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SHARP Digital Education: Bridging the Digital Gender Divide in South Africa

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Abstract:- Past research has shown the importance of women accessing and using digital technology in our present-day society. It is believed that women who access and use technology increase the work quality and productivity, the modulations for gender perceptions, and the condition of education. However, in South Africa, the barriers faced by women in using and accessing technology is contributing to a digital gender divide. COVID-19 pandemic is further exacerbating this situation. In a context where the nation's digital skills are limited and the digital gap is vast, there is a huge need to train people on digital basics and to create awareness about the digital gender gap. The aim of this research is to show the importance of the SHARP Digital non-profit program in influencing the South African society's mindset towards the women's use and access of technology. For this, a sample consisting of 50 participants from both genders based in South Africa is considered. Participants enrolled in one of SHARP Digital's courses. Participants took a postsurvey aiming to show the impact of the training on their attitudes towards women accessing and using internet and digital tools. Later, 9 of the participants who took the postsurvey participated in a focus group discussion aiming to understand in depth the stand of males and females in South Africa towards the digital gender gap. Descriptive statistics is used to analyze the data collected from the postsurvey, and the manual thematic coding analysis is used to analyze the data emerging from the focus group discussion. The findings lead us to advocate the inclusion of additional digital training, inclusive for both genders and not exclusively for women, and involving the government, the private sector and the NGOs in order to change South African society's mindset towards women and girls' using and accessing digital tools.

Keywords:- *Digital Gender Divide; Training; Digital Education; Digital Literacy.*

I. INTRODUCTION

Back in 2015, the United Nations adopted 17 Global Goals, which are commonly known as the Sustainable Development Goals (SDGs). These goals constitute a "a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity" [1]. The goal number 5 focused on gender equality; its ambitious aim is to end all discrimination against women and girls, and empower them everywhere by 2030. However, despite the fact that the 193 member countries of the United Nations committed to prioritize progress to achieve goal number 5 among the other goals, there are still inequalities in many regions of the globe. Although women were close to filling the gender gap in some critical sectors such as the health sector, the Global Gender Gap Report released by the World Economic Forum in March 2021 indicated that the progress towards gender parity has stagnated in 2021 in many countries. For instance, in 2021, South Africa had an overall gender gap index score of 0.78, ranking 18 out of 156 countries globally [2].

COVID-19 pandemic contributed to this inequitable situation: more women lost their jobs and were left with no income and little options for changing their lives [3].

The impact of COVID-19 pandemic is shown in the reduction of job opportunities and in the job losses; Although women occupied about 47% of employment in February 2020, they accounted for approximately 67% of the job losses between February and April 2020, and the number remained unchanged by June 2020 [4]. Additionally, women are less likely to find a full-time paid job than men [5]: in 2021, 51% of black South African women were officially unemployed and had to create work for themselves in the informal sector. This caused a widening in the gender parity gap in terms of Political Empowerment, employment and labor force [6]. In fact, the labor markets continue to display enduring tendencies towards the segregation of professions between the two genders. The gendered signals from the labor market show that gender segregation is flagrant when it comes to occupations in STEM and technology fields which is causing these professions to be considered as distinctively male [7].

On another level, it is argued that digital skills are praised as a lifeline and critical force and an important component to life resilience especially in times similar to the ones during the global pandemic [8]. As a matter of fact, the digital skills allow people to use ICT (Information and Communication Technologies) which render many advantages such as the work quality and productivity, the modulations for gender perceptions, the condition of education, and cost reduction in the labor sector.

Nevertheless, benefits of digital transformation are not equally shared, and access, use and ownership of digital tools is neither equitable nor inclusive [9]. Digitalization is not

happening equally all over the world, because a huge disparity exists and this is known as the digital divide.

The term digital divide has generally been referred to as the gap between individuals at different socio-economic levels with regard to both their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities [10].

Note that the term "digital divide" first was equated with underdevelopment and was assumed to be a temporary phenomenon that will wither away since the use of technology worldwide is becoming more leveraging. Rather, the disparities in technology access remain in place in spite of the considerable widespread marketing of technological gadgets with Internet connectivity [11].

Tackling the digital divide is an issue of great importance. Why? Simply because electronic literacy is an important aspect in contemporary society [12], technology can grant people a wide range of opportunities, and ICT is integrated throughout all aspects of our lives and it is linked with our desire for a prosperous and competitive economy. Additionally, ICT is critical in propelling development in various countries among other enormous impacts.

As we mentioned, the digital divide depends on many variables such as type, age, gender, racial and linguistic backgrounds and location.

The digital divide linked to the gender is referred to as "The gender digital divide". It reflects "the inequalities between men and women in terms of digital technology access and use" [13].

The digital gender divide is still being identified as a barrier in the face of reaching gender equality for women: The gender digital divide prevails in the world's least developed countries at 32.9% [14].

It is no doubt that the SDG number 5 is calling on the international community to "enhance the use of enabling technology, in particular information and communication technologies (ICTs), to promote women's empowerment" [1], since women risk being left behind of being left behind and miss out on the engagement and participation in digital economies, which by result may lead to an exacerbation in the gender inequalities rather than help to reduce them.

Added to the above, in their report [15], confirmed that a promotion for ongoing education and training programs is essential in order to ensure opportunities for women and girls to access and get knowledge about technology tools. It is to mention that a slew of women-led, non-government-and-private-sector projects and initiatives are attempting to bridge the digital gender gap in South Africa [16].

SHARP Digital is one of these women-led initiatives. It is a training program that provides free mobile-based interactive courses on digital basics to South Africans who have never been connected to the Internet or are struggling to use it.

The main aim of SHARP Digital courses is to help young people and adults get the actionable digital skills needed to look for work, to learn and to make their lives easier.

So, SHARP Digital courses tackle the main components of the Digital Gender Gap, since these courses train people on how to access and use the digital technology and the internet, they help in developing the skills needed to use digital technologies, and by result, they enable women to secure roles in the digital sector.

Problem Identification:

In a world where the use of internet and mobiles is increasing on a daily basis, and where the cost of digital inclusion is increasing, many girls and women are still often lacking or having less access to technology and the internet compared to boys and men.

The internet gap is the largest in Africa: the proportion of women using the Internet is 25% lower than the proportion of men using the Internet [17]. Furthermore, in the technology sector, men predominate women, and only 21% of women occupy middle management positions [18].

Particularly in South Africa, the barriers faced by many black African and colored women (known as previously disadvantaged groups) in using and accessing technology is contributing to a big digital gender divide. This is caused by many factors, particularly the role of women in South African society and their contribution in the workplace where men's presence is more encouraged. This is causing women to be discouraged from entering the technology field because they can't have a rapport with a network of female connections and role models [18].

Given the current landscape, the Global Gender Gap Report estimates it will be another 217 years before South Africa achieves gender parity [19]. On another level, it has been proved that equipping South African women with the needed technology skills, will contribute effectively to them gaining technology skills [20], and thus this may be helpful in terms of reducing the digital gender divide. The aim of our research is to show the importance of the SHARP Digital program in influencing the society's mindset towards the women's use and access of technology.

Much can be learned from a mixed research that involves the study of the impact of training South African women on digital skills. Training South African women on tech skills will help in solving or reducing the impact of the pre-explained factors that are contributing their under-representation in the IT sector, and may bridge the big digital gender divide in South Africa.

Research Questions:

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In light of the problems identified in the above section, this research will purport to answer the following research questions.

Research Question One: To what extent can the training on digital skills (SHARP Digital Program) influence the South African society's mindset towards the women's use and access of technology?

Research Question Two: What factors contributing to the digital gender divide in South Africa are mainly influenced after the enrollment in technology training courses (SHARP Digital Program)?

II. LITERATURE REVIEW

Despite the mass marketing of electronic devices with internet access, the term digital divide is still persistent.

Previous studies have reported the importance of tackling the digital gender divide in South Africa, and the importance of training programs in addressing this issue. There is rich literature available in this regard which is discussed here under.

Digital Divide and Digital Gender Divide in South Africa

In a world witnessing an accelerated pace in the development of information and communication technology, one of the greatest barriers to achieving gender equality for women remains the digital gender divide. Societies are becoming more reliant on technology, yet, women in South Africa are at risk of missing out on the good promise of full involvement in digital economies, and the South African society is faced to experience a wider gap in gender inequality because of digital technology.

First, it is crucial to distinguish between access to the Internet and digital literacy. Digital literacy is a term that extends beyond the simple access to the internet and to technology tools. Digital literacy means "having the skills you need to live, learn, and work in a society where communication and access to information is increasing through digital technologies like internet platforms, social media, and mobile devices" [21].

Additionally, we should shed light on a question that is always prominent when discussing the digital gender divide: is the term "Digital Gender Divide" only restricted to the access of technology and technology tools?

As a matter of fact, and according to [16] there are many challenges for women's empowerment in South Africa in this digital age, and by result the term digital gender divide "extends beyond the simple division between the information 'haves' and 'have-nots'". Added to this, IBERDROLA's report released in 2021 stated that there are many types of digital divide which are the "Use Divide", the "Access Divide", and the "Quality of Use Gap". The "Use Divide" refers to the lack of digital skills, which impedes the handling of technology; the "Access Divide" refers to the possibilities that people have to access this resource; and the "Quality of Use Gap" refers to the lack of ability to access quality information even if the digital skills are acquired [11].

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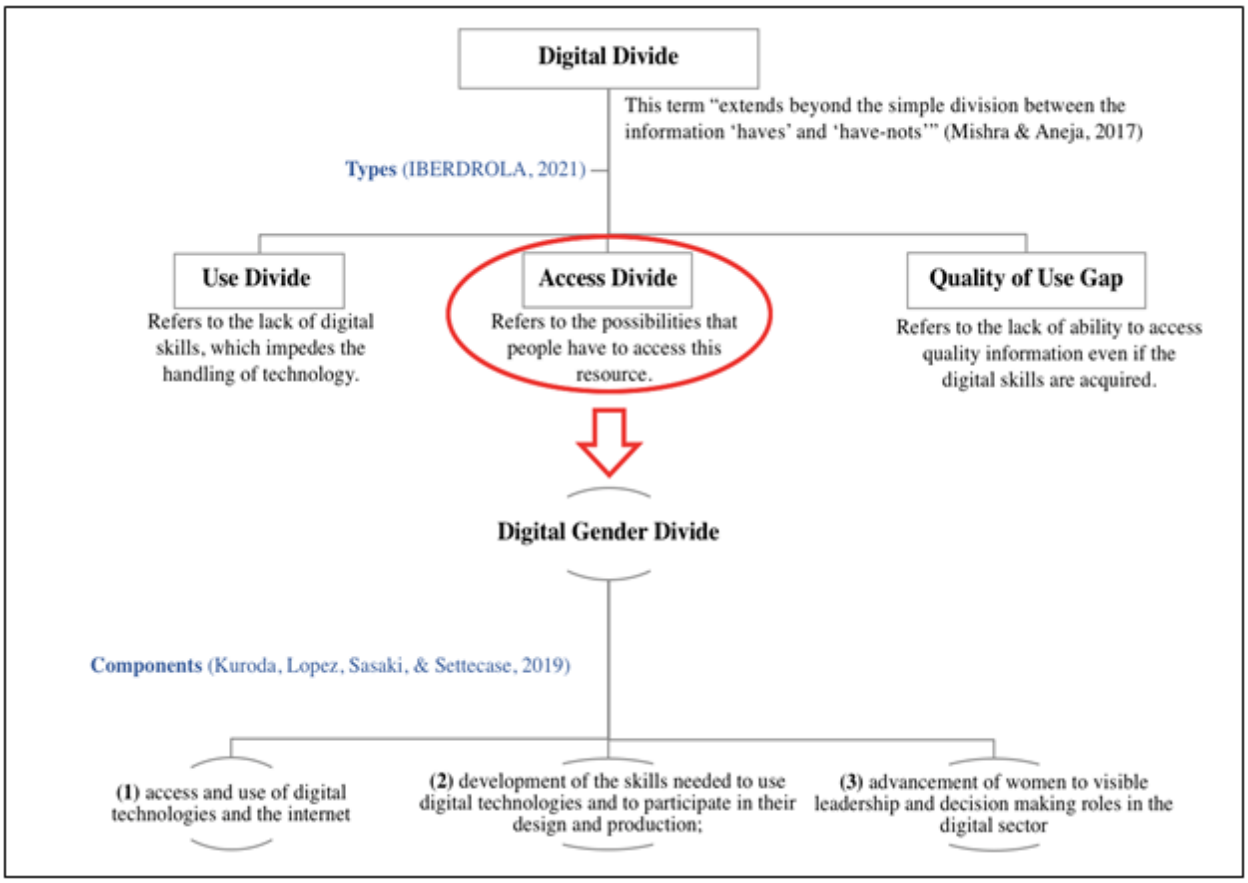

Fig. 1. Digital Gender Divide as part of the Digital Divide

Based on the above, we can identify the "Digital Gender Divide" as part of the "Access Divide", since the Digital Gender Divide, mainly refers to the possibilities that women have access to this resource.

Additionally, the policy brief of GSMA W20 Japan entitled "The Digital Gender Gap" explained that the digital gender divide consists eventually of three components: **(1)** access and use of digital technologies and the internet; **(2)** development of the skills needed to use digital technologies and to participate in their design and production; and **(3)** advancement of women to visible leadership and decision making roles in the digital sector [15].

As can be seen, a comprehensive review of the three mentioned resources is provided in Figure 1 aiming to give a better understanding of the term Digital Gender Divide.

So, the gender digital divide, is the "measurable gap between women and men in their access to, use of and ability to influence, contribute to and benefit from ICTs" [22]. Additionally, gender disparities are one of the more pervasive digital divides [8]. And as can be seen from figure 1, we can deduce that the challenge is not only to give access for women in South Africa to the technology tools, but to help them gain the essential skills that are considered substantial for an efficient and active use of ICTs. In other terms, the gender digital divide is not a simple problem of accessing digital tools, however, it is about the ability and the capacity to make significant and meaningful use of its access. And this is what we are trying to shed light on in this current study.

Since its independence, South Africa has made significant progress regarding gender equality. However, the implemented efforts are still insufficient. And in a world that is shifting online, and where internet access is more important than ever, since it is the gateway to significant information, benefits and opportunities available to many people for the first time, tackling the issue of digital gender divide is an issue of great interest. As a matter of fact, the impact of the digital gender divide on gender equality and marginalised and at-risk groups is still huge. Although many declarations advocate for the equality of accessing, and using the internet by anyone without discrimination (e.g.: The African Declaration on Internet Rights and Freedoms [23] and the Feminist Principles of the Interne (FPIs) [24]), but women, girls, and marginalized communities are still more vulnerable to falling behind and having to battle for access to, enjoyment of, and realization of their human rights, both online and offline.

The digital gender divide in South Africa opposes gender equality and perpetuates prejudice against marginalized and at-risk groups [8].

According to the World Bank, the percentage of females in the South African Population is reported at 50.74 % in

2021 [25]. And although the 2030 Agenda calls for the complete development and active engagement of women in today's world, and in digital technologies, and that the fifth Sustainable Development Goal's (SDG5) aims for improving and enabling women to use information and communication technologies (ICTs), to promote women's empowerment, but half of the South African society is still unable to be fully involved in the ICT world because of many factors, among which we can mention low digital literacy and confidence, and the lack of relevant content, applications and services.

In Accenture's survey on digital fluency entitled "Getting to Equal", South Africa ranked at a low 21 out of 31 countries, and the outcomes of South African women in terms of employment and education also rated severely low [26]. On top of that, smartphone penetration has a larger percentage for the male population than for the female population: South Africa has 60% access for men and 52% for women [20].

Furthermore, colored women make up the majority of South Africa's population, and regardless of this fact, these women represent only about 18% of the research and institutional workforce [27]. Talking of employability, it is important to mention that the new emerging jobs are technology enabled jobs which will demand higher digital skill levels when compared to the current jobs, and by 2030, 1.7 million employees with higher degrees will be in demand due to digitization, and if South Africans and especially South African women won't be able to meet this criteria and to gain the necessary digital skills, a serious shortfall across the economy will take place.

Another important factor that is negatively affected by digital illiteracy is financial inclusion. In their policy research paper, entitled "Gender and financial inclusion Analysis of financial inclusion of women in the SADC region", FinMark Trust found that the mobile money revolution can potentially reduce the gender gap in terms of usage and finance; even so, this mobile money revolution is still facing a serious impediment and instead of helping in increasing the digital inclusion, the mobile money revolution may further increase the gap between men and women in terms of financials since the financial and the digital literacy among women is still low as well is the mobile penetration [28]. Even if the full impact of COVID-19 is not yet fully understood, but it has definitely contributed to further exacerbating this inequitable situation in South Africa [8] at all three levels: employability, education, and financial inclusion. So, as a summary, the consequences of the digital gender divide are severely threatening at many levels that are summarized in the upcoming paragraph.

Consequences of the Digital Gender Divide

Digital gender divide is a technological prejudice, which is a form of poverty and social marginalization negatively affecting the development of societies and economies. And, in a world that is moving online, the cost of the digital gender gap is continuing to increase [29].

In their report entitled "Digital divide throughout the world and why it causes inequality", IBERDOLA [11] classifies the consequences of the digital gender divide as following:

(1) Lack of communication and isolation:

People who are deprived from accessing the internet are separated and disconnected from the rest of the world.

(2) Barrier to studies and knowledge:

People who can't access the internet have a lack of knowledge. As a matter of fact, the impacts of the digital gap in education have been clearly proven during the COVID-19 crisis: teachers and students are left out of the loop due to a lack of technology and digital abilities. It also contributes to a lack of knowledge by restricting access to information.

(3) Accentuates social differences:

Digital illiteracy has a huge negative impact on the worker's economy, and the quality of life. In point of fact, digital illiteracy decreases the possibilities for finding a quality employment, and by result contributes to widen the gap of social differences.

(4) Gender discrimination:

There is no doubt that the digital divide has a greater negative impact on women than on males, which is in violation of gender equality norms.

Taking Actions and Best Practices:

Knowing the severe consequences of the digital gender divide, it is substantial to search for possible solutions that may be helpful in bridging this divide.

In spite of the clear facts that have been mentioned previously, the Accenture's study supports the assumption that digital skills may help and accelerate the growth and advancement of women in the workplace [26], and by result promote the outcomes of employment, education, and financial security for South African women. Additionally, another positive finding was highlighted in this same study: South African women are not "techno-phobia"; as a matter of fact, when compared to their male counterparts, these women were more enthusiastic and accepting for learning about digital skills.

This highlights the power of e-learning as a tool for skill development. E-learning is progressively becoming accepted in skills-training programs in South Africa. Nonetheless, it remains under-utilized due to reasons such as organizational and individual conservatism to technology [16], and the absence of training programs accessible by all South African women. To reiterate, this is the rationale behind this study: shedding light on the importance of digital training programs such as SHARP Digital in helping South African women gain digital skills, and consequently contribute to better outcomes in terms of digital literacy, education, and employability.

In conclusion, the consequences of the digital gender divide are inevitable and will continue to grow if no

concerted efforts and steps are taken. South African women will not be able to profit and to take advantage from technological advancement and the benefits of digitization. Knowing that the digital gender divide is not only restricted to the limitations in taking advantage of technological advancement, but it is severely affecting education, employability, and financial inclusion of South African women in a negative way, steps should be taken to help in bridging the digital gender gap.

III. METHODOLOGY

Purpose and Design of the Study:

The purpose of this study is to explore the impact of training on digital skills (SHARP Digital Program) on the South African society's mindset towards the women use and access of technology, and to determine what main factors contributing to the digital gender divide in South Africa are influenced after the enrollment in technology training courses (SHARP Digital Program).

Since our aim is to study the impact of the digital training on shaping the South African society's mindset, and to determine what main factors contributing to the digital gender divide in South Africa are influenced after the enrollment in technology training courses (SHARP Digital Program), then, we need a quantified and an in-depth study at the same time, so a quantitative research approach would not be able to measure this, since such approach seeks the quantification of a problem through the collection of measurable data such as numbers and stats, aiming to generalize the results of a study. Besides, a qualitative research approach helps us gain insight into the problem, and aims to get a better understanding, based on perceptions, opinions, and reasoning, through first-hand experience [30], but also, it would not be sufficient enough since we are aiming to collect data from two levels: quantified data and in-depth discussion.

Over and above that, we have a mixed research design. A mixed research design refers to a research methodology that advances the systematic integration of quantitative and qualitative data within a single study and intervention [31]. The importance of a mixed research design resides in the ability to use quantitative and qualitative data synergistically eliminating the need of doing separate research and, at the same time increasing the importance of the findings of a study, since as mentioned, it allows us to understand a phenomenon through statistical analysis and a holistic perspective. For these reasons, a mixed research design is adopted due to its correlation with the purpose of this research.

Many types exist for a mixed research design. The most common types are the following: Sequential Explanatory Design, Sequential Exploratory Design, Sequential Transformative Design, Concurrent Triangulation Design [32]. The Sequential Explanatory Design is mainly a two-phase project; the first phase is the quantitative data collection and analysis, and the second phase is the qualitative data collection and analysis. It gives a larger focus on quantitative data. The Sequential Exploratory Design is also a two-phase project; however, the main difference from the Sequential Explanatory Design is that the first phase is the qualitative data collection and analysis, and the second phase is the quantitative data collection and analysis. It gives a larger focus on qualitative data. The third type which is the Sequential Transformative Design is a four-phase project encompassing two data collection and analyses series, the first for the qualitative data and the second is for the quantitative data. The last type from the most common types of the mixed research design is the Concurrent Triangulation Design which is a one phase project, starting with the collection of qualitative and quantitative data at the same time, then comparing the results from qualitative and quantitative data, and finally completing the analysis of the results for qualitative and quantitative data separately.

Based on the provided explanation, this research adopts a Sequential Explanatory Design. The selection of this design stems from the purpose of the study: our research is a two-phase project, so the Sequential Transformative Design which is a four-based project, and the Concurrent Triangulation Design which is a one-phase project wouldn't be effective at this level; additionally, we are starting the first phase with the quantitative data collection and analysis, and the second phase will be dedicated for the qualitative data collection and analysis, and that's why we will be adopting a Sequential Explanatory Design.

Research Population, Sample, and Sampling Method:

In their book "Research Design Qualitative, Quantitative, and Mixed Methods Approaches", Creswell & Creswell (2017) state that population and sampling methods are essentials for any research in order to answer precisely the intended research questions [33]. Additionally, the chosen population and the selection of participants must occur on a basis reflecting the main aim of the research [34]. The following section delineates the population, the sample, and the sampling method for the given study.

The population chosen was constituted by South African citizens resident in South Africa aged between 12 and 54 years, both male and female. This study utilised a sample population of South African males and females from different backgrounds. The sample consisted of 50 participants (12 males and 38 females) which is convenient for mixed research studies, and the main characteristics that were taken into consideration regarding the research sample were the gender and the age range, since our aim is to gain a holistic and generalized view of the impact of the training on digital skills on the South African society.

The characteristics of the sample of the study are included in the table below:

Table 1. Characteristic of the Participants

Variable	**Age Range**				**Gender**	
Categories	**12-17**	**18-35**	**36-44**	**45-54**	**Male**	**Female**
Percentage	2%	73%	12.5%	12.5%	24%	76%

In this study, the researchers employ convenience sampling to get participants from the South African society. Convenience sampling is a nonprobability sampling and it is used in this study because it was a convenience to solicit participants from the nearby area and from the connections of the SHARP Digital center, and ask them to participate in the study. Convenience sampling is a good fit for our research because the main aim of the study is to explore the impact of training on digital skills (SHARP Digital Program) on the South African society's mindset towards the women's use and access of technology.

Instrumentation

Two instruments were used for this study: a questionnaire with opened-ended and closed-ended questions; close ended questions followed a 5-point Likert scale to allow participants to rank their opinions. 5-point Likert scale is a type of psychometric response scale in which responders specify their level of agreement to a statement typically in five points: (1) Strongly disagree; (2) Disagree; (3) Neither agree nor disagree; (4) Agree; (5) Strongly agree [35]. The adoption of Likert scale in the questionnaire stems from its high reliability in measuring opinions and perceptions, and its ability in helping researchers avoid some of the common pitfalls of survey design, like creating overly broad questions that respondents may find too hard to think about, which may affect negatively the quality of the data because participants may get frustrated and may start answering quickly.

However, Likert scale is not only used to express agreement; instead, it may be used to express value, relevance, frequency, importance, quality, and likelihood [36]. And since our questionnaire aims to assess the participants' agreement on certain statements, the participants' evaluation for certain questions, and the participants' perceptions for other questions, then we adopted numbers from 1 to 5 to express the level. The labeling has been shared with the participants when they were filling in the questionnaire.

In addition to the questionnaire, a focus group discussion was held aiming to have a substantial and fundamental understanding of the participants' opinions regarding the digital gender gap in South Africa after their enrollment in the SHARP Digital training course. The participants filled the questionnaire before the focus group discussion, and their consent was collected prior to the focus group discussion. The responses provided from the questionnaire drove the focus group discussion questions. The two sources of data ensure the reliability of data collection.

Data Collection Procedure

Participants were contacted randomly by the SHARP Digital Training center, 50 participants agreed on being part of this research study. Participants were enrolled in SHARP Digital Training Program, entitled "Women and Girls – The Power of Digital", and focusing mainly on the explanation of how internet and digital skills can open doors for women and girls in terms of economic empowerment, knowledge and content, learning opportunities, and contribution to gender discrimination issues. The data collection was taken at first step directly from the participants' responses to the questionnaire that was conducted after the completion of this course.

Later, from the 50 participants, 9 agreed and gave their consent on being part of the focus group discussion which aims to gain more insight about the impact of this training course on the South African society's mindset towards the women use and access of technology. Through the questionnaire and the conduction of the focus group discussion, researchers were able to infer the impact of the SHARP Digital course on South African society concerning the digital gender disparity.

For quantitative data, this research employs descriptive analysis, using SPSS software version 23.0. The importance of this descriptive analysis is that it allows us to have a quantification for the data collected from the questionnaire, and gives us better perception about the research sample, and the perspectives of participants.

For qualitative data collected from the focus group discussion, this research applied the 'manual thematic coding analysis' strategy for the responses gathered from the participants' responses to the questionnaire and during the focus group discussion. Thematic analysis is described as the "interpretation of trends and patterns in data" [37]. Additionally, it is described as the documentation of the recurrence of word usage, and relationships to formulate a 'systematic coding and categorizing approach' from the patterns. The process of identification starts with the theme's delineation; themes are outlined based on repetitive data findings, then the themes are numbered and categorized.

The importance of manual thematic coding analysis is that it helps the researcher to avert from importing already existing theories into the analysis; additionally, it is considered crucial toward developing key links and relationships to support the theory [38]. Thematic analysis is a highly recommended method since it permits thorough data analysis [39].

IV. RESULTS AND DISCUSSION

In order to address the central research questions, this study relied on a questionnaire and on a focus group discussion with the participants from South Africa regarding their perceptions of how the training on digital skills may help in bridging the gender disparity and what main factors are contributing to the digital gender divide in South Africa are influenced after the enrollment in technology training courses (SHARP Digital Program). The analysis of the data obtained revealed several findings about the digital divide faced by women in South Africa.

Quantitative Data

After the enrollment in SHARP Digital course "Women and Girls – The Power of Digital", participants filled a questionnaire with answers following a Likert scale, and the results are grouped in Table 2:

Table 2. Results of the closed-ended questions included in the questionnaire

Ranking Level	1	2	3	4	5
Question	**Percentages**				
How easy do you find it to use the Internet and digital technology?	2.4%	2.4%	4.7%	11.8%	78.8%
Do you agree on the given statement "I need the Internet to work, to learn and to live my life"?	0%	0%	0%	7%	92%
How important is the Internet and digital technology in your life?	0%	0%	0%	2.4%	97.6%
How important is it that women and girls understand how to use the Internet, smartphones, and/or computers?	0%	0%	0%	2.4%	97.6%
How easy was it for you to understand the content in the SHARP Digital course?	0%	0%	4.7%	23.5%	71.8%

As shown in table 2, results in the questionnaire show that, after enrolling in the SHARP Digital Training Program entitled "Women and Girls - The Power of Digital", practically all the participants retain a highly positive attitude toward the use and importance of the internet in daily life, particularly in the lives of women and girls. Added to the above, around 72% of the participants perceive the content in the SHARP Digital course to be easy to understand, and when asked whether they are interested in enrolling in subsequent SHARP Digital courses to learn more about digital technology, and the answer was a resounding yes from all the participants.

The shared results in Table 1 are very heartening in terms of challenging the cultural beliefs about the role of gender in the digital world. In fact, and according to the Grant Thornton Business Report, stereotypes such as women's traditional role as homemakers impede women's advancement into senior leadership positions [40]. Such results show the importance of the SHARP Digital training program in developing specific digital skill sets, and in breaking the stereotypes that have been escorting the role of women in the digital world.

Another important finding is the percentage of participants who finds it very important that women and girls understand how to use the internet, smartphones, and/or computers: 97.6% of the participants stated that they find it very important that women and girls understand how to use the internet, smartphones, and/or computers, and these results are aligned with the outcomes of the SHARP Digital Training Program, entitled "Women and Girls – The Power of Digital". As previously stated, this course focuses mainly on explaining how internet and digital skills can open doors for women and girls in terms of economic empowerment, knowledge and content, learning opportunities, and contribution to gender discrimination issues.

In the GSMA Intelligence Consumer Survey, literacy and Skills were classified as the primary barrier to mobile and internet use [41], coming even before the affordability barrier. At this level, results of this study are very promising: knowing that the primary barrier to women and girls accessing the internet and the digital technologies, it is substantial to implement more training programs in order to empower women and girls digitally, and thus help in bridging the digital gender gap.

On top of that, when asking the participants about why it is important that women and girls understand how to use the internet, smartphones, and/or computers, the answers revealed a deep understanding of the importance of the internet, and internet usage. Respondents claimed that the importance of women and girls understanding how to use the internet, smartphones, and/or computers goes back to the fact that the internet and technology are today essential for:

Communication, collecting and searching for information, helping mothers when dealing with their children, supporting women empowerment and enhancing women's self-confidence, reducing gender disparities, and finally promoting the possibilities for women in finding a decent job.

The results of the questionnaire answer the first question of the research; as a matter of fact, the enrollment in the SHARP Digital course has impacted positively the society's mindset towards the women's use and access of technology: participants are now able to assess the significance of the role of internet in all the aspects of women's and girls' lives. By result, this may help in enhancing women's position in this digital world, and decreasing the digital gender gap in South Africa.

Qualitative Data

The thematic analysis of the information obtained from the focus group discussion revealed several findings about the digital divide faced by women in South Africa. Based on this analysis, new findings are identified.

Research Question One: To what extent can the training on digital skills (SHARP Digital Program) influence the South African society's mindset towards the women's use and access of technology?

Impact of Accessing and Using Digital Tools:

Including women digitally is a very promising act. Given South Africa's unemployment rate and skills-

shortage, empowering girls and women on digital skills may be very productive from both an economic as well as a rights perspective. To start, the digital gender gap is affecting the local businesses and the employment rate of females in South Africa, and when asking about the importance of women accessing and using digital tools, one response read:

"It has improved businesses a lot. It has made it easy to start a business, it has a limited unemployment rate, I could say because you cannot just sit and say you don't have anything else to do. You can always create a business literally, with or without funds. But by being able to communicate worldwide, you can get funders interested in your ideas through the internet, you can yourself can start motivating other people to do the same. So, it has made it easy to communicate, and also to be able to stop anything anytime."

Knowing that a high rate of women's unemployment is encountered in South Africa [8], and that the main factors leading to this situation are the economic situation of the country, frequent gender discrimination, and the patriarchal norms restricting women to care-work [42], the importance of women accessing and using technology seems to have a presumed impact at this level.

Impacting positively the employment rate of women through digital inclusion means that the financial inclusion of females in South Africa will be also positively impacted. Not only will women be more financially stable, but also, they will gain the essential skills that allow them to be part of nowadays digital economies. And it is to mention that women's economic empowerment is a smart choice to be taken by governments because it can generate human development, inclusive growth and business development.

On another level, the ability to access and use the internet and digital tools allow women and girls to have a voice, and to be able to express themselves and to share their stories. One of the participants mentioned the following:

"Accessing the internet and digital tools is very important because you can express your desire to be digital. Maybe on the phone or on the computer, you can raise your voice. So, when you can include communication, you can communicate with other people on the other side."

This may result in a great impact on women and girls, and may lead to the creation of support systems where vulnerable women may resort to when needed, and thus

In South Africa, women and girls are in need of accessing and using the internet and digital tools in order to ensure a digital presence, to get potential jobs, build a connection of network nationally and internationally, promote their businesses if existing, and be able to enter the labor market and secure a financial inclusion.

Equipping women and girls in South Africa with the needed digital skills will assist in closing the gender gap in digital inclusion, thereby empowering women by preventing and decreasing gender inequities on the labor market and enhancing women's financial inclusion. This could result in a leapfrogging process towards development.

Research Question Two: What factors contributing to the digital gender divide in South Africa are mainly influenced after the enrollment in technology training courses (SHARP Digital Program)?

1) Stereotyping and Digital Inclusion:

Women often perceive digital tools and the internet as not "relevant to their lives" [43]. Women in South Africa are generally deemed as being "less tech savvy, and more technophobic". These perceptions stemmed from the fact that digital tools are not built to meet women's and girls' needs [44]. These socio-cultural factors are the main hindrance for South African women towards them using and accessing the internet and digital tools. However, after the completion of the SHARP Digital training course, the participants (males and females) shared many insightful and altered perceptions about the digital inclusion: participants are now able to assess that the society's perception is South Africa for the women accessing and using technology is lessening the women's ability in being part of the digital world, and thus contributing to a wider gender parity.

As discussed in the report of the UN secretary-general's high-level panel on women's economic empowerment, changing social norms should be at the top of the 2030 Agenda to expand women's opportunities [45]. So, the enrollment in training courses, such as SHARP Digital is helping break the stereotypes in South African society. It is proving that women and girls are able to use the internet and digital tools easily, and they have the ability to compete in the digital world. By result, this leads to a greater empowerment for women and girls to gain more digital skills and be part of the digital economy.

2) Digital Literacy:

The majority of the participants in the focus group discussion agreed that the internet and digital tools are easy to use. However, they emphasized on the fact that training and educating people on the use of these tools is an act of huge importance. Two responses read:

"Women and girls just need to be taught about how to use the internet and digital tools. Because it is easy to use. Once you're familiar with it, and not when you don't know what to do and how to use it when at home, it becomes easy. It's a matter of being educated. The more you educate yourself, the easier it becomes."

"For example, I spent like five years of my high school and I never did get to go to the computer. So, when I first got to varsity, it was very hard, the only thing I knew was how to do Facebook, Instagram, social media aside, but in terms of research and going deep into how the internet works, that's really hard."

As a matter of fact, this result aligns with the literature review. A report released by GSMA in 2020 and entitled

"Connected Women: The Mobile Gender Gap Report 2020", it has been proved that the best practices for the development community towards decreasing the digital gender disparity is the funding and/or the facilitation of digital literacy for women [46]. There is no doubt that in this digital world, and with 5G becoming a reality, the ownership of digital tools is not enough. Same finding emerged from the Africa Insight Organization: the suggested recommendations and inclusions for feminist ICT regulations assert that having digital literacy materials that are understandable and suitable for digital literacy training is a of high importance to lessen the gender digital divide [8]. In summary, digital literacy is one of the main barriers to the women and girls using and benefiting from technology and digital tools.

3) Future Training:

In terms of training, this motivator is seen as a crucial component for women's advancement towards using the internet and digital tools. This goes back for a variety of reasons that many have been mentioned earlier in the discussion.

Participants in the focus group discussion shared many interesting insights regarding the training by SHARP Digital. They emphasized on the importance of the course they enrolled in and how it allowed them to broaden their competencies when it comes to using and understanding better the internet and the digital tools. However, they shed light on the fact that one training and one course are not enough to provide women and girls with all the skills needed to make part of the digital world. In this regard, participants mentioned the importance of having supplemental training on digital discussing mainly issues like cybersecurity and how to be safe online. They started with the cybersecurity issues. One person read:

"On the internet itself, people cannot have control on what is posted, or what is the information that goes around. So, the people need to be aware of the positive and the negative things going on the internet. Positive things like they can learn or post how to make a blog, they can even post how to create a garden from scratch. But they need to be aware that there is also cyberbullying these days. A lot of negative things can happen behind the scenes."

V. CONCLUSION AND RECOMMENDATIONS

In today's world, connectivity is more vital than ever. Internet access gives many people unique opportunities to access vital information, services, and opportunities [46]. However, the gender digital divide in South Africa has not been clearly addressed [46].

According to recent studies, the main reason of the digital gender gap is no longer mainly caused by the lack of accessing digital tools: there is a proclivity for equating the number of male and female ICT users [47], yet it is caused by the gender differences in terms of digital skills [48].

The society's mindset and the social practices are the main contributors to the digital gender divide, and to the lessening of the empowerment of women and girls to access the digital world [49]. However, South Africa is confronted with a big problem set forth in the 2030 Agenda for Sustainable Development, which encourages the use of ICTs to boost women's empowerment.

This research helps identify new precursors that combine with the current body of knowledge on the best practices helping in bridging the digital gender gap in South Africa, and help in attaining the Sustainable Development Goals.

This study has examined in depth the importance of training South Africans on digital skills which has been in many cases overlooked to the fact that the most important factor towards bridging the digital gender gap is the affordability of digital tools.

The findings of the study lead us to advocate the inclusion of additional training on digital skills in order to change South African society's mindset towards women and girls' using and accessing digital tools.

Another great important finding emerging from this research, is that it shed the light on the fact that digital training must be inclusive for both genders; generally, intervention programs aiming to drive a change regarding the digital gender gap in the South African society focus only on training women and girls, failing to notice that males are also part of the society, and if we are striving an advancement in the society's mindset towards women and girls using and accessing the internet and digital tools, then we need to include men in the picture.

It is undeniable that providing women and girls with the necessary digital skills empowers them [50], and helps to close the digital gender gap in South Africa. With the adoption of applicable equality policies and well-tailored training programs for both genders, public authorities must guarantee that these changes and steps, will empower women and girls in South Africa, help them accessing the internet and digital tools, and will include males as proponents to this issue instead of having them as opposites. Additionally, the role of including Non-Governmental Organizations and the private sector when tackling the digital gender divide should always be highlighted because it is indeed helping in reducing gender disparities. By result, the empowerment of women and girls will be closer to becoming a reality in South Africa.

VI. LIMITATIONS

In spite of the significant findings of the study, there are some limitations to be addressed. First, the study didn't take into consideration the background of the participants. The perception of the importance of training on digital skills may vary based on differences in backgrounds: depending on their background, participants may have different perspectives on the relevance of digital skills training.

This study is limited in regard to its sample size, and thus the results may have limited generalizability. Future research can be made on bigger samples and using another

sampling technique; we recommend having a sample encompassing participants with different backgrounds, races, and ethnicities. Additionally, for qualitative data collected from the focus group discussion this study applied the 'manual thematic coding analysis', other analytical techniques for qualitative data may be adopted. We would also recommend having a pre and post analysis for the participants' attitudes towards the access and use of internet and digital technologies, and extending the analysis to quantitative data to inferential statistics, and not limiting it to descriptive statistics.

REFERENCES

[1]. UNDP - SDGs. (n.d.). From www.undp.org: https://www.undp.org/sustainable-development-goals
[2]. Galal, S. (2021). *Gender gap index in South Africa 2021, by sector.* Statista .
[3]. Krishnan, M., Madgavkar, A., Ellingrud, K., Yee, L., Hunt, V., White, O., & Mahajan, D. (2021). *Ten things to know about gender equality.* Mckinsey Global Institute.
[4]. Spaull, N., Burger, R., Burger, R., Carel, D., Daniels, R., Makaluza, N., . . . Wills, G. (2020). *National Income Dynamics Study - Coronavirus Rapid Mobile Survey 2020, Wave 2.* Cape Town: DataFirst.
[5]. Statistics South Africa . (2021). *Quarterly Labour Force Survey.* South Africa: Statistics South Africa, Republic of South Africa.
[6]. World Economic Forum. (2021). *Global Gender Gap Report 2021.* World Economic Forum.
[7]. Fernandez-Mateo, I., & Kaplan, S. (2018). Gender and Organization Science: Introduction to a Virtual Special Issue. *Organization Science, 29*(6), 1229-1236.
[8]. Power, T. (2020). *The gender digital divide and COVID-19: Towards feminist internet regulations in Southern Africa.* From African Internet Rights: https://africaninternetrights.org/sites/default/files/Tina_Power.pdf
[9]. OECD. (2018). *Bridging the Digital Gender Divide: Include, Upskill, Innovate.* Organisation for Economic Co-operation and Development (OECD). From https://www.oecd.org/internet/bridging-the-digital-gender-divide.pdf
[10]. OECD. (2001). *Understanding the Digital Divide.* ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT. From https://stats.oecd.org/glossary/detail.asp?ID=4719
[11]. IBERDROLA. (2021). *Digital divide throughout the world and why it causes inequality.* From IBERDROLA: https://www.iberdrola.com/social-commitment/what-is-digital-divide
[12]. Warschauer, M. (1999). *Electronic Literacies Language, Culture, and Power in Online Education.* Routledge.
[13]. USAID. (2020). *THE GENDER DIGITAL DIVIDE PRIMER.* USAID .
[14]. Highet, C., Salman, A., & Singh, N. (2020). *The Digital Gender Divide Won't Close by Itself – Here's Why.* Washington, DC: Consultative Group to Assist the Poor (CGAP).
[15]. Kuroda, R., Lopez, M., Sasaki, J., & Settecase, M. (2019). *The Digital Gender Gap.* Japan: W20 - GSMA.
[16]. Mishra, V., & Aneja, U. (2017). *Empowering women in a digital age in South Africa.* Observer Research Foundation.
[17]. Sanou, B. (2017). *ICT Facts and Figures* . ITU Telecommunication Development Bureau.
[18]. ISACA. (2017). *Women In Technology Survey | Breaking Gender Barriers.* Isaca.org.
[19]. World Economic Forum. (2017). The Global Gender Gap Report. Cologny/Geneva/Switzerland: World Economic Forum.
[20]. GSMA. (2018). *Recommendations for action: bridiging the digital gender gap.* W20 Argentina.
[21]. Western Sydney University . (n.d.). *What is digital literacy?* Western Sydney University .
[22]. United Nations. (2020). United Nations.
[23]. *African Declaration on Internet Rights and Freedoms*. (2021). From AFRICAN DECLARATION ON INTERNET RIGHTS AND FREEDOMS: https://africaninternetrights.org
[24]. *Feminist Principles of the Internet* . (2016). From Feminist Principles of the Internet : https://feministinternet.org/en/principles
[25]. The World Bank. (2021). *The World Bank - Data*. From https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS?locations=ZA
[26]. Accenture. (2017). *Digital Fluency Can Help Close the Gender Gap Faster in South Africa.* From Accenture: https://www.accenture.com/za-en/company-digital-fluency-close-gender-gap-south-africa
[27]. Wild, S. (2015). *Gender Barriers Limiting Innovation in Science & Technology Fields.* From EWN: Eyewitness News: http://ewn.co.za/2015/10/27/Gender-barriers-limiting-innovation-in-science-and-technology-fields
[28]. FinMark Trust. (2016). *Gender and financial inclusion Analysis of financial inclusion of women in the SADC region.* FinMark Trust.
[29]. UNITED NATIONS, D. f. (2005). *Gender equality and empowerment of women through ICT.* Women 2000 and beyond.
[30]. Davis, B. (2020, December 10). *Mvorganizing.org*. From Mvorganizing.org: https://www.mvorganizing.org/what-are-the-three-important-function-of-qualitative-research/
[31]. Wisdom, J., & Creswell, W. J. (2013, March). Mixed Methods: Integrating Quantitative and Qualitative Data Collection and Analysis While Studying Patient-Centered Medical Home Models. *Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services*.
[32]. Georgia State University. (2021). *Research Guide: Mixed Methods.* From Georgia State University - University Library: https://research.library.gsu.edu/c.php?g=1050115&p=7622501
[33]. Creswell, J., & Creswell, D. (2017). *Research Design Qualitative, Quantitative, and Mixed Methods Approaches.* SAGE Publications

[34]. McMillan, J. (2012). *Educational research: Fundamentals for the consumer*. Columbus, OH: Pearson.
[35]. Preedy, V., & Watson, R. (2010). *5-Point Likert Scale. Handbook of Disease Burdens and Quality of Life Measures.* New York, NY: Springer.
[36]. Brown, S. (2010). *Likert Scale Examples for Surveys.* Lowa State University.
[37]. Bloor, M., & Wood, F. (2006). *Keywords in qualitative methods: A vocabulary of research concepts.* Sage Publications
[38]. Willig, C. (2008). *Introducing Qualitative Research In Psychology*. Milton Keynes: Open University Press.
[39]. Sekaran, U. &. (2016). *Research methods for business.* Sussex, United Kingdom: John Wiley and Sons.
[40]. Lagerberg, F. (2015). *Women in business: the path to leadership*. From Grant Thornton: https://www.grantthornton.global/en/insights/articles/women-in-business-2015/
[41]. GSMA Intelligence Consumer Insights Survey . (2019). *Latest Consumer Insights Survey: Mapping Mobile Internet Use*. From GSMA Intelligence : https://www.gsmaintelligence.com/product-news/latest-consumer-insights-survey-mapping-mobile-internet-use/
[42]. Hills, J. (2015). Addressing Gender Quotas in South Africa: Women Employment and Gender Equality Legislation. *Deakin Law Review,, 20*(1).
[43]. Sorgner, A., Mayne, G., Mariscal, J., & Aneja, U. (2020). *Bridging the Gender Digital Gap.* Argentina : G20 Insights - G20 Argentina.
[44]. Hilbert, M. (2011). Digital gender divide or technologically empowered women in developing countries? A typical case of lies, damned lies, and statistics. *Women's Studies International Forum, 34*(6), 479-489.
[45]. UNHLP. (2016). *LEAVE NO ONE BEHIND A CALL TO ACTION FOR GENDER EQUALITY AND WOMEN'S ECONOMIC EMPOWERMENT.* Secretariat, UN Secretary-General's High-Level Panel on Women's Economic Empowerment .
[46]. GSMA. (2020). *Connected Women: The Mobile Gender Gap Report 2020.* GSMA.
[47]. Trauth, E., Nielsen, S., & Von Hellens, L. (2003). Explaining the IT gender gap: Australian stories for the new millennium. *J. Res. Pract. Inf. Technol*, 35- 7–20.
[48]. Black, S., Jameson, J., Komoss, R., Meehan, A., & Numerico, T. (2005). Women in Computing: A European and International Perspective. *In Proceedings of the 3rd European Symposium on Gender & ICT: Working for Change.* Manchester, UK.
[49]. Palomares-Ruiz, A., Cebrián, A., López-Parra, E., & García-Toledano, E. (2020). ICT Integration into Science Education and Its Relationship to the Digital Gender Gap. *Sustainability, 12*, 8-9.
[50]. Mossberger, K., Tolbert, C. J., & Stansbury, M. (2003). *Virtual Inequality: Beyond the Digital Divide.* Washington, DC: Georgetown University Press.