

Gender equality in the era of digital transformation: A study on Bosnian and Herzegovinian youth

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ABSTRACT

Objectives This study investigates gender equality in the era of digital transformation through a youth perspective, thus envisioning the roles and responsibilities of young people leading to a more gender-equal and digitally transformed future world.

Methods We conducted this cross-sectional study with a qualitative approach. Using a Google Form questionnaire, we collected data from 48 youth participants. For data analysis, we used reflexive thematic analysis with a latent, inductive approach.

Results Two themes emerged: youth's recognition of societal-level issues, i.e., stigma and gender stereotypes, and youth's recognition of individual-level issues, i.e., women's struggle to participate in digital transformation.

Conclusion Our findings suggest that youth have a great capacity for empathy and critical thinking in matters related to gender equality and digital transformation of the world, and therefore are capable of participating in decision-making processes and taking responsibility to lead communities to a more gender-equal and digitally transformed future.

Keywords Digital transformation, gender equality, youth perspectives, Bosnia and Herzegovina, UN sustainable development goals

Highlights

- This is a youth-led original research. Youth researchers took all initiatives and made all decisions throughout the entire research process.
- *Youth ownership* is undoubtedly the pioneer character of this study. While most youth studies attempt to answer the question of “what can be done for the youth,” the focus of this study is “what can be done by the youth.”
- Drawing attention to the interconnectedness of gender equality and digital transformation, this study brings to light a fundamental fact: neither gender equality nor digital transformation can be accomplished as a stand-alone issue.

reason, out of many important ones, why we found it crucial for our research to empower and give a voice to the youth.

Youth perspectives on these crucial issues are often ignored. As Coffey & Han (2022) explained, this is because ever since the early 20th century, adolescence has been universally believed as a troubled age fueled by surging hormones and backed by a rebellious nature. Youth are seen as not trustworthy, not ready, or not capable of contributing to the betterment of the society (Furby & Beyth-Marom, 1992; Mutasa, 2020; Stanton & Clemens, 2006). With the advancement in developmental science in the recent decades, these negative views on youth have been gradually changing. However, young people are still not allowed to

INTRODUCTION

Bosnia and Herzegovina is a developing country. As youth researchers, we believe that it is important for us to recognize this fact and to strive to make changes happen. The process of improving or changing how people treat each other in our country is hard and extensive, but especially when it comes to modern concepts that are still being overlooked in Bosnia and Herzegovina's society, such as the importance of gender equality and digital transformation. This is our main



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participate in the decision-making process on important issues (Ali, 2014; Alkan, 2019). We recognize the importance of understanding the perspectives of youth in the context of gender equality in the era of digital transformation, as it can provide valuable insights into the challenges and opportunities that exist in Bosnia and Herzegovina. This knowledge can also be used to develop policies and programs that promote gender equality and digital transformation of the nation.

With the aim of understanding youth perspectives and envisioning the roles that they may play, we ask the following question: To what extent do Bosnian and Herzegovinian youth recognize the need for and challenges of achieving gender equality in the era of digital transformation?

*In this article, we use the term “women” to refer to females of all ages, and “youth” or “young people” to refer to adolescents and young adults.

LITERATURE REVIEW

Digital transformation

Digital transformation (DT) is a concept first introduced more than two decades ago by Patel and McCarthy (2000). Countless studies have since attempted to define DT. However, to date, not only is there not a universally accepted definition, but also a vast majority of DT studies are done from a narrow business or organizational standpoint. Therefore, in this study, we believe that it is necessary to provide a more comprehensive definition. In this study, we identify digital transformation as the process of narrowing the digital divide between regions, countries, and communities, and bringing digital advancement to everywhere and everyone. It includes digital literacy and digital advancement that will lead to the transformation of a wide range of industries and sectors.

To businesses, DT is useful to achieve higher efficiency, and ultimately, higher profit margins. To people in underprivileged regions and communities, DT can be a lifeline. Digital skills are a key aspect of raising the living standards of citizens (Stofkova et al., 2022). UNESCO (2023) stated that In developing countries, digital skills are in high demand and can greatly improve prospects for decent employment. They are linked to higher earning potential, and experts have predicted a growing number of jobs for people with advanced digital skills.

Unfortunately, average digital skills vary greatly

across regions, countries, and communities (Mekić, 2020; UNESCO, 2018). The disparities in digital skills have been well documented yet steadily growing (Dogruel & Joeckel, 2019; Gorski et al., 2023). Addressing these disparities is imperative to achieving digital transformation. To reverse the trend of growing disparities in digital skills, IT-related education needs to be made prevalent with an emphasis on a lifelong learning component (Kullaslahti et al., 2019; Öteles et al., 2020).

Gender equality in the digital era

The gender gap in digital literacy exists virtually everywhere, negatively affecting a vast population of women from refugee camps (Hayman, 2023) and developing countries (Antonio & Tuffley, 2014; Marini et al., 2020;) to the industry of information and communication technologies (ICT) in developed countries (Hayman, 2022; Sujarwo et al., 2022). On one hand, females are half of the world's population. Clearly, digital transformation cannot be accomplished by leaving half of the population behind. On the other hand, digital skills and advancement can improve education, address gender inequalities, and improve the work and life conditions of women everywhere in the world (Ertl & Helling, 2011; Mallawaarachchi, 2019; Pascall & Lewis, 2004; Subrahmanian, 2005; Sujarwo et al., 2022; UNESCO, 2023). In summary, achieving gender equality in the era of digital transformation is a win-win situation for all. Failing to achieve it means everyone loses.

METHODS

We conducted an internet-based, cross-sectional qualitative study using the snowball sampling technique to gather youth perspectives on gender equality in the era of digital transformation. Qualitative data was subjected to reflexive thematic analysis, enabling the identification of various perspectives related to gender equality and digital transformation.

Participants

The study engaged 48 Bosnian and Herzegovinian students, representing a diverse cross-section of the youth population. We gathered data about participant characteristics, to better evaluate the youth involved in the study. Participants were both female and male, private- and public-school attendees, and came from urban and rural areas. All participants were Bosnian and Herzegovinian high school students,

with their ages ranging from 16 - 20 years old. This sample provided a more inclusive and diverse set of perspectives. These variables helped us have a statistical representation of the results. 50% (24) were female and the other 50% (24) were male. The majority of students were from Sarajevo, the capital, but students from other cities were also included. 85.4% (41) of students attend public school, the other 14.6% (7) attend a private school. As shown by the data, there was significant diversity in participants' characteristics, which contributed to establishing a generalized approach to the interpretation of youth perspectives.

Data collection

Data collection was done using a Google Form questionnaire. An invitation to participate was shared through an email campaign. The questionnaire was developed and administered in English. Translation was not needed in this study because all participants were able to understand the questions and provided their answers in English. Following ethical guidelines, all participants were anonymous, which established a protected space for youth to share their honest views and opinions. All questions required the participants to express their thoughts and reasoning after they selected a yes/no answer. These open-ended questions allowed us to collect qualitative data on participants' perspectives related to the topics of gender equality and digital transformation.

Data analysis

Because of the nature of this perspective study, we chose to use reflexive thematic analysis (Braun & Clarke, 2019). We first read all participants' responses in detail to establish a general view of the data. Initial codes were then developed to identify the data that were relevant to the research question. Beyond the semantic content of the data, we developed the codes at a latent level. Finally, we used an inductive approach to identify patterns until themes and sub-themes emerged.

RESULTS

Through the reflexive thematic analysis, two umbrella themes emerged: (1) youth's recognition of societal-level issues, i.e., stigma and stereotypes, and (2) youth's recognition of individual-level issues, i.e., women's struggle regarding gender equality in the era of digital transformation. A great number of participants shared their belief in the importance of gender equality. This did not, however, alter their views on stigma and stereotypes or women's struggles. A majority of participants either directly shared personal opinions about facing certain stigma or struggle, or acknowledged and pointed out the existence of stigma and discrimination. The two umbrella themes as well as sub-themes, descriptions, and examples of significant statements are presented in Table 1 below.

Table 1

Description of Emerging Themes

Theme 1	Description	
Societal-level issues	Stigma and gender stereotypes	
<i>Sub-themes</i>	<i>Description</i>	<i>Significant Statement Examples</i>
Interest	Influences of gender stereotypes on interests	"Due to certain prejudice and stereotypes surrounding digital literacy, men are generally more interested in knowing and being more educated in regards to digital literacy." "We have to stop raising children in ways that divide their interests by their gender."
Capability	Stigma around women's capability	"In modern patriarchal society, women are still generally, and wrongly, viewed as intellectually inferior." "There is a tendency for women to be painted as not digitally literate enough when they are just as literate as a man who is praised for his knowledge."
Industry outlook	Stereotypes that define industries	"Computing devices and programming shouldn't be advertised as 'manly' concepts and gender inclusivity should be promoted in IT fields." "We need to start listening more to each other and not look that one job is made just for male/female."

Theme 2	Description	
Individual-level issues	Women's struggle	
Sub-themes	Description	Significant Statement Examples
Education	Women struggle to gain equal opportunities for IT-related education	"Often there are times where women are discriminated upon on an educational basis, where they are not taken as seriously, or not given the same opportunities." "As a girl many times if i didn't do something right or missed something i got called stupid by boys who don't even realise what they are saying." "Whenever I tell men that I'm in the IT programme they pop quiz me on components of computers. I find that very ignorant and offensive."
Career	Women struggle to gain access to IT-related job opportunities	"Men are usually offered with more opportunities in terms of work solely based on their gender and them being in IT rather than looking at more of an objective picture in terms of competence." "My place of residence is still pretty sexist, and they would rather make me study medically related things or anything that makes me a caregiver. Otherwise I'll be looked at as someone who's not gonna make it in life."
Advancement	Women struggle to gain career advancement opportunities in IT fields	"Women and men are treated differently in society and that could also be seen in advancement opportunities in IT fields." "Sadly it (women losing advancement opportunities) does happen quite often worldwide and I think people should spread awareness about this so one day we may live in peace without being discriminated because of our gender identity."

DISCUSSION

Stigma and gender stereotypes

It was apparent that youth participants were able to recognize various types of stigma and gender stereotypes hindering gender equality in the era of digital transformation. For example, youth participants recognized that there is a perception that IT is a male-dominated field, where women are wrongfully viewed as not competent or not interested in technology-related careers. It was also clear that youth participants are aware that gender stereotypes established by traditional gender roles are deeply embedded in society, pressuring women to prioritize family over career, which added to the stigma surrounding women trying to pursue IT-related education and career opportunities.

Youth participants further recognized the negative impact of the stigma and gender stereotypes and the need for achieving gender equality in the era of digital transformation. A potential explanation for youth's perceptive views on societal-level issues regarding this topic is that growing up in a time when information technology fills virtually every aspect of life, young people, by and large, see digital transformation as a

necessity rather than a luxury, and therefore are more supportive of both genders' rights to participate.

Women's struggle

Youth participants are equally aware of the individual-level challenges that women face in the era of digital transformation. It was noted in our findings that women struggle with various obstacles and are expected to overcome them to show their dedication and worthiness. Participants also noted that women are made to feel normal about having to fight for a job or opportunity that men would get under normal circumstances.

Youth participants further recognized the negative effects of these struggles and the challenges ahead in achieving gender equality in the era of digital transformation. A possible contributor to youth's in-depth perception of the individual-level challenges women face is that young people are more aware of inequality and more open-minded to changes (Banales et al., 2019; Henke & Stantchev, 2008; Othman et al., 2022).

The two umbrella themes along with the sub-themes that emerged through the analysis revealed youth's hope for both societal-level and individual-level changes. Youth's eagerness to contribute to gender equality and digital transformation was also present.

CONCLUSION

In reviewing our research question, we conclude that Bosnian and Herzegovinian youth are keenly aware of the need for and challenges of achieving gender equality in the era of digital transformation. In this study, the participants were able to draw from both personal experiences and perceptive observations to illustrate the struggles women face and the stigma and gender stereotypes surrounding women who seek IT-related education and career opportunities.

Despite that youth are commonly seen as unaware, insensitive, and incapable, our study showcases youth's extraordinary capacity for empathy and critical thinking, which demonstrates the importance of allowing young people of both genders a seat at the decision-making table in the era of digital transformation. Schools and communities can achieve this by asking young people to identify their role models in IT education and careers, which will lead to a more diverse and inclusive representation of young people. Similarly, youth can request or petition the department of education and/or school boards to implement a new set of role models with whom young people identify. As Hayman (2022) stated: you cannot be what you cannot see. Youth can also contact elected and aspiring government officials to co-create opportunities for young people to present their research findings to communities and invite young people to participate in pivotal conversations regarding gender equality and digital transformation. Additionally, lawmakers should make digital literacy a part of mandated educational curricula; organizations should create pathways for women to assume leadership roles in IT fields. Youth can take organized actions to ensure the implementation of aforementioned measures.

As a youth-led research investigating youth perspectives, this study adds unique and significant methodological value to the field. The vast majority of the literature on youth-related issues attempts to answer the question of "what can be done for the youth." By shifting the focus to "what can be done by the youth," our study envisions youth taking full ownership of issues that matter to them, opening a new chapter in

youth studies. The practical value of our study lies in the possibility of addressing "learned helplessness." While young people crave to become change-makers, they constantly face a lack of tools, resources, and training that could aid them in the process. Inevitably, many give up or give in. Our study was able to present a pathway between youth recognizing a problem and making changes happen. It is our hope that young people will follow our suggestions to take action or follow our steps to create their own pathways.

Gender equality in the era of digital transformation is an emerging field with the potential to benefit countless individuals and communities. But there is also the need for more large-scale and in-depth studies. We recognize the limitations of our study including a small sample size and limited reach that excluded rural areas and small villages of Bosnia and Herzegovina. Therefore, we recommend future researchers to consider larger sample sizes and research designs that will allow the inclusion of rural communities. Larger sample sizes will also allow a mixed-method approach that provides both qualitative and quantitative findings to communicate with wider audiences. Another suggestion would be to conduct similar studies in different countries to enable comparative analyses of cultures, systems, and approaches.

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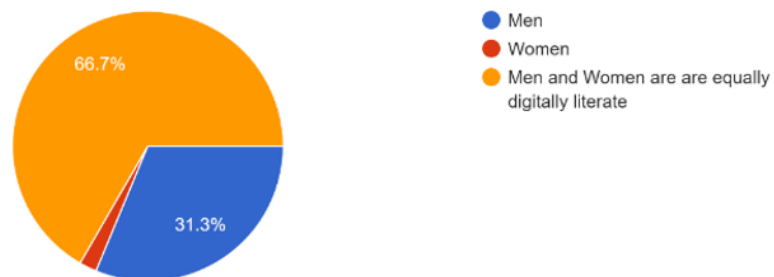
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APPENDIX

Questionnaire

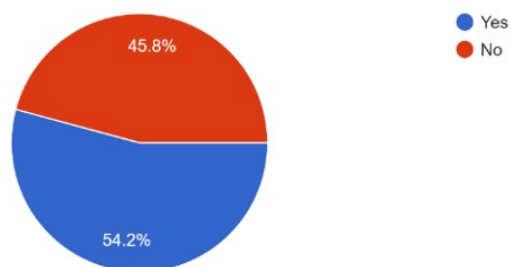
Q1 Do you think men or women are more digitally literate than the other?

48 responses



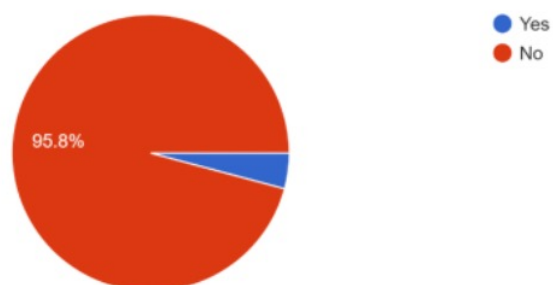
Q2 Do you think there are certain gender-based prejudices and discriminations towards women trying to seek IT-related education?

48 responses



Q3 Have you ever faced gender-based discrimination in your education, in the IT field?

48 responses

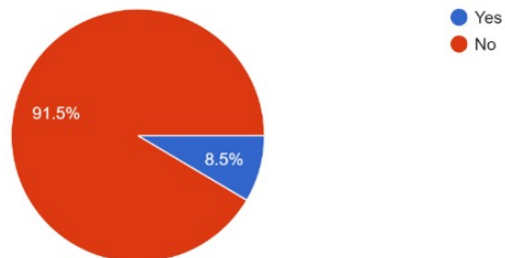


APPENDIX

Questionnaire

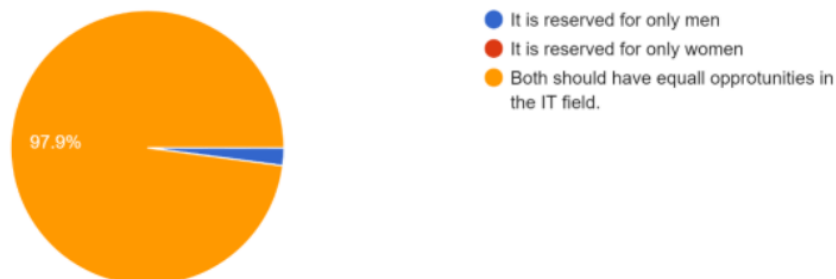
Q4 Do you think a certain level of digital literacy is enough for one gender to know but insufficient for the other, and why?

47 responses



Q5 Do you think the IT field is reserved for only men or women?

48 responses



Q6 Do you think men and women have equally opportunities to learn digital literacy?

48 responses

