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ADOLESCENTS IN THE DIGITAL AGE: A STUDY OF DIGITAL LITERACY AND MORAL SENSITIVITY FOR VIKSIT BHARAT

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Abstract: *Today, digital technology plays an important role in the lives of adolescents. For achieving the vision of Viksit Bharat, it is necessary that students not only know how to use digital tools but also understand how to use them in a moral and responsible way. The present study titled "Adolescents in the Digital Age: A Study of Digital Literacy and Moral Sensitivity for Viksit Bharat" aims to study the level of digital literacy and moral sensitivity among students studying in the 9th standard. The study used a survey method and was conducted on 110 students of Class IX. Data were collected using two self-made tools: a Digital Literacy Scale and a Moral Sensitivity Scale. The Digital Literacy Scale measured students' digital skills, use of digital tools for learning, ability to find and use information, digital responsibility, digital safety awareness, and content creation skills. The Moral Sensitivity Scale measured students' understanding of online ethics, effects of digital actions, personal responsibility, and respect for digital rights. The findings of the study showed that students have a moderate to high level of digital literacy. They are good at basic digital skills and digital safety practices, but need improvement in advanced skills. The study also found that students have a high level of moral sensitivity, especially in identifying wrong online behaviour and acting responsibly. The study suggests that digital education should be combined with moral education to develop responsible digital citizens for Viksit Bharat.*

Keywords: *Digital Literacy, Moral Sensitivity, Adolescents, Digital Citizenship, Viksit Bharat.*

1. INTRODUCTION:

Today's adolescent with easy access to information are at risk when making ethical decisions, due to the lack of experience exploration and knowledge as they engage in the digital world they need to act ethically instances of cyber bullying, receiving abusive message, sharing someone's information without their permission on online mode and several other misconducts highlight the need for fostering moral sensitivity an awareness of ethical issues in the digital environment.(Gardner,2007)

Digital literacy amongst adolescent includes the ability to utilize the digital technology, access, evaluate, create and communicate information including various essential digital skills where moral sensitivity for digitalization is the awareness of ethical implication of one's action particularly in the situation for others through digital medium, it includes recognizing moral dilemmas, understanding its digital impact and being motivated to act ethically. In fact, the UNESCO's digital literacy framework for adolescents focuses on building the ability to use technology effectively, think critically, and act responsibly online. It stresses not only technical skills but also ethical awareness, online safety, and media literacy**,** enabling adolescents to evaluate information, avoid risks, and engage positively in digital spaces. The aim is to prepare them as responsible and empowered digital citizens in a rapidly evolving digital society.

The SDG (Sustainable Development Goal 4) quality education ensures that young people acquire the skills needed for success in the digital society (United Nations,2015).The National Education Policy 2020 highlights the importance of integrating digital literacy and ethical values in education promoting holistic development critical thinking and responsible citizenship (Ministry of Education, 2020).The National Policy on Information Technology, 2012 aims to promote digital literacy and responsible use of technology across all the groups, it stresses that importance of fostering a digital literate society ensuring that individuals cannot only access technology but also be ethical while utilizing the technology. Furthermore, the Cyber Security Policy 2013 of India highlights the importance of building a safe, secure, and resilient cyberspace, which includes fostering awareness about the ethical use of technology. This policy focuses on the need to educate citizens on responsible behavior in the digital realm to protect personal data and prevent online misuse.

An Ideal digital citizen in a Viksit Bharat is one who is digitally literate as well as morally and ethically responsible. Today's adolescents will become the future citizens and hence they should be able to utilize the technology for enhancing knowledge, respect online privacy world, cyber bullying, share security information and adhering with ethical guidelines in all digital interaction leading to safer, progressive digital society.

2. Concept of Digital Literacy and Moral sensitivity:

Digital literacy is a multidisciplinary competence integrating technical skills, critical evaluation, and ethical use of digital technologies for information access, creation, communication, and problem-solving (Chetty et al., 2017; Misir, 2018). It extends beyond basic ICT skills to include verifying information, avoiding misinformation, and practicing responsible online behaviour. Moral sensitivity refers to recognizing ethical issues and understanding the impact of digital actions on others (Akca et al., 2017). Research shows moral sensitivity is generally moderate and influenced by gender and ethics education (Arslan & Calpbinici, 2018). Therefore, integrating moral sensitivity into digital literacy education is essential to foster ethical and responsible digital citizenship.

3. Significance of Moral Sensitivity towards Digital Literacy:

Moral sensitivity towards digital literacy is crucial in the present digital era, where students and adolescents are continuously exposed to online learning platforms, social media, and virtual interactions. Moral sensitivity enables individuals to identify ethical issues in digital environments, such as cyberbullying, plagiarism, data privacy violations, illegal downloading, and misuse of digital content (Bouhnik & Mor, 2014; Thornberg & Jungert, 2013). Digitally literate individuals with high moral sensitivity are more likely to understand the consequences of their online actions on others and demonstrate empathy, fairness, and responsibility in cyberspace.

Research evidence highlights that moral sensitivity can be developed through ethics education and appropriate teaching strategies, which is essential for guiding ethical behaviour in digital contexts (Maddineshat et al., 2018; Lee, Huang & Huang, 2017; Bahrieni et al., 2017). Studies also reveal that females generally exhibit higher moral sensitivity, indicating the role of socialization and value education in shaping ethical digital behaviour (Maeda & Bebeau, 2011; Mahasneh, 2014). Hence, integrating moral sensitivity into digital literacy education is vital for nurturing responsible digital citizens who can make ethical decisions, respect digital norms, and contribute positively to a safe and ethical digital society (Arslan & Calpbinici, 2018; Akca et al., 2017).

4. Rationale of the Study:

The rapid advancement of digital technology has fundamentally transformed how individuals, particularly adolescents, interact with the world. Digital tools, including social media, video games, and educational platforms, offer significant benefits such as improved access to information, enhanced learning opportunities, and expanded social connections (Leu et al., 2015). However, they also pose potential risks, including cyberbullying, online harassment, identity theft, and exposure to inappropriate content (Livingstone & Helsper, 2007).

Another key aspect of ethical digital citizenship is moral sensitivity, which refers to the ability to recognize and assess the moral dimensions of digital interactions and behaviors (Rest, 1986). Adolescents, who are in a critical period of moral development, often lack the necessary skills to navigate complex ethical dilemmas in digital environments (Boren, 2016). Hence, promoting moral sensitivity in digital contexts is crucial for ensuring that adolescents use technology in ways that respect others' rights and dignity.

Digital literacy, broadly defined as the ability to access, analyze, evaluate, and create information using digital technologies, is also crucial in developing responsible online behaviors (MacArthur, 2018). Digital literacy not only includes technical skills but also encompasses the critical thinking required to assess the credibility of information, understand privacy implications, and recognize the consequences of one's online actions (Bulger, 2016). Thus, combining moral sensitivity with digital literacy can help adolescents not only navigate digital tools more effectively but also engage in ethically responsible online behavior.

The importance of this study lies in its potential to provide insights into how educators and parents can better support adolescents in becoming ethical digital citizens. Given the increasing integration of technology into daily life, understanding the relationship between moral sensitivity and digital literacy can inform the development of interventions aimed at promoting responsible digital engagement among adolescents.

5. Objective of the Study:

The objectives for the current research paper are:

1. To study and find out digital literacy amongst adolescent.
2. To study and find out The Moral Sensitivity for digitalization amongst the adolescent.
3. To suggest ways fostering ethical digital citizens for the vision of Vikshit Bharat.

6. Methodology:

The study aimed to assess the adolescent's digital literacy levels and Moral Sensitivity towards the same. A descriptive survey method was adopted to collect data from the students in class 9th of Anand district, Gujarat, with a total participation of 110 students.

7. Tool:

For the present study, the researcher developed two self-constructed tools, namely the Digital Literacy Scale and the Moral Sensitivity Scale, specifically for secondary school students. Both scales were prepared in two languages, English and Gujarati, to ensure better comprehension among the respondents. The Digital Literacy Scale consisted of six dimensions: developing digital skills, use of digital tools, information and data literacy, digital competency and responsibility, awareness of digital safety and security, and ability to create and communicate digitally. The Moral Sensitivity Scale comprised four dimensions: recognizing ethical issues online, evaluating the consequences of digital actions, personal responsibilities in the digital world, and respect for digital rights and ownership. All items were framed in the form of statements and responses were recorded on a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The tool was divided into three parts: the first part collected general information about the respondents, the second part included 26 items related to the six dimensions of digital literacy, and the third part consisted of 20 items related to moral sensitivity**.** The content validity of both scales was established through review and validation by experts in the relevant field.

Table 1: Summaries of items and number of items of Digital literacy scale and Moral Sensitivity.

Digital Literacy scale		
Digital Literacy Dimension	**Items**	**Number of items**
Developing digital skills	1,2,3,4	4
Use of digital tools	5,6,7,8,9	5
Information and data literacy	10,11,12,13,14	5
Digital competency and responsibility,	15,16,17,18,19	5
Awareness of digital safety and security	20,21,22	3
Ability to create and communicate digitally	23,24,25,26	4
Moral Sensitivity Scale		
Moral Sensitivity Scale	**Items**	**Number of items**
Recognizing ethical issues online	1,2,3,4	4
Evaluating the consequences of digital actions	5,6,7,8,9	5

Personal responsibilities in the digital world,	10,11,12,13,14,15	6
Respect for digital rights and ownership	16,17,18,19,20	5

8. Data Analysis Technique: To analyse the collected data Percentage, Frequency and Intensity Index were used.

9. Results and Interpretation:

The first part of the survey was planned to collect basic information about the respondents. It included a few demographic details such as gender, type of school, and medium of instruction. This section also gathered information related to the students' class level. For the purpose of this study, only students studying in Class 9 were included as participants.

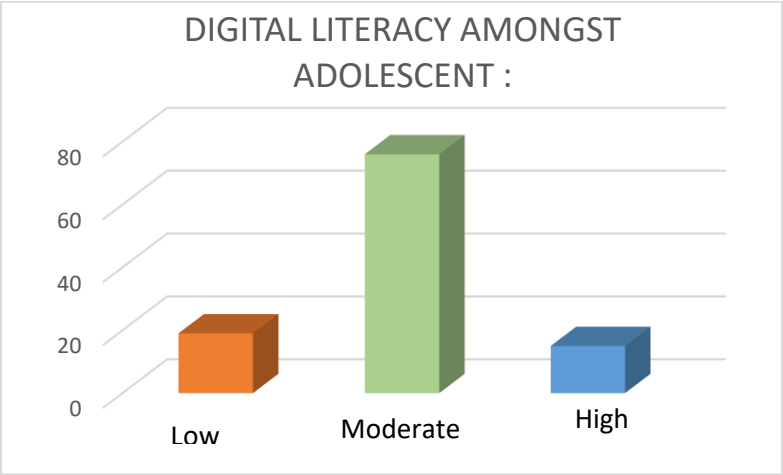
Table 2: Summary of the responses of the general information

Variables	Responses
Gender	**Boys- 38 Girls-72**
Type of School	**Private-1 Grant-in-aid-2**
Class	9th
Medium of Instruction	**English Medium-1 Gujarati Medium-2**

The study included 110 students of 9th standard. Out of these students, 38 were boys and 72 were girls, which shows that the number of girls was more than boys in the study. Students were selected from both private schools and grant-in-aid schools, so different types of schools were included. All the students were studying in Class 9, which helps in keeping the age and academic level the same for all participants. Regarding the medium of instruction, some students were studying in English medium schools, while others were from Gujarati medium schools. This shows that students from different language backgrounds were included.

The second portion was designed to collect the information related to digital literacy pertaining to six dimensions viz. developing digital skills, use of digital tools, information and data literacy, digital competency and responsibility, awareness of digital safety and security, and ability to create and communicate digitally as well as Moral sensitivity pertaining to four dimensions viz. : recognizing ethical issues online, evaluating the consequences of digital actions, personal responsibilities in the digital world, and respect for digital rights and ownership. The summary of which is presented below:

Table No. 3: Level of Digital Literacy amongst



From the Table No.2.1, it was found that 15 Student were high with the digital literacy, 76 students were with moderate with the digital literacy and 19 students were found low with digital literacy skills.

Table 4: Summary of responses of students towards the statement related to digital literacy:

Component	Sr. No	Statements	SA (1)	A (2)	N (3)	D (4)	SD (5)	Intensity Index	Avg. Intensity Index
Developing Digital Skills	1	I have digital devices like computer/laptop/tablet/smartphone and use them for study purposes.	45	42	5	4	4	4.22	
	2	I use digital devices under the supervision of my parents for safe usage.	48	24	15	4	8	4.01	
	3	I learned to operate digital devices through guidance from teachers, parents, siblings, and friends.	27	42	25	4	2	3.89	**3.95**
	4	I learned to operate digital devices independently through self-exploration.	19	44	27	5	5	3.67	
Use of Digital Tools	5	I prefer using digital tools (apps, websites, software) for learning.	41	32	17	6	4	4.00	
	6	I use digital tools to complete school assignments.	30	35	12	14	8	3.64	
	7	I am aware of updating devices with software, browsers, and antivirus.	21	32	23	16	3	3.99	**3.72**
	8	I consult my parents before downloading apps/software.	46	24	15	11	2	3.98	
	9	I mostly use digital devices for games or social media.	14	21	31	37	14	3.00	
Information and Data Literacy	10	I stay updated on news through social media, email, and blogs.	21	40	22	14	3	3.65	
	11	I know how to find information using search engines.	35	32	22	8	3	3.89	
	12	I know how to use AI tools through digital devices.	24	29	35	8	3	3.59	**3.39**
	13	I know how to use keywords effectively while searching.	45	41	10	3	2	4.22	
	14	I can evaluate the accuracy and relevance of information.	16	45	27	8	2	3.60	
	15	I am aware of various social media platforms.	31	25	23	10	11	3.55	

Digital Competency & Responsibility	16	I am aware of using online services like shopping and banking.	24	31	16	16	9	3.38	**3.44**
	17	I can create and edit text documents digitally.	23	35	18	19	4	3.52	
	18	I can create multimedia content like videos and images.	21	34	26	14	5	3.50	
	19	I can design basic websites or blogs.	20	23	32	15	9	3.26	
Awareness of Digital Safety & Security	20	I understand the importance of keeping personal information private.	47	31	10	4	6	4.04	**3.99**
	21	I know how to set strong and unique passwords.	45	25	16	7	6	3.94	
	22	I can identify and avoid online scams and phishing.	43	30	13	10	4	4.00	
Ability to Create & Communicate Digitally	23	I can troubleshoot basic device issues.	15	32	34	10	10	3.31	**3.60**
	24	I can learn new applications using tutorials or instructions.	44	37	19	8	1	3.92	
	25	I understand the importance of digital ethics and fairness.	25	43	22	6	4	3.80	
	26	I understand that every click leaves a digital trail.	16	35	31	7	10	3.37	

The findings indicate that secondary school students demonstrate a moderate to high level of digital literacy, as reflected through the Intensity Index values across different components. The component of Developing Digital Skills shows a high average intensity index of 3.95, indicating that most students have access to digital devices and actively use them for academic purposes. Learning to operate devices through guidance from parents, teachers, and peers, as well as through self-exploration, suggests a supportive and enabling digital learning environment.

The Use of Digital Tools component records an average intensity index of 3.72, revealing that students generally prefer digital tools for learning and completing assignments. Awareness related to software updates, antivirus protection, and parental consultation before downloading applications is satisfactory. However, the relatively lower intensity related to excessive use of devices for gaming and social media reflects a mixed pattern of educational and recreational use, indicating the need for more guided and purposeful utilization of digital tools.

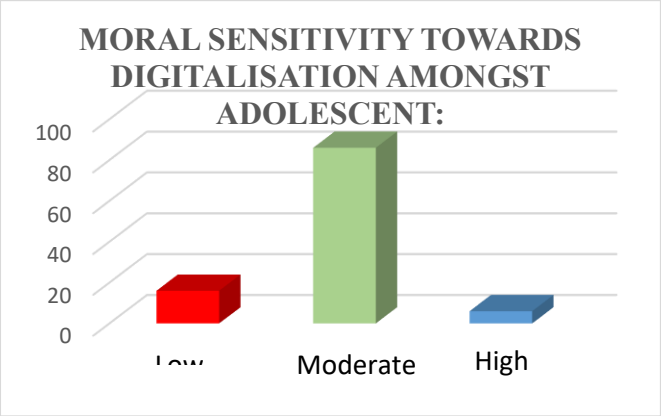
In the area of Information and Data Literacy, the average intensity index is 3.39, which reflects a moderate level of competence. Students are fairly skilled in searching for information and using keywords effectively, but their ability to evaluate the accuracy and relevance of information and their awareness of AI tools are comparatively weaker. This suggests that critical information-handling skills need further strengthening.

The component of Digital Competency and Responsibility has an average intensity index of 3.44, indicating moderate awareness and skill. Students show reasonable familiarity with social media platforms and online services and possess basic abilities in creating digital documents and multimedia content. However, lower intensity scores for advanced tasks such as website or blog design highlight gaps in higher-level digital competencies.

The Awareness of Digital Safety and Security component records a high average intensity index of 3.99, making it one of the strongest areas. Students demonstrate strong awareness of protecting personal information, creating strong passwords, and identifying online scams and phishing, reflecting good digital safety consciousness.

Finally, the Ability to Create and Communicate Digitally shows an average intensity index of 3.60, indicating a moderate level of competence. Students are relatively confident in learning new applications and understanding digital ethics, while skills related to troubleshooting and awareness of digital footprints remain less developed. Overall, the intensity index values suggest that while students possess a strong foundation in digital literacy, focused educational interventions are required to enhance critical evaluation skills, advanced digital creation abilities, and responsible digital citizenship.

Table No. 5: Level of Moral Sensitivity for Digitalization:



From the Table No.2.2, it was found that 06 Student were high with their Moral sensitivity for digitalization, 86 students were with moderate with the Moral sensitivity for digitalization and 16 students were found low with the Moral sensitivity for digitalization.

Table 6: Summary of responses of students towards the statement related to Moral Sensitivity:

Component	Sr. No.	Particulars	SA %	A %	N %	D %	SD %	Intensity Index	Avg. Intensity Index
Recognizing Ethical Issues Online	1	I believe it is unethical to create or share fake social media profiles to deceive others.	45	34	15	4	2	4.07	**4.1568**
	2	I understand that using someone else's online identity can damage their reputation.	16	20	11	6	2	4.10	
	3	I understand that sharing someone's private photos or personal information without permission is wrong.	59	23	6	6	5	4.23	
	4	I believe it is wrong to spread information or rumours about someone online.	49	24	16	4	5	4.23	
	5	I understand that cyberbullying can have long-lasting effects on a person's mental health.	49	24	16	4	5	4.02	
	6	I understand that what I post online can remain	26	38	27	4	3	3.76	

		forever, even if deleted later.							
Evaluating the Consequences of Digital Actions	7	I think it is important to consider how my online actions may affect others.	34	36	18	10	1	3.89	**3.8736**
	8	I realize that sharing personal information can lead to privacy violations.	38	35	19	5	3	3.98	
	9	I understand that copying someone else's work without credit is unacceptable.	32	32	24	4	8	3.72	
Personal Responsibility in the Digital World	10	If I see someone being bullied online, I feel responsible to report or speak out.	44	30	18	8	4	3.56	**3.998**
	11	If I receive abusive messages, I believe I should block or report the sender.	52	26	15	3	4	4.17	
	12	I think it is important to respect others' digital rights (content, photos, videos).	47	28	12	5	6	4.00	
	13	I would inform a trusted adult if I encounter inappropriate online content.	38	32	19	5	5	3.92	
	14	Being respectful online is as important as being respectful in real life.	41	30	21	3	5	3.97	
	15	I would address misuse of my personal information respectfully.	41	22	22	7	6	3.78	
Respect for Digital Rights and Ownership	16	I accept friend requests only to increase the number of online friends.	30	23	22	12	14	3.44	**3.6738**
	17	I consider that online content affects my reputation.	25	25	23	13	14	3.28	
	18	I verify the authenticity of information before sharing it online.	35	36	18	5	3	3.89	
	19	I respect copyright of digital content used for education.	40	27	19	7	6	3.87	
	20	I balance online learning with offline activities for a healthy life.	43	25	22	4	5	3.89	

The data indicate that secondary school students demonstrate a high level of moral sensitivity in the digital context, as reflected by the Intensity Index across different components. The component Recognizing Ethical Issues Online shows a very high average intensity index of 4.16, indicating strong ethical awareness among students. Most students clearly

perceive creating fake profiles, misusing others' identities, sharing private information without consent, and spreading rumours online as unethical behaviors. This suggests that students possess a well-developed understanding of right and wrong in online environments.

The component Evaluating the Consequences of Digital Actions records an average intensity index of 3.87, reflecting a moderately high level of moral reasoning. Students largely understand the long-term mental health impact of cyberbullying, the permanence of online posts, and the risks associated with sharing personal information. They also recognize the importance of considering how their digital actions affect others. However, comparatively lower intensity in some statements indicates that this awareness, though present, is not uniformly strong among all students and requires further reinforcement.

The findings related to Personal Responsibility in the Digital World reveal a high average intensity index of **3.99**, showing that students generally feel responsible for their own and others' behavior online. Many students believe in reporting cyberbullying, blocking or reporting abusive messages, respecting others' digital rights, informing trusted adults about inappropriate content, and maintaining respectful online behavior. This reflects a strong sense of accountability and ethical conduct in digital interactions.

Finally, the component Respect for Digital Rights and Ownership shows a moderately high average intensity index of **3.67**. Students demonstrate reasonable awareness about verifying information before sharing, respecting copyright, balancing online and offline life, and understanding the impact of online content on personal reputation. However, lower intensity scores in accepting friend requests indiscriminately and concerns about online reputation suggest the need for greater emphasis on critical judgment and digital self-regulation.

Overall, the intensity index values indicate that students possess strong moral sensitivity, particularly in recognizing ethical issues and personal responsibility online, while aspects related to digital rights, ownership, and long-term consequences of digital actions require continuous value-based digital education.

10. Major Findings:

- The level of digital literacy and Moral sensitivity for digitalization was found moderate amongst the students.
- Most of the students strongly agreed With the statements that they have digital devices and make use of it for study purpose, they use it under the supervision of parents, prefer learning digitally against traditional textbook, consult parents before downloading software applications, making use of keywords for searching information online, keeping personal information private, setting strong unique passwords to protect their accounts and lastly to know the ways to solve the basics troubleshoot issues of their digital device.
- Mostly students agreed with the statements that they have either learnt about the digital device by exploring it or under the guidance of their parents, teacher, siblings of friends, they stay updated with news and current events through online platforms, they evaluate the information if it is accurate and understand the significance of the digital ethics and fairness while using the online tools.
- Most of the students were neutral with the statements that they are aware about updating digital devices and Anti-virus protection, utilized digital devices for playing games, make use of AI tools, creation of multimedia content like videos and images, design and create basic websites and blogs and lastly understand every mouse leak leaves digital treats on any online activity.
- Very few students disagree with statements that they utilize digital tools for completion of school assignments, have awareness regarding online shopping services banking ticketing and shopping.
- Most of the students strongly agree that it is unethical to create fake Profile deceive others using someone's identity it can damage the reputation, sharing someone personal information without their permission is wrong, spreading rumors about someone on the online platform is wrong, it is the responsibility to report for someone being bullied online, for speaking out if they receive any abusive message and lastly being respectful online is as much as important as being respectful out of life.
- Most of the students were neutral with the statements that whatever the post online can stay forever even if they delete it later, plagiarism is not acceptable in this digital world, informing trusted adult if come across with

inappropriate content, accepting every friend request for intention of having maximum friends and online content shared on social media have impact on the reputation.

11. Recommendations for fostering ethical Digital citizens considering the adolescents for Vikshit Bharat:

The following are the recommendations related to fostering ethical Digital Citizens for Vikshit Bharat:

- The adolescent Should be taught in the schools regarding the new technological updated etiquette for respectful interaction on the digital space.
- Awareness programme regarding how to address the legal aspects of the online behavior like cyber bullying and privacy maintenance should be organized for the adolescent in order to understand the rights and responsibilities for the digital world.
- Educating the adolescents about how to use the technology effectively in order to acquire evaluate and apply knowledge through digital tools and resources.
- Providing opportunities to create, organize and sharing content for digital communication of the content in efficient and meaningful manner.
- Providing awareness to the students about how to protect financial information in ensuring safe online transaction.
- Educating the students about respecting others' rights such as their privacy and freedom of expression in upholding responsibilities for adhering ethical online conduct.
- Educating the students about ensuring their privacy and security about personal information that gets stored online and make them understand ways to protect from these threats.
- Providing ways to ensure physical and mental wellbeing in digital world in order to avoid issues like digital addiction and online stress.
- For safe and inclusivity of students in the digital world, the stakeholders should ensure equal access to digital tools for building up the digital divide/gap.

12.Conclusion:

The vision of "Vikshit Bharat" emphasizes the need for a digitally empowered and ethically responsible society. Fostering digital literacy and moral sensitivity among adolescents is crucial to achieving this goal. As technology becomes more integrated into daily life, equipping young individuals with the skills to navigate the digital world ethically ensures a responsible citizenry, supporting the broader vision of a developed India (Singh, 2020; Sharma, 2021).

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