



A Study of the Relationship between Attitude towards New Technology and Learning Styles among Senior Secondary School Students of Indore City

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Abstract

Technology has become deeply embedded in the everyday learning experience of school students, and the manner in which students respond to this technological environment is closely tied to how they prefer to learn. The present study was undertaken to examine the relationship between attitude towards new technology and learning styles among senior secondary school students studying in schools of Indore city, a growing educational hub of Madhya Pradesh with diverse school boards and expanding digital infrastructure. A sample of 600 senior secondary students (Class XI and XII) was selected through random sampling, and data were collected using the standardised Attitude Scale Towards Information Communication Technology for Students (ASTICTS-SATKV) and the Learning Style Inventory (LSI-MK). The obtained data were analysed using descriptive statistics (mean and standard deviation) to understand the average level and spread of scores, and Pearson's Product Moment Coefficient of Correlation to test the stated null hypothesis at the 0.05 level of significance. The results revealed a low but positive and statistically significant relationship between attitude towards new technology and learning styles ($r = 0.392$, $p < 0.001$, $N = 600$). The null hypothesis of no significant relationship was accordingly rejected. The findings suggest that a favourable attitude towards new technology is associated with more developed and favourable learning style characteristics among senior secondary students of Indore city, although the modest strength of the correlation indicates that attitude towards technology is only one among several factors shaping learning style. Educational implications for teachers, school administrators, curriculum planners, counsellors, and policy makers in Indore are discussed, along with the limitations of the study and directions for further research.

Keyword: Attitude towards New Technology, Learning Styles, Senior Secondary Students, Indore, Correlation

1. Introduction

Technology has become an inseparable part of the modern educational process. From smart classrooms and digital content to online learning platforms, new technology continually reshapes the way students access, process, and retain information. Over the last decade, the pace of this transformation has accelerated considerably, with interactive whiteboards, tablet-based learning, mobile applications, and internet-enabled resources becoming common features of senior secondary classrooms across urban India. The manner in which a student perceives and responds to this technological environment — that is, his or her attitude towards new technology — is believed to influence not only classroom engagement and motivation but also the way the student prefers to learn, a construct widely studied in educational psychology under the heading of learning styles.

Learning style refers to the characteristic and preferred way in which an individual acquires, processes, organises, and retains new information. Students differ widely in their learning preferences: some are more visual and respond better to charts,

diagrams, and images; some are auditory and learn effectively through discussion and lecture; some are kinesthetic and prefer hands-on, activity-based learning; and many exhibit a mixed or converging style that draws on more than one channel. With classrooms increasingly infused with digital tools, it becomes pertinent to ask whether a student's disposition towards new technology is related to the learning style the student exhibits, and whether students who are more receptive to technology also display more developed or flexible learning-style characteristics.

Understanding this relationship can help teachers and curriculum designers align technology-based instruction with the diverse learning preferences of students, particularly at the senior secondary stage, when learning habits are consolidating, subject specialisation begins, and career-oriented learning takes shape. A student's attitude at this stage often determines the extent to which he or she will voluntarily use digital resources for self-study, examination preparation, and skill development beyond the classroom. Bambole, R. G. (2025)

Indore, being one of the major educational hubs of

Madhya Pradesh with a large number of senior secondary schools following diverse boards (CBSE, MP Board, and others) and rapidly increasing digital infrastructure in both government and private institutions, provides a rich and relevant context for empirically studying this relationship among senior secondary students.

2. Review of Related Literature

A review of related studies was undertaken to build a conceptual and empirical foundation for the present investigation and to identify the gap that this study seeks to address.

Kolb (1984) proposed the Experiential Learning Theory and the associated Learning Style Inventory, describing learning as a cyclical process of concrete experience, reflective observation, abstract conceptualisation, and active experimentation, and classifying learners into converging, diverging, assimilating, and accommodating styles. This framework has remained foundational to subsequent research linking learning style with technology-based instruction. Kumari, P. (2025)

Dunn and Dunn (1978) emphasised that individual learning style is shaped by environmental, emotional, sociological, physiological, and psychological elements, and argued that instruction matched to a learner's style produces better engagement — a principle frequently extended to technology-mediated classrooms. In a similar vein, Honey and Mumford (1986) and Fleming and Mills (1992) offered alternative but related classifications of learning preference (activist-reflector-theorist-pragmatist, and the VARK visual-aural-read/write-kinesthetic model respectively), both of which have been used by later researchers to examine how learners of different styles respond to digital and multimedia learning tools.

On the technology-attitude side, Davis (1989) proposed the Technology Acceptance Model, suggesting that perceived usefulness and perceived ease of use are central determinants of a person's attitude towards adopting new technology, while Rogers (2003), in the Diffusion of Innovations framework, explained how individual differences influence the rate at which new technology is accepted. Ajzen and Fishbein (1980) further theorised that attitude is a key precursor to behavioural intention, a premise widely applied in studies of students' technology use. Teo (2008) developed and validated an ICT attitude scale among pre-service teachers in Singapore, reporting a generally positive orientation towards computer use, and this instrument has since been adapted in several Indian and South Asian studies.

Empirical studies, specifically among school students

have generally reported a positive attitude towards ICT. Majumdar, Barman, Bala, Bej, Sen, and Das (2024), studying secondary school students in Paschim Bardhaman district of West Bengal, found that private school students held a more favourable attitude towards ICT than government school students, and that girls displayed a somewhat more positive attitude than boys. Bhuvaneswari and Dharanipriya (2020) similarly reported a favourable attitude of undergraduate students towards e-learning, proposing that attitude reflects the degree of a learner's readiness to adapt to technology-based instruction. Al-Khaldi and Al-Jabri (1998) and Bhattacharjee and Premkumar (2004) examined attitude and belief change with respect to information technology usage over time, both concluding that attitude is a dynamic construct that strengthens with sustained exposure to technology.

With respect to learning styles specifically, Chikendu (2022) found a significant association between visual learning style and academic performance of senior secondary students in Nigeria, while studies summarised by Elsaadani (2012) and Amosa, Ogunlade, Ogunlade, and Obielodan (2016) reported that teachers' and students' attitudes towards ICT vary according to demographic factors and prior exposure to digital tools, indirectly influencing preferred modes of learning. Adebowale, Adediwura, and Balla (2009) reported significant correlates of computer attitude among secondary school students, reinforcing that attitude towards technology is shaped by an interplay of personal, institutional, and contextual variables that plausibly extend to learning-style development as well. D'Alessio, Avolio, and Charles (2019) illustrated the value of the correlational research design itself in capturing such relationships between psychological and academic constructs without the need for experimental manipulation, a methodological approach mirrored in the present study.

Collectively, these studies confirm two broad trends: first, those students' attitude towards new technology is generally positive and is shaped by school type, gender, and exposure; and second, that learning style is a stable but multi-dimensional construct that can be influenced by the learning environment, including the degree of technology integration. However, very few studies have directly correlated a composite attitude-towards-technology score with a composite learning-style score among senior secondary students in an Indian city context such as Indore.

3. Research Gap

The review of related literature reveals that attitude towards ICT/new technology and learning styles have largely been studied as independent constructs or have been related to a third variable such as academic achievement, gender, or school type, rather than being directly correlated with each other. Most

of the available Indian studies on ICT attitude have been conducted among undergraduate, teacher-trainee, or higher-education

samples, with comparatively fewer studies focusing specifically on senior secondary school students. Furthermore, studies that do relate technology attitude with learning style (e.g., Kolb-based studies from outside India) have largely been conducted in Western or higher-education contexts, and very limited empirical evidence exists for tier-II Indian cities such as Indore, where digital infrastructure, school types, and student demographics differ considerably from metropolitan or international settings. Yadav, S. (2025)

This creates a clear research gap: there is a need for a focused, adequately powered, city-specific study that directly examines the relationship between senior secondary students' attitude towards new technology and their learning styles using standardised tools, so that the findings can meaningfully inform local teachers, school administrators, and curriculum planners in Indore. The present study was designed to address this gap.

4. Objective of the Study

Objective: To study the relationship between attitude towards new technology and learning styles of senior secondary students of Indore city.

5. Hypothesis

H0: There will be no significant relationship between attitude towards new technology and learning styles of senior secondary students of Indore city.

6. Method

6.1 Research Design

The study employed a descriptive survey method using the correlational research design, which is appropriate for examining the strength and direction of the relationship between two variables as they naturally occur, without manipulating either of them. This design was considered suitable because the objective of the study was to establish whether a statistical association exists between attitude towards new technology and learning styles, rather

than to test any cause-and-effect intervention.

6.2 Population and Sample

The population of the study consisted of all senior secondary school students studying in schools located in Indore city. From this population, a sample of 600 senior secondary students was drawn using random sampling from schools affiliated to different boards operating in the city. Both boys and girls studying in Class XI and Class XII were included in the sample, so as to obtain a representative cross-section of the senior secondary student population of Indore.

6.3 Tools Used

- Attitude Scale Towards Information Communication Technology for Students (ASTICTS-SATKV) — used to measure students' attitude towards new technology, covering dimensions such as usefulness, ease of use, and willingness to adopt digital learning tools.
- Learning Style Inventory (LSI-MK) — used to measure the learning style preferences of students across the visual, auditory, and kinesthetic/other dimensions typically assessed by such inventories.

6.4 Procedure of Data Collection

Both tools were administered to the selected sample of senior secondary students under standard testing conditions, with clear instructions provided regarding the purpose of the study and the manner of responding to each item. Confidentiality of responses was assured to encourage honest reporting. Completed responses were scored according to the respective scoring keys of the two tools before being subjected to statistical analysis.

6.5 Statistical Technique

The obtained scores were analysed using Mean and Standard Deviation to understand the average level and variability of scores on each variable, and Pearson's Product Moment Coefficient of Correlation to determine the strength and direction of the relationship between attitude towards new technology and learning styles. The 0.05 level was set as the criterion for statistical significance in testing the null hypothesis.

Flow Chart of Research Methodology

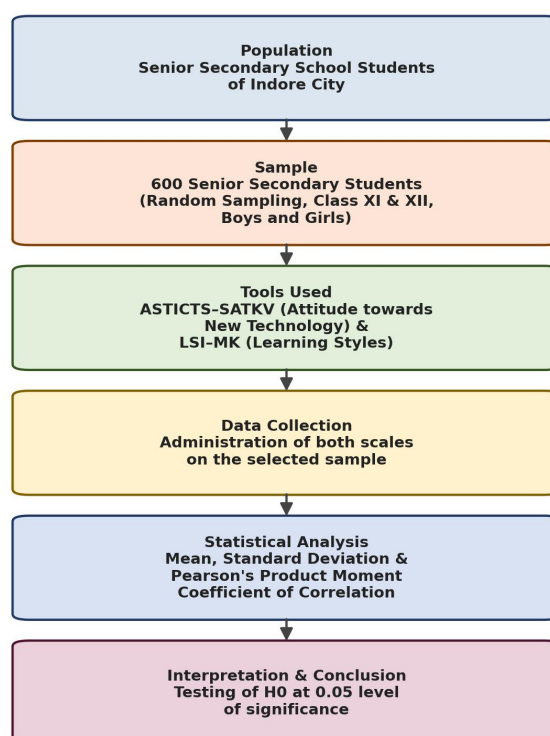


Diagram 1: Flow Chart of Research Methodology Followed in the Study

7. Results and Interpretation

7.1 Descriptive Statistics

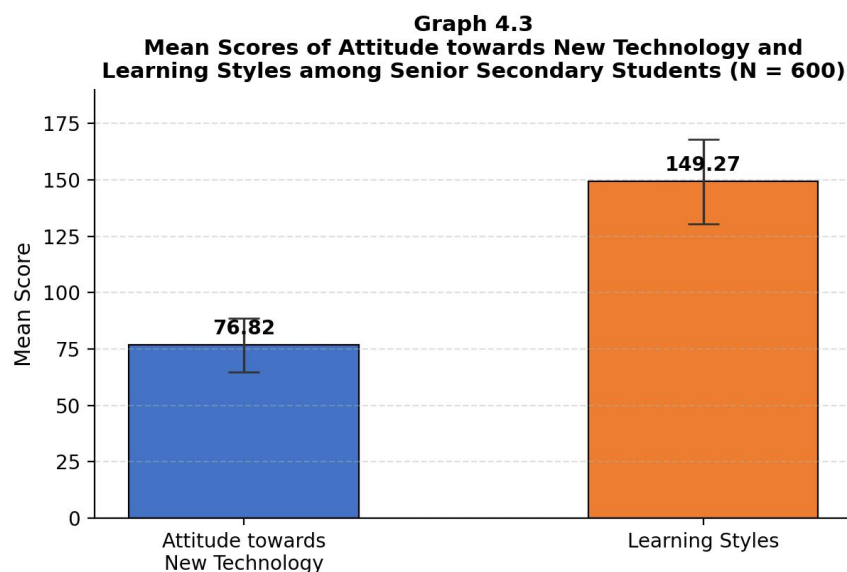
Table 1 presents the mean and standard deviation of scores obtained by senior secondary students of Indore city on attitude towards new technology and learning styles.

Table 1

Mean and Standard Deviation of Attitude towards New Technology and Learning Styles among Senior Secondary Students of Indore City

S.No.	Variables	N	Mean	SD
1	Attitude towards New Technology	600	76.82	11.94
2	Learning Styles	600	149.27	18.64

Secondary students on attitude towards new technology was 76.82 with a standard deviation of 11.94. The mean score on learning styles was found to be 149.27 with a standard deviation of 18.64. These values indicate the average level and spread of scores of the respondents on the two variables under study.



Graph 1: Mean Scores of Attitude towards New Technology and Learning Styles among Senior Secondary Students (with SD as error bars)

7.2 Correlation between Attitude towards New Technology and Learning Styles

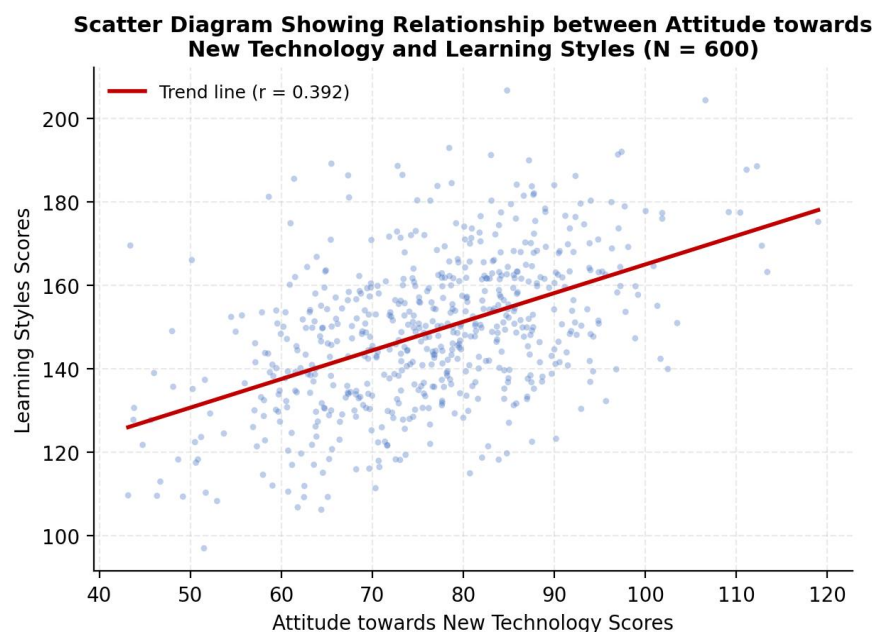
Table 2 presents the coefficient of correlation between attitude towards new technology and learning styles among senior secondary students of Indore city.

Table 2

Coefficient of Correlation between Attitude towards New Technology and Learning Styles among Senior Secondary Students of Indore City

Variables Correlated	N	r-value	p-value	Level of Significance	Result
Attitude towards New Technology and Learning Styles	600	0.392	0.000	0.05	Significant

Table 2 shows that the obtained coefficient of correlation was $r = 0.392$, indicating a low but positive relationship between the two variables. The obtained p-value was found to be less than 0.001, which is lower than the prescribed 0.05 level of significance. Hence, the relationship was found to be statistically significant, and the null hypothesis (H_0) was rejected.



Graph 2: Scatter Diagram Showing the Relationship between Attitude towards New Technology and Learning Styles

8. Discussion

The result indicates that a significant positive relationship exists between attitude towards new technology and learning styles among senior secondary students of Indore city. This suggests that students who hold a more favourable attitude towards new technology also tend to exhibit more developed and favourable learning style characteristics. A plausible explanation is that students who are comfortable and positively disposed towards digital tools are more likely to explore varied sources of information, engage in self-paced learning, experiment with multiple modes of accessing content (text, video, interactive simulation), and adapt flexible learning strategies — all of which reflect a more developed and versatile learning style orientation rather than a rigid, single-channel preference.

Since the obtained correlation, though statistically significant, is of low magnitude ($r = 0.392$), it may be inferred that attitude towards new technology is one among several factors — alongside classroom environment, teaching methodology, peer influence, socio-economic background, parental support, and personal motivation — that shape a student's learning style, rather than being its sole determinant. This is consistent with the multi-causal view of learning-style development found in the wider literature, where cognitive style is treated as a relatively stable trait that is nonetheless responsive to sustained environmental and instructional influences.

These findings are broadly in line with the general educational understanding that a student's disposition towards the tools and environment of learning shapes, and is in turn shaped by, the

strategies the student adopts to learn — a relationship discussed extensively in the learning-style literature through Kolb's (1984) Experiential Learning Theory, Dunn and Dunn's (1978) environment-based model, and Honey and Mumford's (1986) style typology, as well as in studies on technology acceptance such as Davis (1989) and Rogers (2003). The pattern observed here also resonates with Majumdar et al. (2024) and Bhuvaneswari and Dharanipriya (2020), both of whom reported a generally favourable and improvable attitude of Indian students towards ICT-based learning, lending contextual support to the present finding of a positive, if modest, association in the Indore sample.

It may further be noted that a low-positive correlation of this kind, though modest in strength, is educationally meaningful at a sample size of 600, since it rules out chance as an explanation ($p < 0.001$) and indicates a genuine, if partial, overlap between the two constructs — one that schools can act upon through deliberate instructional design rather than leave to incidental exposure.

9. Conclusion

On the basis of the analysis, it is concluded that there exists a statistically significant, low, positive relationship between attitude towards new technology and learning styles among senior secondary students of Indore city ($r = 0.392$, $p < 0.001$). The null hypothesis (H_0) of no significant relationship therefore stands rejected. Students holding a more favourable attitude towards new technology tend to show more favourable and developed learning style orientation, although the modest strength of the relationship indicates that attitude towards technology is only one of several

contributing influences on a student's learning style. The study contributes empirical, Indore-specific evidence to a research area where city-level Indian data has so far been limited, and provides a factual basis for local schools to plan technology-integrated pedagogy with greater confidence.

10. Educational Implications

- Teachers in Indore's senior secondary schools may integrate technology-based instructional strategies — such as multimedia content, interactive apps, and blended learning activities — to positively influence students' attitude towards technology and, in turn, support the development of effective and flexible learning styles.
- School administrators may invest in digital infrastructure, reliable internet access, and structured teacher training programmes to strengthen students' comfort and positive orientation towards new technology, particularly in government schools where the digital divide tends to be wider.
- Curriculum planners and textbook designers may design technology-integrated learning material that caters to diverse learning-style preferences — visual, auditory, and kinesthetic — rather than a single mode of content delivery.
- School counsellors and career-guidance teachers may use insights from students' attitude towards technology to guide them towards self-study and revision strategies best suited to their individual learning style.
- Policy makers at the district and state level may use findings of this nature to prioritise digital-infrastructure investment in schools where students already show a positive attitude towards technology, so as to translate that attitude into improved learning outcomes.

11. Limitations and Suggestions for Further Research

The present study, while yielding statistically robust findings from a reasonably large sample, is not without limitations. The study was confined to senior secondary students of Indore city only; hence, the findings may not be generalised to other regions, rural settings, or other stages of schooling without further verification. The correlational design establishes association but not causation, so it cannot be concluded that a favourable attitude towards technology directly causes a more developed learning style, or vice versa. The data were collected through self-report scales, which may be subject to social-desirability bias despite assurances of confidentiality.

Future studies may explore this relationship across different cities, school boards, and age groups, and may also examine mediating and moderating variables such as socio-economic status, gender,

parental education, type of school (government/private), and the extent of actual technology usage (as opposed to attitude alone). Longitudinal or experimental designs could further help establish whether structured technology-integrated interventions produce a measurable change in students' learning-style orientation over time.

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