

"UNRAVELLING THE LINK BETWEEN TECHNOSAVVINESS, IT AWARENESS AND
LEARNING OUTCOMES: A HIGH SCHOOL LEVEL INVESTIGATION"

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ABSTRACT

This study aims to explore the level of techno-savviness and IT awareness among high school students and examine its impact on their learning outcomes. Data collection encompassed both government and private high school students (80+72=152) located in the Ahiwara region of District Durg. The survey method via questionnaires was utilized, employing a simple random sampling technique. The findings indicate that students in this setting have limited exposure and access to the world of technology. Techno-savvy students in private schools outperformed their less Techno-savvy counterparts in government schools. Moreover, their level of IT awareness and techno-savviness significantly impact their ability to achieve learning outcomes.

Keywords: Techno-savvy, IT (Information Technology) Awareness, LOs (Learning Outcomes)

INTRODUCTION

The landscape of education has undergone significant transformations over the years, presenting a stark contrast to the school environments experienced by today's educators. Back then, teachers relied on their instincts and self-drive to impart knowledge, without adhering to any prescribed and well-defined learning outcomes.

The Central Rules of the Right of Children to Free and Compulsory Education Act, 2009, recognized the need to establish minimum learning benchmarks and mandated the inclusion of class and subject-wise learning outcomes. To address declining learning standards, the Human Resource Development Ministry (MHRD) outlined minimum achievement standards for Classes 1 to 8 in a document on learning outcomes. These standards were developed by the National Council for Educational Research and Training in response to assessment surveys highlighting the need for improvement.

Learning outcomes are valuable across all levels of instruction as they enable instructors to establish evaluation standards for measuring course success and students develop a stronger connection to their learning and course material.

National achievement surveys (NAS) consistently indicate that children are not achieving the desired learning outcomes. In achievement surveys like Pratham's Annual Status of Education Report and the National Achievement Survey, Chhattisgarh in particular lags behind the national average. (**Economic Times, 2019**).

There is a pressing need to expand students' knowledge using improved methods and techniques. Technology has the potential to revolutionize the education system by integrating knowledge in new and engaging ways. By leveraging technology, classrooms can be transformed into environments that support individual students and their education, providing numerous benefits for both students and teachers.

What is Techno-savviness?

Techno-savviness refers to an individual's level of proficiency and familiarity with technology. It encompasses the knowledge, skills, and ability to effectively and confidently use various technological devices, tools, and applications. A techno-savvy person is adept at navigating digital platforms, understanding software and hardware functionalities, utilizing online resources, and adapting to new technological advancements.

Information Technology (IT)

IT awareness involves knowledge of fundamental IT concepts, emerging technologies, and their applications in different domains with an awareness of ethical and security considerations associated with technology use. A well-informed IT-aware individual is equipped to make informed decisions regarding technology adoption, effectively utilize digital tools and resources, and mitigate risks associated with cybersecurity and privacy.

Concept Of Learning Outcomes (LOs)

Learning outcomes serve as crucial benchmarks for determining the knowledge and skills learners should possess upon completing a course or program. These outcomes serve as measurable indicators of knowledge acquisition, skill development, and cognitive growth. Learning outcomes provide educators with a clear focus and direction, enabling them to design instructional activities, assessments, and curriculum aligned with desired learning goals.

Moreover, learning outcomes empower learners by providing a roadmap for their educational journey and allowing them to track their progress and accomplishments.

For the query generated through the growing Tech-environment and a need to focus on the learning outcomes, the present study found this area to explore.

LITERATURE REVIEW

Techno-savviness

Spasov, K. (2021); Szabo, Z., & Schwartz, J. (2011) have demonstrated the positive correlation between techno-savviness and academic achievement. Researchers have found that techno-savvy students demonstrate improved critical thinking skills, information literacy, and overall academic performance. **Meyers (2013)** proposed a comprehensive framework for tech savviness, encompassing digital literacy, technical competence, critical thinking, and digital citizenship.

IT Awareness

A latest study supervised by **Szymkowiak et al. (2021)**, revealed a notable inclination towards utilizing mobile applications and video content as preferred modes of learning compared to traditional methods and students often mirrored their teachers' practices. A study by **Hernandez (2019)** has found that students' awareness and practices of Green IT are average, suggesting that academic curricula integrate Green IT to promote sustainable use of computing resources and raise awareness of the issue. Through separate investigations, **Deslauriers et al. (2011); Edwards (2013)** have collectively demonstrated that technology serves as more than just a learning facilitator—it has the potential to elevate student engagement and participation to unprecedented heights. According to **Schepman et al. (2012)**, technology plays a crucial role in enabling "Knowledge Management." Through the utilization of laptops and note-taking software, students are empowered to effectively summarize, organize, and leverage the information they acquire within the classroom.

Learning Outcomes

Asim (2021) emphasized the importance of well-defined learning outcomes as they provide direction and focus for both educators and learners. Additionally, the ABCD approach suggests focusing on Audience, Behaviour, Condition, and Degree when formulating learning outcomes to ensure their effectiveness (**Carr & Hardin, 2010**). Students benefit from understanding the learning goals, as it helps them set personal targets, monitor their progress, and evaluate their

own learning (Nicol & Macfarlane-Dick, 2006). The explicit connection between learning outcomes and real-world applications motivates students and fosters deeper learning experiences (Hattie & Timperley, 2007).

RESEARCH OBJECTIVES AND HYPOTHESIS

Objectives of the Study

The key objectives were (1) To know the status of Techno-savviness and IT awareness of high school level students in both Government and private schools. (2) To study the impact of Techno-savviness and IT awareness on the learning outcomes of the students at the high school level.

In light of this, the current study attempts to answer the following research hypotheses:

Hypotheses of the Study:

- H₀₁:** There will be no significant difference in the Techno-savviness between the students of Government schools and Private schools at the High School level.
- H₀₂:** There will be no significant difference in IT awareness between the students of Government schools and Private schools at the High School level.
- H₀₃:** There will be no significant difference in the Learning Outcomes between the students of Government schools and Private schools at the High School level.
- H₀₄:** There will be no significant correlation between the IT awareness and Learning Outcomes of the students of Government schools and Private schools at the High School level.
- H₀₅:** There will be no significant correlation between the Techno-savviness and Learning Outcomes of the students of Government schools and Private schools at the High School level.

SAMPLE AND INSTRUMENTATION

The present study was conducted in the Ahiwara region of District Durg, Chhattisgarh. For the current study, the six sample schools and their students were selected using a simple random sampling method. The total number of students included in the study was 152, with 80 students selected from three government schools and 72 students selected from three private schools. To ensure maximum participation, all 152 students were informed in advance about the study procedures and their expected involvement.

| S.no. | Name of School (Government) | Selected Samples | S.no | Name of School (Private) | Selecte d Sample s |
|--------------------------------|--|-----------------------------|-------------|-------------------------------------|---------------------------------------|
| 1. | G.H.S.S. Girhola | 28 | 4. | Saraswati Shishu Mandir, Ahiwara | 30 |
| 2. | G.H.S.S. Semariya | 26 | 5. | Nehru Vidyalaya Ahiwara | 27 |
| 3. | G.H.S.S. Ahiwara | 26 | 6. | Hemant H.S.S. Nandini Nagar | 15 |
| Tota | | 80 | | | 72 |
| 1 | | | | | |
| Total Students (sample) | | | | | 152 |

The table provided includes the names of the participant schools and their corresponding participant numbers:

The sample group was provided with 3 questionnaires namely:

(1)“Attitude Scale Towards Information Technology for Teachers” was developed by Dr. Nasrin and Dr. Fatima Islahi has been taken to assess the IT awareness that contained thirty questions with five different scales.

(2) Self-made tool “Test of Technical Awareness for High School students” has been taken to assess the Techno-savviness that contained twenty questionswith five different grades.

(3) Self-madetool “Assessment of Learning Outcomes for High School students” has been taken to assess the Learning Outcome that contained twenty-five questions with five different grades.

DELIMITATIONS OF THE STUDY

The present study is limited to the Ahiwara constituency of district Durg. The study investigated high school students (13-15 years)in both Government and Private schools.Learning outcomesinvestigated are limited to the reading and writing capacity in language, science, social scienceand technology analyser.

DATA ANALYSIS AND CONCLUSION

In this studythree phases were involved in the collection of data, followed by the t-test statistical analysis that is employed to examine the levels of awareness regarding Techno- savviness and IT among the participants. Additionally, Correlation Analysis is utilized to further investigate the

relationships between Techno-savviness and learning outcomes, as well as IT awareness and learning outcomes. These statistical methods allow for a comprehensive exploration of the connections and associations between the variables of interest in the study.

6.1 Techno-savviness in Govt. and Private school Analysis: (For H_{01})

To verify the hypothesis, the acquired data underwent statistical analysis, and the subsequent outcomes are displayed in the provided table.

Table No. 6.1

Comparison of Techno-savviness of High school students of Government and Private school

| S.no. | School Category | Sample (N) | Mean | SD | SE Mean | t value |
|-------|-------------------|------------|-------|-------|---------|---------|
| 1 | Private School | 72 | 12.33 | 2.41 | 0.284 | 3.50 |
| 2 | Government school | 80 | 6.92 | 13.58 | 1.5183 | |

df = 149 P < 0.01

Mean difference= 5.41 SD difference= 1.54

By referring to the t-distribution table with 149 degrees of freedom, the critical value at a significance level of $P < 0.01$ is determined to be 3.50. Upon comparing this critical value with the obtained t-value from the hypothesis test, which is greater than 3.50, it is evident that the obtained t-value falls within the rejection region. Consequently, the null hypothesis (H_1) is rejected, leading to the conclusion that there is a significant difference in Tech-savvy awareness among high school students in government and private schools.

IT awareness in Govt. and Private school Analysis: (For H_{02})

The following table shows the results of statistically treating the received data to test the hypothesis:

Table No. 6.2

Comparison of IT Awareness of High school students of Government and Private school

| S.no. | School Category | Sample(N) | Mean | SD | SE Mean | t value | Significance |
|-------|-------------------|-----------|--------|-------|---------|---------|--------------|
| 1 | Private School | 68 | 110.98 | 11.53 | 1.3982 | 17.46 | S |
| 2 | Government school | 80 | 73.43 | 14.61 | 1.6334 | | P < 0.01 |

df=145

Mean difference= 37.55 SD difference= 2.15

Referring to the t-distribution table with 145 degrees of freedom, the critical value at a significance level of $P < 0.01$ is found to be 1.960. Upon comparing this critical value with the obtained t-value of the hypothesis test, which is 17.46, significantly greater than 1.960, it is evident that the obtained t-value falls within the rejection region. Consequently, the null hypothesis (H_2) is rejected, leading to the conclusion that there is a significant difference in IT awareness among high school students in government and private schools.

Learning Outcomes in Government and Private Schools Analysis(For H_{03})

To examine the hypothesis, the collected data underwent statistical analysis, and the outcomes are presented in the subsequent table.

Table No. 6.3

| Comparison of Learning outcomes of High school students of Government and Private schools | | | | | | | |
|---|-------------------|-----------|-------|------|---------|---------|--------------|
| S.no | School Category | Sample(N) | Mean | SD | SE Mean | t value | Significance |
| 1 | Private School | 72 | 14.25 | 2.14 | 0.2522 | 14.81 | S |
| 2 | Government School | 80 | 8.28 | 2.75 | 0.3075 | | $P < 0.01$ |
| df=150 | | | | | | | |
| Mean difference = 5.97 SD difference = 0.3977 | | | | | | | |

Referring to the t-distribution table with 146 degrees of freedom, the critical value at a significance level of $P < 0.01$ is found to be 1.960. Upon comparing this critical value with the obtained t-value of the hypothesis test, which is 14.81, significantly greater than 1.960, it is evident that the obtained t-value falls within the rejection region. Consequently, the null hypothesis (H_3) is rejected, leading to the conclusion that there is a significant difference in learning outcomes among high school students in government and private schools.

IT awareness and Learning Outcomes of the students of Government schools and Private schools(For H_{04})

To verify the hypothesis, the obtained data underwent statistical processing, and the outcomes are displayed in the accompanying table.

Table No. 6.4

| Correlation Between The IT Awareness And Learning Outcome Of High School Students Of Government And Private School | | | |
|--|-----------------|-----------|----|
| S.no. | School Category | Sample(N) | SD |
| | | | |

| | | | | |
|---|---------------------------------|-----|--------|-------|
| 1 | IT Awareness (Govt. + Pvt.) | 148 | 90.68 | 22.97 |
| 2 | Learning Outcome (Govt. + Pvt.) | 152 | 11.014 | 3.87 |

Correlation (r) = 0.6685

Based on the Pearson's correlation coefficient test, the calculated value of the correlation coefficient (r) is 0.6685, which is greater than the critical table value. Therefore, the hypothesis falls within the rejection region. Consequently, we reject H4 and conclude that there is a significant correlation between IT awareness and Learning Outcome in high school students from both government and private schools.

Techno-savviness and Learning Outcomes in Government and Private schools Analysis(For H₀₅)

To evaluate the hypothesis, the collected data underwent statistical analysis, and the findings are presented in the accompanying table.

Table No. 6.5

Correlation Between The Techno savviness And Learning Outcome Of High School Students Of Government And Private School

| S.no. | School Category | Sample(N) | Mean | SD |
|-------|---------------------------------|-----------|--------|------|
| 1 | Techno-savviness (Govt. + Pvt.) | 152 | 9.507 | 3.43 |
| 2 | Learning Outcome (Govt. + Pvt.) | 152 | 11.112 | 3.87 |

Correlation (r) = 0.6876

Applying Pearson's correlation coefficient test, the calculated value of the correlation coefficient (r) is 0.6876, which exceeds the critical value from the table. Therefore, the hypothesis falls within the rejection region, leading us to reject H5. Consequently, we can conclude that there is a significant correlation between Techno-savviness and Learning Outcome among high school students in both government and private schools.

FINDINGS OF THE INVESTIGATION

- The students' IT awareness and Techno-savviness in the participating schools were

mainly shaped by their mobile phone accessibility, with computers, laptops, and other devices playing a secondary role.

- A significant performance gap among students in various learning environments, particularly highlighting the superior performance of Techno-savvy students in private schools compared to their less Techno-savvy peers in government schools.
- Students' technology implementation levels indicated a strong correlation between IT Awareness and parental support as well as economic background.
- It was found that students primarily accessed technology for personal interests, with parental support playing a crucial role in facilitating their access.
- The results of the correlation test indicated a significant relationship between IT awareness and students' learning outcomes.

Hence, the results indicate a direct and positive influence of Information Technology Awareness on students' Learning Outcomes. These findings imply that the level of IT Awareness significantly affects the learning outcomes of high school students.

CONCLUSION AND SUGGESTION

The development of IT awareness and tech-savviness using emerging technologies is recognized as a means to improve learning outcomes. However, in remote areas like Ahiwara of district Durg in Chhattisgarh, there is still a lack of technology-rich to foster IT awareness and tech-savviness among students.

Several factors such as low literacy levels among families, economic constraints, limited availability of resources, lack of awareness about technology, inadequate support systems, apathetic attitudes towards personal development, peer pressure to neglect academic responsibilities, and even technophobia are identified behind this.

Understanding and addressing these factors can help create a more conducive environment for enhancing IT awareness, tech-savviness, and ultimately improving learning outcomes in students. By leveraging technological tools effectively in instructional practices, students can positively impact their academic performance as well as learning outcomes.

RECOMMENDATIONS

It can serve as a valuable reference for developing regions with comparable demographics. It is crucial to investigate the factors contributing to the variation in student performance between government and private schools. It is important to identify the barriers and obstacles that hinder the effective utilization of technology in high schools.

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