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Influence of usage of AI Tools on Decision-Making Ability of Senior Secondary School Students

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Abstract: The teaching-learning process has significantly changed through incorporation of Artificial Intelligence (AI) in the educational system. Students at different levels are using AI tools for the purpose of achieving success in academic endeavors. Senior secondary school students are also increasingly use AI tools — such as ChatGPT, Gemini, adaptive learning platforms, and automated feedback systems — to support learning. Using of AI tools can enhance the access of information but it also influences the decision-making ability of students, it has become a critical concern of educator. Decision-making ability also involves critical thinking, reasoning and rational thinking which affects directly to the life choices. This research investigates the usage of AI tools affects the decision-making ability of senior secondary school students. The findings of the study suggested that if students use AI tools properly, then their decision-making ability affected positively. Ultimately, this research proposes recommendations for educators, policymakers, and students to optimize AI use while preserving cognitive autonomy and decision quality.

Keywords: Artificial Intelligence, Decision-Making and Senior Secondary Students

Introduction:

Various Sectors of today's world are significantly more advanced due to impact of Artificial Intelligence (AI) and it has also significantly affected education system in various ways. AI-assisted tools and technologies have made conventional teaching-learning process more individualised, effective and flexible. In education, learning platforms with AI features includes a range of advanced tools such as AI Chatbots, Khan Academy app, BYJU's,note-making & summarizing tools, Grammarly are most commonly used by students which provide guidance tailored to each student's learning pace and ability.

Beside that the automated grading systems help to reduce teachers' workload while ensuring quick and unbiased assessment. Natural Language Processing (NLP)-based chatbots can instantly provide the responses to the questions and queries of learners, by offering continuous support. Further mor, AI based software provides the analysis of students' progress and also provide customized study materials based on their individual student's needs.

Senior secondary school students, having the crucial stage of their lives t. During this stage, they should not only develop a deeper understanding of academic subjects but also enhance essential skills like judgment, reasoning and decision-making. These skills among aged 15-18 individuals form the foundation for future life endeavours and also for further education.

With the help of AI, students receive a more customised learning experience and suggestions, by enabling them to identify and improve their weaknesses while strengthening their abilities. AI also assists in simplifying the complex things and concepts within few seconds, thereby improving overall learning outcomes.

Thus, AI is not only transforming and modernizing the education system but also playing a important role in the cognitive, affective and psychomotor development of individuals. So, researcher realise the need of research in this area and selected a topic for research that is influence of usage of AI tools on decision-making ability of senior secondary school students

2.Objectives of the Research

The objectives of this research were:

- To find out the level of usage of AI tools among senior secondary school students.
- To find out the level of decision-making ability among senior secondary school students
- To find out the relationship between usage of AI tools and decision-making ability of senior secondary school students.
- To compare the usage of AI tools among senior secondary school students with respect to gender.
- To compare the decision-making ability of senior secondary school students with respect to gender.

3.Hypothesis of this Research:

The following null hypotheses were formulated for the present research

1. There is no significant level of usage of Artificial Intelligence (AI) tools among senior secondary school students.
2. There is no significant level of decision-making ability among senior secondary school students.
3. There is no significant relationship found between the usage of AI tools and decision-making ability of senior secondary school students.
4. There is no significant difference in the usage of AI tools among senior secondary school students with respect to gender.
5. There is no significant difference in the decision-making ability of senior secondary school students with respect to gender.

4.Methodology of this Research:

The descriptive quantitative survey research approach was used by the researcher. Class XI and XII students of Bhopal district were the population of this research. A sample of 300 students were selected through stratified random sampling method, including sufficient number of male and female students from government and private senior secondary schools**.**

5.Variables of this Research:

- Independent Variable: Usage of Artificial Intelligence (AI) Tools
- Dependent Variable: Decision-Making Ability
- Demographic Variables: Gender and Type of School (Government and Private)

6. Tools Used in Research:

6.1. Scale of AI Tool Usage: For measuring the usage of AI tools among senior secondary students, researchers developed self-constructed tool, i.e Scale of AI Tool Usage. It consisted of 48 statements covering the dimensions like frequency of use, purpose of use, academic dependency, and decision-support usage. The responses collected on a five-point Likert scale (ranging from Strongly Agree *to* Strongly Disagree)

6.2. Scale of Decision-Making Ability:

For measuring decision-making ability of senior secondary students, researchers prepared self-constructed Scale of decision-making ability. It consisted of 35 statements related to dimensions like problem-solving, choice justification, critical evaluation and confidence in decision-making. Five-point Likert scale was used to record responses of students.

The validity and reliability of the tools were done through expert review and necessary modifications were made according the suggestions. Tool's reliability was established through using appropriate statistical techniques, and the reliability coefficients were found satisfactory.

7. Data Collection:

For collecting data of the research, prior permission was taken from Principal of the schools, after that tools were administered on students. Online and offline medium were used for data collection. Statistical Techniques Used

8. Statistical Techniques Used:

The collected data were analyzed through following appropriate techniques like percentage analysis, t-test**,** One-way ANOVA and correlation.

9. Analysis and Interpretation of Data:

The analysis and interpretation of data is presented according to numbering of hypothesis.

Testing of Hypothesis number 1: There is no significant level of usage of Artificial Intelligence (AI) tools among senior secondary school students.

Table 1: Showing the percentage of AI Tool Usage among senior secondary students

S.No	Level	Score Range	Number of Students	%
1	Low	48-110	37	12.33
2	Moderate	111 – 174	120	40
3	High	175 – 240	143	47.6
Total			300	

The above table indicated that the AI tool usage the 47.6 percentage senior secondary school students shows the high level of usage of AI tools and 40 percentage indicated that moderate level of usage of AI tools while 12.33 percentage lie in low usage category among total sample of this research. This finding suggested that secondary school students frequently use AI tools for their academic purposes such as homework, exam preparation, and problem-solving. Hence, hypothesis number 1 of this research is rejected.

Testing of Hypothesis number 2. There is no significant level of decision-making ability among senior secondary school students.

Table 2: Showing the level of decision-making ability among senior secondary students

S.No	Level	Score Range	Number of Students	%
1	Low	35 – 80	53	17.66
2	Moderate	81-129	108	36.00
3	High	130 – 175	139	46.33
Total			300	

The above table no.2 shows the level of decision-making ability among senior secondary school students. It is observed from the table value that out of 300 students, 53 students (17.66%) were found to have a low level of decision-making ability. A majority of the senior secondary school students, 108 (36.00%), were found to possess a moderate level of decision-making ability. Further, 139 senior secondary school students (46.33%) were observed to have a high level of decision-making ability.

The findings of this research suggested that the most of the senior secondary school students fall under the high level of decision-making ability. Hence, the stated hypothesis, "There is no significant level of decision-making ability among senior secondary school students," is not accepted, as variations in levels (low, moderate and high) were clearly observed among the senior secondary school students.

Testing of Hypothesis Number 3 : There is no significant relationship found between the usage of AI tools and decision-making ability of senior secondary school students.

S.No	Variables	N	r-value	Level of Significance
1.	Usage of AI Tools	300	0.43	Significant at 0.01
2.	Decision-Making Ability	300		

The value shown in above table indicated that the significant relationship found between the usage of AI tools and decision-making ability among senior secondary school students.

The coefficient of correlation (r) between usage of AI tools and decision-making ability was found to be 0.43 and it is significant and positive at the 0.01and 0.05 level of significance. It means Hypothesis number 3 is not accepted because a moderate positive relationship found between usage of AI tools and decision-making ability among senior secondary school students. So, the null hypothesis, "There is no significant relationship found between the usage of AI tools and decision-making ability of senior secondary school students," is not accepted as a significant positive relationship was observed between these two variables (usage of AI tools and decision-making ability). Tooba and Saleem (2025), also found that the significant positive relationship exists between AI usage and decision-making among university students. Ramanajneyulu et al. (2024), also reported that the use of AI significantly improves students' decision-making through data-based insights and personalized learning support.

Testing of Hypothesis Number 4: There is no significant difference in the usage of AI tools among senior secondary school students with respect to gender.

S.No	Group	N	Mean	SD	t Value
1.	Boys	150	171.20	21.98	2.38
2.	Girls	150	165.31	20.87	

he above table calculated t value shows the significant difference in the usage of Artificial Intelligence (AI) tools among senior secondary school students with respect to gender. The mean score of boys was found to be 171.20 with a standard deviation of 21.98, whereas the mean score of girls was 165.31 with a standard deviation of 20.87.

The calculated t-value was found to be 2.38, which is significant at the 0.01 level of significance. This indicates that there exists a significant difference in the usage of AI tools among senior secondary school students with respect to gender. This finding of this research is also supported by findings of Von Garrel and Mayer (2023) and Kasneci et al. (2023). Both research findings reported that significant differences found in the use of AI tools among male and female students, female students showing comparatively lower AI usage levels than male students.

Therefore, the hypothesis number 4 of this research is rejected.

Testing of Hypothesis Number 5: There is no significant difference in the decision-making ability among senior secondary school students with respect to gender.

S.No	Group	N	Mean	SD	t Value
1.	Boys	150	139.75	18.96	3.48
2.	Girls	150	132.23	18.43	

From the above table value of t is 3.48, it is observed that the difference in decision-making ability among senior secondary school students with respect to gender is significant at 0.01 and 0.05level of significance. The mean score of boys was found to be 139.75 with a standard deviation of 18.96, while the mean score of girls was 132.23 with a standard deviation of 18.43.

The calculated t value shows that there exists a significant difference in decision-making ability among senior secondary school students with respect to gender. Therefore, the fifth hypothesis, “There is no significant difference in the decision-making ability of senior secondary school students with respect to gender,” is not accepted. The present findings of this research are supported by Singh and Sharma (2018), who reported significant gender differences is found in decision-making ability among adolescents. Similarly, Mann, Harmoni and Power (1989), also suggested that decision-making competence varies across gender and developmental factors. In contradictory Kaur and Kumari (2014) reported that gender did not significantly influence the decision-making ability of secondary school students. Punia and Sangwan (2011), who reported no significant gender differences in decision-making ability among adolescents.

SUGGESTIONS OF THE STUDY

On the basis of the findings of the present research, the following suggestions are made:

As research findings showed that usage of AI tools influence the decision-making ability of students, so schools should organise the guidance classes and awareness programmes for advanced and authentic use of AI tools to enhance learning experiences of students. Similarly training and awareness programs for teachers should be organised properly and on regular basis which provide help in understanding the effective and ethical use of AI tools in their academic work.

Special care and concentration provided by the teachers is very essential to those students who are in low level category of AI tool usage, so that they can also able to remove the barrier of learning digital skills and able to develop technological confidence with digital literacy skills. AI-based learning resources should be added into the curriculum to support students' decision-making and problem-solving abilities. Management of should frequently organize decision-making skill development activities, like group discussions, problem-solving tasks, discussions, and case studies.

Gender-based differences observed in findings of this research recommended the need to provide equal technological opportunities and digital exposure to both boys and girls in schools as well as in family. Parents in home should monitor and guide the children for use of AI tools, ensuring that they are using for productive and academic purposes.

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