# Needs Analysis for Gender-Based Digital Literacy Development in Senior High Schools in Medan City

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**Abstract.** This study aims to analyze the need for developing gender-responsive digital literacy in high schools (SMA) across Medan City. Digital literacy is an essential competency for preparing students to face the complex challenges of the 21st-century digital era. However, its implementation must incorporate gender equality principles to prevent the emergence of new digital divides. Using a qualitative approach, data were collected through interviews, observations, and questionnaires involving teachers, students, and principals from public and private schools. The findings indicate persistent inequalities in access, participation, and gender awareness in digital practices. Furthermore, limited integration of gender values in school programs and insufficient training to strengthen digital literacy remain major barriers. Therefore, developing digital literacy in schools should systematically embed gender equality perspectives in learning content, pedagogical methods, and institutional policies to foster inclusivity and empowerment.

**Keywords:** Digital Literacy, Gender Equality, Needs Analysis, Secondary Research, Medan City High Schools.

## 1. Introduction

The development of digital technology has changed the paradigm of education globally, including in Indonesia. The use of technology in the teaching and learning process is no longer an option, but an absolute necessity. According [1], digital literacy is an essential skill in the modern world because it encompasses the ability to access, manage, understand, and create information through digital media. Digital literacy is not only about operating devices, but also involves a critical understanding of digital content and an awareness of digital ethics. [2] states that digital literacy is the ability to understand and use information in various formats originating from computers.

In the context of senior secondary education, particularly in high schools in Medan, digital literacy plays a crucial role in improving the quality of learning and developing students' potential. However, the use of digital technology is not yet fully equitable and fair between male and female students. Gender equality in education, including access to and skills in digital literacy, still faces challenges. [3] emphasized that gender gaps in technology use can reinforce existing inequalities, particularly in terms of educational participation and achievement. In a digital world filled with dynamics and information, gender inequality in digital literacy can hinder the achievement of the Sustainable Development Goals (SDGs), particularly Goal 4 (quality education) and Goal 5 (gender equality). Therefore, gender-sensitive education must encourage equal access and participation in the development of digital literacy.

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Medan city as one of the major cities in Indonesia, has diverse social dynamics, including in terms of education. Despite having quite good educational facilities, there has been no in-depth study on digital literacy needs that considers gender equality in the secondary school environment. Gender-based digital literacy is important to ensure that both male and female students have equal opportunities and access to develop their digital skills. According [4], digital literacy encompasses social dimensions that need to be considered, including issues of gender and inclusivity. [5] research shows that there are significant differences between men and women in terms of confidence in using technology, which can affect their digital skills. This demonstrates the importance of a needs analysis that considers gender factors.

In high school settings, the role of teachers and curriculum is crucial in fostering inclusive digital literacy. Several studies, such as that conducted by [6], emphasize that schools must be safe and equitable places for all students' digital development without gender bias. Furthermore, the values of gender equality in digital education must be reflected in teaching materials, teaching methods, and learning approaches. This aligns with [7] view that social justice in education involves the recognition and equitable distribution of resources.

To develop gender-responsive digital literacy, a comprehensive needs analysis is required. This analysis aims to identify gaps, barriers, and potentials that students have in accessing and mastering digital skills. The needs of female students, for example, may differ from those of male students in terms of technology access, household roles, and social stereotypes that limit their mobility. According [8], gender stereotypes in education can limit students' aspirations and achievements. Similarly, male students may face pressure to demonstrate excellence in technology, even though not all have the same interests and abilities. Therefore, it is important to explore the needs of each gender group fairly and objectively.

Digital literacy development strategies also need to involve the active participation of all stakeholders, including teachers, students, parents, and policymakers. According [9], changes in education must be based on contextual understanding and collective participation. A needs-based approach is an effective first step in designing digital literacy development programs that not only improve students' technological competence but also foster awareness of the importance of gender equality in the digital realm.

In the context of high schools in Medan City, efforts to analyze these needs must also consider local social, economic, and cultural characteristics that influence access to and use of digital technology. This aligns with the contextual approach proposed by [10] in his sociocultural theory. The lack of local data and research on the relationship between digital literacy and gender equality presents a challenge. Therefore, this research is expected to make a significant contribution by providing empirical data that can be used as a basis for formulating more equitable education policies.

Furthermore, the results of this needs analysis can serve as a basis for developing training modules, curricula, or internal school policies that support gender-equal digital literacy. This is crucial for targeted and sustainable interventions. With the increasingly powerful digitalization trend, gender-based digital literacy gaps could widen social inequality in the future if not addressed early. Therefore, this needs analysis is strategic and urgent.

Based on the description above, this study aims to analyze the need for developing gender equality-based digital literacy in Medan City high schools as an initial step in building a fair, inclusive, and competitive digital education ecosystem.

## 2. Methode

This study uses a qualitative descriptive approach with the aim of analyzing the gender-based digital literacy needs of high school students in Medan City. This approach was chosen

because it can deeply explore the perceptions, needs, and challenges faced by students and teachers in developing equitable and inclusive digital literacy competencies. This study focuses on mapping actual needs in the field. The research locations were determined at three high schools in Medan City, selected by purposive sampling, taking into account the diversity of school status (public and private), students' socioeconomic backgrounds, and the availability of information technology facilities: SMAN 19 Medan, MAN 1 Medan, and SMA Islam Plus Adzkia Medan. The selection of these varied locations aims to obtain a more comprehensive picture of the condition of gender-based digital literacy. The research subjects included students, teachers, and principals. Students were the primary focus because they are the beneficiaries of the digital literacy program. Teachers and principals were selected to provide additional perspectives on school policies, learning strategies, and facility support related to the use of digital technology.

Data collection techniques were carried out through questionnaires, in-depth interviews, and observations. A questionnaire was given to students to determine their level of digital literacy, their perception of gender equality, and their needs for digital literacy development. In-depth interviews were conducted with teachers and principals to gather information on teaching strategies, challenges, and existing best practices. Observations were conducted in classrooms and the school environment to directly observe how digital technology is used in learning activities. Observations also focused on gender equality, such as the involvement of male and female students in accessing technology facilities and their active participation in digital activities. The research instrument was developed based on the UNESCO digital literacy framework (2018), which encompasses the dimensions of access, information evaluation, communication, and content creation. The instrument was also adapted to a gender perspective by adding indicators measuring equality of opportunity, stereotypical perceptions, and gender-based barriers to the use of digital technology.

Furthermore, the data obtained were analyzed using thematic analysis techniques. Questionnaire responses were analyzed descriptively and quantitatively in percentage form to identify patterns in student needs. Meanwhile, interview and observation data were analyzed qualitatively to identify key themes related to digital literacy needs and gender equality. To enhance data validity, source and method triangulation techniques were used. Source triangulation was conducted by comparing data obtained from students, teachers, and the principal. Method triangulation was conducted by combining the results of questionnaires, interviews, and observations, resulting in more accurate and reliable research findings.

## 3. Result and Discussion

### 1. SMAN 19 Medan

Based on the results of a questionnaire conducted at SMAN 19 Medan on 61 11th-grade students, 34 respondents were female and 27 were male, with the following distribution of responses:

1. In your daily life, how often and for what purposes do you use digital devices such as smartphones, laptops, or tablets?

All students reported using digital devices in their daily lives. Most respondents used digital devices daily, with some even reporting using them almost 24 hours a day. Regarding the type of device used, 59 students mentioned using smartphones, consisting of 33 females and 26 males. Ten students (6 females and 4 males) mentioned using laptops, generally for assignments such as writing papers or other schoolwork. Meanwhile, only two students, one female, mentioned using tablets and 1 male, and are usually used as additional devices, not primary. In terms of the purpose of using digital devices, as many as 40 students use digital devices for

studying and doing assignments, consisting of 23 females and 17 males. As many as 30 students use digital devices for entertainment, such as watching videos, playing games, listening to music, or accessing social media, consisting of 17 females and 13 males. For communication purposes, such as sending messages, using WhatsApp or social media, 25 students were recorded using them, consisting of 15 females and 10 males. In addition, as many as 20 students stated using digital devices to search for information, consisting of 12 females and 8 males. There are also 5 students (3 females and 2 males) who stated using digital devices for creative activities such as making designs using Canva or editing photos and videos. 1 female student did not explain specifically the purpose of using her digital device, although she stated using a smartphone regularly.

Overall, this data shows that digital devices, especially smartphones, are tools frequently used in students' daily activities, both for academic purposes, communication, and entertainment.

2. What digital skills do you possess?

The analysis showed that the most dominant digital skill possessed by students was editing, including photo, video, document, and presentation (PPT) editing. This skill was mentioned by 35 students, consisting of 24 females and 11 males. Furthermore, graphic design skills, such as creating posters using the Canva app, also appeared quite frequently, with a total of 14 students mentioning it, consisting of 9 females and 5 males. The skill of using a smartphone or mobile phone as a digital activity tool was also mentioned by 12 students, consisting of 4 females and 8 males. Furthermore, the skill of creating PPTs, papers, and documents was mentioned by 9 students, with 6 females and 3 males. Meanwhile, the ability to search and manage information online, including using the internet and Google, was possessed by 10 students, evenly divided between 5 females and 5 males. Several students also mentioned the ability to access and use social media for learning purposes was mentioned by 6 students, the majority of whom were female (5 people). Advanced skills such as coding, programming, or cybersecurity were only mentioned by 4 students (3 girls and 1 boy).

Overall, the digital skills possessed by SMAN 19 Medan students were mostly related to media editing, graphic design, and the use of digital devices such as smartphones, with a tendency for girls to dominate skills related to editing and design, while boys were more likely to use smartphones as their primary tool for their digital activities.

3. What type of digital device do you use most frequently, and how much time do you spend online each day?

Based on data from 61 respondents, the most frequently used digital device is a smartphone or mobile phone, used by all respondents, both male and female. Of the 34 female respondents, most use smartphones for between 3 and 24 hours daily, and approximately 7 also use a laptop or tablet as an additional device. Meanwhile, of the 27 male respondents, the majority use smartphones for between 2 and 10 hours daily, and almost none use a laptop or tablet. Thus, smartphones are the primary device most respondents use, while laptop and tablet use are limited and found only among a few female respondents.

4. Have you ever experienced gender-based discrimination or bias in digital spaces?

Based on data from 61 respondents, 34 were women and 27 were men. Of these, 17 respondents reported experiencing gender-based discrimination or bias in digital spaces. Specifically, 13 women reported experiencing discrimination, while only 4 men reported similar experiences. Conversely, 44 respondents stated they had never experienced gender-based discrimination or bias in digital spaces. This number consisted of 21 women and 23 men. Therefore, the most dominant response from respondents was never experiencing gender-based discrimination or bias, accounting for approximately 72% of all respondents.

5. How do you respond, or if you or a friend has experienced online gender-based violence, how do you handle it?

Based on the responses from 61 respondents regarding how they respond to online gender-based violence, there was a variety of attitudes among both female and male respondents. Of the 34 women and 27 men, the most dominant response from both groups was to report the perpetrator or account perpetrating the violence. Eleven women and nine men explicitly stated that they would report the violence to social media platforms, apps, parents, teachers, and even authorities. Beyond reporting, the second most common response was ignoring or not responding to the violence. Eight women and six men stated that they would choose not to respond, allow, or even ignore the violence. The reasons given varied, ranging from not wanting to escalate the problem, not feeling disadvantaged, to avoiding conflict that could impact psychological or academic well-being.

In terms of similarities, both women and men showed two major tendencies: some chose active responses such as reporting and advising, and others chose passive responses such as silence or ignoring. Both also had individuals who chose to discuss the incident with parents or friends, although the numbers were not significant. However, there were also quite striking differences. Female respondents more often used emotional and empathetic approaches, such as responding kindly without violence, calming the victim, providing moral support, or emphasizing that the discrimination was inappropriate. Six women responded with empathy and direct support. Meanwhile, men tended to use more rational or technical approaches, such as blocking accounts, identifying the perpetrator, or providing practical solutions. Four men mentioned ways to handle the situation using a logical approach, such as suggesting solutions and refraining from retaliation for moral or religious reasons. Furthermore, more women reported having experienced or witnessed violence against friends, while some men reported never experiencing it or not knowing how to respond.

6. Do you feel you received sufficient training or learning about digital literacy at your high school?

Of the 61 responses analyzed, 34 were female and 27 were male. Of these, 28 female respondents stated they received sufficient or very sufficient digital literacy training during their time in high school, while 6 female respondents stated they received insufficient or insufficient training. Meanwhile, of the 27 male respondents, 22 stated they received sufficient or very sufficient training, and 5 stated they received insufficient or insufficient training. The most dominant response from both male and female students was sufficient, both in the form of short answers and descriptive responses explaining their satisfaction with the digital literacy training at school. The satisfaction percentage for females was approximately 82.3%, and for males approximately 81.5%. Although the difference was very small, females tended to provide more detailed and reflective answers, for example, mentioning the benefits of digital literacy in everyday life, sharing observations about other audience responses, or linking it to government programs. Meanwhile, men gave more short answers, although some criticized the lack of technical learning such as mastery of Microsoft Word and Excel.

7. How do you rate your digital access and skills compared to others (male/female)?

Of the 61 respondents (34 female and 27 male), diverse views were found regarding digital access and skills. Twenty-four respondents (13 female and 11 male) stated that their digital skills were equal to or quite good compared to others. The most dominant digital competency mentioned by female respondents was the use of Microsoft Word and PowerPoint, with eight women explicitly citing these skills as their strengths. Conversely, male respondents more often cited skills in gaming, video editing, and using AI technology as their strengths, with ten men directly mentioning this. Nine women stated that men excel in technical digital aspects

such as editing and gaming, while seven men stated that women are more meticulous, more active on social media, and more skilled at administrative digital tasks. Regarding their views on skills equality, 19 respondents (10 women and 9 men) believed that digital skills depend on individual effort, experience, and learning opportunities, not solely on gender. Meanwhile, 12 respondents (8 women and 4 men) acknowledged that they were still unskilled and needed more practice to improve their digital skills.

8. In your opinion, what is the most visible form of digital divide between male and female students at your high school?

Based on the responses of male and female students regarding the digital divide in high school, there are several clear similarities and differences. The most dominant response from female students was that they are more proficient in using digital applications for academic purposes, such as creating files, PowerPoint, and using Microsoft Word or Excel, reported by 15 out of 34 female students. Meanwhile, the most dominant response from male students was that they excel in using technology for gaming and coding, reported by 8 out of 27 males. Furthermore, both male and female students acknowledged that males tend to use technology more for gaming and coding (approximately 7 females and 8 males), while females are more proficient in using social media and digital applications for communication and academic purposes (approximately 6 male and 7 females). Several students also highlighted the existence of social and economic gender gaps, which were mentioned more by males (3 males) than females (1 female). Additionally, approximately 3-4 women and 4 men believed there was no digital divide between the two. Other responses from both genders concerned cell phone brands, confidence in technology use, and gender stereotypes related to the division of tasks at school.

9. What are the challenges facing high school students in Medan City in mastering digital literacy skills?

More than 61 responses from student respondents, consisting of 34 females and 27 males, the most dominant responses regarding challenges to mastering digital literacy skills were related to hoaxes and laziness in literacy. Nine females and one male mentioned hoaxes, while laziness was mentioned by eight males and six females. Furthermore, other challenges frequently mentioned by both genders were limited internet access and data quotas (seven females, three males), and a lack of intention or willingness to learn digital literacy (six females, four males). Similarities between the female and male responses were that both acknowledged laziness in literacy (14 total), limited technology/internet access (10 total), and a lack of awareness about digital security (5 total). The main difference is seen in the focus of women who emphasize more on the large amount of hoax information and the difficulty of sorting information (a total of 15 women, 2 men), while men highlight more attitudes of lack of intention, laziness in reading, and misuse of technology (around 12 men, 3 women).

10. Do you think digital technology can be a tool to promote gender equality among high school students?

Of the 61 respondents (34 females and 27 males), the majority responded positively to the role of digital technology as a tool to promote gender equality among high school students in Medan City. Thirty-nine students (22 females and 17 males) provided short, affirmative answers such as "yes" and "yes." Furthermore, 15 students (9 females and 6 males) explained in more detail how digital technology can support gender equality, citing examples such as equal access to information, digital skills development, reduction of gender stereotypes, and increased female participation in STEM fields. However, seven students (3 females and 4 males) were sceptical or gave negative responses, arguing that digital technology is not always effective and may even reinforce social inequalities.

Overall, both female and male students showed fairly consistent views in recognizing the potential of digital technology as a driver of gender equality, although females tended to provide more detailed and educational answers, while males provided more brief and slightly sceptical responses.

**2. MAN 1 Medan Data**

Based on the questionnaire results obtained at MAN 1 Medan, 103 students completed the questionnaire. 62 were female and 41 were male. There were 70 students in 11th grade, and 33 in 10th grade. The answers are detailed as follows:

1. Question 1: In your daily life, how often and for what purposes do you use digital devices such as smartphones, laptops, or tablets?

From this question, starting with the most dominant one, 96 students (35 males and 61 females) reported frequent use of digital devices. Seven students (6 males and 1 female) rarely used digital devices. Of those who reported frequent use, 77 (27 males and 50 females) used digital devices for entertainment (such as browsing social media, scrolling through TikTok, etc.) and learning (searching for learning materials, using learning apps like Duolingo, etc.). Meanwhile, 20 other students did not explain why they used digital devices. Seven admitted to rarely using digital devices (6 males and 1 female). Five other students did not provide any information. One female only used them when necessary, and one male also only used them when necessary.

2. Question 2: What digital skills do you possess?

From this question, start with the most dominant. 71 students (15 boys and 56 girls) reported having design skills, particularly graphic design. They can design and edit, create PowerPoint presentations, posters, and video using applications like Canva. Two female students reported having both content creation and design skills. One male student reported having fast typing skills. One male student reported having marketing skills. One male student reported having cybersecurity skills.

3. Question 3: What type of digital device do you use most often, and how much time do you spend online each day?

From this question, 95 students admitted to using their mobile phones most often, 7 students admitted to using both mobile phones and laptops most often, and 1 student admitted to using a laptop most often. Regarding time spent, 20 students admitted to spending about 5 hours, 5 students spent 3 hours, 5 students admitted to spending about 4 hours, 5 students admitted to spending about 10 hours, 5 students admitted to spending about 6 hours, 4 students admitted to spending about 8 hours, 3 students spent 2 hours, 2 students admitted to spending about 13 hours, 2 students admitted to spending about 16 hours, 1 student admitted to spending about 7 hours, 1 student admitted to spending about 9 hours, 1 student admitted to spending about 15 hours, and 49 students did not state how many hours they spent online.

4. Question 4: Have you ever experienced gender-based discrimination or bias in digital spaces?

From this question, starting with the most dominant one, 99 students stated that they had never experienced gender-based discrimination or bias in digital spaces. Meanwhile, four others—two females—had experienced discrimination in the form of hate speech while using social media, and two males did not specify what kind of discrimination or bias they experienced.

5. Question 5: If you or a friend had experienced online gender-based violence, how would you respond or handle it?

From this question, starting with the most dominant one, 36 students stated that they would report the incident to a teacher, parent, or the authorities if they or a friend experienced online

gender-based violence. 15 students (4 boys and 11 girls) stated that they would not care if they or a friend experienced online gender-based violence, as they believed that online gender-based violence had no impact on real life. 15 students (9 boys and 8 girls) stated that they would provide emotional support if they or a friend experienced online gender-based violence. 11 students (5 boys and 6 girls) stated that they would advise the perpetrator if they or a friend experienced online gender-based violence. 11 students did not explain what they would do if they or a friend experienced online gender-based violence. Six students (four boys and two girls) stated that they would self-reflect if they themselves or suggest self-reflection if their friends experienced online gender-based violence. Five students (two boys and three girls) stated that they would reprimand the perpetrator not to do so if they themselves or their friends experienced online gender-based violence. Four students (two girls and two boys) stated that they would retaliate against the other person's actions if they themselves or their friends experienced online gender-based violence.

6. Question 6: Do you feel you received sufficient training or learning about digital literacy at your high school?

From this question, starting with the most dominant one, 67 students (23 boys and 44 girls) stated that digital literacy learning at school was sufficient. 28 students (13 boys and 15 girls) stated that digital literacy learning at school was inadequate. Meanwhile, 8 other students (5 boys and 3 girls) stated that digital literacy learning at school was average or quite good.

7. Question 7: How do you rate your digital access and skills compared to others (male/female)?

From this question, starting with the most dominant one, 84 students (30 males and 54 females) rated men's and women's digital access and skills as equal. 6 students (3 males and 2 females) rated men's digital access and skills as better than women's. 2 students (2 males) rated women's digital access and skills as better than men's. The rest either did not answer the question or gave irrelevant answers such as "don't know," etc.

8. Question 8: In your opinion, what is the most visible form of digital divide between male and female students at your high school?

From this question, starting with the most dominant one. 54 students (22 males and 32 females) stated that there is no visible digital divide between male and female students. 22 students (11 males and 11 females) stated that the most visible form of digital divide between male and female students is the access gap. The access gap refers to access to better or more expensive digital devices (cellphones or laptops) which affect the performance of the devices. There is also access to the internet, such as some students who do not use Wi-Fi at home. 16 students (2 males and 14 females) stated that the most visible form of digital divide between male and female students is technology use. Males use digital devices more for gaming, while females use them for taking photos, social media, and online shopping. 11 (5 boys and 6 girls) students stated that the most visible form of digital divide between male and female students is digital skills, such as boys being able to code and girls being more proficient in using office tools such as Microsoft Word.

9. Question 9. What are the challenges in mastering digital literacy skills for high school students in Medan City?

From this question, starting with the most dominant one. 45 students (15 boys and 30 girls) stated that the challenge in mastering digital literacy skills was the gap in access, such as slow Wi-Fi at school. 24 students (7 boys and 17 girls) stated that the challenge in mastering digital literacy skills was the negative impact of digital devices, such as distractions, excessive screen time, and viewing too much fast and instant content, which makes it difficult for them to focus. 17 students (7 boys and 10 girls) stated that the challenge in mastering digital literacy skills was a lack of understanding, interest, and awareness. 10 students felt there were no challenges in

mastering digital literacy skills. 7 students (1 boy and 6 girls) stated that the challenge in mastering digital literacy skills was a lack of training from both the school and other parties, such as the government.

10. Question 10. Do you think digital technology can be a tool to promote gender equality among high school students?

From this question, starting with the most dominant one, 90 students (26 boys and 64 girls) answered that technology can be a tool to promote gender equality among high school students. Meanwhile, 13 other students (11 boys and 2 girls) answered that technology cannot be a tool to promote gender equality among high school students.

**3. SMA Islam Plus Adzkia Medan Data.**

The survey involved 120 respondents from SMA ISLAM PLUS ADZKIA MEDAN, with an equal distribution of 60 male and 60 female students. The majority of respondents were from Grade 10 (67 students), followed by Grade 11 (53 students). The questionnaire aimed to understand students' use of digital devices, their skills, perceptions of gender discrimination in the digital space, digital literacy challenges, and the potential of technology to promote gender equality.

1. "In your daily life, how often and for what purposes do you use digital devices such as smartphones, laptops, or tablets?" A significant majority of students, 112 (59 males and 53 females), reported using digital devices frequently to very frequently, even "every day" or "almost every time." Of this group, 107 students (57 males and 50 females) specifically used devices for two main purposes: entertainment (social media, games, watching videos, music) and learning (searching for materials, research, assignments, independent study). Only 8 students (4 males and 4 females) rarely used digital devices, generally due to pressing needs, busy school schedules, or dormitory rules. Smartphones were the most dominant device due to their practicality, while laptops/tablets were used for tasks that required a larger screen. Students' perceptions of digital devices were very positive, considering them "very important" as essential for communication, learning, accessing information, and broadening horizons.

2. What digital skills do you possess?

Student responses revealed a diverse range of expertise. The most dominant skills were editing (44 respondents, consisting of 15 males and 29 females), including photo and video editing (14 males, 18 females), use of CapCut (1 male, 5 females), and design in Canva (4 males, 8 females). This indicates a strong preference for simple visual and multimedia content production. The use of office applications and presentation creation was also prominent (22 respondents, consisting of 7 males and 15 females), including Microsoft Word (2 males, 5 females), Excel (2 males, 3 females), and PowerPoint (3 males, 9 females), indicating familiarity with basic academic software. Graphic design (approximately 18 respondents) was also mentioned, largely overlapping with Canva use. Gaming-related skills were mentioned by 10 male respondents, while social media management also emerged from 2 female respondents. Interestingly, a small number of students demonstrated more specific skills such as programming/coding (3 males, 1 female), hardware/software repair (1 male), and learning a foreign language through digital applications (1 male, 1 female). However, four male respondents reported having no specific digital skills or only basic skills.

3. What type of digital device do you use most often and how much time do you spend online each day?

Smartphones/Mobile phones were the most dominant device, used by 72 respondents (38 males and 34 females) due to their practicality and portability. Some students also used laptops (6 males and 4 females) and iPads/Tablets (1 male and 3 females). Regarding the

duration of daily online time, the majority (around 70 respondents) spent between 4 to 8 hours. Some spent 1-3 hours (around 12 respondents). However, some reported very long durations, even reaching 12 hours or more on holidays (1 male and 1 female). This pattern shows a significant increase in usage on weekends or holidays, indicating a deep integration of digital devices in students' personal and social lives.

4. Have you or your friends ever experienced gender-based discrimination or bias in digital spaces (e.g., derogatory comments, unfair treatment because of your gender)?

The majority of students (97 respondents: 55 males and 42 females) stated that they had never experienced discrimination directly. However, 11 students (1 male and 10 females) admitted to frequently seeing or knowing about incidents of discrimination/bias on social media, including the stigma of online games that belittle women or biased TikTok videos based on gender. Eight respondents (4 males and 4 females) admitted to having experienced it; women were often underestimated while playing games or receiving harsh words, while men could also be excluded from gaming teams because of their gender.

5. If you or your friends have experienced gender-based violence online, how would you respond or handle it?

The students' responses were divided. The most dominant responses were prevention and reporting (56 respondents: 25 males and 31 females), such as reporting/blocking the perpetrator's account and keeping evidence. Second, ignoring or not responding to the perpetrator (20 respondents: 13 males and 7 females), often for reasons of avoiding escalating the situation. Third, providing support and calming the victim (15 respondents: 3 males and 12 females). There were also those who would confront or educate the perpetrator (7 respondents: 6 males and 1 female) and seek support from family. Gender differences were seen where men tended to ignore more, while women were more inclined towards reporting and emotional support.

6. Do you feel you have received enough training or learning about digital literacy in your high school?

The majority of students (96 respondents: 50 males and 46 females) felt they had received "sufficient" to "very sufficient" digital literacy training, appreciated ICT subjects, computer lab facilities, and internet ethics learning. However, 10 respondents (4 males and 6 females) felt it was "insufficient" or "not yet" sufficient, complained about the lack of special training or having to learn independently.

7. How do you rate your digital access and skills compared to others (male/female)?

Most respondents (45 students) predominantly stated that there were no significant differences in digital access and skills based on gender, but rather on personal interests and practice. In self-assessment, 29 respondents felt adequate to proficient, while 17 respondents admitted their skills were still lacking. Some students also identified differences in usage patterns (males more into gaming, females more into social/creative media) and concerns that stereotypes could impact women's confidence in technology.

8. In your opinion, what is the most visible form of digital divide between male and female students in your high school?

The majority (56 students: 31 males and 25 females) confirmed that there is no significant digital divide and that school facilities are evenly distributed. However, 42 respondents (20 males and 22 females) identified differences in interests and patterns of digital use: males tend to be more involved in gaming, while females are more involved in social media, communication, and creative activities. Two female respondents also highlighted differences in confidence in technical areas and the issue of unequal allocation of time for use of laboratory facilities.

9. What are the challenges in mastering digital literacy skills for high school students in Medan City?

The main challenges include unequal access to digital devices and stable internet connections (29 respondents: 16 males and 13 females), lack of interest, understanding, and awareness of digital literacy (27 respondents: 12 males and 15 females), and distractions and negative impacts of excessive digital use (17 respondents: 8 males and 9 females) which lead to negligence of time and consumption of useless content. Other challenges include lack of formal training (7 respondents: 3 males and 4 females) and exposure to negative/hoax content (5 respondents: 3 males and 2 females).

10. Do you think digital technology can be a tool to promote gender equality among high school students?

The absolute majority of respondents (98 students: 49 boys and 49 girls) strongly agreed. They believe technology can provide equal access to information and education, open opportunities for women in male-dominated fields, and facilitate self-expression and voice of opinion to reduce gender stereotypes. However, 8 respondents (5 boys and 3 girls) cautioned that this potential will only be realized if technology is used wisely and responsibly.

## 4. Conclusion

Based on the results of a questionnaire conducted on students at SMAN 19 Medan, data obtained showed that the majority of students (around 85%) believe that digital technology has the potential to promote gender equality, especially through equal access to information, opportunities for skill development, and the reduction of gender stereotypes. Although a small number of students remain sceptical, overall student views show optimism regarding the role of technology in supporting gender justice and equality among high school students. Meanwhile, at MAN 1 Medan, in general, the majority of students (90 people) are optimistic that digital technology can be a tool to promote gender equality among high school students, especially through equal access to information and skills. However, a small number of students (13 people) remain sceptical, believing that technology does not always guarantee equality, and students at SMA Islam Plus Adzkia Medan believe that digital technology has great potential to promote gender equality, open up spaces for equal participation, and reduce stereotypes, as long as it is used wisely and responsibly.

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