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**Teacher Trainees in the Digital World:  
Cybersecurity Awareness and Technology Attitudes  
Dr. Sunil Kumar (Assistant Researcher)  
ICCSR Project**

**Abstract**

The rapid expansion of digital technologies has transformed educational practices and increased the importance of technological competence among teachers. Along with the educational opportunities provided by computers and the internet, prospective teachers are increasingly exposed to cyber-related risks, making cybersecurity awareness an important dimension of teacher preparation. The present study examined cybersecurity awareness and technology attitudes among teacher trainees with reference to gender, locale, and academic stream. The study was based on a descriptive survey design and involved 402 prospective teachers selected from colleges of education affiliated with Panjab University, Punjabi University, and Guru Nanak Dev University. Cybercrime awareness was assessed through the Cyber Crime Awareness Scale (CCAS-RS) developed by Rajasekar, while technology-related attitudes were examined through the Computer Attitude Scale developed by Khatoun and Sharma. The data were analyzed using descriptive statistics, independent-samples t-tests, factorial analysis of variance, and Pearson's product-moment correlation. The findings indicated significant differences in cybersecurity awareness according to gender, locale, and academic stream. Female prospective teachers obtained a mean cybercrime-awareness score of 134.38 compared with 126.71 for male prospective teachers. Urban prospective teachers obtained a mean of 136.43 compared with 121.29 among rural prospective teachers, while science-stream prospective teachers obtained a mean of 136.56 compared with 130.62 among humanities-stream prospective teachers. Significant interaction effects involving gender, locale, and stream were also observed. In relation to computer attitude, no significant gender difference was found, whereas significant differences were observed according to locale and academic stream. A significant positive relationship was found between cybersecurity awareness and computer attitude ( $r = .59, p < .01$ ). The findings highlight the importance of integrating cybersecurity education, digital safety, and technology-related competencies into teacher education programmes.



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**Keywords:** teacher Trainees, Prospective Teachers, Cybersecurity Awareness, Cybercrime Awareness, Technology Attitudes, Computer Attitude, Digital Education, Teacher Education

## 1. Introduction

Digital technology has become an integral component of contemporary education. Computers, internet-based resources, online learning environments, digital communication platforms, and technology-supported teaching have considerably changed the ways in which teachers and learners access, process, create, and communicate information. The increasing use of digital resources in education has consequently made technological competence an important component of teacher preparation.

The expansion of digital technology, however, has also created new challenges. The use of computers and internet resources exposes individuals and educational institutions to various forms of cyber-related risks. Cybercrime may involve the use of computers or networks as a tool, target, or location of criminal activity. The uploaded dissertation identifies cyber-related threats such as email espionage, credit-card fraud, spam, software piracy, virus dissemination, and violations of privacy as concerns associated with increased internet use.

For teachers, cybersecurity awareness is particularly important because teachers increasingly use digital technologies not only for their own professional activities but also while guiding students. Teacher trainees therefore require an understanding of responsible and safe technology use before entering the teaching profession.

The digital competence of teachers also depends partly upon their attitudes toward technology. A teacher who possesses access to technological resources but has a negative attitude toward computers may not use those resources effectively. Conversely, a positive attitude toward computers can facilitate the adoption and use of technology in teaching-learning processes. The uploaded dissertation defines computer attitude as an individual's general evaluation or feeling of favour or antipathy toward computer technologies and computer-related activities.

The relationship between cybersecurity awareness and technology attitudes is therefore an important area of educational research. Awareness of cyber risks may influence the manner in which prospective teachers engage with digital resources, while positive attitudes toward technology may create greater opportunities for developing digital safety competencies.



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## 2. Background of the Study

The integration of technology into education has increased the need for teachers who are capable of using digital resources effectively and responsibly. Teacher education institutions have an important role in preparing prospective teachers for this environment.

The original study underlying this paper examined two closely related dimensions of digital preparedness: cybercrime awareness and computer attitude. Cybercrime awareness was operationalized through scores on the Cyber Crime Awareness Scale (CCAS-RS) developed by Rajasekar, while computer attitude was measured using the Computer Attitude Scale (CAS) developed by Khatoon and Sharma.

The Computer Attitude Scale used in the study contains 20 statements, including positively and negatively worded items, distributed across five areas: computer anxiety, computer confidence, computer interest, computer as a useful tool, and computer career. The scale used a five-point response system, with scores ranging from 20 to 100. The reported reliability evidence included a split-half coefficient of .86, corrected to .96 through the Spearman-Brown formula, and a Kuder-Richardson reliability estimate of .93. The dissertation's review of previous studies indicated that findings concerning gender, locale, and academic stream were inconsistent. Some studies reported differences while others found no significant differences. This inconsistency provided the rationale for examining the variables among prospective teachers.

## 3. Need and Significance of the Study

Teacher trainees represent an important group for research on digital safety because they are future users, facilitators, and educators of technology. Their preparedness has implications for both their own professional practice and the digital safety of the students they will eventually teach.

The study is significant for the following reasons:

1. Teacher preparation: It provides evidence concerning the digital preparedness of prospective teachers.
2. Cybersecurity education: It emphasizes the importance of awareness of cybercrime and digital risks within teacher education.
3. Technology integration: Understanding computer attitudes can help teacher educators identify factors associated with technology adoption.



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4. Rural-urban differences: The findings provide evidence concerning differences associated with locale.
5. Academic stream: The study provides evidence concerning differences between science and humanities prospective teachers.
6. Digital teacher competence: The relationship between cybersecurity awareness and computer attitude provides a basis for considering these variables together rather than as completely separate dimensions of teacher preparation.

The Research itself noted that the increasing use of cyber resources in education creates a need for teachers who are both technologically competent and aware of emerging cyber-related problems.

#### **4. Objectives of the Study**

The study was guided by the following objectives:

1. To study and compare cybersecurity awareness among male and female prospective teachers.
2. To study and compare cybersecurity awareness among rural and urban prospective teachers.
3. To study and compare cybersecurity awareness among prospective teachers belonging to science and humanities streams.
4. To examine the interactional effects of gender, locale, and academic stream on cybersecurity awareness.
5. To study and compare technology attitudes/computer attitudes among male and female prospective teachers.
6. To study and compare technology attitudes/computer attitudes among rural and urban prospective teachers.
7. To study and compare technology attitudes/computer attitudes among prospective teachers belonging to science and humanities streams.
8. To examine the interactional effects of gender, locale, and academic stream on technology attitudes/computer attitudes.
9. To examine the relationship between cybersecurity awareness and technology attitudes among prospective teachers.

These objectives are adapted from the objectives reported in the dissertation.



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## 5. Hypotheses

The study tested null hypotheses concerning:

1. Gender differences in cybersecurity awareness.
2. Locale differences in cybersecurity awareness.
3. Stream differences in cybersecurity awareness.
4. Interactional effects of gender, locale, and stream on cybersecurity awareness.
5. Gender differences in computer attitude.
6. Locale differences in computer attitude.
7. Stream differences in computer attitude.
8. Interactional effects of gender, locale, and stream on computer attitude.
9. The relationship between cybersecurity awareness and computer attitude.

These hypotheses were formulated in accordance with the original research design.

## 6. Methodology

### 6.1 Research Method

A descriptive survey method was employed. The research design examined cybersecurity awareness and computer attitude among prospective teachers in relation to gender, locale, and academic stream.

### 6.2 Sample

The study included 402 prospective teachers for the reported correlation analysis. The participants were prospective teachers studying in colleges of education affiliated with:

- Panjab University, Chandigarh;
- Punjabi University, Patiala; and
- Guru Nanak Dev University, Amritsar.

The sample consisted of:

| Variable | Category             | N   |
|----------|----------------------|-----|
| Gender   | Male                 | 177 |
| Gender   | Female               | 225 |
| Locale   | Rural                | 144 |
| Locale   | Urban                | 258 |
| Stream   | Science              | 165 |
| Stream   | Humanities           | 237 |
| Total    | Prospective Teachers | 402 |



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The dissertation describes the sampling as random selection of prospective teachers from colleges affiliated with the three universities.

### 6.3 Research Design

A  $2 \times 2 \times 2$  factorial design was employed, with:

- Gender: Male/Female
- Locale: Rural/Urban
- Stream: Science/Humanities

This design permitted examination of the main effects and interaction effects of the three independent variables.

### 6.4 Tools Used

#### Cyber Crime Awareness Scale

Cybersecurity awareness was measured using the Cyber Crime Awareness Scale (CCAS-RS) developed by Rajasekar. The dissertation states that the tool was selected because it had been standardized on B.Ed. and M.Ed. students and had been used in previous Indian studies.

The dissertation reported the following interpretation categories:

| Raw-score range | Level                      |
|-----------------|----------------------------|
| 143 and above   | Excellent awareness        |
| 133–142         | High awareness             |
| 123–132         | Above-average awareness    |
| 108–122         | Moderate/Average awareness |
| 99–107          | Below-average awareness    |
| 88–98           | Low awareness              |

#### Computer Attitude Scale

Technology attitudes were measured through the Computer Attitude Scale (CAS) developed by Khatoon and Sharma. The scale contains 20 items covering computer anxiety, computer confidence, computer interest, computer usefulness, and computer career.

The five-point scoring system assigned higher scores to positive responses on positively worded statements and reverse scoring to negatively worded statements. The possible total score ranged from 20 to 100.

### 6.5 Statistical Techniques

The following statistical techniques were used:



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- Mean
- Standard deviation
- Skewness
- Kurtosis
- Independent-samples t-test
- $2 \times 2 \times 2$  factorial analysis of variance
- Levene's test of equality of variance
- Pearson's product-moment correlation

The distribution of the data was examined before inferential statistical analysis. For the total sample, the reported mean and median were 133.58 and 135 for cybercrime awareness and 80.82 and 82 for computer attitude, respectively.

## 7. Results

### 7.1 Overall Distribution of Scores

**Table 1. Descriptive Statistics for the Total Sample**

| Variable                           | N   | Mean   | Median | SD    | Skewness | Kurtosis |
|------------------------------------|-----|--------|--------|-------|----------|----------|
| Cybersecurity/Cybercrime Awareness | 402 | 133.58 | 135    | 15.79 | -0.20    | -0.48    |
| Computer/Technology Attitude       | 402 | 80.82  | 82     | 10.19 | -0.24    | -0.45    |

The reported values indicated that the distributions were sufficiently close to normal for the parametric analyses employed in the study.

### 7.2 Cybersecurity Awareness and Gender

**Table 2. Cybersecurity Awareness by Gender**

| Group  | N   | Mean   | SD    | t      |
|--------|-----|--------|-------|--------|
| Male   | 177 | 126.71 | 14.94 | 5.06** |
| Female | 225 | 134.38 | 15.21 |        |
| Total  | 402 |        |       |        |

$p < .01$

The mean cybersecurity-awareness score of female prospective teachers was 134.38, compared with 126.71 among male prospective teachers. The obtained t-value of 5.06 was statistically significant at the .01 level. Thus, the data indicated a significant gender difference in cybersecurity awareness.



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### 7.3 Cybersecurity Awareness and Locale

**Table 3. Cybersecurity Awareness by Locale**

| Group | N   | Mean   | SD    | t       |
|-------|-----|--------|-------|---------|
| Rural | 144 | 121.29 | 14.50 | 10.58** |
| Urban | 258 | 136.43 | 13.32 |         |
| Total | 402 |        |       |         |

$p < .01$

The mean cybersecurity-awareness score was 121.29 for rural prospective teachers and 136.43 for urban prospective teachers. The t-value of 10.58 was statistically significant at the .01 level. Thus, a significant difference was found between rural and urban prospective teachers.

### 7.4 Cybersecurity Awareness and Academic Stream

**Table 4. Cybersecurity Awareness by Academic Stream**

| Group      | N   | Mean   | SD    | t      |
|------------|-----|--------|-------|--------|
| Science    | 165 | 136.56 | 15.15 | 3.77** |
| Humanities | 237 | 130.62 | 15.83 |        |
| Total      | 402 |        |       |        |

$p < .01$

The science-stream group obtained a mean score of 136.56, while the humanities-stream group obtained a mean of 130.62. The t-value of 3.77 was significant at the .01 level. Therefore, a significant difference was found according to academic stream.

## 8. Interaction Effects on Cybersecurity Awareness

A  $2 \times 2 \times 2$  factorial analysis of variance was conducted.

**Table 5. Factorial ANOVA for Cybersecurity Awareness**

| Source                 | SS        | df | MS      | f     | p   |
|------------------------|-----------|----|---------|-------|-----|
| Gender                 | 2587.57   | 1  | 2587.57 | 12.97 | .00 |
| Locale                 | 730.79    | 1  | 730.79  | 3.89  | .05 |
| Stream                 | 4153.43   | 1  | 4153.43 | 20.82 | .00 |
| Gender $\times$ Locale | 3740.88   | 1  | 3740.88 | 18.75 | .00 |
| Gender $\times$ Stream | 35.13.50* | 1  | —       | 17.61 | .00 |
| Locale $\times$ Stream | 1583.41   | 1  | 782.38* | 7.94  | .01 |



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|                                        |          |     |         |       |     |
|----------------------------------------|----------|-----|---------|-------|-----|
| Gender $\times$ Locale $\times$ Stream | 4259.13  | 1   | 4259.13 | 21.35 | .00 |
| Error                                  | 78611.24 | 394 | 199.52  |       |     |
| Corrected Total                        | 99921.79 | 401 |         |       |     |

*The source PDF contains apparent transcription/formatting inconsistencies in some SS/MS entries; the F and p values are reproduced as reported rather than recalculated.*

Levene's test was non-significant,  $f(7,394) = 0.69$ ,  $p = .68$ , indicating no statistically significant evidence of unequal variances. The analysis reported significant effects for gender, locale, stream, gender  $\times$  locale, gender  $\times$  stream, locale  $\times$  stream, and the three-way interaction.

The three-way interaction indicates that differences in cybersecurity awareness cannot be understood solely by examining gender, locale, or academic stream independently. The combination of these characteristics was associated with statistically significant variation in the reported awareness scores.

## 9. Technology Attitudes among Teacher Trainees

### 9.1 Levels of Computer/Technology Attitude

**Table 6. Distribution of Computer Attitude Levels**

| Level          | Male (%) | Female (%) | Rural (%) | Urban (%) | Science (%) | Humanities (%) |
|----------------|----------|------------|-----------|-----------|-------------|----------------|
| Extremely high | 7.90     | 3.11       | 6.25      | 8.14      | 10.30       | 2.53           |
| High           | 9.60     | 16.89      | 12.50     | 19.00     | 17.58       | 13.92          |
| Above average  | 30.50    | 31.11      | 30.06     | 33.72     | 32.12       | 30.04          |
| Average        | 24.86    | 24.44      | 20.14     | 20.54     | 19.39       | 27.00          |
| Below average  | 11.30    | 17.33      | 20.83     | 10.85     | 15.15       | 13.50          |
| Low            | 13.00    | 7.17       | 9.72      | 6.59      | 3.64        | 11.81          |
| Extremely low  | 3.39     | 0.00       | 0.69      | 1.16      | 1.81        | 1.26           |

The largest proportion of participants in several groups fell within the above-average and average categories. The distribution also demonstrates variation according to locale and academic stream.



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## 10. Technology Attitudes and Gender

**Table 7. Computer Attitude by Gender**

| Group  | N   | Mean  | SD    | t       |
|--------|-----|-------|-------|---------|
| Male   | 177 | 78.93 | 10.69 | 1.36 NS |
| Female | 225 | 80.28 | 9.21  |         |
| Total  | 402 |       |       |         |

The difference between male and female prospective teachers was not statistically significant. The obtained t-value was 1.36,  $p > .05$ . Thus, gender was not associated with a statistically significant difference in computer attitude in the sample.

## 11. Technology Attitudes and Locale

**Table 8. Computer Attitude by Locale**

| Group | N   | Mean  | SD   | t      |
|-------|-----|-------|------|--------|
| Rural | 144 | 74.06 | 7.57 | 7.47** |
| Urban | 258 | 82.27 | 9.74 |        |
| Total | 402 |       |      |        |

$p < .01$

A significant difference was found between rural and urban prospective teachers. The urban group obtained a mean computer-attitude score of 82.27, compared with 74.06 for the rural group.

## 12. Technology Attitudes and Academic Stream

**Table 9. Computer Attitude by Academic Stream**

| Group      | N   | Mean  | SD    | t      |
|------------|-----|-------|-------|--------|
| Science    | 165 | 82.65 | 10.01 | 3.64** |
| Humanities | 237 | 79.01 | 9.77  |        |
| Total      | 402 |       |       |        |

$p < .01$

Science-stream prospective teachers obtained a mean computer-attitude score of 82.65, whereas humanities-stream prospective teachers obtained a mean of 79.01. The t-value of 3.64 was statistically significant at the .01 level.



### 13. Interaction Effects on Technology Attitudes

**Table 10. Factorial ANOVA for Computer Attitude**

| Source                   | SS       | df  | MS      | F     | p   |
|--------------------------|----------|-----|---------|-------|-----|
| Gender                   | 308.72   | 1   | 308.72  | 3.36  | .07 |
| Locale                   | 428.38   | 1   | 428.38  | 4.66  | .03 |
| Stream                   | 1257.02  | 1   | 1257.02 | 13.67 | .00 |
| Gender × Locale          | 660.46   | 1   | 660.46  | 7.18  | .01 |
| Gender × Stream          | 2111.75  | 1   | 2111.75 | 22.96 | .00 |
| Locale × Stream          | 213.95   | 1   | 213.95  | 2.23  | .13 |
| Gender × Locale × Stream | 1010.46  | 1   | 1010.46 | 10.99 | .00 |
| Error                    | 36233.75 | 394 | 91.96   |       |     |
| Corrected Total          | 41639.10 | 402 |         |       |     |

Levene's test was non-significant,  $F(7,394) = 1.89$ ,  $p = .07$ , supporting the assumption of equality of variances. The factorial analysis showed a non-significant main effect of gender, while locale and stream were significant. Gender × locale, gender × stream, and the three-way interaction were significant, whereas locale × stream was not statistically significant.

### 14. Relationship between Cybersecurity Awareness and Technology Attitudes

Pearson's product-moment correlation was used to examine the relationship between cybersecurity awareness and computer attitude.

**Table 11. Correlation between Cybersecurity Awareness and Technology Attitudes**

| Group                           | N   | r     |
|---------------------------------|-----|-------|
| Prospective Teachers            | 402 | .59** |
| Male Prospective Teachers       | 177 | .48** |
| Female Prospective Teachers     | 225 | .70** |
| Rural Prospective Teachers      | 144 | .58** |
| Urban Prospective Teachers      | 258 | .45** |
| Science Prospective Teachers    | 165 | .55** |
| Humanities Prospective Teachers | 237 | .59** |

$p < .01$

A statistically significant positive correlation of  $r = .59$  was found between cybersecurity awareness and computer attitude among the total group. Significant positive



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relationships were also reported for male, female, rural, urban, science, and humanities groups. The strongest reported subgroup correlation was among female prospective teachers ( $r = .70$ ).

The result suggests that higher cybersecurity-awareness scores were associated with more positive computer-attitude scores within the sample. However, because the analysis is correlational, the finding should not be interpreted as evidence that one variable causes changes in the other.

## 15. Discussion

The findings demonstrate that cybersecurity awareness and technology attitudes constitute important dimensions of teacher trainees' engagement with the digital environment.

The significant gender difference in cybersecurity awareness indicates variation between male and female prospective teachers in the present sample. The finding is consistent with some studies reviewed in the dissertation, although the literature was not uniform. The dissertation reported that previous research had produced divergent findings concerning gender and cybercrime awareness. Some studies found no significant gender differences, whereas others reported higher awareness among females or males.

The rural-urban difference was more pronounced. Urban prospective teachers recorded a substantially higher mean cybersecurity-awareness score than rural prospective teachers. A similar pattern was observed for computer attitude. The original dissertation associated this difference with differences in exposure to technological and cyber resources, while also noting the availability and accessibility of technological facilities. Such explanations should be regarded as possible contextual interpretations rather than causal conclusions because the present analysis did not directly measure access to technology.

Academic stream was also associated with both cybersecurity awareness and computer attitude. Science-stream prospective teachers obtained higher mean scores on both measures. The dissertation related this pattern to potentially greater exposure to computers and information technology among science students.

An important finding is that gender did not produce a significant main effect on computer attitude, although gender participated in significant interactions with locale and academic stream. This demonstrates the value of examining multiple characteristics simultaneously. A variable that does not show a significant overall main effect may nevertheless participate in statistically significant interaction effects.



The positive correlation between cybersecurity awareness and computer attitude is particularly relevant to teacher education. The result indicates that prospective teachers with more positive computer attitudes also tended to have higher cybersecurity-awareness scores. The correlation was moderate and statistically significant for the total sample. The relationship was also present across all reported subgroups.

## **16. Educational Implications**

The findings have several implications for teacher education.

### *16.1 Integration of Cybersecurity Education*

Cybersecurity should be incorporated systematically into teacher education curricula rather than being treated only as a technical issue. Prospective teachers should understand password security, privacy, phishing, malware, cyberbullying, identity protection, responsible social-media use, data protection, and safe digital communication.

### *16.2 Digital Safety Training*

Teacher education institutions can organize practical workshops on cyber safety. Such workshops should include demonstrations, case studies, simulated cyber-risk situations, and problem-solving activities.

### *16.3 Attention to Rural-Urban Differences*

The significant differences associated with locale suggest that teacher education programmes should ensure equitable opportunities for technological exposure and digital-safety training.

### *16.4 Technology Attitude Development*

Teacher educators should address computer anxiety, confidence, interest, perceived usefulness, and technology-related career perceptions because these dimensions form part of the Computer Attitude Scale used in the study.

### *16.5 Digital Citizenship*

Prospective teachers should be prepared not only to use digital tools but also to model responsible digital citizenship for school students.

### *16.6 Teacher Education Policy*

Institutions preparing future teachers can incorporate cybersecurity competencies into ICT courses, teaching-practice requirements, and professional-development programmes.



## 17. Conclusion

The study examined cybersecurity awareness and technology attitudes among prospective teachers in relation to gender, locale, and academic stream. The findings demonstrate significant differences in cybersecurity awareness according to gender, locale, and stream. Female, urban, and science-stream prospective teachers recorded higher mean cybersecurity-awareness scores in the present sample.

In relation to computer attitude, no statistically significant gender difference was observed. However, significant differences were found according to locale and academic stream, with urban and science-stream prospective teachers obtaining higher mean scores. The factorial analyses further demonstrated that the relationships among gender, locale, and stream were not entirely independent, with several significant interaction effects.

Most importantly, cybersecurity awareness and computer attitude were positively and significantly related, with  $r = .59$  ( $p < .01$ ) for the total sample.

Taken together, the findings support the importance of preparing teacher trainees for both the opportunities and risks associated with digital technology. Teacher education in the digital age should therefore move beyond basic computer literacy toward a broader conception of digital preparedness that includes technology attitudes, cybersecurity awareness, responsible digital behaviour, and the capacity to guide students in safe and effective technology use.

## 18. Recommendations

Based on the findings, the following recommendations are proposed:

1. Cybersecurity awareness should be incorporated into teacher education curricula.
2. B.Ed. programmes should include practical training in cyber safety and digital citizenship.
3. Teacher education institutions should conduct regular cybersecurity-awareness programmes.
4. Prospective teachers should be trained to identify common cyber threats and respond appropriately.
5. Greater attention should be given to prospective teachers who have relatively limited exposure to digital resources.
6. Rural teacher education institutions should be provided adequate technological infrastructure and opportunities for digital-skills development.



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7. Technology-integrated teaching practices should be incorporated into teacher-training programmes.
8. Future studies should examine additional variables such as digital literacy, internet-use patterns, cybersecurity self-efficacy, digital citizenship, and access to technology.
9. Future research should use larger and more diverse samples across different states and teacher-education institutions.
10. Longitudinal research may be undertaken to examine whether cybersecurity training produces changes in prospective teachers' knowledge, attitudes, and digital practices.

## 19. Limitations

The findings should be interpreted within the scope of the original study.

First, the participants were prospective teachers drawn from colleges affiliated with three universities in Punjab; therefore, the findings should not automatically be generalized to all teacher trainees in India.

Second, the study used a descriptive survey design. Consequently, the significant relationships identified do not establish causal relationships.

Third, the study relied on standardized self-report measures. Self-reported attitudes and awareness may not always correspond exactly to actual digital behaviour.

Finally, the present paper is a reframing of empirical material contained in the uploaded dissertation. It should therefore be transparently identified as being derived from that dissertation when submitted for publication.

## References

- Ajzen, I. (1988). Attitudes, personality, and behavior. Open University Press.
- Khatoon, T., & Sharma, V. (2012). Computer attitude scale.
- Rajasekar, S. (2013). Cyber Crime Awareness Scale (CCAS-RS).
- Teo, T. (2008). Pre-service teachers' attitudes towards computer use: A Singapore survey. *Australasian Journal of Educational Technology*, 24(4), 413–424.
- Woodrow, J. E. J. (1992). The influence of programming training on the computer literacy and attitudes of preservice teachers. *Journal of Research on Computing in Education*, 25(2), 200–219.
- Source dissertation used for the empirical data and study design:
- Kumar, S. (2021). *Cybercrime awareness and computer attitude among prospective teachers in relation to gender, locale and stream*, Doctoral dissertation, CT University, Ludhiana.



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