

Challenges and Ethical Issues in Data Privacy: Academic Perspective

Renu Bala, Chaudhary Devi Lal University, India*

ABSTRACT

This paper strived to find the challenges and ethical issues in the stream of data privacy in the present era of the 21st century. The present study focuses on empirical studies that were published during the period 2008-2020. During the research, efforts have been made to identify the challenges and ethical issues that the researchers have to face during the research process. In the study, it has been noticed that such matters gained popularity after the year 2011. In the research, it has been found that there are many challenges to data privacy. It becomes challenging to follow ethics to maintain data confidentiality and security in this technology-driven era. In the end, based on available data, it has been concluded that there is an excellent need for stiff punishments for that person who misuses the data for their own sake and demoralizes those people who make hard efforts to carry out the research and generate new concepts and ideas. So the government should take necessary measures toward data privacy areas for security and safety purposes.

KEYWORDS

Academic, Challenges, Data Sharing, Education, Ethics, Perspective, Privacy, Protection

1. INTRODUCTION

Privacy, security, and trust; these three terms are interlinked with each other in such a way how the law and ethics are related to each other. The term data privacy represents how the data should be collect, use, and access by considering the legal rights (*Lee et al., 2016*). On the other side, ethics denotes those responsibilities, sometimes which become the obligation to pursue (*Knoppers & Thorogood, 2017*). At present, in this technologically driven era, internet-based research is prevalent, and most researchers follow this method widely to fulfill the purpose of data collection and analysis. The umbrella of Internet-based research covers video conferencing for interviews, online surveys, analysis of 'e-conversations,' web page content analysis, discussion blogs, chat rooms, email, *etc.* (*Cox, 2012*). With the passage of time, many social and technological changes can be noticed, and these changes are altering the scale and scope of the data for researchers (*Fiesler, 2019*). Instead of a lot of advantages of the latest technology, some drawbacks also exist. Data sharing and data storage provide different kinds of benefits to researchers, but it creates a lot of hurdles even from the security

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*Corresponding Author

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perspective of data, and in this present scenario, traditional privacy mechanism and security system are not adequately sufficient to cope with data explosion (Venkatraman & Venkatraman, 2019). As a result, researchers have to face different kinds of data issues during their original work, such as the modification of secondary data, data storage, data sharing, etc. In these situations, ethical decision-making takes place (Boyd et al., 2016). Due to the advanced technology, the chances of misuse of data are increasing day by day, and due to this situation, it becomes tough to follow ethics (Hand, 2018). Researchers have to face various types of data privacy challenges during their work, such as securing the computations under distributed programming frameworks, securing data storage and the transactional logs, data provenance, end-point filtration and validation, and real-time security monitoring (Mehta & Rao 2015), etc. So the government and other private institutions should focus on developing different kinds of new software under the latest technology, which can protect data by maintaining its privacy and avoiding misuse, modification and wrong interpretation, etc.

2. LITERATURE REVIEW

Nigam et al. (2015) highlighted the significance of the digital world in different streams. The significant role of digitalization in the IT sector and research field has been defined in the study. Soni & Pandey (2016) described digitalization in e-marketing and explained how consumers benefit from digitalized services. Neumeier (2017) demonstrated that digitalization is playing a positive role in every sector of the economy. Kumar et al. (2018) highlighted the role of technology in the retail industry and concluded that technology had created significant retailing services outcomes. Shallu et al. (2019) highlighted the effects of digitalization on India's economy and mentioned the challenges faced by India's government to solve various technological issues. Nadkarni & Prugl (2020) presented the digitalization world's opportunities and the ways to exploit such kinds of possibilities.

3. RESEARCH OBJECTIVE

The study's main objectives are to identify and examine the challenges and ethical issues faced by the students and teachers in data processing and privacy.

4. RESEARCH HYPOTHESES

The following research hypotheses have been formulated and tested to validate the results of the study:

H_{01} : There is no significant difference in students and teachers' viewpoint regarding the challenges faced during data processing and privacy.

H_{02} : There is no significant difference in students and teachers' viewpoint regarding ethical issues faced in the field of data privacy.

5. SAMPLE PROFILE

For the present study, a sample of 90 respondents was selected by including 45 students and 45 teachers from different educational institutions. Out of ninety respondents, 56 (62.22 percent) were male, and 34 (37.78 percent) were female.

6. DATA COLLECTION

Both types of data, i.e., primary and secondary, have been used to conduct the present study. To fulfill the purpose of preliminary data, a pre-tested structure questionnaire was framed on a five-

point Likert scale such as Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD). On the other side, secondary data were gathered with reports, journals, articles, book chapters, magazines, *etc.*

7. DATA ANALYSIS

The collected data have been analyzed by different descriptive techniques such as mean, standard deviation, *etc.* After that, to achieve the objectives of the study, an independent sample t-test was applied. During the investigation, the Cronbach Alpha coefficient (0.791) has been computed to check the instrument’s reliability, which indicates that the tool is a good measure for internal consistency.

8. RESULTS AND DISCUSSIONS

8.1 Primary Focus

The present study’s primary focus is to identify and examine the challenges in the stream of data privacy faced by students and teachers. Table 1 presents the analysis of teachers’ and students’ views regarding the challenges faced during data processing and privacy. The analyzed data presented that students of educational institutions give priorities to the challenges such as secure real-time monitoring ($\bar{x}=3.87, \sigma=0.656$), end-point filtration and validation ($\bar{x}=3.80, \sigma=0.622$), securing computed data under the distributed programming frameworks ($\bar{x}=3.58, \sigma=0.898$), securing data storage and the transactional logs ($\bar{x}=2.93, \sigma=0.667$), *etc.* On the other side the teachers highlighted the challenges in the field of data privacy such as server consolidation ($\bar{x}=3.78, \sigma=1.214$), securing data storage and the transactional logs ($\bar{x}=3.56, \sigma=1.193$), real-time secure monitoring ($\bar{x}=3.34, \sigma=0.939$) and protection from the insider threats, *etc.* ($\bar{x}=3.23, \sigma=1.172$). Statistically, the results of the t-test show that there

Table 1. Descriptive and Inferential Statistics of Challenges faced by Students and Teachers

Statements	N	Students		Teachers		t-test	
		\bar{x}	σ	\bar{x}	σ	t	Sig
Share and publish network traces	45	1.79	0.589	2.74	1.065	1.934	0.054
Collection of network traces	45	2.67	0.845	2.12	0.977	0.356	0.732
Data encryption	45	1.57	0.423	2.96	1.224	4.589	0.076
Access controls	45	1.69	0.956	2.78	1.196	2.367	0.231
Server consolidation	45	2.83	0.989	3.78	1.214	2.931	0.005*
Protection from the insider threats	45	1.86	0.667	3.23	1.172	5.878	0.083
Data trustworthiness	45	1.88	0.586	2.98	1.206	6.589	0.843
Reconcile data security and privacy	45	1.71	0.578	2.34	1.079	4.390	0.092
Securing computed data under the distributed programming frameworks	45	3.58	0.898	2.90	1.014	1.893	0.063
Securing data storage and the transactional logs	45	2.93	0.767	3.56	1.193	3.178	0.003*
Data provenance	45	1.41	0.567	2.67	1.160	3.245	0.001*
End-point filtration and validation	45	3.80	0.622	2.97	1.153	0.534	0.568
Real-time secure monitoring	45	3.87	0.656	3.34	0.939	3.583	0.201

Note: N=No. of Respondents, *=Significant at 5 percent level
Source: Primary survey (Author’s Calculation)

exists a significant difference in the views of students and teachers regarding server consolidation ($p=0.005$), securing data storage and the transactional logs ($p=0.003$), and data provenance at a 5 percent level of significance, therefore the null hypothesis (H_{01}) is rejected.

8.2 Secondary Focus

The secondary focus of the present research is to identify the students and teachers' ethical issues in the field of data privacy. Table 2 presents that in the stream of data processing, students face ethical issues such as misuse of data ($\bar{x}=3.86, \sigma=0.655$), wrong interpretation of data as per requirements ($\bar{x}=2.99, \sigma=0.677$), negative exploitation of research tools, techniques, and standards ($\bar{x}=1.94, \sigma=0.572$), break the privacy breach ($\bar{x}=1.88, \sigma=0.593$), consider the research as a source of money only ($\bar{x}=1.81, \sigma=0.567$), etc. On the second side, teachers faced the issues such as wrong use of 'right to science' in the international law ($\bar{x}=3.59, \sigma=0.785$), wrong interpretation of data as per requirements ($\bar{x}=3.54, \sigma=1.263$), misuse of data ($\bar{x}=3.21, \sigma=1.220$), break the privacy breach ($\bar{x}=3.12, \sigma=1.197$) and make balance between risks and benefits ($\bar{x}=2.99, \sigma=0.895$), etc. Statistically, the results of the t-test show that there exists a significant difference in the views of students and teachers regarding wrong use of 'right to science' in the international law ($p=0.000$) and wrong interpretation of data as per requirement ($p=0.020$), at 5 percent level of significance; therefore the null hypothesis (H_{02}) is rejected.

9. OTHER OBSERVATIONS AND FINDINGS

During the research, it has been observed that several studies have been conducted in this stream, and the main focused on such issues has been paid after the year 2011. In this area, various research and surveys have been conducted at the international level due to its importance as per the present scenario. It has also been found that the researchers have to face different kinds of challenges to keep

Table 2. Descriptive and Inferential Statistics of Ethical Issues Faced by Students and Teachers in Data Privacy

Statements	N	Students		Teachers		t-test	
		\bar{x}	σ	\bar{x}	σ	t	Sig
Misuse of social licensing	45	1.48	0.593	2.86	1.309	5.896	0.742
Make balance between risks and benefits	45	1.50	0.485	2.99	0.895	9.859	0.894
Wrong use of 'right to science' in the international law	45	1.78	0.553	3.59	0.785	11.454	0.000*
Wrong governance of big data	45	1.66	0.634	1.90	0.825	1.588	0.124
Modification of cyber security research ethics	45	1.72	0.660	1.67	0.830	0.294	0.731
Negative exploitation of research tools, techniques, and standards	45	1.94	0.572	2.32	1.095	2.094	0.071
Misuse of data	45	3.86	0.655	3.21	1.220	3.162	0.212
Break the privacy breach	45	1.88	0.593	3.12	1.197	5.343	0.652
Wrong interpretation of data as per requirements	45	2.99	0.677	3.54	1.263	2.652	0.020*
Consider the research as a source of money only	45	1.81	0.567	2.83	1.195	5.202	0.934

Note: N=No. of Respondents, *=Significant at 5 percent level
 Source: Primary survey (Author's Calculation)

their data secure and maintain privacy. Various ethical issues also exist in data privacy, which plays a significant role in securing the data at every level of work. To maintain data security, multiple tools and techniques are introduced by organizations from time to time. The latest technology is playing a very significant role in maintaining and securing the data at different levels.

10. CONCLUSION

During the study, it has been found that in data processing and privacy, students prioritized the challenges such as secure real-time monitoring, end-point filtration and validation, securing computed data under the distributed programming frameworks, securing data storage and the transactional logs. On the other side, the teachers ranked the challenges such as server consolidation, securing data storage and the transactional logs, real-time secure monitoring and protection from the insider threats etc. In the stream of data processing, students face the ethical issues such as misuse of data, wrong interpretation of data as per requirements, negative exploitation of research tools, techniques, and standards, break the privacy breach, consider the research as a source of money only etc. On the second side, teachers faced the wrong use of 'right to science' in the international law, wrong interpretation of data as per requirements, misuse of data, break the privacy breach, and balance risks and benefits, etc.

The existing challenges in data security ruined the actual meaning of data and lost its authenticity. Researchers, who make serious and hard efforts in their work, feel demoralized due to theft and misuse of existing data. Data privacy has become a significant issue in this era. To fight against such types of problems, private and government organizations are paying attention and making reasonable efforts to introduce new kinds of techniques and software, *etc.* for data security. But strict rules and punishment should be fixed for those who exploit the original work and misuse the actual data.

11. IMPLICATIONS OF THE STUDY

The current study presents a clear picture of the challenges and ethical issues faced by the students and faculty members in data processing and privacy. It will reference the researchers to carry out their research in this respective field and provide a clear picture of data privacy challenges. After analyzing the above-mentioned challenges and ethical issues, this study will also provide knowledge to the researchers regarding the present challenges of the respective fields. After analyzing difficulties in this area, solutions can be found out to solve the problems and overcome the obstacles.

12. LIMITATIONS AND FURTHER SCOPE OF THE STUDY

The study presents students and teachers' viewpoints of selected educational institutions, with a sample size of 90 respondents only, which can be increased to a representative level to get more authentic results.

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