implications for how researchers, designers, and communities work together, including the most obvious one of studying the game's impact on reducing the high rates of SGBV on college campuses. Applied to addressing sexual and gender-based violence in LMIC settings, this approach seems particularly relevant to ensuring that *Mela* is more than 'just a game'.

Acknowledgements

We are grateful to the Agricultural Transformation Through Stronger Vocational Education (ATTSVE) project (funded by Global Affairs Canada), International Development Research Centre (IDRC), Fonds de Recherche du Québec - Société et Culture (FRQSC), and McGill Faculty of Education to support the fieldwork carried out in *Mela*'s development. More than anything, we are indebted to the instructors in the four ATVET colleges, Maichew, Nedjo, Wolaita Sodo, Woreta for their enthusiasm and commitment to the cause of creating safe spaces for teaching and learning. We also would like to thank D5gamecon group for their technical support in developing *Mela*.

This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada. The views expressed herein do not necessarily represent those of IDRC or its Board of Governors.

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Bridging Statement

Through the previous chapter, Participatory Arts-based Game Design: Mela, a Serious Game to Address SGBV in Ethiopia, I tried to answer the first set of my dissertation's questions and meet the first objective. The questions focused on the techniques of creating a culturally, aesthetically, and pedagogically responsive serious game that meets the needs of agriculture college instructors in building their capacity to address campus-based SGBV. The questions were about how to ensure the end-users' voice and genuine participation are present in the design process and ultimately in the final product.

To address these questions, I described a part of my fieldwork in four agriculture colleges which included a participatory arts-based and visual method (cellphilming technique), and participatory game universe design. Combining these two practices, I offered an engaging and interactive approach to the design of serious games, which I referred to as Participatory Arts-based Game Design (PAGD). I argued that PAGD has the potential to not only place the end-users at the centre but to recognize the critical role of engagement and immersivity in the design process. In the case of cellphilm production, I showed how cellphilming can provide storylines as part of participatory game development. In the case of participatory game design, I showed how non-linear storytelling created complementary and interactive stories for the *Mela* game.

Furthermore, I discussed that the use of cellphilms was beyond the storytelling, and they could provide multimodal materials that later were used in designing *Mela*. I argued that at the heart of the idea of PAGD is the inclusion of at least one arts-based tool, which can be in different digital or non-digital forms, such as photovoice, participatory video or cellphilming,

drawing, and digital storytelling. At the last part of my previous manuscript, I identified multiple features that PAGD has the potential to offer in a field oriented towards impact and sustainability. The features include producing multimodal material, immersivity, ownership, and leaving a tangible product in the community after the research.

While my previous chapter focused more on researching and collecting data, the next chapter, Serious Game Design as Research-Creation to Address Sexual and Gender-based Violence, will focus more on the creation of *Mela*. There, I will describe how in my project, two concepts of 'research' and 'creation' could proceed together, inform each other, and lead to an artistic product. In the next chapter, I will discuss the concept of research-creation practice and will argue how the case of designing and developing *Mela* is understandable within the context of this practice.

The main link between my previous chapter and the next one is the PAGD approach in designing serious games. Both PAGD and research-creation consider artistic products as central elements. Also, both of them include an iterative process: in PAGD the iteration occurs among researcher, participants and game development team and in research-creation, the iteration happens between research (data collection or generation) and creation (data implementation). While the previous chapter took a more methodological stance, the next one will present a more conceptual viewpoint to designing a serious game that aims to address SGBV in Ethiopian agriculture college settings.

CHAPTER FOUR: SERIOUS GAME DESIGN AS RESEARCH-CREATION TO ADDRESS SEXUAL AND GENDER-BASED VIOLENCE[13]

Abstract

Research-creation is a growing practice in humanities that tries to balance the pace of socio-cultural inquiries with modern media advancements and qualitative knowledge construction methods. It refers to various conjunctions of "research" and "creation" (i.e., research-for-creation; research-from-creation; creative presentations of research; and creation-as-research) around an artistic component. Drawing from fieldwork with instructors in four agricultural colleges in rural Ethiopia, this article explores how a participatory arts-based serious game design process is explicable within the context of research-creation. This work's change-oriented agenda led to developing *Mela*, a serious game, to educate and empower instructors in agriculture colleges to tackle sexual and gender-based violence issues in their institutions. Here, we articulate *Mela's* design process, its artistic composition and how we understand it from different angles of research-creation practices. We also offer our introspective accounts during and after the design stages, referencing culture and gender as critical concepts. Serious games are pedagogical products that are designed for a meaningful learning experience. This work deepens the understanding of how research-creation practice can benefit the serious game design field by ensuring the attention to both process and production.

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[13] Sadati, S.M.H., & Mitchell, C. (accepted). Serious game design as research-creation to address sexual and gender-based violence. *International Journal of Qualitative Methods.*

Keywords: research-creation, serious games, sexual and gender-based violence, social change

Context

The prevalence of violence against women and girls in Ethiopia remains a serious problem throughout the country despite some signs of progress (Kassa & Abajobir, 2020; UNODC Eastern Africa News, 2020). Sexual and gender-based violence (SGBV) is a concern specifically in Ethiopian post-secondary institutions (Wende, 2016). A systematic review and meta-analysis, which reviewed studies between 2000 and 2017 focused on SGBV among young females in educational institutions of five countries across Sub-Saharan Africa (SSA), reported an overall high prevalence of sexual, physical, and emotional violence, with Ethiopia as the highest (Beyene et al., 2019).

There have been a variety of ways that universities in SSA have embarked upon developing interventions and appropriately focusing on student engagement. To date, however, instructors' engagement has been less of a focus even though, as we explore in this article, instructors could be part of the change process, specifically regarding the sustainability of initiatives. Instructors usually continue their work at the institution (while students come and go) and typically remain in their academic position even if they change their institutions. Instructors also occupy a strategic position in the colleges: they directly work with students who are typically at the bottom of the organizational pyramid, and at the same time, directly work with other instructors and the administration, who are, in the hierarchy of institutions in more powerful positions to effect change. Instructors gain knowledge about students' issues and are close enough to the power (in personal and group meetings) to advocate for students.

This was our thinking when, as part of a large-scale study, ATTSVE[14] project, we initiated the idea of using a range of arts-based tools for participatory design of a serious game to build capacity and accountability of instructors in tackling SGBV on campus. We wanted our "designed-based research" (Jesson & McNaughton, 2020, p. 58) to lead to an interactive and culturally responsive tool that can support instructors of Ethiopian agriculture colleges in addressing campus-based SGBV. A critical question throughout the process was how such features as engagement, storytelling, and the specific content related to SGBV interact? Also, in a game with so many multimodal features, how best to frame the notion of 'creation' and 'research'? Furthermore, methodologically, what could we learn from research-creation practice in the context of a digital serious game design that is meant to be participatory and social change-oriented? We are interested in how the participatory development of a serious game offers a venue for merging locally co-created knowledge and bottom-up design, and how this can become central to addressing social change and arguing that the idea of research-creation is a promising sustainable approach?

Research-Creation and Digital Games; Theoretical Context

Our project draws together two broader areas: practices in research-creation and processes in participatory serious game design. Canada's Social Sciences and Humanities Research Council (SSHRC) defines research-creation as "an approach to research that combines creative and academic research practices, and supports the development of knowledge and

[14]Agricultural Transformation Through Stronger Vocational Education (ATTSVE) project, funded by Global Affairs Canada to contribute to moving Ethiopia towards a market-focused agricultural system and to foster and support gender equality, diversity, and inclusiveness in agriculture colleges (see www.attsve.org).

innovation through artistic expression, scholarly investigation, and experimentation" (SSHRC, 2020, "Research-creation" para.1). Chapman and Sawchuk (2012) noted that in Britain and Australia, research-creation is known more as Practice as Research (also see Barrett and Bolt, 2007), in US it is recognized as Arts-based Research, and as Westecott (2020) stated, in Europe, it is known as 'practice-based research'. Common among these definitions is what research-creation does in practice, which is a combination of conducting research and building a tangible and artistic outcome. Cohen (2015) identified it as disseminating knowledge through the language of practice, Springgay and Truman (2017) called it creating a complex intersection of art, research and theory, and Loveless (2015) observed it "as a changing, hybrid set of practice" (p.41). This characteristic offers novel forms of tools for knowledge and meaning creation, which from Khoury's (2017) perspective, was a "potential for intervention" (p.8). Similarly, in her talk at the *Thinking Communities: Celebration of Research in KIAS and Arts* event, Loveless (2016) noted research-creation "as an epistemological and methodological intervention" (3:30) and pointed to scholars' interests in learning about the contribution of research-creation practices to sparking scholarly shifts and therefore understanding justice and moving toward social change.

This article connects research-creation to participatory action research (PAR), which as Jokela (2019) stated, has inspired developing other methodologies such as art-based action research (ABAR). In 'action research', the researcher is an active agent of a change-oriented research process (Muurlink, 2018). It explores, evaluates and more importantly, tries to find possible improvements for a context from the stakeholders' lenses. Also, it usually deals with

questions that start with 'how' (McNiff, 2017), such as how to improve female participation in a male dominant class?

Although the research-creation interventionist practice might look similar to other participatory methodologies, specifically to the concept of "research-as-intervention" (Mitchell et al., 2017, p.21), it sheds light on several different angles. Based on Chapman and Sawchuk's (2012) definition, research-creation can take the following four forms of practices: a) *research-for-creation,* referring to how the researcher explores a topic and gathers data to be able to produce an artifact (e.g., sketch, film, poetry, painting, textile, or a game). Westecott (2020) interpreted this form of research-creation as a phase to address both 'what' and 'how' of the practice; b) *research-from-creation,* where artworks (such as performances or interactive artifacts) can be the means of data generation to provide a better understanding of the research subject; c) *creative presentations of research,* where the results of an academic study are presented through the art forms (e.g., a painting), and not in traditional ways of academic paper publications; and d) *creation-as-research,* where both research and creation happen at the same time, and as Westecott (2020) articulated "knowledge emerges out of the creation process itself and results in both the artifact and accompanying documentation with research as the end goal" (p.15).

Research-Creation and Serious Games

While there are different views on whether digital games are art (Gee, 2006; Skiles, 2020), similar to Atkinson and Parsayi (2020) we consider digital games as art forms with various aesthetic aspects. Also, like Santiago (2009) in her TED Talk, we believe what distinguishes an artwork from non-art is the main element of *being engaging for the audience*.

Digital serious games are relatively novel media forms, and it might take some time to be fully welcomed by the art world, but it does not mean that currently they are not artworks. As Martin (2007) argued, this was a similar challenge faced by other currently accepted artistic media forms (e.g., photography and cinema) at the time of their emergence. As an example of the increasingly global recognition of this concept, in 2011, the US National Endowment for the Arts recognized digital games as a form of art (Protalinski, 2011).

Abt (1987) coined the term, serious game, referring to games that pursue entertaining and educational purposes simultaneously. Dörner et al. (2016) argued that serious games are designed to entertain and achieve at least one additional goal (e.g., learning or health). The concept of serious games aligns with 'action research' since it seeks improvements in specific contexts. For example, the serious game, *Sandra's Keys,* aimed to increase player's knowledge on various forms of elder abuse and improve their understanding of possible intervention approaches, particularly by being active bystanders in these situations (Lafontaine et al., 2020). The researchers of this game, called themselves "activist game designers" (p.202) and referred to the concept of a "social justice game" (p.189) to show the links "between activism, social justice and games studies" (p.202).

As a game design practice, participatory design methods, with the idea of "user as partner" (Sanders & Stappers, 2008, p. 5) has been a solution for managing educational game design issues, such as the effectiveness of the game in facilitating the learning, or design requirements for disabled learners or people with special needs (Ismail et al., 2019). Mildner and Mueller (2016) expanded the idea of the user as a partner to all stakeholders of the subject and suggest four common ways of involving stakeholders in the participatory serious game

design process: a) Stakeholders as users; b) Stakeholders as testers; c) Stakeholders as informants; and d) Stakeholders as design partners.

Here, we focus on participatory serious game design in the context of the research-creation process. The concept of research-creation is relatively new concerning its potential to be applied to serious game design processes. Lelièvre (2018) stated that the description of research-creation methodology in the game design field "has not been popularized to the English-speaking community" (p.1) and mostly has been used by French-speaking scholars. While some studies have explored expanding research-creation projects into the serious games field (see Ashraf, 2020; Goodine, 2020; Robinson, 2018), the body of knowledge in this area still suffers from scarcity in various aspects. For example, although Westecott (2020) used Chapman and Sawchuk's (2012) four forms of practices to explore the potential of game sketching methods as a tool for research-creation, there is a very limited exploration of how an actual serious game design process can be approached based on these four forms of practices.

Research-Creation and *Mela* as a Serious Game

This section focuses on articulating how the research-creation process was a key feature of an innovative design for a sustainable tool, meant to address SGBV in Ethiopian agriculture colleges. We map out the applied methods and research participants, providing a brief description of the *Mela* game, articulating the art forms designed and incorporated in the game, and finally discussing how serious game design, and mainly designing *Mela*, is understandable within the context of research-creation.

Applied Methods in the Design of *Mela*

The first author led the fieldwork over a period of one year. A total of 20 instructors (including 6 women) from four agriculture colleges in four regions of Ethiopia (Maichew (North), Nedjo (West), Wolaita Sodo (south-central), Woreta (North-west)) participated in the following four phases of data collection:

The **first phase** included individual interviews and cellphilm (cellphone+film) production with instructors in each college. In this phase, data were generated in the forms of interview transcripts and video narratives about SGBV incidents in agriculture colleges (see Sadati & Mitchell, under review a). Also, as part of cellphilm production, participants in each college became involved in group discussions regarding instructors' potential roles in addressing the SGBV issues. These conversations helped the participants in each college identify a list of potential roles, which were later summarized and integrated by the researchers to make a broad list. In the **second phase**, a participatory game universe design workshop was organized for all research participants. The data in this phase were stories that participants developed in group discussions and drafted on the flip charts, and then presented to everyone. The stories displayed how college instructors can create a safe space and support students (especially young women) to not be victims of SGBV on campus. As we mapped out in greater detail elsewhere (Sadati & Mitchell, under review a; Sadati & Mitchell, under review b), the data from interviews, and the stories created by instructors in the first two phases formed a database that helped the researchers in creating the game's learning objectives. In the **third phase**, all stories were refined according to the pedagogical purposes, and a prototype version of *Mela* was developed. Starting from this phase, a team of eight Ethiopian young game developers joined the project to support the technical aspects of the creation process. Research participants and

other experts from the fields of education, gender studies, and gaming tested the prototype and provided feedback on both the content and the gameplay (ways of interaction with the game). In the **fourth phase**, the extended game, *Mela*, was developed based on all data from previous phases. This phase also included a feedback collection process at the end using written forms.

About *Mela*

Mela (which means 'find a solution' in Amharic) is a single-player digital game, where the player is situated as an instructor in an Ethiopian agriculture college. The game starts with an introduction stage, where the player can set a personal profile by typing/choosing college name, gender, avatar name, avatar image (replaceable by any images from their device's gallery), and the name of a favourite course to teach. The personal profile also includes other features, such as achieved certificates, and a chart for students' grades, that are collected during the play. *Mela's* story begins on the first day of a new academic year when the player (instructor) meets their colleagues and starts a course with students. Across five chapters of the game, the player faces various SGBV related challenges (e.g., less participation of female students in the class, gender-stereotypical behavior and speech, physical and verbal sexual harassment and assault among students) and needs to make decisions to manage them. These decisions and the ways that player tries to overcome challenges affect students' grades and player's success in creating a safe space on campus. Also, throughout the game, the player can collect certificates (e.g., Effective Communication Certificate or Gender Responsive Advocate Certificate), recognizing their effort in promoting gender equality or preventing SGBV in the

colleges. The educational resources of *Mela* that have been adopted from various toolkits and guidelines, such as Mlama et al. (2005) and USAID (2009) incorporated in the game mechanics through different ways. For example, in different circumstances, the player receives emails (within the game) with educational content regarding specific gender-related subjects (e.g., power abuse, cyberviolence). The dialogues between the player and students/colleagues also contain informative material on female students' vulnerable situations on campus and potential solutions.

Learning objectives of *Mela* game focus on topics such as professional classroom organization and management, professional code of practice in the college, gender-inclusive distribution of resources, supporting female students to increase language proficiency and get leadership positions, elevating self-confidence of females, learning about the significance of effective communication with students and colleagues, caring for students, taking an active bystander role, and advocating for females' physical and mental safety. Overall, the various scenarios of *Mela*, its multimodal content (text, audio, visuals), and different types of educational materials try to improve the knowledge and capacity of instructors regarding these learning objectives.

As highlighted below, the *Mela* game uses different artistic features to support an engaging experience for delivering learning objectives. *Mela's* art forms are significant to understand its design process within the context of research-creation.

Mela's Artistic Composition

Schell (2020) articulated four basic elements of a game as a) mechanics, b) story, c) aesthetics, and d) technology and calls this set “elemental tetrad” (p.53). Pertinent to serious games, Kalmpourtzis (2019) offered “elemental pentad” (p.142) by adding ‘pedagogy’ to this list as the fifth element.

Research-creation projects combine a creative research *process* with an aesthetic component or an artwork *production* (Chapman & Sawchuk, 2012). Here, the focus is to describe how storytelling (as an art form) and aesthetics in *Mela* game intertwined with the research on SGBV in agriculture colleges and made multimodal elements of a research-creation and game design practice. Multimodalities refer to the combination of multiple modes of representation (e.g., text, visual images, audio, design), which is considered a shift from paper-based education, aligning with “active pedagogy” and “learner-centred approaches” (Philippe et al., 2020, p. 422).

Storytelling

Storytelling has been called “the oldest and the newest of the arts” (p.1), which enhances collective understanding of humans by enabling them to make sense of their world, explain themselves, and transfer their feelings and experiences (Greene, 1996). In game design, the story has been defined as a sequence of events that reveal in the game and can be either linear or non-linear/branching (Schell, 2020). The non-linear sequence of events leads to interactive storytelling (Dörner et al., 2016). Similar to cinema, theatre or literature, digital games could also be venues for storytelling. In this case, the game environment is like a theatre stage, and game characters and the game player(s) are the actors (Dörner et al., 2016). Stories and storytelling are critical components of serious games and play essential roles in connecting

the serious context with other gameplay elements (Kampa et al., 2016). They also help in "evoking emotion and facilitating immersion in a game" (Dörner et al., 2016, p. 47). Lacombe et al (2020) referred to some of the fundamentals of interactive storytelling or scriptwriting in games as: Universe, Characters, Trigger events, Dialogues (language), Action (decision making and consequences) and Scene.

***Mela* universe.** According to Lacombe et al. (2020) to build the story universe, one needs to identify the story genre, define the universe and maintain the story's coherency. *Mela* is a Role Play Game (RPG) and its story arc follows the 'slice of life' genre, which is about the everyday routine of the game characters (Chen, 2020) in an Ethiopian agriculture college with a focus on SGBV issues. Various features have been used to make the college environment convincing for the player. For example, at the beginning of the game, a narration follows a sunrise scene and informs the player about starting the new academic year: "It's *another beautiful day. The new academic year starts today*." The next scene guides the player into a college building while a question appears on the screen asking the player to type in their college name. This scene is followed by a narration that says, "*You are excited to meet this year's batch of students.*" In the middle of the introduction stage, the player finds themselves in

an office room (Figure 1) where the phone rings and a colleague invites the player to the teacher's lounge.

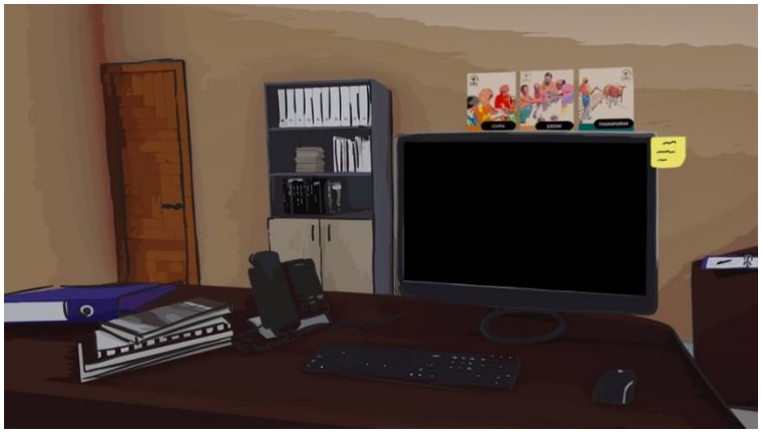

Figure 1. Player's office in the Mela game

***Mela* Characters.** The main character of *Mela* is the player who emerges as an agriculture college instructor. At the beginning of the game, the player has the option to choose their avatars based on their gender (Figure 2).

Figure 2. Avatars that the player can choose for their characters

Other characters of the story are the 'students' and 'colleagues' (academic and non-academic). Students include three young women and two young men (Figure 3). They are

Figure 3. Student characters in Mela game

introduced to the player in their first session of a course within the game. The game design team was inspired by instructors' cellphilms while developing the game characters. For example, Zeritu's character, a pregnant female student that deals with pregnancy issues, was adapted from the cellphilm *The Effect of Early Marriage on Female Students in Agriculture College* (see Sadati & Mitchell, under review a).

The player's colleagues in *Mela*, include two females and two males who are introduced to the player gradually during the game (Figure 4). Both students and colleagues play an essential role in running various events in *Mela's* scenarios.

Figure 4. Staff characters in Mela game

***Mela* Trigger Events.** Trigger events are starting points of a story, where something happens, and the players' adventure starts. They can be one or more and their presence throughout the story help to move the story forward. Some storytellers (e.g., Wolfe, 2017) believe trigger events mostly might happen shortly after the beginning of a story when player meets the main character and learns about the context. In this way, trigger events push the character to the 'no return' point.

Storytelling in *Mela* occurs in a non-linear and 'choose your own adventure' style, meaning that player's choice on alternative options can lead to different events. There are numerous occasions across five levels of the game that the player is situated in decision-making positions each of which leads to a different branch (see Figure 5). Player's performance in these situations leads the scenarios in different directions and, more importantly, affects students' grades, and/or the number of player's collected certificates. These scores remain in the player's profile until the end of the game, and are shown in player's final performance report. In that sense, they can be defined as trigger events. For example, in chapter three of the game, the player is situated on the spot to decide between accepting a colleague's request for a personal dinner meeting or a female student's request for an urgent consultation meeting.

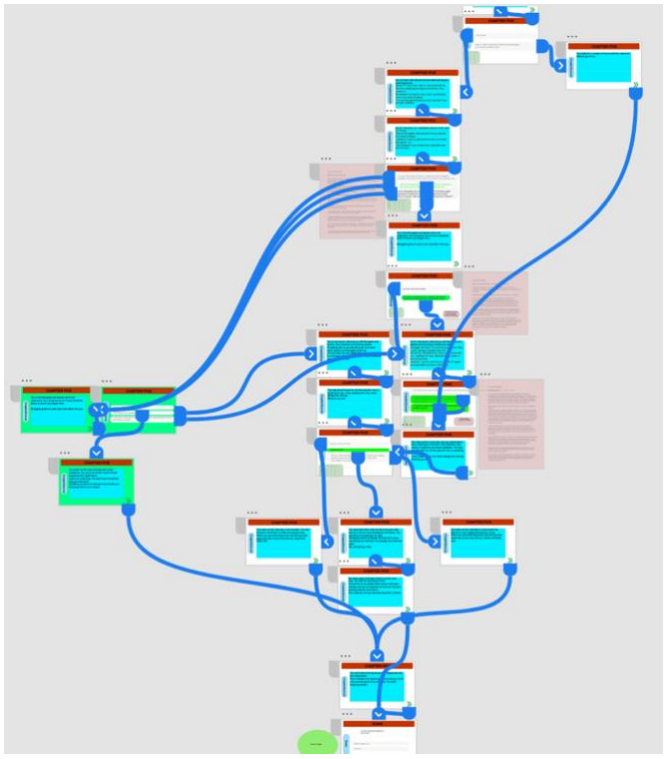

Figure 5. Screenshot sample of story branches in Mela (made on Acrobat XD)

***Mela* Dialogues.** Storytelling in the *Mela* game has been deeply established in the dialogues between the characters. These text-based conversations connect the characters to

each other, help the player learn more about the game environment, and carry informative content regarding SGBV issues and their solutions. Figure 6 shows a sample of a dialogue scene in the game. In this scene, the player is out of the college (in the town) with a colleague (Ayantu) to buy some goods and as they are walking, they come across a young girl selling some grains while carrying a small baby on her back. The player and Ayantu approach the girl and learn that she is 16 and had the baby when she was 14. This prompts a dialogue about the frequency of early marriage as a risky traditional practice for girls:

- Player: *"This is really terrible! She's not even old enough to take care of herself and she's already responsible for a baby".*
- Ayantu first says: *"Unfortunately, it's very common. Girls as young as ten get married."* And then continues: *"A lot of families believe that it's a big honour to marry their daughters off and have them start a family early."*

Figure 6. Sample of a dialogue scene in Mela

***Mela* Actions.** Bunting (2012) described the 'action' in storytelling, posing the question, "what are your characters doing?" (para.2). Lacombe et al. (2020) noted that actions are

possibilities besides dialogues to give life to a story. There can be active actions (e.g., shooting a film, dodging, walking by player), or passive actions (situations that there is no means of acting for the player, and actions are felt, or experienced by the player as a spectator, like when the player is forced to enter a room in a game)[15]. The actions are followed by visible consequences, and usually are shown as choices for the player.

The *Mela* game mechanics have provided a variety of 'action' possibilities for the player, such as inserting information in the game (e.g., a character name, a college name, or a favourite course to teach) (figure 7), making decisions to involve in different events or actions (figure 8), or initiating conversations with colleagues or students.

Figure 7. Player has the option to insert their college name

Figure 8. Player is given options to act

One of the ways of experiencing action in the game is the third person (audio and text) narration, which describes the setting, incidents, or timeline in the game. Figure 9 shows the text narration of an action:

You and Ayantu are having lunch, but you're still thinking about Zeritu's presentation and the handout problem that happened two weeks ago.

[15] Lacombe et al. (2020) did not make difference between 'active' or 'passive' actions. This is authors' interpretation from their examples.

Figure 9. Sample of a text narration in the game that accompanies an audio

***Mela* Scenes.** As Lacombe et al. (2020) argued, the scene is a "hallway" for other story elements to build a concrete sequence of events that brings the player closer to their goal. A role-playing game's story arc can contain several scenes each of which "consists of an introduction, a development and a conclusion." (Lacombe et al., 2020, p. 162). From this perspective, *Mela* includes six scenes: one introduction scene and five main scenes. Each of the main scenes starts in a specific period within an academic year, engages the player with few challenging situations and concludes with a (midterm or final) examination. In designing *Mela*, we refer to scenes as game 'chapters'.

Aesthetics in Mela

Kalmpourtzis (2019) introduced "audio" and "visual" as "the most usual and most established aesthetic forms" (p.297) that players face in games. Various types of audio and visual have been used in *Mela*.

Music, sound effects, and narrator voice in *Mela*. Background music has been used in few places such as in the "sunrise" animation of the introduction scene. Voice-over narrations

(that accompany text narrations), and sound effects exist throughout the game. As Kalmpourtzis (2019) argued, “if music offers atmosphere, sound effects offer feedback” (p. 297) and make the game seem natural. For example, once the player is awarded a certificate because of a proper decision, ‘victory’ and ‘applause’ sound effects accompany the animation of awarding the certificate. Other sound effects include the sound of birds in the forest, laughter in the class, clicking sound, door opening and closing, and a telephone ring. Sound effects also contribute to creating a more engaging and immersive experience, and the concept of “being there”.

Visual elements in *Mela*. To make the visuals as realistic as possible for the player, images in the *Mela* game are mainly based on what Cho et al. (2018) referred to as photorealism style. To prepare photorealistic visuals in *Mela*, photographs were taken (by the game development team or the first author), converted into cartoon format and edited as needed using software (see Figure 10). In few places in *Mela*, the black and white style (Figure 11) also has been used, which is defined as “a style that mainly portrays characters or environments in shades of black and white” (Cho et al., 2018, p. 637).

Figure 10. Converting real photos into cartoon using a software

Figure 11. Black and white visual style was used in few places of Mela game

Mela's visuals also include other types of 2-dimensional graphics (e.g., user interface icons, backgrounds), and few animations that were made by the artists. Figure 12 presents *Mela's* map, as a sample of graphic design.

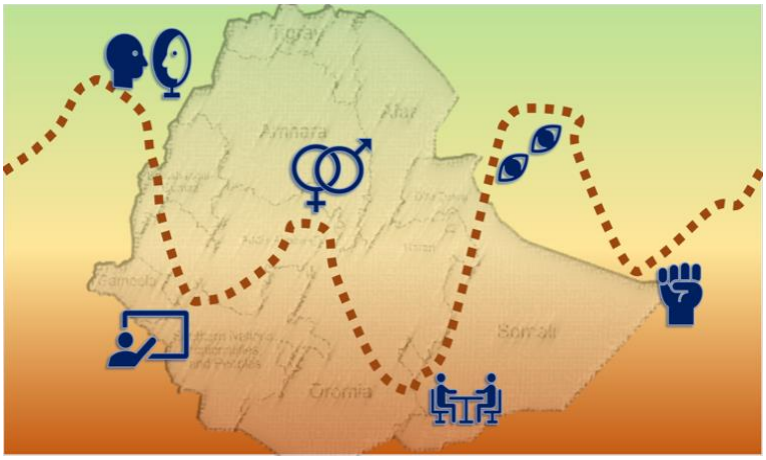

Figure 12. Sample of graphics designed by the artist in Mela game

Creating *Mela's* artistic forms (stories and aesthetics) and ultimately, the game itself, was an iterative process. This artistic composite was built during a trial with constant feedback collections from research participants and subject experts (in Canada and Ethiopia). At the

beginning steps of this research-creation journey, it was unclear what the final product would look like. The product emerged out of the entire process of being engaged in the research, involving research participants in multiple steps (from interviews and participatory workshops to prototype- and game-test sessions), working with a team of Ethiopian young game developers and then refining the game in collaboration with several Iranian freelance game developers.

Research-Creation and Innovative Design to Address SGBV

Mela's creation process is understandable in the context of Chapman and Sawchuk's (2012) four conjunctions of research and creation (i.e., research-for-creation; research-from-creation; creative presentations of research; and creation-as-research). *Mela* as a serious game has been designed to address SGBV in Ethiopian agriculture colleges. This work is firmly grounded in Participatory Game Design (PGD) (Mildner & Mueller, 2016; Romero et al., 2017) and cellphilm creation as a technique within Participatory Visual Method (PVM) (Mitchell et al., 2018). Combining these two approaches, we referred to Participatory Arts-based Game Design (PAGD) (see Sadati & Mitchell, under review b), as our overarching method and a process of engaging research participants with participatory creation of multimodal artworks, which led to formation of *Mela* serious game. Using this method, we gathered data in the form of cellphilms or short videos, which helped the authors and game developers learn more about the everyday lives of instructors in an agriculture college. During the fieldwork, we also took numerous situating pictures from the four target colleges and their environments (e.g., pictures of buildings, gates, town). This documentation compiled useful information that served the art-making process and the story arc of the game.

Mela aims to increase instructors' awareness about their potential roles in promoting gender equality on the campuses and consequently improving students' (specifically women's) academic achievement. From this perspective, a 'how' question always was pulsing at the background of every stage of the design process: How would the final product, embracing all multimodal elements and artworks, contribute to eliminating SGBV from the campus? How would it contribute to promoting gender equity in the colleges?

Mela's Design Process, a Research-for-Creation

By "research-for-creation," Chapman and Sawchuk (2012) referred to any initial data collection before beginning the official production. It can include reviewing the literature, identifying main ideas and concepts, gathering collaborators, assembling needed material and technologies, testing different prototypes and so on. This phase in *Mela* started with applying and receiving the Research Ethics Board of McGill University's approval, recruiting the research participants, and administrating the fieldwork process (like gaining participants' consents) in the four target agriculture colleges. Also, as part of the research process, a literature review was conducted on the SGBV status of Ethiopia, specifically in its post-secondary institutions and agriculture colleges. This review included reference to several previous studies related to the SGBV in the four colleges carried out as part of the larger ATTSVE project (Mitchell & Starr, 2018; Starr & Mitchell, 2018). These studies were critical because they highlighted the situation of SGBV at the four colleges. In another pre-*Mela* study, the students at the four colleges created cellphilms on how they observed gender equity issues and SGBV concerns (Sadati et al., 2019; Sadati, 2018). The data collection stage started with conducting semi-structured

interviews (Sadati & Mitchell, under review a), carrying out participatory visual technique of cellphilming (cellphone + video) and participatory game universe design workshops (Sadati & Mitchell, under review b). During these phases, the initial ideas improved, main concepts were developed, and learning objectives were created to be used later in the 'elemental pentad' of the *Mela* game.

Mela as an Example of Research-from-Creation

Based on Chapman and Sawchuk (2012), in 'research-from-creation', the creation of an artwork generates new questions and/or information for new initiatives, projects and/or understandings. It encompasses an iterative process between creation and reflection and "the experience and knowledge gained from these collaborations and trials [are] used to develop a series of suggested research protocols and practices" (p. 16-17). Gathering the players' feedback on a serious game and analyzing their in-game performance and decision-making patterns (e.g., in triggering events), can turn a game into a venue that generates new information for later improvements, future projects, or academic writings.

Tracking the players' behaviour in digital games and monitoring their interaction with game mechanics is a common practice that leads to generating data (see Goldberg & Cannon-Bowers, 2015). In our project this was not the case and instead, while creating a personal game account, player is asked to answer few general questions, such as the country, gender and age. Also, the research component drew on studying participatory approaches throughout all the phases and especially the prototype production phase. This created an opportunity to collect

participants' feedback (on the game content, gameplay and user interface) and use the feedback in creating the extended *Mela* game.

Research-from-creation can take another angle to "involve analyzing different dynamics that flow from a game or creative project and may lead to the writing of more formal academic papers that are based on an experimental art practice" (Chapman and Sawchuk, 2012, p.17). From this perspective, the overall experience of *Mela* creation has led, so far, to producing three peer-reviewed academic papers[16] and two guides that each contributed to generating new understandings, questions for future projects and activities and information (that could be used by the participants as well): *A Guide to MELA: A Serious Game to Combat Sexual and Gender-based Violence on Agricultural Campuses* (Sadati, 2019a) not only provides helpful information about the goals of this serious game, its learning objectives, the importance of addressing SGBV in agriculture colleges, the importance of working with instructors as agents of change, and the design process, it also provides external 'follow up activities' based on the *Mela* game. For example, the document suggests how college instructors can use *Mela* game as a vehicle to organize other activities, such as gameplay sessions, quiz nights, and informal competitions (even with their colleagues from other colleges) and consequently make opportunities for more discussions and reflections on SGBV and its solutions in the colleges. The second guide, *Serious Games as Self-Educating Tools; A Case Study to Address SGBV* (Sadati, 2019b) shares learnings from the experience of *Mela* game creation, describes some challenges of this type of projects and, more importantly, shows how serious games can be self-educating

[16] Including the current paper, Sadati and Mitchell (under review a) and Sadati and Mitchell (under review b).

and complementary tools for other initiatives in other fields. In brief, from the angle of 'research-from-creation', *Mela* game was used as a platform for generating new information for new SGBV related initiatives.

Mela as a Creative Presentation of Research

This subcategory refers to presenting "academic research in a creative fashion" (Chapman & Sawchuk, 2012, p. 18) such as various types of art forms including audio tracks, films, images, and online interactions. We believe *Mela* presents academic research in a creative way because its multimodal art forms carry the data generated using participatory methodologies. By engaging in an interactive game mechanics, including features such as stories, dialogues, in-game emails, and feedback system, the player of *Mela* travels in a playful and educational journey to learn about the problems (SGBV issues in the colleges), and the ways of addressing them. All fundamental elements of *Mela* game (mechanics, story, aesthetics, technology, and pedagogy) have been influenced by the research data.

Designing *Mela*; Creation-as-Research

As Chapman and Sawchuk (2012) argued, this subcategory is the most complex and controversial one. They defined it evolving the research from the creation process as if "creation is required in order for research to emerge" (p.19). They provided both epistemological and ontological implications of creation-as-research. Epistemologically the "creative work can be understood as a strong form of intervention, contributing to knowledge in a profoundly different way from the academic norm". Ontologically "'creation-as-research' is

also ‘creation-through-research,’ in terms of expanding what ‘is’ in the world by revealing new layers, permutations of reality, or ‘experiences to be experienced’” (p.21).

The *Mela* project can be viewed from a creation-as-research perspective since the research was not able to progress without the project’s creation process. Methodologically, from the first stage, creation and research were mutually dependent on each other in a way that creation was required so that research can emerge and at the same time, research was vital so that creation can proceed. For example, group discussions and brainstorming were needed to create cellphilms by participants (as visual art forms) and creating cellphilms was required to collect data on instructors’ potential roles in addressing SGBV on campuses. Group discussions and cellphilms were needed to conduct PGD workshops, and all data were needed to develop the learning objectives. Stories created in workshops were required to plan for developing a prototype of a game based on the pedagogical directions. Also, creating a prototype was essential to learn about instructors’ opinions about the serious game as a self-educating tool, and at the same time, the feedback collected from instructors was necessary to create the *Mela* game. As can be seen, different stages of this process were different layers of a multilayer research-creation project, and without any of them, the process could not continue to meet the project’s goals.

At the core of a research-creation process, there is an artistic form, and at the core of a serious game there are art forms, such as storytelling and aesthetics. With this approach, we highlighted the artworks of *Mela* and why we think *Mela’s* design (particularly) and a serious game design (in general) fit in the context of research-creation. We also showed how these

artistic materials are inspired and shaped by local context and by data from participatory research.

Stepping Back: Research-creation, Reflexivity and Introspection

In this final section we go beyond Chapman and Sawchuk's (2012) four categories to explore what they referred to as the idea of "powerful forms of introspection" (p.12) through research-creation. It also aligns with what Akesson et al (2014) referred to as a 'stepping back' process which here is based on our back-and-forth emails, Zoom calls, reflexive writing, and in Hani's case returning to fieldnotes. Something that is well established in arts-based work more broadly is its power to support and nurture reflexivity (Skukauskaite et al., 2021), from the significance of this work to participants, to the idea of researcher reflexivity and autoethnographic study. We offer here two accounts, one from Hani and one from Claudia of how reflexivity came into this project during and after the design stages.

Hani: The Case of Culture

As an Iranian of Azerbaijani ethnicity, who studied in a Canadian university and led the fieldwork in Ethiopian rural areas with different ethnic groups, I have been at the intersection of various 'cultural texts' (e.g., languages, socio-cultural encoded symbols, artifacts) throughout my life. My first language is Azerbaijani (Azeri Turkish), but I also needed to learn Farsi/Persian as the formal language of my home country, and English as one of the world's leading languages to communicate, work and study in the international context. I have grown up, witnessing how different cultural texts, such as different languages or artistic symbols in a diverse country or globally, can affect people's communication and meaning-making styles.

The lessons I learned during the research-creation practice highlighted the cultural environment of the whole process to me again, specifically in projects that aim to contribute to social change. In creating tools to tackle social issues, like SGBV or any issue related to marginalized voices, cultural texts (semantic units of cultures) are sensitive elements that need to be contemplated.

Mela was created based on participatory research, where college instructors, who were the end-users of the game, were also key partners in providing the data and feedback. Also, a team of game developers used the data and feedback to create and modify the game. This research-creation practice highlighted that making a meaningful serious game needs the uniformity of various 'texts' in both research and creation parts. Here I am trying to show how the importance of language (as a cultural text) suddenly became more perceptible - more than ever - for me during the research process. Also, how the creation process opened my eyes to the fact that the creator of multimodal texts (i.e., visual aesthetics of a game) needs having a lived experience within the same cultural texts as the end-users.

The research participants were from four different regions of Ethiopia, with a variety of three languages (Amharic, Oromo and Tigrinya). Although the academic language of the colleges in all regions is English, communicating in English for some instructors, especially some women, was difficult. This challenge was predictable from the beginning of the research, but its real scale became visible for me in the third phase of the research. This is something that I commented on in my fieldnotes:

After everybody left, [a female team member and story developer] could talk with a group of female participants, who referred to some transactional sex

incidents in the colleges during the group discussions. The stories came from two female instructors that usually are silent in the discussions. It was very interesting and surprising for me. Through all previous data collection stages, I have done individual interviews, cellphilm workshops and few hours of group discussion, then I had a participatory game design workshop and group discussions with all instructors, but never they mentioned these incidents, although in all phases I was asking them in different ways to talk about these incidents. The importance of language showed up it's strong face here to me! Apart from Amharic, [our female team member] also knows [a minority language name], which is the language of [region name] part of Ethiopia. She said, one of the instructors even had problem in Amharic and when the instructors of that region learned that [our female team member] knows [a minority language name], complained in friendly way that why you didn't tell this at the first place. Then the female instructor started telling an incident story in [a minority language name]. Wow! Even in Amharic, this instructor had problems sharing her ideas easily, so the only way she felt comfortable was in her own mother tongue. I can understand this since my mother tongue is also different from English. It is much easier for me to talk and express my ideas in my mother tongue (Fieldnotes, May 13, 2019).

But I also dealt with culture when it came to creating the visual aesthetics of the game. In a period of the creation stage, due to the Ethiopian illustrator's unavailability, we asked an illustrator friend from Iran to help us with the avatar design of a female player. While we tried to set the context for him by providing all required information (e.g., visual local material from

Ethiopia, and other game-related images already developed by Ethiopian artist) the first draft of the avatar illustration surprisingly was reminder of an oriental female face which is a common symbol of a female character in Iranian storybooks for children. Although the artist modified the avatar image to reach the current version as we see in Figure 2, this case highlighted the fact that the creator of an art form for a serious game, needs to have a lived experience in the cultural atmosphere of the user of the game. This becomes more important in creating the games within the 'slice of life' genre, where cultural codes are important to present the life. In brief, I believe the iterative nature of research-creation practice, where research and creation inform each other continuously, provides a noble context for considering 'cultural texts'.

Claudia: Whose Gaze?

As the person directing the larger project on gender equity within ATTSVE, and very familiar with the tensions around gender in the colleges, and especially tensions related to engaging both men and women, I do not think I fully appreciated the gender transformative potential of the game component at the beginning and the ways in which it could be more than 'just gender responsive' to the situation of young women and the high rates of SGBV on college campuses. Gender Transformative Approaches seek to do more than be gender sensitive or to respond, but rather to seize on transformative potential. For example, in the course of designing the scenarios, it was so important to see how the game capitalized on the gender structures of the colleges such as gender clubs, gender focal persons, and gender activities. Critically these structures were acknowledged within the game itself.

Another key aspect of this work being related to engaging boys and men. Gender Transformative Approaches are critical when almost all the power is in the hands of men, where men dominate in sheer numbers as instructors, where even though there is a movement to have 50/50 for student enrolment, males dominate in most enrollments if not always in actual numbers but in their presence on campuses and in classroom. While I do not think the project design set out to explicitly deal with specifically masculinity, there is a strong masculinity focus across the phases. Simply by virtue of the fact that there are many more male instructors than female instructors in the colleges, it was inevitable that there would typically be more men than women engaged as participants in the design session, and that even where there might be 50/50 in the design sessions the voices of men were more likely to dominate. The content of the game itself, because of its focus on instructors in agricultural colleges, almost all of whom are male, feels like it is male centred, and the issues to be addressed inevitably involve men. Although various women researchers and gender experts were consulted, most of the design team was male, Hani is male, Even the idea of game development in a LMIC is more male at least in terms of prevailing gender norms. And while we don't have data on game-playing behaviour of males and females in Ethiopia, we might realistically ask who is more likely to have the time to play a game even if it is part of professional development? I offer all of this not as a limitation of the project, but perhaps as a learning for me, a surprise outcome of research-creation, and something that has led me to reflect further on the idea of 'the gaze' in creative production in this work. How do we transform the male gaze? I loved the idea, for example, that male players could, as one of their options, play the

game as a female instructor. How would this change in perspective alter their views? This is the project of gender transformation in Ethiopia and so many other training contexts in SSA.

Not surprisingly perhaps, given the game's focus on SGBV, the fact that both of us are outsiders to Ethiopia, and our own positionings, these reflexive accounts embrace culture and gender, both potential features of what Pillow (2003) termed "uncomfortable reflexivity" (p.188). Our two accounts are meant to be illustrative of the various entry-points for introspection, something we think is enhanced through applying Chapman and Sawchuk's (2012) four categories.

Conclusion

Research-creation practices provide a useful framework, we argue, for capturing the richness of arts-based action research where there is clearly a final art production. This article offers a novel methodological understanding of participatory serious game design in the context of research-creation practice. This is an understanding (or angle) that is in line with what Loveless (2015) defined as the value of research-creation, which "not only hybridizes artistic and scholarly methodologies, it also legitimizes hybrid outputs" (p.41).

Applied to work in the area of participatory approaches to the design of serious games, research-creation practices help to ensure attention to both process and production. At the centre of the *Mela* project was of course the design and testing out of the game with college instructors to address SGBV. While we have focused here on method, clearly in future there is much more to be explored in relation to the impact of this work on the instructors and their attitudes and behaviours, and ultimately to the safety for female students in a post-secondary institution.

We see a number of implications for further research in relation to method. As we highlighted in the previous section, there are many entry points for reflexivity and introspection in research-creation, and our two accounts suggest that the research process itself needs to embrace ways of capturing personal learnings. Also, the design of serious games as art forms addressing critical social issues strike us as a particularly generative area because of the juxtaposition of being educational *and* entertaining *and* transformative. We highlight this angle in the serious game design process, since developing serious content for a meaningful serious game requires a systematic research process that includes pedagogy. Finally, further thought needs to be devoted to the involvement of the game designers/developers, who engage in the game design's technical aspects in the entire research-creation process. While there is no clear boundary on which of these two practices (research or creation) should come first, a promising action could be considering the local game development team as a research partner in the creative process across all phases.

Acknowledgements

We are grateful to the Agricultural Transformation Through Stronger Vocational Education (ATTSVE) project (funded by Global Affairs Canada), International Development Research Centre (IDRC), Fonds de Recherche du Québec - Société et Culture (FRQSC), and McGill Faculty of Education to support the fieldwork carried out in *Mela*'s development. More than anything, we are indebted to the instructors in the four ATVET colleges, Maichew, Nedjo, Wolaita Sodo, Woreta for their enthusiasm and commitment to the cause of creating safe spaces for teaching and learning. We also would like to thank D5gamecon group for their technical support in developing *Mela*.

This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada. The views expressed herein do not necessarily represent those of IDRC or its Board of Governors.

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Bridging Statement

Through the previous chapter, Serious Game Design as Research-Creation to Address Sexual and Gender-based Violence, I tried to answer dissertation's second set of questions and meet the second objective. In the questions I asked about two pillars of my project: conducting research and designing a game. What is the role of research and what is the role of creation? How can one connect research and creation, and how do they work together? What kind of data collection method could help to bring these two practices closer together? My objective was to deepen an understanding of the connection between participatory serious game design method and research-creation practices.

As I showed in chapter four, based on the research-creation perspective, research and creation can inform each other in four different forms (i.e. research-for-creation; research-from-creation; creative presentations of research; and creation-as-research). I used this concept to explain how the process of serious game design in my dissertation can fit with all four forms of research-creation practice. This perspective created a reliable background for describing different aspects of my participatory serious game design process, which led to creating *Mela*. I argued that why *Mela* is an artform, and I articulated its artistic composition (story and aesthetics).

At the core of a research-creation process, there is an artistic form, and at the core of a serious game there are art forms, such as storytelling and aesthetics. With this approach, I highlighted the artworks of *Mela* and why I think *Mela*'s design (particularly) and a serious game design (in general) fit in the context of research-creation. I also showed how these artistic materials are inspired and shaped by local context and by data from participatory research.

Overall, the previous chapter highlighted that both research and design process are important stages of developing an artform that aims to contribute to social change. With this, I set the broader background for my next manuscript.

My discussion in both previous manuscripts focused on the technical aspects and procedures of my fieldwork to show how research and creation were conducted practically on the field and how the development of *Mela* is a suitable case study for the alignment of research-creation and PAGD. However, in my next manuscript, Narrative Imagination and Social Change: Instructors in Agricultural Colleges in Ethiopia Address Sexual and Gender-based Violence, I use the data from interviews and participatory practices to move the discussion into another layer, which relates to how the instructors envision or imagine change. I discuss that the stories of instructors about their potential roles in combating SGBV issues of the colleges illustrate their imaginations of the potential better future. This argument is within the prospective methodologies framework that connects the present to the images of future to explain the nature of expected change by a specific population. But to show how the present situation is defined for instructors, I use the data from my interviews with 20 instructors of four colleges. The interview data demonstrated the current picture of SGBV issues and their causes and effects on female students for instructors. With this data, I can illustrate the image of instructors from current issues and their imaginations of a safe college, where instructors contribute more to creating an SGBV-free environment as agents of change.

Overall, the main link between the previous manuscript and the next one is the focus on what I term the ‘narrative imaginations of instructors’ about their potential role in addressing SGBV on campus.

CHAPTER FIVE: NARRATIVE IMAGINATION AND SOCIAL CHANGE: INSTRUCTORS IN AGRICULTURAL COLLEGES IN ETHIOPIA ADDRESS SEXUAL AND GENDER-BASED VIOLENCE[17]

Abstract

Ethiopia has one of the highest rates of sexual and gender-based violence (SGBV) in the world, making female students particularly vulnerable in its post-secondary institutions. Although there is extensive literature that describes the problem, mainly from the students' perspectives, what remains understudied is the role of instructors, their perception of the current issues and what they imagine they can do to address campus-based SGBV, particularly in rural settings. In this study, we used the concept of narrative imagination to work with instructors in four Ethiopian agricultural colleges to explore how they understand the SGBV issues at their colleges and what they imagine their own role could include in efforts to combat these problems. Using qualitative narrative-based methods such as interviews and an interactive storyline development workshop, as well as cellphilming as a participatory visual method, the data were collected across several fieldwork phases. We consider how we might broaden this framework of narrative imagination to include the notion of art for social change.

Keywords: sexual and gender-based violence, post-secondary education, narrative imagination, professional learning, storytelling

[17] Sadati, S.M.H., & Mitchell, C. (accepted). Narrative imagination and social change: Instructors in agricultural colleges in Ethiopia addressing sexual and gender-based violence. *Educational Research for Social Change*

Introduction

"Imagination gives us images of the possible that provide a platform for seeing the actual" according to the well-known arts in education theorist, Elliot Eisner, who went on to say that ". . . by seeing the actual freshly, we can do something about creating what lies beyond it" (2002, p. 4). This is crucial to imagining solutions to urgent global concerns such as the high rates of sexual and gender-based violence (SGBV), an issue that affects one in three women in their lifetime according to the World Bank (2019). This report draws attention to the individual and socio-economic costs of SGBV for communities and to the fact that it needs to be addressed throughout the Global North and the Global South. As has been evident in much of the global research on SGBV in educational settings, learning institutions are often breeding grounds for power imbalances that result in high rates of SGBV (Starr & Mitchell, 2006). The situation for young women in colleges and universities in Sub-Saharan Africa (SSA) is particularly worrying. In their meta-analysis and systematic review of studies that targeted SGBV among young women in educational institutions (schools, universities, and/or colleges) in SSA, Beyene et al. (2019) reported a high prevalence of various types of gender-based violence with Ethiopia having one of the highest rates. A more recent systematic review and meta-analysis (Kefale et al., 2021) that considered two decades (2000 to 2020) of studies on the prevalence and related risk factors of SGBV in higher education settings in Ethiopia, showed that "the lifetime prevalence of sexual violence among female students in [such] institutions . . . was high" (p. 3), ranging from 14.3% among female students at Hawassa University to 76.4% at Ambo University. A review of the literature from Ethiopia shows that various types of SGBV are problems faced by significant numbers of females in post-secondary contexts in different

regions (Adinew & Hagos, 2017; Arnold et al., 2008; Gelaye et al., 2009; Kassa et al., 2019; Mamaru et al., 2015; Shimekaw et al., 2013; Takele & Setegn, 2014; Tora, 2013).

To date, most of the studies conducted in post-secondary institutions in SSA are typically student surveys that attempt to document the magnitude of SGBV. In previous work with agricultural colleges in rural areas of Ethiopia, a survey of more than 1500 students captured their perceptions of many different types of SGBV in four colleges (Mitchell & Starr, 2018). In follow-up work with a group of instructors from these four colleges, these scholars engaged in a participatory data analysis exercise of the survey data and it was clear that the instructors were committed to finding strategies to address the situation as Starr and Mitchell (2018) noted. While documenting the extent of the issue is a crucial first step in combating SGBV, there is clearly a need for interventions that align with the growing recognition that learning institutions should not only be places where it is safe for everyone to learn, but should also be spaces of transformation, particularly in the context of gender equity and social justice; in these places it should be possible to imagine more equitable futures. Taking into consideration the positive response of instructors, what might we learn from their engaging in a "narrative imagination" process that Brockmeier (2009) identifies as "pivotal in probing and extending real and fictive scenarios of agency" (p. 215)? How might this work contribute within a broader art for social change framework? Building on the idea of storytelling from the perspective of narrative imagination and using participatory visual arts-based tools, we explore how instructors at four Ethiopian agricultural colleges imagine and visualise what their roles as instructors could be in addressing issues of campus-based SGBV.

Imagination and Storying: A Framework for Studying Social Change

The term change inherently contains the meaning of moving toward a goal, or target, or desired condition. Similar to the concept of intentionality in phenomenology that identifies the experience of consciousness as being directed toward something (Smith, 2018), social change is also aimed in a specific direction. How do change agents visualise this direction toward altering symbols, rules, values, and organisations? Hawlina et al. (2020) have referred to imagination as a key element in social movements and in social change. Human beings are able to make social and political change because they "not only shape and imagine the world around them and their position in it, but also . . . *re-shape* and *re-imagine* it" (Graef et al., 2020, p. 433, emphasis in original). Jenkins et al. (2020) have called this process "civic imagination" and define it "as the capacity to imagine alternatives to current cultural, social, political, or economic conditions." The civic agents of change are capable of imagining the process of change since "one cannot change the world without imagining what a better world might look like" (2020, p. 5).

But, as Zittoun and Gillespie (2015) have asked, "How can we have access to imagining?" (p. 11), and how can we study it? In response, they offer a methodological strategy that explores externalised examples of imagination, such as writings, self-reports or other artifacts, and multimodal texts. An externalised imagination could take the form of narrative and storytelling, both of which have already been considered as strategies toward achieving transformation and social change (Müller, 2019; Razack, 2006). Graef et al. (2020) have considered storytelling's "co-constructed and dynamic nature" to be the driver of "social and political change" (p. 433). In this context, to be able to identify the required steps of

transforming from “current reality” to “a hoped for but as yet unrealised reality”, as Andrews (2014) has pointed out, “one must first create some sort of narrative emplotment, which includes characters, plot (or action), and a desired endpoint” (p. 5). Narrating the stories leads to better understanding and enables the agents of change to visualise their desired world and transfer their thoughts and meanings to others. Brockmeier (2009) considered storytelling to be an innovative means of communication, negotiation, and meaning-making and recommended “narrative imagination as a form and practice of human agency” (p. 227). From the perspective of narrative imagination, bridging the pathways between the current situation and the desired one or between the present and a potential future is key (Andrews, 2014). Sools (2020) provided a brief review of future-oriented approaches or what she termed “prospective methodologies” (p. 451), and noted that scholars with this viewpoint commonly highlight the connection between future and present and use this framework to understand “how imagining possible and preferred future guides and motivates present thought and action” (p. 451–452).

Closely linked to the idea of Sools’s (2020) prospective methodologies, is the work on community-based visual methodologies for social change using arts-based methods such as photovoice, participatory video/cellphilming, and digital story-telling as the contributors to De Lange et al. (2008) highlight ; see, too, Mitchell et al. (2017) Located within the broad area of art as an agent for social change (see the chapters in Mreiwed et al., 2020), typically, these methods engage participants in picturing change. Seen through the eyes of local participants, what are the issues and what are the solutions? And notwithstanding the critique of sometimes being overly celebratory (Low et al., 2012), such methods are, in a sense, utopic in relation to imagining a different future sometimes at a local level such as imagining the creation of safer

toilets in a primary school (Mitchell, 2009). Applied to studying the potential for the narrative imagination of instructors in agricultural colleges to contribute to addressing SGBV, we consider the words of well-known curriculum theorist, Maxine Greene. As she explained, "Engagements with the arts [can] release the imaginative capacity into play [and foster] a commitment to the risky search for alternative possibilities" (1999, p. 47–48).

Method and Methodology

Our study is located within what Mertens (2008) refers to as a transformative paradigm. As researchers, we are committed to finding ways to work directly and through participatory approaches with communities to support the idea of 'research as intervention' (D'Amico et al, 2016).

Participants

The fieldwork was led by the first author and carried out with instructors from four agricultural colleges in four regions of Ethiopia: Maichew; Nedjo; Wolaita Sodo; and Woreta. Located within a large project, ATTSVE, that focuses on the transformation of agricultural colleges in Ethiopia[18] the fieldwork involved five instructors from each of the four colleges with at least one to two women from each college to make sure we have women's voices within each group. In total, 20 instructors with the age range of 23 to 60 and work experiences from 3 to 31 years participated in the data gathering processes. Aligning with the structure of ATTSVE,

[18] The Agricultural Transformation Through Stronger Vocational Education (ATTSVE) project aimed to help improve Ethiopia's agricultural system. As part of this six-year study, the second author led the component that focused on gender equality and inclusiveness in the colleges.

most of the participant instructors were attached to the Gender Clubs in their colleges as Gender Officers. Involving these instructors meant that they had already had some exposure to issues of gender and SGBV but also that they were key actors in the transformation agenda of these colleges.[19]

Data Collection

The fieldwork was part of a larger study that tested out a participatory game design process for developing a serious game that could ultimately become a self-educating tool (Sadati, 2019)[20] to support instructors in addressing SGBV on agricultural campuses (Sadati & Mitchell, manuscript submitted for publication (a); Sadati & Mitchell, manuscript submitted for publication (b)). Serious games can create entertaining experiences that are also educational (Apt, 1987). To create our educational game, we needed to carry out research first to explore the educational needs of the instructors and develop the game's learning objectives. Under the general participatory action research approach, the entire data gathering process included five techniques: individual interviews, group discussions, cellphilm production, participatory game storyline development, and feedback collection. In this article, we focus on the narratives of instructors across three of five data collection techniques:

[19] We obtained McGill University's Certificate of Ethical Acceptability of Research Involving Humans (File #: 27-0618) for this work.

[20] *Mela* ("find a solution" in Amharic), is a role-playing serious game that aims to build the capacity of agricultural college instructors to prevent SGBV incidents and promote gender equality on campus. Throughout the six chapters of the game the player takes an instructor's role and faces various gender-based. Mela was developed in collaboration with a team of young Ethiopian game designers/ who supported the technical aspects of the process. See www.melagame.com or contact the first author.

Individual interviews: Twenty instructors, five from each college, participated in individual semi-structured interviews during which they spoke about their knowledge, experience, and observations of SGBV on campus, and its causes and consequences. Interviews were carried out in instructors' colleges and in closed rooms where they felt comfortable to speak about their experiences. Each interview, on average, lasted about an hour. We took notes of the conversations and obtained instructors' consent to record the interviews for later review.

Cellphilm (cellphone + film) production: This is a participatory visual research approach (see Tomaselli et al., 2010) that is used to involve research participants in a process of making short videos in response to a question or a prompt about a community issue. Within the framework of participatory visual methods (Mitchell et al., 2017), cellphilm production is a collective activity during which participants are co-producers of knowledge through sharing their understandings of, experiences with, and solutions to, a community issue. As Mitchell et al. (2016) have highlighted, typically, this is done through a workshop approach based on a series of steps including working with a prompt or question (usually provided by the facilitator), brainstorming about issues in small groups, storyboarding, filming and screening, followed by reflecting. In our fieldwork, instructors were engaged in the process of cellphilm production in response to two prompts: What are the potential roles of agricultural instructors in addressing SGBV issues on campus? What are the barriers that prevent instructors from addressing SGBV on campus? In total six cellphilms were created which were transcribed into text for analysis.

Participatory game storyline development workshop: The focus of our two-day workshop was to engage instructors in creating non-linear stories for a game as opposed to

cellphilms that included just linear narrations. Here, instructors from the four colleges, developed four interactive storylines based on their lived experiences and regarding the potential roles of instructors in preventing SGBV or promoting campus-based gender equality. These storylines offered alternative options for the audience to choose their path among the narrations. Instructors wrote and drew their ideas on flip charts and a representative of each group presented their overall story to everyone. With the consent of the instructors, we filmed the presentations and transcribed them later for analysis. We also photographed the flip charts for further review.

While the cellphilm stories and the game storylines give a good sense of how the instructors were imagining and picturing change, they also provided local and culturally relevant material that guided the game development team to develop the prototype of the serious game, *Mela*, and then the full game in later phases (see Sadati & Mitchell, manuscript submitted for publication (a)).

Findings

Individual Interviews with Instructors

The general thematic analysis steps outlined in Nowell et al. (2017) were adapted to analyse the interviews data. We first familiarized ourselves with the data by reviewing the texts multiple times; generated initial codes using colour coding; created the themes; searched the data to ensure we covered everything; and, finally, we generated the report. Here we

categorise the findings from interviews in three groups: forms of SGBV on campus; causes of SGBV on campus; and consequences of SGBV on campus. [21]

Forms of SGBV in the agricultural colleges

Among the forms of SGBV shown in Table 1, are some that most of the instructors mentioned as being common problems (patriarchal practices; verbal and physical sexual harassment) while there are others that only a few instructors mentioned, such as coercive sex perpetrated by male staff members.

Table 1
Instructors commenting on forms of SGBV in the college

The general theme	Subcategories
Patriarchal practices	Patriarchal behavior by male students, such as: ▪ "Seizing the mobile phones of female students"; ▪ "Keeping the educational resources (e.g., course handouts) to themselves and not distributing them to female students"; and ▪ "Undermining the abilities of female students".
	Stereotypical patriarchal division of work between male and female students at shared places, such as: ▪ Cooking in group houses (which is a long process in this context) is done by young women, thus giving them less time to study, while other services (e.g., providing the cost) fall on men.
Sexual harassment	Physical harassment of females, such as: ▪ Touching; ▪ Biting; ▪ Taking women's scarves; ▪ Holding women against their will.

[21] Quotations in the tables are direct quotes from instructors.

	Verbal harassment, such as: ▪ Insulting women; ▪ Using impolite words to and about women; ▪ Making prejudgments like suggesting that women are weak mentally.
	Non-verbal signs or offensive body language, such as: ▪ "Using inappropriate facial expressions"; ▪ Making inappropriate gestures.
Sexual assault	Spreading rumours about women engaging in sexual intercourse.
	Male staff members forcing sex on female students (and on female staff members)
	Males raping women. (Just one interviewee pointed to this item without providing details.)
Transactional sex	Female students agreeing to have sex with male students in exchange for having the latter do course assignments for them.
The implications of poor physical infrastructure	Considering the gender ratio, "the number of toilets for female students is inadequate".
Gender inequalities in organizational structure	There is no equal division of jobs between women and men; The employment rates are higher for men; and Women usually are not involved in management nor in and decision-making.

A significant point about the interviews was the instructors' tendency to highlight that they were not personally aware of any of the incidents mentioned, particularly those they called "hard or serious cases" such as any incident that involved sexual intercourse. In such cases, they usually started their responses with phrases like "I am not sure . . .", or "I have not seen myself . . .", "I have just heard that. . . " or "There are rumours around. . . ".

Causes of SGBV in the colleges

The instructors referred to eight main causes of SGBV on campus, highlighting the role of a culture of toxic masculinity and the relative poverty of female students. As one participant stated: “The root cause is cultural beliefs. . . ”. Table 2 shows the detail of synthesized data in response to the question, “What are the causes of SGBV on the campus?”

Table 2
Instructors commenting on the causes of SGBV in the college

The general theme	Subcategories
Toxic masculinity culture	Male students believe in their superiority, and this is shown in their behaviors. For example, “males think they know everything”, and, because females have less intellectual capacity, they should obey them.
	There is a risk of harassment/assault by male students against female students when the latter disagree with them.
	“Females (specifically from rural areas) are shy” and afraid to report the SGBV incidents.
	The relatively better financial status of male students enables them to use their money for harassment purposes.
	Internalised stereotypical gender-based attitudes are held by women and men.
Lack of knowledge and awareness	There is a lack of awareness in the males (students and instructors) about the consequences of SGBV against females.
	There is a “lack of education about sex in families”. Students (specifically girls) do not get adequate sex education.
	Females lack knowledge about gender equity and about their rights.

	Migration and mobility from rural to urban areas exposes females to violence because they do not have enough knowledge or the skills to combat it.
	The "lack of knowledge among some instructors regarding the consequences of SGBV for the country's development" leads to their lack of commitment to become actively involved in combating it.
Economic conditions	Poverty and economic problems lead female students to have transactional sex outside of the college.
Lack of rules and regulations	There are no comprehensive and separate regulations against SGBV in the colleges.
Religious beliefs	"There is an article in the Bible and Quran that females should always respect and accept the power of their husband," according to one instructor.
Lower age and less experience	There is a "lack of maturity in students", many of whom are under 18 years of age, and this leads to an inability and/or unwillingness to address such violence.
Differences in individual attitudes and understanding	The managers, instructors, staff members, and students all have different attitudes towards, and levels of understanding about, SGBV issues.
Poor physical infrastructure	There is a "shortage of facilities for female students", specifically toilets, and rest areas for pregnant women and nursing mothers. There are few facilities for the use of students' children, and this leads to discriminatory practices.

Here we note that instructors identify cultural elements and poor infrastructure as both *forms* of SGBV and as *causes* of them. For example, the lack of proper toilets for females has been identified as an example of gender-based discrimination, and, at the same time, as a reason for the lower attendance of pregnant female students in classes; both affect their academic achievement.

Consequences of SGBV in the colleges

Six themes were identified by instructors as consequences of SGBV on campus (see Table 3). Notable here is the cause and consequence chain; each cause brings a related consequence, and, in turn, the consequence becomes the cause of another consequence. For example, the lack of self-confidence and shyness is the psychological consequence of different forms of SGBV, and, at the same time, it can prevent SGBV survivors from reporting the incidents and this leads to their insecurity on campus. Furthermore, unwanted sexual intercourse can cause unwanted pregnancy, and, in turn, this can lead to a female student being rejected by her family and community which, in turn, leads to her increased poverty.

Table 3

Instructors commenting on the consequences of SGBV in the college

The general theme	Subcategories
Psychological issues affecting female students	Mental stress is suffered by females who fear males and what they might do.
	Females become shy and uncertain, and they participate less in activities, exhibit a lack of self-confidence, and become isolated.
	The overall environment demoralises women.
Unwanted pregnancy and its consequences	This may lead to suicide or to the rejection of a woman by her family and the community.
Effects on females' academic achievements	Affected females might fail, withdraw, or stop learning.

Effects on females' career and economic status	Women who suffer SGBV may come to believe that their lower economic status is justified. Given the inequality in job opportunities for female students, they might become sex workers (bar ladies) in off-campus bars.
Health problems for females	Women might contract HIV and other STDs with related consequences such as increased poverty.
Unbalanced development of the country	As an ultimate consequence, SGBV negatively affects the development of the country.

It is evident that forms, causes, and consequences are intertwined, and real change would need the involvement of various sectors of, and stakeholders in the community.

Imagining Stories and Storylines

As discussed in the methodology section, the instructors created narratives through two different activities: they produced short cellphilms, and they participated in a game-oriented storyline development workshop, both focusing on the role of instructors in gender transformation. These two participatory activities were used to encourage instructors to think about their real-life experiences on campus (e.g., their observations of SGBV issues and their conversations with students or colleagues about these) and to imagine what could reduce or prevent instances of SGBV in the colleges. The narratives of these two techniques were different mainly in terms of their structures: the narratives developed during cellphilm production aimed to be used in a short video, so they were linear with a fixed start and end point. However, the narratives developed during the participatory game storyline development

workshop aimed to be used in a role-playing game, so they were non-linear including story 'branches' and different paths for the player to select.

Storying through cellphilm production

While there were various genres that the instructors could have chosen for their cellphilms (e.g., media messages, documentary style reporting, melodramas), all the groups chose to use what we have referred to elsewhere as melodramas (Sadati & Mitchell, 2020) in which the group creates a type of role play or a scenario.

The cellphilm, *Providing Advice*, seeks to raise awareness of instructors' potential role in intervening and solving some SGBV problems related to verbal harassment in the colleges. A male student uses verbal violence against a female student in a class and continues to do so even when the female asks him to stop. After class, the female student goes to the instructor's office and reports the issue. The instructor calls the male and female together to his office and explains why the male student's behaviour was wrong. Then the instructor asks the male student apologise to the female, and he does.

How to Report GBV focuses on how instructors can support female students in reporting incidents to gender clubs or other concerned bodies. A male student verbally harasses a female student who is on her way to a class. The female student runs away from the perpetrator, but she looks frustrated. An instructor sees her, asks about the problem, and after learning what happened, accompanies the female student to the Gender Club office to report the incident.

Supporting Survivors aims to inform instructors of their potential role as active bystanders and as advocates for female students. In the college computer lab, a male student is shown harassing a female student verbally and physically. The young woman, clearly in distress,

leaves the lab. She explains to an instructor what happened, and he helps her to meet the college's Discipline Committee. In the reconciliation meeting, which is organised by the Discipline Committee, both perpetrator and female student are called in. During the discussion, the male student learns about his wrongful actions and understands that he was committing an abuse. He says that he will not repeat this. Then the female student returns to the lab and is able to work.

Rural Female Student and Communication targets the communication difficulties and shyness that some female students have which lead to their lack of participation in class. The cellphilm shows how instructors can address this issue specifically in relation to girls from traditional settings. In a class at an agricultural college, the instructor notices that a female student from a rural background does not participate in the class because she is shy. The instructor asks the student to meet him after the class when he takes the counselling role and advises her to stop feeling shy and to develop communication skills. In the next class, the female student participates more. Later she demonstrates the courage to report an incident that happened in the class, and this results in a male student being sent out . Finally, when the instructor announces the examination results, the grades of the female student have improved significantly. The instructor gives her a prize.

The Effect of Early Marriage on Female Students in Agriculture College highlights two ways in which instructors can support pregnant students (who might have difficulties on the campus and in their studies). The instructor introduces a pregnant student to the Gender Club and explains the facilities that they provide for females and specifically for pregnant students. The student goes to the Gender Club and learns about the Waiting Room where she can get

some rest while at the college. After the student gives birth, she comes to the college carrying her child to class. The cellphilm also shows how another instructor supports the female student by providing a special tutorial class to help her improve her work and compensate for the classes she missed during her maternity leave. However, despite all this support, the female student leaves the college because of the lack of proper childcare infrastructure.

Lack of Instructor's Commitment to Respond for GBV Problem addresses the lack of commitment and sense of responsibility among some instructors regarding their college's SGBV issues. Two students (one male and one female) go to the instructor's office regarding an incident of gender-based violence that happened to a female student. The instructor is not in his office, and the students wait for him to come. After a long time, the instructor comes to the office and students share their concern, but the instructor notes the time and goes out of the office while telling the students to come back later because he does not have time for them.

Storying through participatory game storyline development

In this phase, the instructors entered a new level of story development in creating storylines. A storyline in game development is defined as a sequence of events and can be either linear or non-linear/branching (Schell, 2020). In this stage, the instructors at each college formed a group with each group selecting a topic which was about one of the potential roles of instructors in combating campus-based SGBV. The stories in this activity were developed with the intention of being used as game scenarios, so instructors made them in a *choose your adventure* style. In this type of storytelling, the creators of the story provide options through the storyline so that the audience can choose between them.

One of the storylines was about a college instructor who is supposed to contribute to *creating awareness [among female students] on how to report and whom to report SGBV*. In their story, one female student comes into the class but before she enters the classroom a male student blocks her way. An instructor, who is on the way to his/her office, notices this situation. Here the instructor has two options: a) ignore the situation or b) try to intervene by providing advice. In the first case, the female student will be morally, psychologically, and academically affected. But in the case of the second option, the story continues with the instructor inviting both students to her/his office and providing advice to both. In this case, the instructor specifically gives directions to the female student about how to report such incidents to concerned bodies such as the Gender Office or the Dean of Students.

Another storyline was about the instructor *providing advice to students in his office to address SGBV*. In this story the instructor is available in his/her office and a female student comes to share an insulting incident perpetrated against her by a male student. The instructor is given two options: a) the instructor welcomes the student and asks what happened and b) the instructor welcomes the female student into the office but after listening to an account of the insulting incident that happened to her, asks her to leave the office without helping her. Following the instructor's choice of the first option, the student informs the instructor about the problem and the fact that she cannot focus or actively participate in the class because of the insults. The instructor advises her not to be afraid and calls the insulter into the office. This student comes in and the instructor advises him to stop this disturbing behaviour not only towards this particular female student but also towards all female students. The male student regrets his action, accepts the advice, and promises to share this advice with other students

and friends. In the second scenario, the student leaves while the problem is still unresolved. In this scenario, because there is no attention paid to the problem nor any suggested punishment, the male student not only continues insulting the same female but starts to insult other females as well. In this scenario, we see the impact on the examination results of female students, and we see that the number of females who attend the classes decreases. They struggle to achieve academically and drop out because of the verbal harassment that leads to their demoralisation.

A third story is about *maximising self-confidence and minimising inferiority of female students*. Before narrating the story, this group noted that although in most classes 59% of the students are female, they do not actively participate in the course activities and the class is dominated by males. The story starts in a classroom where the instructor asks a question and only one female student raises her hand to respond. The instructor wonders why only males respond. Here the story can continue with two alternative scenarios: a) the instructor can take action to address the issue somehow; or b) the instructor can ignore the issue. In the first case, the instructor decides to encourage females to participate more in the class. Again, two options are given to the instructor: a) provide awards or recognition to females if they participate or b) provide more chances for them to participate. Providing awards or recognition leads to creating highly competitive students by increasing their self-confidence while providing more chance by, for example, establishing rules like *Ladies first*, enables the females to participate and thereby increase their confidence. However, if the instructor chooses to ignore the situation, the female students might fail the course or withdraw.

A fourth group developed a storyline to show how an instructor can contribute to *encouraging female students to break their silence and report SGBV incidents*. In this story,

about 40 students are in the practice or demonstration site and, in the meantime a female student has been affected by an act of physical harassment. No one reports the incident to the instructor, but the instructor notices that something is wrong. To continue, there are two options: a) the instructor decides to follow the issue somehow and help the female student and b) the instructor ignores the case. In the first option, the instructor does not follow up with the female student directly, but she/he informs another instructor to guide the affected female student to the college's Gender Club. The Gender Officer encourages and advises her, and she reports the case to them. The Gender Officer provides additional advice and takes her to the class. At the end of this scenario, the instructor invites the gender officer to the class to encourage and provide advice to all students. In the second option, if the instructor ignores the case, the female student stops attending the class. The instructor asks other students why this studnt does not come to the class anymore. The instructor also calls her family to ask why she stopped attending the classes. The family attach a name, *Kashalabeh*—a local insulting label, to the female student and she becomes sad and goes in search of a job as a daily labourer. The instructor continues searching for her. Finally, the instructor finds her and takes her to the Gender Office so that they can help her.

Analysis

What can be seen in these cellphilms and storylines is, first, that although the overall number of stories is limited, the instructors have been able to cover many of the items from all three categories: forms of SGBV, causes of SGBV, and consequences of SGBV. Second, all images of a better future and the instructors' role in creating a SGBV-free campus is based on changing the attitudes of individuals, either male students (to cease engaging in their offensive

behavior), or female students (to stop being shy, and be brave enough to report these incidents), or instructors (to be more careful and responsible). None of the cellphilms or storylines provided way of solving SGBV issues by addressing structural causes, such as the patriarchal culture or the poverty and economic issues that were noted by most of the instructors in the interviews. Obviously, the instructors' capacity is limited to contributing to combatting SGBV issues. Nevertheless, as discussed with one of the interviewees, trying to overcome some structural challenges, such as the poverty of some female students, by collecting money from volunteer instructors and staff is an example of a possible strategy. Third, all cellphilms and storylines that addressed issues of physical or verbal harassment (that are very common in the colleges based on the interview data) suggested reconciliation as a solution. However, this is a traditional conflict resolution process that is taken for granted as the only (or main) method for solving the harassment issues. In essence, although the instructors attempted to imagine change, they were often limited in the extent to which they could break out of conventional social norms.

What was significant about going beyond the cellphilm scenarios to develop the various *choose your own adventure* options in the storyline workshop was the fact that in storylines the narratives were non-linear and had different paths. This makes the storylines more interactive, and, in the final product (the serious game), this gives the audience agency to choose their own adventure. Non-linear storyline development is one of the methods of creating interactive environments used in serious games to situate the player in decision-making spots similar to those that occur in real life circumstances.

Clearly, there were also gaps in the range of scenarios imagined and this was also reflected in the interviews. For example, while most studies of campus-based SGBV have highlighted that instructors themselves can be perpetrators of SGBV (see Wende, 2016), this was not a scenario put forward in any of the cellphilms or storylines. However, the research team and game development team were able to integrate possible scenes and story paths in working with the storylines, which they, of course, took back to the instructors during the time of testing out the prototype of the game. To illustrate, in one scenario where a male instructor must meet with a female student in his office, one of the choices is to close the door for privacy or to keep the door open to make sure the interaction is completely safe for the student.

Discussion

SGBV is a social problem in Ethiopia that creates challenging and discriminatory situations for almost half of the population at different levels, including in post-secondary institutions. The studies that have explored such issues in the colleges and universities confirm the need for intervention programs, and yet the role of instructors, as potential agents of change in educational settings, has been understudied. Focusing on a narrative imagination or from the perspective of picturing change, we learned about instructors' knowledge of the current SGBV situations in the colleges and about their narratives of what they imagine an instructor's role *could be* in bringing change to the campus.

The cellphilms and storylines created a platform for instructors to externalise their imaginings of their roles in addressing SGBV, and, as such, they are tangible and transferable products that can be shared among all concerned bodies. Mitchell et al. (2017) have referred to the potential of cellphilms to be digital artifacts or "digital dialogue tools" that enable a diverse

group of audiences (instructors and stakeholders) “to see the issues being raised [and] also to engage in dialogue with the issue under study for the purpose of facilitating social change” (p. 122). As people internalise the cultural and social meanings, they externalise their understandings in words, symbols, and artistic products (Zittoun & Gillespie (2015). In that sense “the only access we have to people’s meaning making is through externalization” (p. 12).

Returning to the idea of Sools’s (2020) prospective methodologies, we posit that such approaches are strategic and productive as interventions in and of themselves, feeding into pedagogies that are forward looking and, as Cherrington (2020) has noted, hopeful. Considering the devastating impact that SGBV can have on the lives of female students enrolled in colleges and universities, this position of hopefulness may seem somewhat naïve. However, without a view to making change, and without a process that allows the instructors to become actors, institutions will maintain the status quo. It was clear in the interviews that instructors are aware of many of the issues, but they have not been significantly engaged in imagining any *what next* scenarios. But, through this cellphilm making and this creation of storylines, these instructors’ thinking processes can be made available to various other stakeholders. This work could contribute to ensuring common understanding, and lead to effective dialogue and real action to effect change.

Cultural resources provide us with materials such as experiences, images, narratives, and meanings that enable us to dream and explore promising futures (Zittoun and Gillespie, 2015). Their socialisation into their culture is evident in the narratives of instructors particularly when they perceive reconciliation to be a solution for verbal and physical harassment. Writing of the significance of peacebuilding practices during the recent conflicts in Ethiopia, Tuso (2020)

drew attention to peace and reconciliation in the broader African context. These reconciliation practices, based on the concepts of repentance by the perpetrator and the forgiveness of the victim/survivor, are used to resolve tensions. However, we know that such encounters can be highly distressing to the victim/survivor and alternative mechanisms and solutions such as developing anti-harassment policies and regulations or launching anti-harassment training for male students, staff, and instructors should be considered. Establishing standard policies is key since the colleges are suffering from a lack of comprehensive rules and procedures that respond to sexual and gender-based harassment on campus. This is not to say that cultural practices should be ignored. Rather, it is an invitation to pay attention to Zittoun and Gillespie's (2015) point that "even individual experience is filtered through cultural meaning" (p. 56). We need to be conscious about and evaluate "the received residues of culture" that Bell (1978, p. 33) defined as the answers to our predicaments that we learn in society. The past affects our perceptions of the present, and our present images of the world shape our process of imagining the future. As Müller (2019) noted, in a social change process past experiences can create the potential for us to move beyond the current situation toward new ways of being.

Conclusion

We acknowledge the role of Ethiopian agricultural college instructors as potential agents of change in their institutions. Yet, we consider the lack of a full and common understanding of current issues related to SBGV and some of those "received residues of culture" (Bell, 1978, p. 33) noted above, as potential challenges. Instructors occupy a strategic position in colleges in that they interact directly with students and also work directly with administrators. This position has a great deal of potential for developing intervention programs

that put these instructors in the center. But instructors need to have an accurate image of the existing problems and they also need to have the opportunity to externalize and share their vision of how to re-imagine and re-shape the current discriminatory realities.

We recognize, of course, that this utopic approach does not take full account of the actual in relation to the everyday lives of instructors and especially the time taken up by projects like the imaginings that were carried out in this small one working with 20 instructors and meeting 4 to 5 times over a few months. This was particularly difficult for the women instructors who participated in the project and who were often juggling a career as a scientist, and as a Gender Officer on top of their regular teaching duties and family responsibilities. For all instructors, this project of imagining and creating storylines was an add-on to their regular professional responsibilities. Moreover, the opportunities for professional learning are sparse in rural areas and instructors face a variety of challenges if they are to participate in any such as juggling time, and meeting budget and infrastructure barriers. However, in having them participate in a process of creating an interactive self-educating tool (or serious game) for themselves in Ethiopian agricultural colleges to address campus-based SGBV, we see the findings as hopeful in supporting the notion of instructors being agents of change.

Finally, this article advocates for tools and methods that are future-oriented and that acknowledge the critical place of narrative imagining in transformation. It calls for further attention to the role of imagination and arts-based narrative techniques in addressing social issues. Also, it highlights the role of narrative imagination in designing intervention programs that aim to prepare the members of a community to be agents of change in their local environment.

Acknowledgements

We are grateful to the Agricultural Transformation Through Stronger Vocational Education (ATTSVE) project (funded by Global Affairs Canada) for supporting the fieldwork, and, more than anything, we are indebted to the instructors in the four ATVET colleges, Maichew, Nedjo, Wolaita Sodo, and Woreta for their enthusiasm and commitment to the cause of creating safe spaces for teaching and learning. We also appreciate Fonds de Recherche du Québec - Société et Culture (FRQSC), and McGill Faculty of Education for their support throughout the conducting of this project. In addition, we are grateful for the grant from the International Development Research Centre, Ottawa, Canada. The views expressed herein do not necessarily represent those of IDRC or its Board of Governors.

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CHAPTER SIX: DISCUSSION AND CONCLUSION

Introduction

As I come to this final Discussion and Conclusion section of the thesis, I want to return to the idea of play itself. Who can claim that they do not know what *play* is? Who has never played? Can one imagine a time when play did not exist? The Dutch writer, Johan Huizinga[22] (1980) has noted that "play is older than culture" and he added "[W]e can safely assert, even, that human civilization has added no essential feature to the general idea of play" (p. 1). Huizinga (1980) also refers to a theory that considers play as practice for youth to become prepared "for the serious work that life will demand later on" (p. 1). This argument reminds us of George Herbert Mead's notion of play as a cognitive stage in children's building of their own self. He said, "Playacting is the form that self- growth takes in ontogenesis. Children engaged in role-taking accomplish several things. They explore the social structure, find their place in a group, master rule-bound conduct, face punishment for rule-breaking, learn to negotiate conflicting identities, and discover the meaning of creativity" (Shalin, 2011, p. 399).

In his book, *Games-To-Teach or Games-To-Learn*, Chee (2016) used Mead's theory of *Mind, Self, and Society* (1962) to show that self is a socially constructed unit built through role-taking experiences in social interactions. He also referred to Bourdieu's *Outline of a Theory of Practice* (1977) and the concept of habitus to construct his theoretical model of game-based

[22] Tekinbaş and Zimmerman (2004) introduce him as "one of the greatest scholars of play in the twentieth century".

learning. Chee (2016) explained that Bourdieu's notion of habitus is the meeting point of a biological body and social obligations, a feature that is shaped within the society. Habitus is learned with repetition and could affect one's performance unconsciously. Chee (2016) also adopted Thomas and Brown's perspective on learning, known as *learning to be* versus the conventional approach of *learning about*, and attached his approach to "Dewey's perspective of fostering learning *as* inquiry" (Chee, 2016, p. 44, emphasis in original). From this perspective, learning "is reframed as a *person*-centric, developmental, and transactional process" (p. 48, emphasis in original). These conceptual foundations helped Chee (2016) to show that simulations and digital games can be effective "in terms of learning to be some kind of person in society through the process of becoming" (p. 52). He argued that immersive digital games allow players to learn in the first person rather than from the ordinary third-person standpoint that concentrates on learning about the subject matter. As Chee (2016) articulated, getting involved in digital games requires taking actions, participating in conversations, and getting involved in decision-making processes in an immersive game space. Through these processes, (for example in role-playing games) learners enact role-taking, and, as articulated by Mead (cited in Chee, 2016), construct their own selves. Chee's proposed approach underlines exploring "the person's behaviors while engaged in situated activity and participating in the discursive practices of his or her social and cultural setting" (Chee, 2016, p. 57).

Besides the analyses by scholars, personal observations from everyday life also show that play has an important role in one's gaining knowledge and experience. In the academic world, for example, during the practice sessions many PhD candidates organize prior to their actual defence date, they play the role that will be expected of them. Practice sessions are organized in

the same way as the real one is. Invitees play the role of examiners by listening to the presentation and asking questions and the PhD candidate presents their project and enters into a scholarly discussion as if they were in a real defence session. They all play so that the PhD candidate will be better prepared for the real event. But what makes these two performances different? What makes one of them just a practice (or play) and the other one real? A significant difference lies in the serious consequences of the real one as opposed to the practice one. Play does not have a serious planned consequence (and we need to leave out the unexpected incidents that occur during play), but the real situation does. In the practice defence nothing happens if the candidate fails to convince the examiners with their answers, but, obviously, if this happens in a real defence there are real consequences.

My dissertation has the notion of play at its center, but this time in a simulated digital world. Digital technology affords one a great deal of capacity to construct environments that have a concrete sense of reality even though they are not real. The increasing use of virtual reality (VR) and augmented reality (AR) in different fields, such as tourism (Han & Jung, 2018), healthcare (Ma et al., 2014) and serious games (Akhgar, 2019) shows how digital environments and artifacts can become intertwined with our lives, specifically for educational purposes. Here I must add that there is variation in serious games in terms of their technological qualities. For example, some games are developed in studios by large and well-equipped companies that have huge budgets for developing and marketing them. These games are called AAA (or triple A) in comparison to Indie games that are developed by one developer or by a small team that is independent of the publishers and that has a limited budget (Vu & Bezemer, 2021).

My literature review in chapter two showed how digital games have been integrated into various educational settings and how even the variety of practices have led to the emergence of new terminologies such as edutainment, gamification, and serious games. I selected to work with the concept of serious games because I believe that it has the potential for more engaging gameplay and more profound learning leading to social change. Reviewing the literature on existing serious games revealed that hundreds of them have been created globally in different fields and more projects are still to come. Serious games address serious issues in a playful way; from this perspective, they respond to the concerns of human beings (e.g., social, psychological, health, environment, and food) and, at the same time, evolve with an emerging variety of issues. One of the most recent examples is a serious game, developed in Brazil, that provides "science-based information on the prevention of COVID-19 and personal care during the pandemic while assessing players' knowledge about COVID-19–related topics" (Gaspar et al., 2020, p. 1). My literature review also shows that SGBV has been one of the focal areas in the development of serious games. Although it is promising to learn that SGBV has gained attention in the serious gaming world, the lack of diversity of the games regarding their subjects and target populations (specifically in comparison to the large scale of this issue globally) is disappointing. One of the potential target groups for serious games could be educators and instructors working in educational settings. While significant progress in the world has been made regarding gender equality in educational institutions, challenges remain, and SGBV continues to be a concern in postsecondary institutions (UNESCO, 2020). Still, the literature review showed that even the limited number of existing serious games that address SGBV in postsecondary institutions mostly target training the students and ignore the role of other significant players in the institutional

structure. My PhD project aims to fill this gap, and this is why I developed the game *Mela*. In this serious game developed alongside my research, the player is situated in a digital environment that represents an Ethiopian agriculture college. In choosing the genre (*slice of life*), I was inspired by Chee's (2016) arguments on learning as a "process of becoming" (p. 52) and the idea that *learning to be* needs to happen in an environment that has the most resemblance to the player's real world. Also, I considered the idea of cellphilming in line with the *slice of life* genre since cellphilms usually describe a portion of one's life. From this viewpoint, the game's genre is consistent with the techniques used in PAGD.

In this digital educational setting, the player takes on the role of an instructor who is supposed to find solutions to SGBV issues of the campus. This is why the game has been named *Mela*, which means "find a solution" in Amharic, Ethiopia's official language. While I refer to many aspects of the design of *Mela* in chapters three and four, I return to it here to highlight its features. *Mela* consists of five chapters each of which includes some scenarios that all together create the overarching story of the game. In terms of time, *Mela*'s story starts on the first day of an academic year. By clicking the *Start* key, through an interactive pathway, the player is prompted to insert some information such as a name for their college, a name for their character, or to choose their gender. This information is used later in various occasions of the game. For example, the character's name appears in the introduction dialogue when the player introduces themselves to the students at the first class, or the college name appears on the in-game certificates, or the choice of gender affects some incidents that the player might face throughout the game. Then the player finds themselves in the office with a desktop monitor on the table that is clickable and is used to show the player's profile. In the portfolio section, they can see their

performance, the collected and missed certificates, students' grades and they also can replace the general avatar picture with any selected picture from their device's gallery. Also, on the monitor the player can read in-game emails and navigate the *Mela* game's website. The office environment is shown in Figure 1.

Figure 1. Player's office in Mela

As is noticeable in Figure 1, there are other objects in the player's office (e.g., a bookshelf, telephone, door, and folder) and each has a specific function. For example, the bookshelf contains about 50 documents, handbooks, toolkits, or reports, all in PDF format and related to gender issues specifically in the educational context. Once the player clicks on the bookshelf, the front-page of the documents appear on the screen and the player can choose any of them to read (see Figure 2). The documents have been collected from public resources and are downloadable (with internet access) to the player's device.

Figure 2. Front-page of three PDF documents in the bookshelf

After a tour of all available features in the office, unexpectedly the phone rings and a colleague of the player invites them to join other instructors in the lounge (see Figure 3). In the lounge,

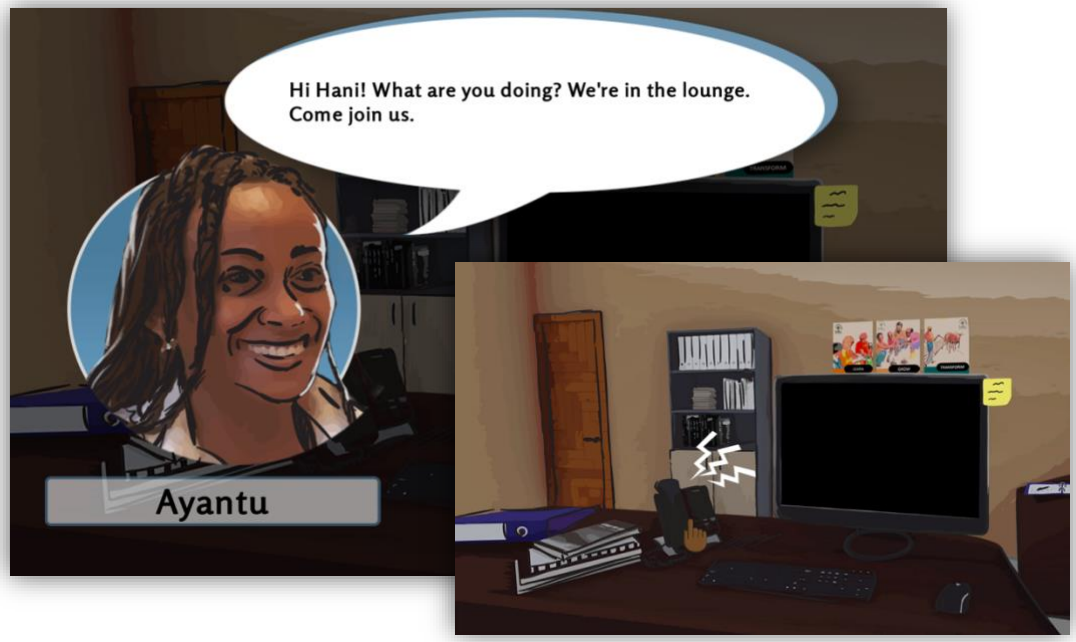


Figure 3. The phone rings and a colleague invites the player to the lounge

during an informal chat with other colleagues, during which the player starts learning about other characters in the game, one colleague asks the player if they want to join the orientation session

which was organized for new students. This is the first time that the player is offered a choice from various options (see Figure 4). If the player elects to go to the orientation session, they will be offered the Extra-curricular Activities Involvement Certificate (see Figure 5). Otherwise, based on the selected option, the player might lose some points from their *professional bar* or might gain some points for their *personal bar*. The idea of professional and personal bars was adopted from the real-life situation. In everyday life, everyone encounters dilemmas or has to choose a

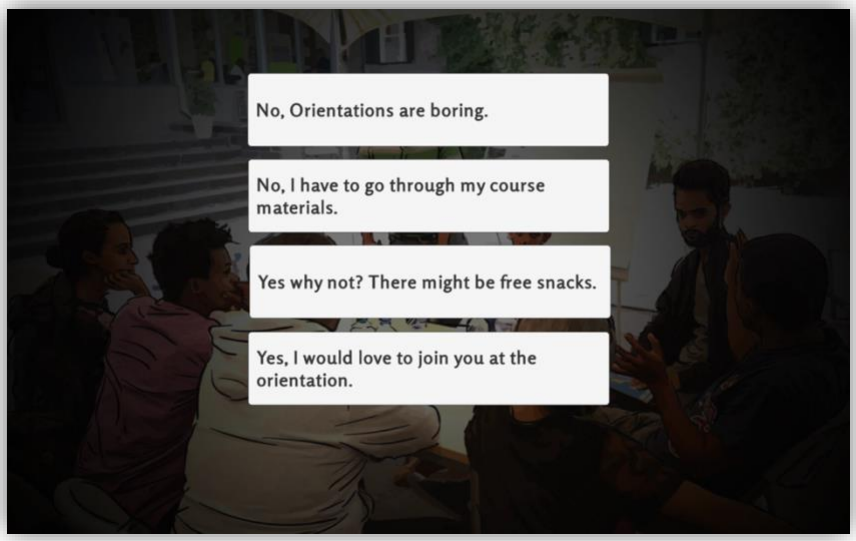


Figure 4. Options offered to the player in response to the invitation to orientation session

different path, and these paths are often not black or white. For example, on a Sunday night, one might need to choose between watching a movie alone or spending time with friends. Each choice has pros and cons, but the person has to choose the one that is preferable. So, each choice in life has advantages and disadvantages, and when one chooses one path over the others one knows that one will benefit from the choice but will also lose the benefits of other possible paths. Most of the time the question is about what counts as the *better* path, and not necessarily the

correct one. From this perspective, *Mela* makes the player choose their paths in the game and face the consequences of this choice.

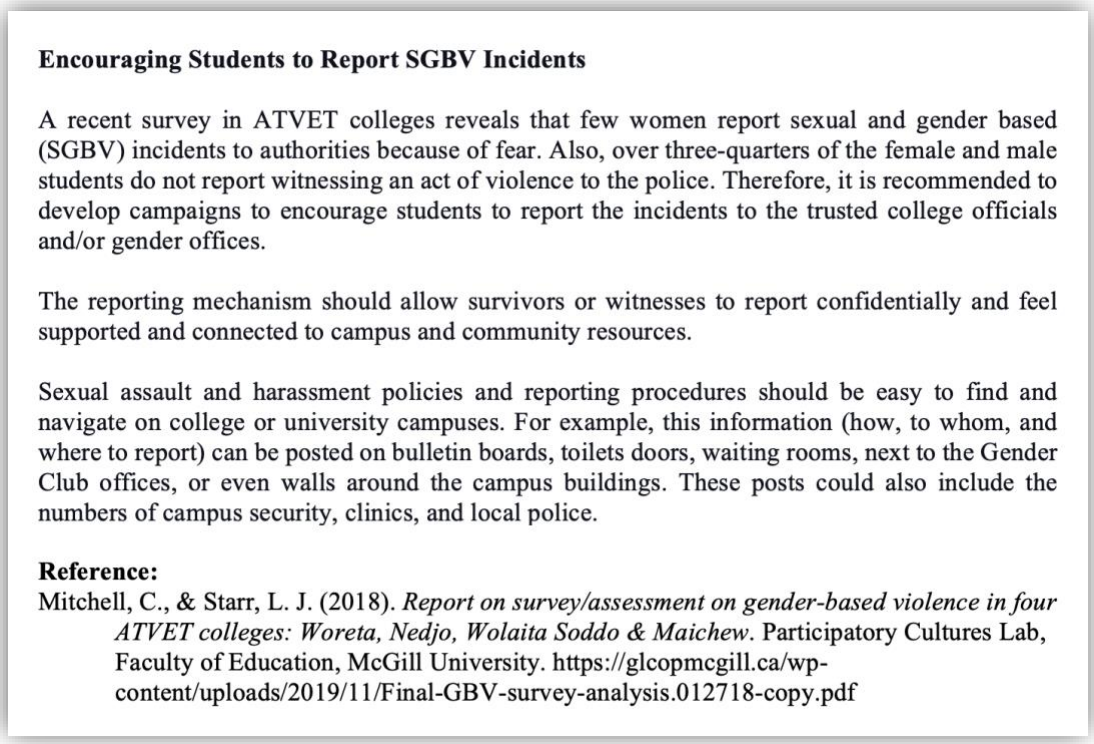
Throughout five chapters the player encounters various types of issues that lead to SGBV such as the limited participation of female students in the class, interacting with an opposite sex student in the office, the female students' lack of English language competence, different types

Figure 5. Extra-curricular Activities Involvement Certificate awarded to the player if they choose to attend the orientation session

and signs of patriarchal structures and behaviours (e.g., unequal distribution of resources among male students and female students), gender stereotypes held by students and colleagues, sexual harassment, both physical and verbal, on campus, pregnancy and related women's issues (e.g., their not being present in class and/or silence in class and the lack of facilities such as safe toilets), security issues on campus for female students, the silence of SGBV survivors and their inability or unwillingness to report incidents, power abuse, early/forced marriage, and physical violence by men against women. In most of these situations (or trigger events) the player needs to make a decision toward solving the problem or addressing it in some way. The ideas for the specific

trigger events came from the interviews, cellphilms, and group discussions. For example, the trigger event described in chapter four—a decision that the player needs to make between an informal dinner with a colleague and an urgent consultation meeting with a female student—was inspired by the cellphilm, *Lack of Instructor's Commitment to Respond for GBV Problem* (see chapter five).

Overall, the *Mela* game tries to raise the awareness of the player about various SGBV issues common to the agriculture colleges and offer some ways of addressing them. The educational content is provided during the game through narration, conversations, and the specific use of an in-game email mechanism. While playing the game, depending on the situation,



Encouraging Students to Report SGBV Incidents

A recent survey in ATVET colleges reveals that few women report sexual and gender based (SGBV) incidents to authorities because of fear. Also, over three-quarters of the female and male students do not report witnessing an act of violence to the police. Therefore, it is recommended to develop campaigns to encourage students to report the incidents to the trusted college officials and/or gender offices.

The reporting mechanism should allow survivors or witnesses to report confidentially and feel supported and connected to campus and community resources.

Sexual assault and harassment policies and reporting procedures should be easy to find and navigate on college or university campuses. For example, this information (how, to whom, and where to report) can be posted on bulletin boards, toilets doors, waiting rooms, next to the Gender Club offices, or even walls around the campus buildings. These posts could also include the numbers of campus security, clinics, and local police.

Reference:

Mitchell, C., & Starr, L. J. (2018). *Report on survey/assessment on gender-based violence in four ATVET colleges: Woreta, Nedjo, Wolaita Soddo & Maichew*. Participatory Cultures Lab, Faculty of Education, McGill University. https://glcopmcgill.ca/wp-content/uploads/2019/11/Final-GBV-survey-analysis.012718-copy.pdf

Figure 6. A sample of emails the player receives in Mela

the player receives 27 emails with varied content including some information about specific topics. Figure 6 is a sample email "Encouraging Students to Report SGBV Incidents."[23]

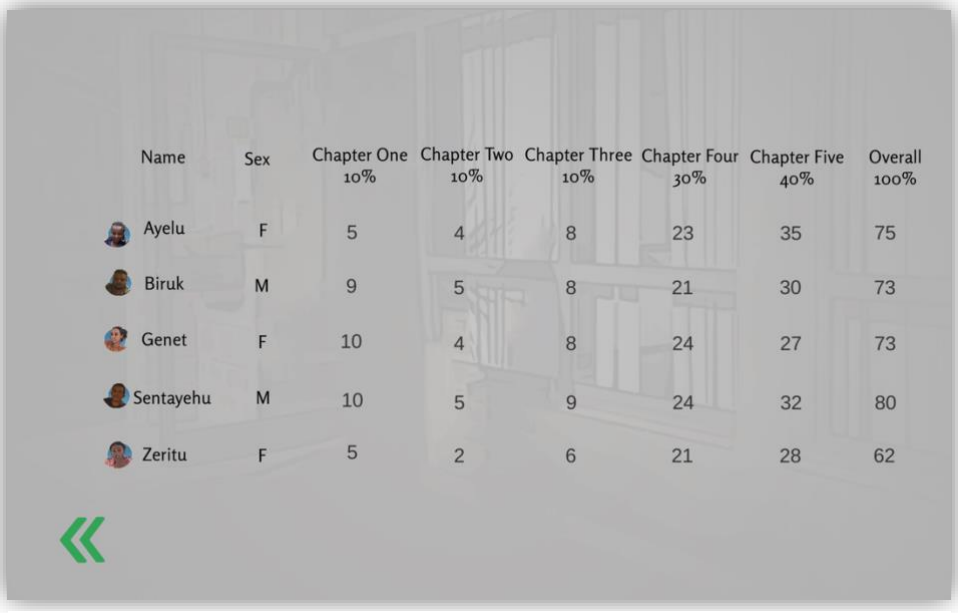
Mela's two main feedback systems are certificates and students' grades. Twenty-one certificates (see Table 1) have been designed in *Mela* that are awarded to the player when they select the most appropriate option in decision-making situations. An appropriate option in *Mela* means the option that is directed more toward promoting gender equity and/or preventing SGBV.

[23] ATVET in the email's text stands for Agriculture Technical Vocational Education and Training

Table 1 - Mela certificates

Game Chapter	Certificate Names
Introduction	Extra-curricular Activities Involvement Certificate
Chapter 1	Classroom Organization Certificate
	Professional Code of Conduct (on Campus) Certificate
	Classroom Management Certificate
Chapter 2	Gender Inclusive Distribution of Resources Certificate
	English Language Support Certificate
	Female Leadership Supporter Certificate
	Gender Bias Breaker Certificate
	Self-Confidence Elevator Certificate
Chapter 3	Caring for Students Certificate
	Effective Communication Certificate
	Gender Club Awareness Creation Certificate
	Gender Responsive Advocate Certificate
Chapter 4	Conflict Resolution Certificate
	Active Bystander Certificate (1)
	Self-defence Advocate Certificate
	Safe Space Advocate Certificate
Chapter 5	Community Outreach Certificate
	Professional Code of Conduct (off Campus) Certificate
	Power Abuse Fighter Certificate
	Active Bystander Certificate (2)

The second main feedback system is the effects of player's performance on students' grades, particularly the grades of female students. When the performance is more oriented towards gender equity the grades (specifically female students' grades) are higher, but when the



Name	Sex	Chapter One 10%	Chapter Two 10%	Chapter Three 10%	Chapter Four 30%	Chapter Five 40%	Overall 100%
Ayelu	F	5	4	8	23	35	75
Biruk	M	9	5	8	21	30	73
Genet	F	10	4	8	24	27	73
Sentayehu	M	10	5	9	24	32	80
Zeritu	F	5	2	6	21	28	62

Figure 7. Students' grades table in Mela

performance is not in line with gender equity, the grades drop. Figure 7 shows a screenshot of the grades table for a random play.

Creating *Mela* was a multi-layer and multi-stage process, as I describe in the manuscripts. It was multi-layer because it applied participatory methodologies such as data collection and working tools (see chapter three), it occurred within the broader research-creation perspective (see chapter four), and it sought to learn about instructors' narrative imaginations as a way of entering the individual's world (see chapter five). It was multi-stage because it was carried out in various iterative phases during my times in Ethiopia (as described in the Introductory chapter).

In this chapter, I have put together different pieces of my findings, discussed in previous chapters, to provide the broader picture of my work and its results. I also show how these findings respond to the research questions I proposed in chapter one. The following section is my attempt to answer the question, "So what?" and it is here that I also conclude with some recommendations for future work. I then address how my dissertation contributes to expanding the knowledge of, and deepening the understandings in, this field. Then, I discuss the limitations and challenges of conducting this project and go on to consider implications for further research. Finally, I step back and share my reflection on this work.

Responding to the research questions

When I started this project the main questions that I put front and centre was "How can a user-responsive learning experience within a digital serious game be created to contribute to improve Ethiopian agriculture college instructors' capacity to address campus-based SGBV?"

As defined earlier, serious games possess two main characteristics—they are entertaining, and they offer a serious agenda (e.g., education). What I would like to highlight here is the concept of creating the learning experience. As Kalmpourtzis (2019a) noted, in serious games, all incorporated elements (i.e. mechanics, story, aesthetics, technology, and pedagogy) "focus on the same thing: providing your players with intrinsically motivating experiences that help them learn" (p. 29). So, while conducting my research, one of the main goals that was always flashing for me was the idea that *Mela* should create an engaging experience for Ethiopian agriculture college instructors that would motivate them to interact with the game and learn from its educational content about how to address SGBV on campus.

As a short answer to the main question of my dissertation, my research shows that serious games have the potential to be self-educating tools for Ethiopian agriculture college instructors in their process of learning about SGBV-prevention techniques, and yet, to make the game interactive and user-responsive, working within the research-creation perspective and applying participatory game design methods were key. I highlight specifically my using of the participatory arts-based game design since it helped to address what Robertson and Simonsen (2013) have called the "genuine participation [of the user] in design." Also, involving features such as character making and story writing, as Weik von Mossner (2020) noted, contributed to active engagement of the participants and myself in an immersive experience.

Participatory Arts-based Game Design: Mela, a Serious Game to Address SGBV in Ethiopia

In my dissertation's first set of sub questions, I asked: How design a serious game that is not only engaging, interactive, and fun, but that is also culturally, aesthetically, and pedagogically responsive to the needs of agriculture college instructors? How can I include the end-users' voice in the design process and, ultimately, in the final product? How could participatory methodologies help here? How is it possible to invite college instructors to be involved in the serious game design process as design partners when they do not have game design/development knowledge? What could the role of the instructors be in the design process that aims to create a serious game to address SGBV on campus? How could their stories contribute to the design? How could I support dialogue between instructors in the field (college campuses) and game developers in their gaming studios?

In response to these questions, I first conducted a literature review on participatory methodologies and specifically on participatory game design (PGD). As I show in my literature review chapter, I found that there is a variety of practices that have been used to design serious games in participatory ways in order to include the users' voice in the final product. However, most of the studies gave more weight to collecting feedback from the users and paid less attention to genuinely involving the end-users as design partners. Also, the literature review showed that there are very limited studies that explore involving adults (or instructors) in a PGD practice and there is no study, to my knowledge, that involves instructors in designing a serious game that aims to address campus based SGBV. The shortage of PGD practices in African settings was another gap I found in the literature.

Digital games are playable texts (Georg, 2002) and encompass "multimodal texts" including various connected media, like images, sound and music, and speech and writing (Spires, 2015, p. 126). Creating culturally responsive multimode texts in a serious game, specifically in the context of a traditional and historic setting, like Ethiopia, requires paying careful attention to the end-users' local environment and cultural texts. These are defined as "every semantic unit [in a society] that is encoded in symbolic forms such as images, gestures, dances, rites, festivals, customs, and even landscapes" (Assmann, 2006, p. 76). Thinking of the possible methods that could help in capturing the maximum number of cultural texts of an instructor's life on a college campus, I ended up with the idea of using cellphilms. As described in chapter three, a cellphilm (Tomaselli et al., 2010) is a short video that narrates a story in response to a prompt or question and, since it uses storytelling and aesthetic features, it is also referred to as an arts-based and visual participatory method (Mitchell et al., 2017). But besides this manifest function of narrating

a story, a cellphilm also has the latent function of capturing local multimodal texts such as sounds, the background environment, and overall, a slice of the filmmakers' life. In the PGD literature there are already some studies (for example, Hieftje et al., 2019) that have reported on the successful use of drawing or photography in the PGD process to collect visual information from end-users in order to develop a serious game that resonates with their everyday life. However, I could not find any study that reports on using participatory film making (or cellphilming) as part of a PGD process. So, the innovative nature of this idea plus my familiarity and experience in organizing cellphilm workshops in Ethiopian agriculture colleges made me confident enough to use this method as part of my PGD process. With this, I could ensure not only collecting instructors' voices regarding SGBV issues and potential ways of tackling them, but also collecting relevant multimodal cultural texts as local material to be used in creating the game environment. The cellphilm creation process in each of the four agriculture colleges overall provided six cellphilms, all of which were available for later stages.

Possessing all the advantages I mentioned, cellphilms still have a limitation—they narrate linear stories, and, in my view, a role-playing serious game needs to include non-linear storylines. Non-linear storytelling is a typical method of designing games that offer various branches or paths for the player throughout the game (Letonsaari, 2019). By offering alternative options from which to choose, non-linear storytelling provides a sense of agency to the player which makes the game engaging and the feedback system meaningful. The feedback system in *Mela* (certificates and students' grades) confronts the player with the consequences of their decisions and this is a mechanism that is not possible with linear stories. To fill this gap and make the stories non-linear and more interactive I organized the participatory game universe design workshop

during which instructors collectively created non-linear stories that have been fully described in chapters three and five.

Returning to the dissertation's first set of questions, then, my experience of working with agriculture college instructors showed that the combination of a participatory visual and arts-based method and participatory game storytelling (that I referred to as participatory arts-based game design (PAGD)) has the potential to contribute to designing a culturally, aesthetically, and pedagogically responsive serious game for the end-users. PAGD provided opportunities for instructors to include their voice in the design process and be design partners of the final game without their needing professional game design knowledge. By transferring the cellphilms and storylines to the game development team, PAGD showed its capacity to create a dialogue between instructors and game developers. Specifically, cellphilms were tangible material that inspired the game development team to write the game scripts and develop the other multimodal arts of the game.

Serious Game Design as Research-Creation to Address Sexual and Gender-based Violence

My second set of sub questions were related to research-creation. Encountering two practices of creation and research, the reasonable question could be about which one comes first. Should the data collection and research be the priority, or should the artistic and technical creation be first, and then have the data collected around it? How does one balance between creation and research? What kind of data collection methods could help to bring these two

practices closer together? And what does this have to do with social change and addressing SGBV in the colleges?

To answer these questions, as described in chapter four, I first familiarized myself with the notion of research-creation, which at the time of starting this study was new to me. I learned about this concept in a conversation with my supervisor while talking about the role of art works in effecting social change. With a literature review, I understood that as one of the first users of the concept, Canada's Social Sciences and Humanities Research Council (SSHRC) defines research-creation as "an approach to research that combines creative and academic research practices and supports the development of knowledge and innovation through artistic expression, scholarly investigation, and experimentation" (SSHRC, 2020, n.p.). There were also other definitions such as Practice as Research in Britain and Australia (Chapman & Sawchuk, 2012), or practice-based research in Europe (Westecott, 2020). Regardless of the wording in definitions, what drew my attention was the actual use of research-creation as a practical concept on the ground. I benefited particularly from Chapman's and Sawchuk's (2012) article in which they classified different conjunctions of research and creation in four categories: research-for-creation; research-from-creation; creative presentations of research; and creation-as-research. Considering the goal of my research (developing a serious game to contribute to change in the agriculture colleges) I found the research-creation practice to be in line with the concept of participatory action research (PAR) and/or art-based educational research (ABER) (Jokela, 2019). I wanted to be an agent of a change in a change oriented research following Muurlink's (2018) definition of the researcher's role in an action research. With this in mind, I looked for what other scholars had stated regarding research-creation and serious games. I learned that

although research-creation is a relatively new concept, there were already other studies that attempted to expand it to include the notion of serious games. Still, I believe there is a lot to cover in specifically designing an actual game by applying Chapman & Sawchuk's (2012) four forms of research-creation practices. This made me confident that my research could benefit not only from a research-creation concept, but might also be able to contribute to deepening the understanding of it, particularly regarding designing serious games from this perspective.

Designing *Mela* was an iterative process in its shifting back and forth between research and creation. In chapter four, I introduced the multimodal artistic composition of *Mela* (storytelling elements and aesthetic features) and discussed how these art forms alongside other components fit within four categories of research creation. I argued that *Mela*'s design process was research-for-creation because prior to starting the design I needed to collect the required data from the field to be able to map out the learning objectives and learn more about instructors' viewpoints regarding the SGBV issues of the colleges and the potential ways of addressing them. *Mela*'s design process was research-from-creation because the early version of the game was used to collect data (feedback) from the participants and then the entire process led to a few academic publications on my investigational art practice. *Mela* was a creative presentation of research because it represents the data that I gathered from instructors (their stories and narratives) and it represents the research field by using artforms that are drawn from local elements. Finally, *Mela*'s design process was creation-as-research because throughout my conducting the project, both creation and research processes moved hand in hand and informed each other.

In the last part of chapter four, I offer a reflective piece of my research-creation practice and highlight the role of culture and cultural texts in designing serious games. Also, I conclude that working from a research-creation perspective, specifically when it is applied with participatory methods, ensures attention to both research and design components.

Responding to the second set of my dissertation's questions, I learned that in the research-creation approach, there is not one standard way of combining research with creation. Depending on the researcher's perspectives, and goals, and the research topic, different forms of research-creation can be practiced. Specifically regarding my research, I learned that designing a meaningful serious game that is meant to be transformative needs both reliable research and organized creation—an apparatus that is potentially available in research-creation practice. SGBV is a serious issue in Ethiopian agriculture colleges and needs to be addressed in any possible way, one of which is building the capacity of instructors. Research-creation helped me to better understand the iterative mechasim of research and creation and the fact that they specifically depend to each other when the goal is about creating a game that aims to make the colleges safer learning environments.

Narrative Imagination and Social Change: Instructors in Agricultural Colleges in Ethiopia Address Sexual and Gender-based Violence

The third group of sub-questions focuses more on the instructors' role as agents of change in their colleges. I was interested in the background knowledge and experience of instructors, taking their comments and observations as the base for storying or imagining roles. How could the instructors be agents of change? What are the perceptions of instructors about the SGBV

issues and how do they envision the change? Do instructors agree that there is a problem regarding SGBV? What are the SGBV-related problems in their view? How might instructors comprehend their own potential roles in combating SGBV?

In response to these questions, and particularly in an effort to learn about instructors' perceptions of the current SGBV issues at the colleges, I conducted interviews with 20 instructors of 4 colleges and synthesized their answers in tables 1, 2, and 3, provided in chapter five. The tables show the types of SGBV in the colleges, and their causes and consequences from the perspectives of instructors. In addition, I concentrated more on the details of instructors' narratives and on their imagined potential roles in combating SGBV. As discussed in chapter five, "one cannot change the world without imagining what a better world might look like" (Jenkins et al., 2020, p. 5), so, to be able to design a game that contributes to making instructors into agents of change, it was significant to learn about what they imagine a SGBV-free environment might look like and what the instructors' role in creating it might be. The analysis of data showed that although instructors mentioned many (structural and individual) causes of campus based SGBV, in responding to them they focused mostly on making change on individual scales. Also, the analysis showed that past experiences and specifically the "residues of culture" (Bell, 1978, p. 33) affect instructors' narrative imaginations in relation to potential solutions. Learning about narrative imagination is significant in developing interventions that try to build the capacity of instructors in making them agents of change.

Conclusion: So what?

Various types of sexual and gender-based issues affect the academic performance and achievement of female students in Ethiopia's agriculture colleges. How it is possible to support female students? How can we make their learning environment safer? Sendo and Meleku (2015) recommend establishing anti-harassment policies in universities to prohibit all types of sexual violence. Raising awareness on sexual and gender-based myths, misconceptions, and traditional norms and beliefs, and providing professional support at all levels has also been considered as an essential preventative plan (Abeya et al., 2012). Also, Mat (2016) suggested initiating Comprehensive Sexuality Education (CSE) programs to address SGBV and emphasize the need for broader school policy support and the inclusion of community members. While there is a variety of possible intervention programs to address these issues, one of the promising yet understudied areas is the building of college instructors' capacity to be agents of change in their colleges. The position of instructors in their institutions' organizational structure is very strategic. They work directly with both students and the administration. They are aware of students' problems, difficulties, and deficits and they have a voice among their colleagues in other executive sectors that make decisions. Now that removing SGBV from all sectors in Ethiopia is one of the government's missions, why not plan for building on this potential capacity of instructors to bring a change that benefits everyone in the colleges (and especially female students) and the country in general? The fact that the majority of instructors are male is another key feature. But how is it possible to build instructors' capacity in the rural agriculture colleges? There are various restricting conditions that slow down the training and limit people's convenient access to timely and proper programs and resources. However, what seems promising is the growing new digital

technology that has reached these colleges in the form of personal smartphones and public computers in the college IT centers and the tablets available in gender clubs. How can digital technology help to provide training for instructors regarding SGBV issues? Obviously, we are talking about using digital technology for educational purposes, but what kind of education? Studies (as reviewed in chapter two) show that serious games have the potential to answer this question. The digital world, and specifically games can create learning environments that are engaging and fun. They can be used to create situations on which trainees can practice and learn without being worried about the consequences of their behaviours in real life. The serious game *Mela* was developed to assist Ethiopian agriculture instructors to build their capacity. *Mela* provides a playful environment in which the player can face different campus based SGBV issues, make decisions, and face the consequences. *Mela* tries to raise the instructors' awareness about the issues and the possible ways of addressing these issues. Instructors' feedback and testimonies in prototype-test sessions and game-test sessions showed that they recognized the potential of *Mela* to assist instructors to learn more about their potential roles in combating SGBV.

This research showed the significance of working within the research-creation approach as a guiding framework for the participatory development of the serious game, *Mela*. My participatory arts-based game design approach provided an engaging and immersive setting in which to work with instructors and provide helpful material (data and multimodal features) either to be incorporated into the game or for them to be inspired by while designing the game. Also, in exploring instructors' narrative imaginations, this research highlights the potential of

instructors to be agent of changes and the potential of using art to address SGBV in Ethiopian agriculture campuses.

The importance of empowering female students in agriculture colleges can be better understood if we consider that about 80% of the population in Ethiopia is employed in agriculture and this sector contributes more than 40% of this country's total GDP (R. McCallum, 2015). Addressing gender issues in rural agriculture colleges has the potential to empower females at other levels that can, potentially, result in breaking the barriers to women's leadership and to the country's sustainable development goals.

Contribution to Original Knowledge

Broadly, my dissertation responds to the global need for a deeper understanding of the interplay between SGBV and serious games (or game-based learning) in developing and marginalized settings. It offers an innovative approach to the achievement of a sustainable strategy to address SGBV through working within the research-creation approach and the participatory development of a digital game on SGBV with a group of instructors at four agriculture colleges in rural Ethiopia. To date, few SGBV interventions have sought to build the capacity of instructors, and very few through participatory engagement. It is unique in its interdisciplinary approach that recognizes the vital link between and among digital educational technology, learning, and gender-based violence in an Ethiopian context and in a post-secondary setting, and in recognizing that instructors (both male and female) can be central to transforming institutions. Building on the work of Mitchell and Starr (2018) in Ethiopian agriculture colleges, this research contributes to the immediate need for participatory problem-solving and action in

relation to empowering the local community and reducing SGBV in a country that has one of the highest prevalence rates of such violence in Africa. Also, this work deepens the understanding of working within hybrid methodologies through which research and creation lead to hybrid products. It contributes to expanding the knowledge in applying four dimensions of research-creation while designing a serious game for social change. At the same time, it also provides practical guidance on how to involve end-users of a serious game in the design process and make them the design partners. Furthermore, it highlights the role of narrative imagination in designing intervention programs that aim to prepare members of a given population to be agents of change in their environment.

In addition, this thesis has the potential to contribute specifically to several areas.

a) It contributes to deepening an understanding of participatory approaches to professional development/learning.

Through their involvement in various participatory phases of this study, the instructors were central to dialogue about the research topic. This created potential for the participants, both male and female, to be empowered to bring the results back to their communities for actual use on the ground. Also, engaging with game design and participatory practices generally improved instructors' ability to work with notions related to game-based learning and participatory methods. They can bring this experience back to their classes and institutions and help in proliferating the use of these methods.

b) It contributes to filling the gap in relation to the lack of serious games that address SGBV but designed for adult populations (such as instructors), and in/for developing contexts.

As mentioned in my literature review chapter, globally there are several serious games that have been designed to address different aspects of SGBV or sexual health (for example, Boduszek et al., 2019; Jozkowski & Ekbia, 2015; Pabón-Guerrero et al., 2019). Also, in a literature review Yañez (2020) located 32 available serious games (in English and Spanish) related to SGBV topics. However, as I perceived and Yañez (2020) confirmed , the majority of developed games target the youth population, and have been designed in the global north. Designing *Mela* contributes to filling this gap and is an attempt to extend the use of serious games in training instructors in a developing setting.

c) It contributes to highlighting the importance of research in agriculture colleges in Ethiopia.

Despite the increased attention to documenting prevalence rates of SGBV in post-secondary institutions, there has been little attention paid to the issues of SGBV that are specific to agriculture colleges in Ethiopia. There are more than 20 agriculture colleges in the country, and they are unique in that they typically attract students who are younger than those in university since students can enter the colleges with only a grade 10 qualification. Many are found in rural areas, so they attract rural students who then live on their own for the first time at the age of 16 or 17 and the programming itself is specialized in that students do much of their learning at demonstration sites where they might be particularly vulnerable. My dissertation contributes to highlighting the SGBV issues of these colleges, which can lead to solving them in the long term. This is in line with the focus of the UN's Commission on the Status of Women on the empowerment of rural women and girls (UN, 2018).

Limitations and Challenges of the Research

This research project had some challenges that resulted in limitations. For example, one significant challenge was the time limitation and the lack of the possibility of a summative assessment. Generally there are two methods for evaluating games: a) summative evaluation (or completion assessment), which is conducted "at the end of the development phase on the finished product and is usually associated with evaluating the impact or effect of the system"; and b) formative evaluation (or in-process assessment), which is "carried out during the design process and is typically conducted to address interface design, gameplay and instructional issues in keeping with the objective of making improvements" (Ang et al., 2017, p. 173). Although I managed to conduct formative assessments by organizing prototype-test and game-test sessions, the limitations of PhD work and the impossibility of returning to the field eroded the opportunity for summative impact assessment. Testing out the final game in the next steps is essential to evaluate its impact and contribution to the sustainability of gender-mainstreaming in the colleges. In addition, it would also help to make sure it is effective as a self-educating tool in the capacity building of Ethiopian agriculture college instructors.

Another challenge was related to the limited time available for developing game storylines with participants. A game with multiple levels needs to have multiple scenarios as well, but in a one-day PGD workshop, the time restricted the number of scenarios that participants could develop. As a result, the scenarios that were developed in the PGD workshop were less than the necessary number of scenarios for the game. While I was able to compensate by developing more stories inspired by the data (interviews, cellphilms, and personal observations),

in collaboration with the game development team, this meant that there were fewer instructor-generated scenarios.

Furthermore, in the participatory design, particularly for a tool that aims to create a safe space for female students, hearing about women instructors' experiences and advice is key. However, because of the smaller number of women instructors in agriculture colleges, another challenge in my project was having a balance between the voices of male and female instructors in developing *Mela*. To compensate, I tried to invite the maximum possible number of female instructors to interviews and to design and test sessions. I also asked the game development team to assure the presence of female game designers/developers in the team so that there would be a voice from woman while I was writing the stories or designing other components of *Mela*.

Finally, another challenge occurred while the team was trying to incorporate different languages from the various regions into the game. English is the official language of instruction in post-secondary institutions in Ethiopia. However, to make more convenient versions of the game for instructors of different regions (with different languages) I initially had a plan to have *Mela* translated into three local languages (Amharic, Tigrinya, and Oromo) in addition to the English version. However, some serious challenges prevented this from happening. For example, sentences in one of the languages are much longer than in the other two, so they did not fit easily into the speech bubbles or narration boxes. More importantly, translating some parts of the game showed that there were some nuances in the translations that would change the meanings of the words and concepts. Considering the sensitivity of SGBV issues, the team needed to make sure that the wording was always appropriate and that it conveyed the exact concepts of the

game, but, given the variety of languages, there was no one in the team to ensure this. In the end we decided to have the game in English only but this, of course, could become something to work on later.

Implications for Further Research

Looking forward, I see a number of implications for further research in relation to the topic of this dissertation. Critically, to tackle SGBV issues, there is a need to take into consideration the over-representation of the participation of male instructors in future studies. Considering that most of instructors in the agriculture colleges are male (which is the case in other post-secondary institutions in Ethiopia) further research is needed to explore strategies for increasing women's presence and participation in the education sector. It is a promising sign that my fieldwork showed male instructors' willingness to be involved in a project that aimed to benefit female students. Further research is needed to explore how the study of masculinity can itself become a feature of programs that address SGBV to make the communities safer places for women. This recommendation is in line with results of other studies. For example, Fry et al. (2017) conducted a systematic literature review in sub-Saharan Africa and found that there is social pressure on young men "to exhibit gender dominance and control over young females of the same age-group" (p. 12). They argued that young men's gender identity is influenced by this "hegemonic masculinity mentality" that leads to SGBV. Relevant to these findings, Casey et al., (2018) developed a conceptual model and discussed the effectiveness of inviting men to participate in SGBV prevention programs. Also, in their chapter, Renzetti et al., (2017) explored different SGBV intervention programs at individual, family, community, and global levels, and

highlighted several innovative approaches from around the world, among them the involvement of men as allies in the SGBV prevention programs.

In addition, as ATTSVE fieldwork with instructors in rural Ethiopia has highlighted, the need for self-education tools is great. My project comes at a time when there is increased access to technology in the four participating agriculture colleges (as a result of the ATTSVE project) and offers instructors the opportunities to gain knowledge through self-directed learning on how to address SGBV. Still, there is a need for further research on designing strategies that promote sustainability in supporting instructors. Related to the sustainability topic, another question to be answered could be about how serious games could be used to influence policy development related to professional learning as a key feature of impact and sustainability.

Finally, working within the participatory arts-based game design framework, I found the immersivity and engagement of participants as well as my own immersivity in the research and design process helpful for realizing the goal of the project but there is a need for further research on the role of immersivity for both participants and researchers in social research, specifically in areas such as SGBV since this topic and content might cause some discomfort. Immersivity of researchers has already gained some attention. For example, Elsbach and Kramer (2015) talked about the immersivity of the researcher in immersion ethnography. They call observant participation the "central tool of immersion ethnography" (p. 134). Still, more comprehensive studies could excavate questions related to which methodologies can increase immersivity, specifically among participants and researchers so that the project can better meet its goals.

Stepping back: A reflection

I start this section by quoting Burke's (1967) Unending Conversation metaphor.

> "Imagine that you enter a parlor. You come late. When you arrive, others have long preceded you, and they are engaged in a heated discussion, a discussion too heated for them to pause and tell you exactly what it is about. In fact, the discussion had already begun long before any of them got there, so that no one present is qualified to retrace for you all the steps that had gone before. You listen for a while, until you decide that you have caught the tenor of the argument; then you put in your oar. Someone answers; you answer him; another comes to your defense; another aligns himself against you, to either the embarrassment or gratification of your opponent, depending upon the quality of your ally's assistance. However, the discussion is interminable. The hour grows late, you must depart. And you do depart, with the discussion still vigorously in progress." (Burke, 1967, pp. 94–96)

Hearing some voices and noticing that there is something that might be interesting, I entered the parlour of education where serious games and how to address SGBV were the subjects of the "heated discussion" that was already underway. I was about to get lost, but a little concentration helped me to "[catch] the tenor of the argument" and find the interesting words by myself. I joined the "heated discussion" and tried to be part of the party by "put[ting] in [my] oar". My words received a little attention and also raised some questions but "the hour [grew] late" and I had to depart "with the discussion still vigorously in progress."

Stepping back and looking over my research journey fills me with a great sense of honour, excitement, and gratification to have had the chance to be part of an effort to dismantle the oppressive situations that arise from SGBV for female students at Ethiopian agriculture colleges. Being involved in this project provided me with the chance to compare the social issues that I have experienced in my home country, Iran, with those that people encounter in Canada as well as with issues in the Ethiopian context. This opened my eyes to broader international issues and to both differences and commonalities in the types of problems as well as in the solutions. I understand that this dissertation is just a word among thousands of other words discussed by people who want to make an impact in the lives of others, and I hope that this word draws someone's attention in the parlour discussion that is "still vigorously in progress."

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Appendices

Semi-Structured Interview Questions

1. The age, sex, field of study, degree, marriage status, work experience, affiliation with gender club?
2. What is SGBV for you? How do you define it?
3. Examples of SGBV in Ethiopia?
4. In what forms can SGBV present itself in the college?
5. What is the difference between sexual assault and sexual harassment?
6. What are the causes of SGBV in the college?
7. What are the consequences of SGBV in the college?
8. What are the ways of reporting any SGBV incidents in the college for students?
9. Is it possible that sexual assault/harassment happens to female instructor?
10. What are the policies (or codes of conducts) about SGBV in your college?
11. Who is responsible for incorporating the gender material into the courses?
12. What guiding resources do you have access to, in order to learn about SGBV?
13. What are the resources for you to receive consultations if needed (lawyer? Physician? Police?)?
14. What are the services provided by the college for survivors? Or to prevent SGBV incidents?
15. How do you evaluate your knowledge regarding SGBV issues and addressing them in the college?
16. Do you think you need to learn more?
17. What happens when a student reports an incident of sexual assault or sexual misconduct at the college?
18. What governmental or non-governmental organizations are here in your town to support the survivors of SGBV?
19. What are the immediate supports for survivors in the college?
20. What are the long-term supports for survivors in the college?
21. What are some of the ways of reducing SGBV incidents in the colleges?
22. What are the barriers of reducing SGBV incidents in the colleges?
23. Have you ever witnessed any incident?
24. Have you heard about any incident?
25. What did you do?
26. Have you seen any instructor who witnessed an incident?
27. Have you seen any survivor that withdrew from the college?
28. What instructors need to know about SGBV (educational needs)?

General Feedback Form

General Feedback Form

Mela; A Serious Game to Combat SGBV in Ethiopia's ATVET Colleges

Your ATVET: …… Sex: ……

Please answer the following questions in the next page:

1. Please comment on the game ... What do you think of the game overall?
2. Do you think Mela is helpful for capacity building for instructors regarding SGBV issues in the campus?
3. Would you play this game again? (if yes, why you would play? If no, why you wouldn't play?)
4. How easy/complicated was interacting with the game?
5. Which chapter was your favorite?
6. To make the game more effective in your college, what are your suggestions?
7. Would you recommend Mela to your colleagues?
8. If you want to motivate a colleague to play the Mela, what would you say to them?
9. Do you think we are missing any important issue? If you want to add any topic/subject to this game what would that be?
10. How many certificates could you collect finally?

Chapter-based Feedback Form

Individual Questionnaire – Chapter 1

Game-Play Session

Your ATVET: …… Sex: ……..

Please answer the following questions:

1. What were the main SGBV topics of **this chapter**? (please name as many as you can)

a.
b.
c.
d.
e. Add more if you want:

2. In **this chapter**, did you learn about any topics that you were not aware of them before playing? If yes, which ones?

f.
g.
h.
i.
j. Add more if you want:

3. How many of the stories of **this chapter** were familiar for you? Do you have any similar story in your college? Which one(s)?

4. Based on your experience from your college, what portion of students face the problems of **this chapter**?

All of them ☐ Most of them ☐ Some of them ☐ Few of them ☐ Most of the females ☐

If other, please specify:

5. How helpful is this chapter in solving gender-based violence issues of ATVET colleges?

6. Do you think **this chapter** and its stories would be helpful in capacity building for ATVET instructors? (to be more effective in addressing SGBV issues in their colleges)

7. What **did** you like best in this chapter? Why?

8. Were there any things that you did not like in this chapter? Why?

Please say how much you disagree or agree with the statements below:

	Statements	Strongly disagree	Disagree	Relatively Disagree	Relatively agree	agree	Strongly agree
1	Overall, this chapter was informative for me						
2	This chapter was boring						
3	This chapter didn't have anything to tell						
4	Visually I liked this chapter						
5	I felt connected to my character in this chapter						
6	I enjoyed playing this chapter						
7	This chapter was challenging						
8	Overall, this chapter's stories were realistic						

Participant's Consent Form

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Title of the project: Participatory Digital Game Development to Address Sexual and Gender-based Violence in Agriculture Colleges in Ethiopia

Sponsor: Agricultural Transformation Through Stronger Vocational Education (ATTSVE) project

Description of Project: My research seeks to answer the question, how can a self-educating tool (a prototype of a digital game) provide support to Agriculture Technical Vocational Education and Training (ATVET) instructors to raise their awareness on SGBV issues of their colleges and improve their skills to deal with these issues to create a safe and secure educational environment? In this study I try to offer an innovative approach to contribute to achieving a sustainable strategy in agricultural colleges addressing SGBV.

Methodologically this research will take place in 4 different stages, but the involvement of participants would be just **in following 3 parts**:

Part 1: Including individual interviews, participatory video making workshops and small group discussions. This part will take place around October and November 2018 in your ATVET college.
Part 2: Including participatory Game Universe design workshop and small group discussions. This part will take place in January 2019 in Adama, Ethiopia.
Part 4: Including individual interviews, prototype test sessions and small group discussions on the potential effects of the designed game. This part will take place in September 2019 in Addis Ababa.

What I will ask you to do:
You will be asked to take part in 3 parts of the research study (as described above). We are asking you to take part because of your experience as an instructor in ATVET colleges. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

- We will ask you to participate in all 3 parts of the study as described above.
- The interviews will be conducted in person and individually, but the workshops and small group discussions will be conducted in groups. In Part 2, a game developer expert, introduced by our Ethiopian partner, ICEADDIS, would attend the workshop as well.
- In brief, each participant is expected to participate in two one-hour interviews in their ATVET college; A one-day Participatory Game Design workshop in Adama; and a one-day prototype test session and small group discussion in Addis Ababa. One-day sessions are expected to last no longer than 7 hours.

Dissemination of results:

- The data collected and the analyses will mainly be used for the doctoral dissertation project.

- Potential academic presentations and articles: Findings from this study will possibly also be presented at academic conferences, and will also potentially be used to publish articles in peer-reviewed journals.

Risks and benefits: This study requests information of a professional nature related to sexual and gender-based violence in ATVET colleges, which may cause emotional distress. Please note that you can leave the study at any point. Moreover, while I cannot guarantee a direct benefit based on your participation, any food or travel costs would be covered by the researcher. Furthermore, it is likely that the opportunity to talk about addressing issues of GBV on campus will contribute to your overall professional development. I also hope that the study findings will contribute to improving ATVET instructors' knowledge and skill in addressing SGBV in their colleges.

Taking part is voluntary: Taking part in this study is entirely voluntary. You may skip any questions that you do not want to answer in interviews and participatory sessions. Also, you are free to withdraw from the study at any time.

Confidentiality Agreement: Please be advised that although the researchers will take every precaution to maintain the confidentiality of the data, the nature of group discussions prevents the researcher from guaranteeing confidentiality. The researchers would like to remind participants to respect the privacy of your fellow participants and not repeat what is said in the group discussion sessions to others.

If you have any question please contact the researcher, Seyed Mohammad Hani Sadati, at (+1) 514-463-1262 or email him at hani.sadati@mail.mcgill.ca or contact his academic supervisors with contact information provided above.
If you have any ethical concerns and want to speak with someone not on the research team, please contact McGill Ethics Officer Deanna Collin at (+1) 514-398-6193 or deanna.collin@mcgill.ca

You agree that interviews, participatory sessions and group discussions will be audio-recorded *(Please note that the audio-recording will solely be used for the purpose of transcription of the data only)*: yes_____ no ___

You agree that in Cellphilms you will be video-recorded by other participants *(Please note that the video-recording will solely be used for the purpose of game design only and they might be accessible for the game development team)*: yes_____ no ___

You agree that the researchers may use your data in future related studies ____ yes _____ no

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Your Signature _____ Date _____

Your Name (printed): _____

Signature of researcher _____ Date _____

Once countersigned by person obtaining consent, a signed copy of the consent form will be given to you (the participant) and one retained by me (the researcher).

Photo/Video Consent Form

I (name), ---------- hereby grant permission to Mr. Hani Sadati for the use of my photographs/images/videos in the serious game that he is creating based on his PhD project, Participatory Digital Game Development to Address Sexual and Gender-based Violence in Agriculture Colleges in Ethiopia, in collaboration with D5Gamecon's game development team. These images also could be used in print and digital media formats including print publications, websites, e-marketing, posters banners, advertising, film, social media, teaching and research purposes.

I understand that my images or recordings may be kept permanently once they are published.

Print name: _____

Signature _____ Date _____