

Research Article

Attitudes toward Information and Communication Technology as Predictors of Achievement Motivation: Evidence from Higher Secondary Education in India**Dr. G. Umamageswari**

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ORCID: <https://orcid.org/0000-0002-8417-2365>DOI: <https://doi.org/10.34293/0974-2123.v18n2.002>**Abstract**

The integration of Information and Communication Technology (ICT) in secondary education is central to global educational reforms and the enhancement of learner motivation. This study examines the predictive relationship between students' attitudes toward ICT and their achievement motivation, framed within the Technology Acceptance Model (TAM) and Self-Determination Theory (SDT). A descriptive survey design was employed with a stratified random sample of 300 higher secondary students from Chennai, India. Standardized instruments, Attitude towards ICT Scale (Martinez et al., 2021) and Deo–Mohan Achievement Motivation Scale (2011), were administered. Results revealed a statistically significant positive correlation ($r = 0.181$, $p < .01$) between favorable ICT attitudes and higher achievement motivation, independent of demographic variables and no significant differences in ICT attitudes were found across gender, medium of instruction, and stream of study. These findings suggest that positive ICT attitudes may enhance intrinsic and extrinsic motivational drivers, offering strategic implications for curriculum design, teacher professional development, and policy frameworks under India's National Education Policy (NEP) 2020. Recommendations for practice and avenues for future longitudinal research are provided.

Keywords: Information and Communication Technology; Achievement Motivation; Technology Acceptance Model; Self-Determination Theory; Educational Technology; Secondary Education; Student Attitudes; National Education Policy India; Digital Pedagogy

Introduction

The global digital transformation in education has amplified the need to understand how learners perceive and interact with Information and Communication Technology (ICT).

While ICT is often heralded as a pedagogical equalizer, its effectiveness depends on the interplay between technological infrastructure, instructional design, and student attitudes. In India, the National Education Policy (NEP) 2020 explicitly prioritizes ICT integration to foster inclusive, engaging, and skill-oriented learning environments (Sathya Narayana, 2020). However, student attitudes toward ICT remain a critical determinant of its successful adoption and subsequent impact on learning motivation.

The Technology Acceptance Model (TAM; Davis, 1989) suggests that perceived usefulness and ease of use directly shape individuals' intentions to engage with technology. Self-Determination Theory (SDT; Deci & Ryan, 1985) further posits that autonomy, competence, and relatedness are central to sustaining motivation. Positive ICT attitudes can enhance these psychological needs by providing students with interactive, personalized, and collaborative learning experiences (Martin et al., 2022; Mouza, 2022). This study examines the relationship between ICT attitudes and achievement motivation, addressing a gap in empirical research within the Indian secondary education context.

Literature Review

ICT Attitudes in Education

Research indicates that positive attitudes toward ICT are associated with increased engagement, higher academic performance, and improved digital literacy (Aydin, 2023; Kim & Park, 2023). However, resource disparities and inadequate teacher training continue to limit ICT's impact in developing contexts (Nguyen & Lee, 2023; Sivakami, 2021).

Achievement Motivation

Achievement motivation encompasses the drive to set and attain goals, persevere through challenges, and strive for excellence (Deo & Mohan, 2011). Studies have found significant associations between achievement motivation and academic performance across disciplines (Villis & Sebastian, 2021; Fayaz & Ganai, 2022).

Linking ICT Attitudes and Achievement Motivation

Emerging evidence suggests that favorable ICT attitudes can foster achievement motivation by enhancing learner autonomy and engagement (Li & Zhu, 2023). Nonetheless,

the strength and nature of this relationship vary across cultural and institutional contexts, warranting further investigation in diverse educational systems.

Hypotheses

The following set of hypotheses has been formulated for the purpose of this study, based on the objectives.

H1 – There is no significant difference in Attitude towards ICT among Higher Secondary Students owing to the difference in Gender, Medium of Instruction, and Stream of Study

H2 – There is no significant relationship between Attitude towards Information and Communication Technology and Achievement Motivation of Higher Secondary Students

Methodology

Research Design: A descriptive survey design was adopted to examine the relationship between students' ICT attitudes and achievement motivation.

Participants: The sample comprised 300 higher secondary students (Grades XI and XII) from Chennai, India, representing government, aided, and private schools. Stratified random sampling ensured proportional representation across school types, gender, and academic streams.

Tools Used

- Attitude towards ICT Scale (Martinez et al., 2021): 24 items measuring cognitive, affective, and behavioral components. Cronbach's alpha in the present study: $\alpha = .89$.
- Deo-Mohan Achievement Motivation Scale (2011): 50 items assessing goal orientation, persistence, and competitiveness. Cronbach's alpha in the present study: $\alpha = .87$.

Procedure: Data collection was conducted with informed consent from participants and institutional approval. Questionnaires were administered in classroom settings under researcher supervision. Descriptive statistics, t-tests, ANOVA, and Pearson's correlation were computed using SPSS v26. Effect sizes were reported to supplement significance testing.

Findings

H1: There is no significant difference in Attitude towards ICT among Higher Secondary Students owing to the difference in Gender, Medium of Instruction, and Stream of Study

- **The table 1:** shows difference in Attitude Towards ICT of Higher Secondary School Students owing to difference in Gender.

Variable	Gender	Sample Size	Mean	Standard Deviation	t value	Degree of Freedom	Level of Significance
Attitude Towards ICT	Boys	141	82.00	9.486	0.392	298	0.695
	Girls	159	82.45	10.398			
Attitude Towards ICT	English Medium	198	82.32	9.959	0.201	298	0.841
	Tamil Medium	102	82.08	10.026			
Attitude Towards ICT	Science	211	82.44	9.937	0.524	298	0.828
	Commerce	89	81.78	10.074			

From the table 1 it is inferred that no significant differences in Attitude towards ICT were found across gender ($p = .695$), medium of instruction ($p = .841$), stream of study ($p = .828$).

Relationship between ICT Attitudes and Achievement Motivation

H2: There is no significant relationship between Attitude towards Information and Communication Technology and Achievement Motivation of Higher Secondary Students

Table – 2: shows the correlation between Attitude towards ICT and Achievement Motivation

Variable	Sample size N	Persons coefficient	Level of significance
Attitude Towards ICT and Achievement Motivation	300	0.181	0.002

From the above table 2 it can be inferred that the correlation between Attitude towards ICT and Achievement Motivation is statistically significant, with a Pearson correlation coefficient of 0.181, indicating a weak positive relationship between the two variables. The significance value (p-value) is 0.002, which is below the commonly accepted threshold of 0.05, suggesting that the correlation is highly unlikely to have occurred by chance. Both variables have 300 observations in the sample, further supporting the reliability of this correlation. Overall, this indicates that as Attitude towards ICT increases, there is a slight but significant increase in Achievement Motivation, although the strength of the relationship is weak.

Discussion

The absence of demographic differences aligns with post-pandemic research indicating equitable digital access among urban Indian students (Muthuprasada et al., 2021). The positive correlation supports Technology Acceptance Model (TAM) and Self-Determination Theory (SDT) predictions, suggesting that students who perceive ICT as useful and easy to use technology and more likely to experience heightened motivation.

Limitations and Future Research

This study is limited by its cross-sectional design and urban sample. Longitudinal and comparative studies involving rural populations could offer deeper insights into causal relationships.

Conclusion

The findings of this study underscore the pivotal role of fostering favorable attitudes toward ICT in enhancing achievement motivation among higher secondary students. By cultivating positive perceptions of technology, educators and policymakers can create learning environments that not only engage students but also nurture their intrinsic desire for mastery and extrinsic drive for achievement. Integrating ICT meaningfully into curriculum design enables personalized, interactive, and inquiry-based learning experiences that resonate with diverse learner profiles. Targeted professional development for teachers ensures they possess the pedagogical and technological competencies to leverage ICT as a motivational tool, rather than as a peripheral add-on.

Addressing infrastructural barriers such as inconsistent internet connectivity, outdated hardware, and limited access to quality digital resources is equally critical for equitable learning opportunities. These systemic improvements can bridge the digital divide and ensure that technological interventions reach their full potential. In line with the National Education Policy (NEP) 2020, a strategic, multi-stakeholder approach combining curriculum innovation, teacher empowerment, and infrastructural investment can maximize the synergistic benefits of ICT adoption and student motivation. Future longitudinal and experimental research could provide deeper insights into the causal pathways linking ICT attitudes, motivational constructs, and academic outcomes, ultimately informing evidence-based policy and practice.

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