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Teachers' Perspectives On Ethical Challenges And Student Data Privacy In The Use Of Educational Technology

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Abstract: This study investigates secondary school teachers' perspectives on ethical challenges and student data privacy in the use of educational technology. With the rapid integration of digital tools in education, concerns around equitable access, digital misconduct, privacy, and data security have become prominent. Using a descriptive survey method, data were collected from 110 randomly selected secondary school teachers in Thiruvananthapuram district, Kerala. Two scales with Likert items assessed teachers' views on ethical dilemmas and data privacy issues. The findings reveal that approximately 70-80% of teachers express significant ethical concerns related to digital equity, online conduct, and commercial influences on learning platforms. Furthermore, a majority demonstrate strong awareness of student data privacy responsibilities and advocate for institutional safeguards and informed consent practices. The study highlights the pivotal role of teachers as ethical guides in promoting responsible technology use and protecting students in increasingly digital educational environments. These insights underscore the need for continuous professional development and robust privacy policies to support ethical and equitable adoption of educational technology.

***Index Terms*:** Ethical challenges in educational technology, Student data privacy, Algorithmic bias and transparency, Digital accountability.

I. INTRODUCTION

People's lives and lifestyles are being progressively shaped by technology, on the other hand, if technology is not created, developed, and used appropriately, it puts itself at threat (Bashiir, 2025). In education it refers to the strategic and meaningful integration of digital tools, platforms, and resources into teaching and learning processes to enhance instructional delivery, learner engagement, and educational outcomes. According to Haran (2015), educational technology is "a complex and integrated process that involves people, procedures, ideas, devices, and organization to analyze all aspects of the human learning process and the problems experienced in this field and to design, implement, evaluate, and manage solutions to these problems". Educational technology encompasses a wide range of applications, including Learning Management Systems (LMS), adaptive learning platforms, gamification techniques, artificial intelligence-driven analytics, and collaborative digital environments. Far beyond simply using computers in the classroom, it involves a paradigm shift in pedagogy, where technology becomes an enabler of personalized, participatory, and lifelong learning. For today's students, modern technology offers an engaging and accessible learning environment due to its dynamic and user-friendly features (Haleem et al., 2022). This evolution reflects the rapid digital transformation in society, requiring educational institutions to prepare students for a technology-driven world. Educational technology holds the potential to transform the way knowledge is accessed, shared, and applied. The emergence of technology-assisted learning tools such as mobile devices, smartboards, MOOCs, tablets, laptops, simulations, dynamic visualizations, and virtual laboratories has transformed the educational landscape in schools and higher institutions (Haleem at al., 2022). It allows students to benefit from customized learning experiences tailored to their abilities and needs, supports real-time feedback for improved

performance, and encourages collaboration beyond physical walls. ICT-integrated teaching and learning allowing students to meet their learning objectives and assisting educators in harmonizing their methods with international standards (Akram et al., 2022). For teachers, automation and data analytics ease administrative burdens, while interactive tools make lesson delivery more engaging. Gen Z students, being digital natives, adapt quickly to emerging tech-enabled approaches, developing skills for problem-solving, digital literacy, and global communication. Integrating technology, multimedia resources, oral presentations, and group activities into classroom tasks helps create a more interactive and engaging learning experience, encouraging students to participate actively beyond mere verbal communication (Parveen & Ramzan, 2024). The accessibility of resources, flexibility in learning modes, and immersive technologies such as augmented and virtual reality promise deeper learning experiences that were unimaginable in traditional settings.

Although technology offers numerous benefits to student learning, it can also pose challenges to the educational process (Carstens et al., 2021). Technology can enhance fairness, transparency, and objectivity in learning, but its use must be guided by strong ethical principles. Ethical considerations are essential to ensure technology benefits all learners responsibly (Khairat et al., 2025). For educators, technology can create increased pressure to constantly update skills, manage complex data systems, and address digital distractions in classrooms. For new age learners, constant connectivity may negatively impact focus, encourage academic dishonesty, or diminish interpersonal skills. While technology can bridge gaps, it may also deepen inequalities when digital infrastructure and access vary among schools or students. In addition, the constant collection and analysis of student data raise ethical concerns about privacy, consent, and data security. Teachers may face dilemmas between employing data-driven tools and protecting the confidentiality of sensitive student information. In order to ensure that data-driven insights are implemented in a way that promotes fairness and inclusivity, educators must manage the potential biases inherent in digital technologies (Maqbool et al., 2025).

Ethics deals with discerning what is right or wrong, good or bad, in human actions and decisions. In educational contexts, ethical reasoning becomes crucial because choices made by educators and learners directly affect trust, autonomy, and fairness. It involves evaluating multiple possible courses of action and selecting the one that sustains social accountability and personal integrity (Usher & Barak, 2024). Awareness of ethical issues has gained renewed importance in today's technology-integrated classrooms where digital platforms collect, store, and analyze vast amounts of student data. As digital learning systems became an essential part of education, not merely an option, ethical imperatives around privacy, consent, and responsible technology use have become central to professional practice. Teachers who possess ethical competence are particularly equipped to adopt and responsibly integrate digital technologies in their professional environments. They serve as exemplars for students and the broader community, demonstrating how to use technology in morally sound and critically reflective ways (Langland, 2009; Milton et al., 2021; Mrisho, 2023). These educators not only apply ethical principles in their own digital practices but also influence students by modelling integrity, fairness, and accountability in both online and offline settings (Heriyanto & Parni, 2025). Their role as ethical guides helps cultivate a digitally responsible generation prepared to navigate complex technological landscapes with social responsibility and respect for privacy. Thus, ethical teachers play a pivotal part in shaping the moral fabric of digital learning communities and ensuring technology is used to support inclusive, equitable, and respectful educational experiences.

Student data privacy is defined as the protection and responsible management of students' personal and academic information, encompassing sensitive data such as academic records, demographics, and behavioural profiles collected through educational technologies. As education becomes increasingly data-oriented, it must confront the persistent hurdles of ensuring privacy and protecting sensitive data (Hoel & Chen, 2018). Student data privacy remains a vital concern as digital education tools increasingly collect and analyze sensitive student information. Students often lack full awareness of how their data are used and shared, which can erode trust in educational institutions. Digital learning platforms connected to the internet can track detailed real-time information about students, including their location, activities, navigation paths, time spent on tasks, and comprehensive records of their formative and summative assessments. This extensive data collection raises critical concerns about safeguarding student privacy amidst technological advancements (Stahl & Karger, 2016).

According to the National Association of Secondary School Principals, administrators and educators have increasingly relied on technology-driven tools to gather and manage data from students, thus leveraging both instructional and administrative innovations in schools (Villeges, 2024). The education sector has become one of the prime targets for cyberattacks, ranking third among industries most affected by data breaches. Such breaches compromise the security of educational records and place students' personal safety and wellbeing at significant risk and the misuse of student data can lead to harmful consequences such as cyberbullying, identity theft, and social engineering—where individuals are psychologically manipulated into revealing

personal information (Archambault, 2021).Therefore it is very important to apply privacy policies, securing informed consent, and modelling best practices in digital literacy to protect confidentiality of students.

This study is significant in the present context because of the increased dependence on digital platforms following global emergencies like pandemics, which has accelerated the adoption of online and blended learning. Each day, confidential student data is collected, making it imperative to address ethical issues rather than leaving them as a theoretical topic. As the primary go-betweens for students and educational technology, teachers have important viewpoints that can influence responsible, safe, and equitable tech use. Examining their perspectives can not only help shape legislation but also support ethically sound, resilient teaching methods in the twenty-first century.

II. RESEARCH QUESTIONS

1.What are teachers' perspectives on the ethical challenges involved in using educational technology in schools?

2.What are teachers' perspectives on student data privacy concerns related to the use of technology-enhanced learning tools?

III. OBJECTIVES

1.To find out teachers' perspectives on the ethical dilemmas arising from integrating technology in educational practices.

2.To find out teachers' perspectives related to protecting student data privacy within educational technology use.

IV. METHODOLOGY

The present study is intended to find out the teacher's perspective on ethical challenges and students' data privacy in the use of educational technology. Descriptive survey method was adopted for the present study.

4.1 Sample Selected

For the present study a sample of 110 secondary school teachers in different schools in Thiruvananthapuram district in Kerala were selected randomly.

4.2 Tools Used

The present study utilized two scales developed by the investigators. One scale is to find out the teachers' perspectives on ethical challenges in the use of educational technology. The second scale is to find out the teachers' perspective on students' data privacy while using educational technology. Both scales consist of 12 items, each using a 5- point Likert Scale (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree).

4.3 Statistical Techniques Used

Percentage Analysis

V. ANALYSIS AND INTERPRETATION

The data collected from the Secondary School Teachers were analyzed according to the objectives framed for the present study. The details of analysis are given below:

1. Analysing the Teachers Perspectives on Ethical Challenges while using Educational Technology.

Percentage corresponding to Teachers' responses such as Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree on each statement with respect to Teachers Perspectives on Ethical challenges in the use of Educational Technology are given below in Table 1.

Table 1

Details of the Responses of the Scale on Teachers' Perspective on Ethical Challenges in the use of Educational Technology

Sl.no	TEACHERS PERSPECTIVE ON ETHICAL CHALLENGES IN THE USE OF EDUCATIONAL TECHNOLOGY STATEMENTS	TOTAL RESPONSES (%) SA	A	N	D	SD
1	Poor internet connectivity among students makes it difficult to ensure fair use of technology in teaching–learning processes.	47	33	10	7	3
2	Unequal access to digital resources and equipment among students challenge in ensuring ethical use of technology in the classroom	32	43	15	9	1
3	The use of social media in education raises concerns about inappropriate content and digital misconduct among students	37	48	13	2	0
4	Monitoring students' online activities without violating their privacy creates an ethical dilemma among teachers.	27	47	17	8	1
5	Students' social and economic backgrounds should be considered while using technology in the classroom to ensure fairness and equal opportunity.	49	33	10	7	1
6	Increased use of technology in the classroom may weaken the interpersonal interaction between teachers and students.	17	41	14	24	4
7	Relying on technology may reduce teachers' ability to support students' emotional and social needs.	18	43	16	17	6
8	Digital tools can sometimes expose students to inappropriate content, which is an ethical concern.	26	47	22	4	1
9	Using technology in class may unintentionally favour students who are more tech-savvy.	25	42	15	13	5
10	Over-reliance on technology can lead to issues of academic dishonesty, such as coping materials from internet or misuse of online materials.	37	44	11	7	1
11	The influence of commercial educational technology platforms can affect the fairness and honesty of the learning process.	13	55	23	7	2
12	Unequal digital literacy among students creates ethical concerns regarding fair use in technology-based learning assessments.	28	47	16	7	2

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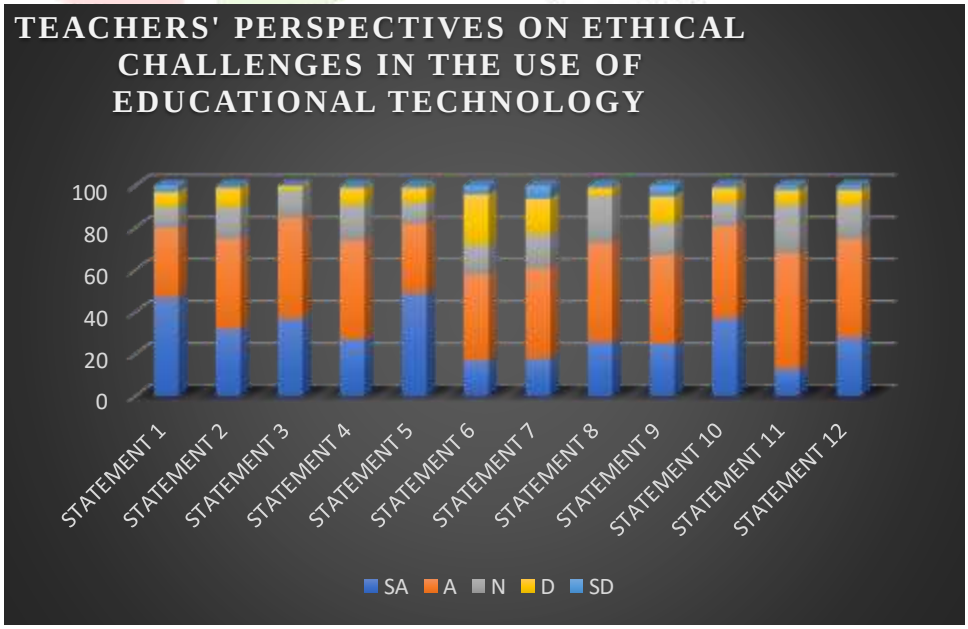

Figure 1

The percentage subdivided bar diagram of the response on the teachers' perspectives on ethical challenges in the use of educational technology

From this Data it is clear that most of the teachers have ethical concern while using Educational Technology. The teachers taking care on the problems faced by the students while using Educational Technology such as poor internet connectivity, individual differences in using technology, socio- economic background of students etc. Approximate 75% of the teachers strongly agree/ agree the statements related to the problems faced by the students while using educational technology. (statements 1,2,5,9,12). Approximate 80% of the teachers agreed that use of social media in education may leads to misconduct among students. (statement 3). Approximate 50% of the teachers agreed that the use of educational technology may reduce the interpersonal interaction between teacher and students while 25% of the teachers didn't agree the statement. (statement 6). Approximate 50% of the teachers agreed that use of technology may reduce teachers' ability to support students emotional and social needs while 25% didn't. (statement 7). Approximate 80% of the teachers agreed that over- reliance of technology can lead to issues of dishonesty. (statement 10). Approximate 70% of the teachers agreed that commercial educational platforms affect the fairness and honesty of the learning process while 25% have neutral responses. (statement 11). Approximate 70% of teachers agreed that they are facing some ethical dilemma while monitoring students' online activities. (statement 4). Therefore, it can be interpreted that approximate 70% of the teachers have strong ethical concern in using educational technology.

2. Analysing the Teachers Perspectives on Students Data Privacy while using Educational Technology.

Percentage corresponding to Teachers' responses such as Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree on each statement with respect to the Teachers' Perspective on Students Data Privacy are given below in Table 1.

Table 2

Details of the Responses of the Scale on Teachers' Perspective on Students' Data Privacy in the use of Educational Technology

Sl.No	TEACHERS PERSPECTIVES ON STUDENTS' DATA PRIVACY IN THE USE OF EDUCATIONAL TECHNOLOGY STATEMENTS	TOTAL RESPONSES (%) SA	A	N	D	SD
1	I always clearly explain to my students how their personal data may be used by educational technologies.	37	49	11	3	0
2	I ensure that my students create and use strong, secure passwords when logging in to any new websites or educational applications.	45	39	10	5	1
3	I delete student information appropriately when it is no longer needed.	44	38	8	6	4
4	I avoid sharing student personal data through email or messaging apps.	54	29	9	7	1
5	Every institution should have clear regulations and strict guidelines to prevent the misuse of data in digital learning environments.	59	31	8	2	0
6	I ensure that only safe and authorized digital platforms are used to share student data	52	30	11	5	2
7	Teacher should be well informed about how digital technologies collect, handle, and evaluate student data.	61	26	7	4	2
8	Every teacher should aware of the data privacy policies of the digital platforms that used in the teaching learning process.	62	25	7	4	2
9	Every teacher should be confident in his/ her ability to protect student data privacy when using educational technology in the classroom.	59	30	5	4	2
10	Student data should only be used for educational purposes and never for commercial gain	65	26	7	2	0
11	The teacher should review the privacy policy settings and permissions before using any new digital tool.	57	27	7	6	3
12	School should have to establish clear and transparent procedures for reporting any data breaches or privacy violations.	52	33	8	6	1

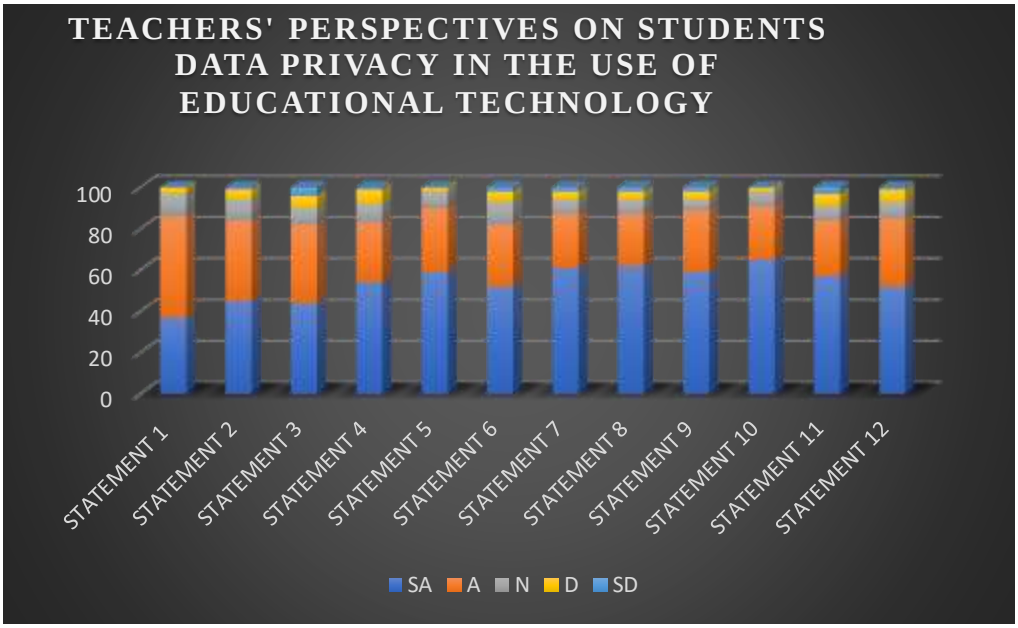

Figure 2

The percentage subdivided bar diagram of the response on the teachers' perspectives on students' data privacy while using educational technology.

From the data it is clear that most of the teachers have good perspectives about the student's data privacy in using educational technology. About 80% of the teachers have well knowledge about students' data privacy and they are trying to make the students aware about it. (statements 1,2,3,4,6,10). Approximate 80% of the teachers have knowledge about the teachers' responsibility in students' data privacy while using educational technology. (statements 7,8,9,11). Approximate 80% of the teachers have awareness about the role of institutions in protecting the students' data. (statement 5, 12). Therefore, from this data it can be interpreted that about 80% of the teachers have awareness about the students' data privacy and the role of teachers and institutions in protecting students' data.

VI. CONCLUSION

The study clearly demonstrates that teachers hold significant ethical concerns regarding the use of educational technology, especially related to equitable access, digital conduct, and fair use. Approximately 70-80% of teachers expressed awareness of challenges such as poor internet connectivity, unequal access to digital resources, the influence of commercial platforms, and ethical dilemmas in monitoring online activities. Concurrently, the majority of teachers showed a strong understanding of student data privacy responsibilities, emphasizing secure data handling, informed consent, and institutional safeguards. These findings underscore the critical role of educators not only in adopting technology but also in modelling ethical digital practices and advocating for policies that protect students. Therefore, in order to guarantee moral and equitable technological integration in education, the study emphasizes the necessity of continuous teacher training, explicit privacy policies, and improvements to the infrastructure. Teachers have a crucial role in mediating ethical technology use in schools; thus, this is especially important as digital tools become more integrated into administrative and instructional procedures.

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