THE IMPACT OF AI INPUT ON STUDENT DECISION-MAKING IN BUSINESS SCENARIOS

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Abstract - This study examines the impact of AI chatbot support on student decision-making in business-related scenarios. Using a sample of 172 undergraduate management accounting students, participants were assigned to receive either correct (AI+) or incorrect (AI−) chatbot input while solving both easy and difficult decision problems. The results show that accurate AI input significantly improves decision quality, particularly for more complex tasks, supporting the notion that AI is more beneficial when cognitive demands are higher. In contrast, inaccurate AI input reduces decision accuracy across both task types, with a stronger negative effect observed in easier problems, indicating that students may over-rely on AI even when it is incorrect. The findings also reveal important psychological effects: agreement between AI and student judgment increases confidence and perceived reliability of the AI, while disagreement decreases both. Overall, the study highlights both the benefits and risks of integrating AI tools into educational settings. While AI can enhance learning and decision-making, students' susceptibility to automation bias underscores the need for developing critical evaluation skills and AI literacy. These findings provide important implications for curriculum design and the effective integration of AI technologies in business education.

Keywords - AI input, business decisions, decision confidence, decision quality

I. INTRODUCTION

Artificial intelligence (AI) is reshaping how individuals and organizations think, learn, and make decisions. Its integration into traditional workflows has transformed industries and education systems alike, altering the nature of problem-solving and decision-making. As AI continues to evolve, understanding its impact on learning environments and business contexts has become increasingly important. This study explores the role of AI-powered chatbots in supporting student decision-making, with a particular emphasis on their influence in business-related educational settings.

The first objective of this research is to understand AI's role in shaping business problem-solving. In modern organizations, AI tools such as predictive models, decision-support systems, and chatbots assist professionals in analyzing data and developing solutions. These technologies have improved not only efficiency but also the quality of tactical business decisions by providing timely, data-driven insights. Applying this framework to education allows researchers to investigate whether similar benefits emerge when students use AI tools to make analytical decisions within academic or simulated business scenarios.

The second goal is to determine the need for curriculum updates that reflect the growing influence of AI in professional environments. As technology-driven decision-making becomes the norm in business, educational programs—especially those in fields such as management accounting—must evolve to equip students with the skills required to navigate AI-supported workplaces. By evaluating how students engage with AI-powered systems during coursework, educators can identify areas where curricula should be strengthened to foster data literacy, critical thinking, and ethical awareness.

The third research goal is to enhance student readiness for AI-integrated work environments. Exposure to AI-based tools such as chatbots can provide students with practical experience in interpreting data, managing uncertainty, and making decisions with technological assistance. These skills are essential as graduates enter industries that increasingly rely on AI for both operational and strategic functions.

Aligned with these goals, the purpose of this research is to investigate how chatbot support influences decision-making in business scenarios, focusing specifically on undergraduate students in management accounting. The study seeks to assess AI's impact on decision-making quality, confidence levels, and the interaction between AI use and problem difficulty. By measuring these dimensions, the research aims to understand not only the cognitive outcomes of AI-assisted decision-making but also the psychological factors that affect user trust and reliance on technology.

In conclusion, this research contributes to a growing body of knowledge on the educational and organizational implications of AI integration. By examining how AI-powered chatbots influence students' decision-making processes, the study bridges the gap between business education and real-world professional practice. Ultimately, the findings are expected to inform both curriculum development and pedagogical strategies, ensuring that future

graduates are prepared to make confident and informeddecisions in AI-driven business environments.

II. LITERATURE REVIEW AND HYPOTHESIS

tificial intelligence (AI) has demonstrated significant potential in enhancing human decision-making, particularly when it provides accurate and contextually relevant information. Prior research suggests that AI-supported decision tools improve problem-solving outcomes by reducing cognitive load and assisting users in processing complex information (Rahwan et al., 2019; Longoni, Bonezzi, & Morewedge, 2019). When users are presented with difficult problems, they tend to rely more heavily on external cognitive aids, including AI systems, to interpret data and identify optimal solutions. Consequently, when AI input is correct, it can play a particularly valuable role in guiding students through complex analytical tasks, leading to measurable improvement in decision quality. This aligns with cognitive load theory, which posits that external supports become more beneficial as task difficulty increases (Sweller, 2011). Therefore, as problem difficulty rises, the potential benefit of correct AI assistance also increases.

H1(a): Given accurate AI support, increasing problem difficulty will result in a greater positive effect on student decision-making performance.

Conversely, when AI input is incorrect, its influence may not yield consistent improvement across different difficulty levels. In such cases, reliance on inaccurate information can mislead users, regardless of problem complexity. Studies on automation bias indicate that individuals often overtrust AI systems, accepting erroneous recommendations even when they conflict with their own reasoning (Mosier & Skitka, 2018). This overreliance diminishes decision quality and negates the potential benefits of AI assistance. Additionally, when problem difficulty increases, users may find it even harder to detect AI errors, leading to uniformly poor outcomes across conditions. Hence, it is expected that incorrect AI input will not be effective in improving decision-making, regardless of problem difficulty.

H1(b): In the presence of inaccurate AI support, problem difficulty will have no significant effect on student decision-making performance.

In summary, these hypotheses are grounded in theories of cognitive load, human–AI interaction, and automation bias. When AI systems provide accurate information, they can meaningfully enhance decision-making performance in complex scenarios. However, when AI input is flawed, its effectiveness diminishes across all levels of difficulty, as users' trust in the system overrides their ability to critically evaluate its recommendations.

Confidence and perceived reliability are key psychological factors in human–AI interaction. When individuals receive AI feedback that confirms their own reasoning, it reinforces their sense of competence and accuracy, leading to higher decision confidence (Dzindolet et al., 2003). This alignment between human judgment and AI recommendations creates a form of cognitive consistency that validates the user's decision-making process, thereby strengthening trust in the system (Lee & See, 2004). Conversely, when AI input conflicts with a user's initial judgment, it introduces cognitive dissonance and uncertainty. Students may question either their own reasoning or the AI's credibility, depending on their prior experience with technology and their trust calibration.

Research on automation trust indicates that agreement between human and AI inputs enhances both confidence and perceived system reliability, while disagreement can decrease trust and willingness to rely on AI in future tasks (de Visser et al., 2020; Merritt et al., 2013). In educational contexts, especially during complex problem-solving, students are likely to interpret agreement with AI as validation of their understanding and disagreement as a potential threat to their self-efficacy. Therefore, it is expected that when AI input coincides with student judgment, both confidence and perceived reliability will be higher than when the AI input diverges.

H2: When AI input aligns with a student's own judgment, the student will (a) experience greater confidence in their decision and (b) perceive the AI input as more reliable, compared to when the AI input contradicts their judgment.

III. METHODOLOGY

This study employs an online survey designed to examine how AI chatbot support influences student decision quality, confidence, and trust. Participants were undergraduate students enrolled in a Management Accounting course.

Students were presented with a business scenario involving a special order decision, including both an easy and a difficult question. The procedure consisted of the following steps:

1. Students made an initial decision and reported confidence for the easy problem.
2. An AI chatbot provided a suggested answer (either correct or incorrect, depending on the assigned condition).
3. Students were given the opportunity to revise their decision.
4. The process was repeated for a difficult problem.
5. Participants completed a demographic questionnaire.

Participants were divided into two groups: one receiving correct AI input (AI+) and the other receiving incorrect AI input (AI−). The AI input remained consistent within each group across both questions.

IV. RESULTS

A total of 172 surveys were collected from two course sections: 98 students in the AI+ group and 74 students in the AI− group. These participants' descriptive statistics are presented below.

Gender	Male	43.0%
	Female	57.0%
Enrollment	Full time	95.3%
	Part time	4.7%
Transfer	Yes	4.1%
	No	95.9%
Age	1-25 and below	99.4%
	2- 26 to 30	0.6%
	Total	
Work hour	1- 0 to 10 hrs	36.6%
	2-11 to 20 hrs	36.6%
	3- 21-30 hrs	18.0%
	4-31 to 40 hrs	7.6%
	5-40 or more	1.2%

Table 1: Descriptive statistics

The sample was predominantly female (57.0%) and full-time students (95.3%), with most respondents under the age of 25 (99.4%). The majority were non-transfer students (95.9%). Work hours were relatively low, with most students working 20 hours or fewer per week. Overall, the sample represents a typical undergraduate population with limited work commitments.

4.1 Easy vs. hard questions

AI		Dec_easy	Dec_hard	Dec_easy_AI	Dec_hard_AI
AI-	Mean	0.92	0.11	0.73	0.05
	N	74	74	74	74
	Std. Deviation	0.275	0.313	0.447	0.228
AI+	Mean	0.61	0.09	0.77	0.58
	N	98	98	98	98
	Std. Deviation	0.490	0.290	0.426	0.496
Total	Mean	0.74	0.10	0.75	0.35
	N	172	172	172	172
	Std. Deviation	0.438	0.299	0.434	0.480

Table 2: Means of Decisions before and after AI input

Dec_easy and Dec_hard are decisions made without AI input; Dec_easy_AI and Dec_hard_AI are decisions made after AI input. Before receiving AI input, 74% of students correctly answered the easy question, while only 10% answered the difficult question correctly. This difference was statistically significant ($t = -14.87$, $p < 0.001$), confirming that the hard question was substantially more challenging.

	Paired Differences					t	df	Significance	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			One-Sided p	Two-Sided p
Dec_hard - Dec_easy	-0.645	0.569	0.043	-0.731	-0.560	-14.874	171	0.000	0.000

Table 3: Paired Samples Test

Because students are taught by different instructors, there are variation in their decision quality for the easy question. Those in AI- group initially performed better on the easy question than those in AI+ group (0.92 vs. 0.61; F=23.42; p<0.1%;however, performance on the difficult question did not differ significantly between groups(0.11 vs. 0.09; F=0.124; p=72.5%).After AI input, Correct AI (AI+) improved decision quality, especially for difficult problems; Incorrect AI (AI−) reduced decision accuracy, particularly for easy problems.

Notably, after AI input, performance on the easy question became similar across groups, (0.77 vs. 0.73; F=0.28; p=59.6%), while significant differences remained for the difficult question, with the AI+ group performing substantially better(0.58 vs. 0.05; F=72.20; p<0.1) (see Table 4).

Panel A: Before AI input

		Sum of Squares	df	Mean Square	F	Sig.
Dec_easy	Between Groups	3.965	1	3.965	23.424	0.000
	Within Groups	28.779	170	0.169		
	Total	32.744	171			
Decherd	Between Groups	0.011	1	0.011	0.124	0.725
	Within Groups	15.309	170	0.090		
	Total	15.320	171			

Panel B: After AI input

		Sum of Squares	df	Mean Square	F	Sig.
Dec_easy_AI	Between Groups	0.053	1	0.053	0.282	0.596
	Within Groups	32.197	170	0.189		
	Total	32.250	171			
Dec_hard_AI	Between Groups	11.736	1	11.736	72.204	0.000
	Within Groups	27.631	170	0.163		
	Total	39.366	171			

Table4: ANOVA of AI on Decisions

4.2 Test of H1(a)

We first confirm that in the AI+ group, there is significant difference in decision quality between easy and hard questions. For these 98 students, their average Dec_easy is 0.61, much higher than their Dec_hard of 0.09 (mean difference of 0.520; t=8.403, p<0.1%). Second, we confirm that the correct AI input has resulted in better decisions for both easy and hard questions after AI input (see Table 5)

		Paired Differences					t	df	Significance	
		Mean	Std. Dev	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			One-Sided p	Two-Sided p
Pair 1	Dec_easy_AI - Dec_easy	0.153	0.362	0.037	0.081	0.226	4.187	97	0.000	0.000
Pair 2	Dec_hard_AI - Dec_hard	0.490	0.502	0.051	0.389	0.591	9.650	97	0.000	0.000

Table 5: Paired samples tests of decisions before and after AI input (AI+ group)

Finally, we compute the change in participants' decision before and after AI input and test if these changes are the same. Based on H1(a), when AI input is correct, student decisions are more influenced by AI input in the hard decision than in the easy questions. Therefore the change in hard decisions is expected to be higher than those in easy decisions.

	Paired Differences					t	df	Significance	
	Mean	Std. Dev	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			One-Sided p	Two-Sided p
DecChg_hard - DecChg_easy	0.337	0.555	0.056	0.225	0.448	6.005	97	0.000	0.000

Table 6:

The paired sample tests results from Table 6 demonstrate that student decisions are more influenced by AI input in the hard decision than in the easy questions (difference of 0.337, t=6.005, p<0.1%). In summary, for the AI+ group, decision accuracy improved significantly after AI input for both easy and difficult questions.

Importantly, the improvement was significantly greater for the difficult question, indicating that correct AI support is more influential in complex tasks. This finding supports H1(a).

4.3 Test of H1(b): We use the same process to test the group with incorrect AI input, with the expectation that because of the incorrect AI input for the easy decisions, students would be able to see through the falsehood of the input and choose not to rely on it, therefore their decision changes will be the same for easy and hard questions. For this section of 74 students, their average Dec_easy is 0.92, much higher than their Dec_hard of 0.11 (mean difference of 0.811; t=15.210, p<0.1%). We also confirm that the incorrect AI input has resulted in worse decisions for both easy and hard questions after AI input (see Table 7).

		Paired Differences					t	df	Significance	
		Mean	Std. Dev	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			One-Sided p	Two-Sided p
Pair 1	Dec_easy_AI - Dec_easy	-0.189	0.394	0.046	-0.281	-0.098	-4.127	73	0.000	0.000
Pair 2	Dec_hard_AI - Dec_hard	-0.054	0.281	0.033	-0.119	0.011	-1.652	73	0.051	0.103

Table 7:

However, unlike we expect, participant decision change for hard and easy questions remain significant. Specifically, their average decisions for the easy question change from 0.92 to 0.73 (mean change of -0.189) while their average decisions for the hard question change from 0.11 to 0.05 (mean change of -0.054). The difference between the mean changes is significant (see Table 8). Many students don't realize the AI input is false and choose to follow the AI decision, more so for the easy question.

	Paired Differences					t	df	Significance	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			One-Sided p	Two-Sided p
DecChg_hard - DecChg_easy	0.135	0.478	0.056	0.024	0.246	2.434	73	0.009	0.017

Table 8

4.4 Test of H2

Hypothesis 2 focus on participants' confidence in decision making. Before AI input, their confidence levels (Con_easy and Con_hard) are measured on the Likert scale with 1 representing very unconfident, 2 for somewhat unconfident, 3 for neutral, 4 for somewhat confident and 5 for very confident. After AI input, students are asked how their confidence levels change. Such change is represented by Conchg_easy_AI or Conchg_hard_AI: with 1 representing becoming more confident; 0 for no change; and -1 for becoming less confident. The means and standard deviations of confidence levels and changes in confidence after AI input are presented in Table 9.

AI		Con_easy	Con_hard	Conchg_easy_AI	Conchg_hard_AI
AI-	Mean	3.68	2.88	-0.30	-0.28
	N	74	74	74	74
	Std. Deviation	1.022	1.020	0.772	0.820
AI+	Mean	3.37	2.58	0.17	0.17
	N	98	98	98	98
	Std. Deviation	0.924	0.941	0.838	0.838
Total	Mean	3.50	2.71	-0.03	-0.02
	N	172	172	172	172
	Std. Deviation	0.976	0.984	0.841	0.858

Table 9: Confidence Means

First, participants report less confidence in the hard than easy questions (2.71 vs. 3.5; t=9.626; p<0.1%).Compared to those in the AI+ group, students in the AI- group make better decisions for easy question and are also more confident (3.68 vs. 3.37; F=4.286; p<4%). Surprisingly, those in AI- group are also more confident for their decisions in the hard questions than those in AI+ (2.88 vs. 2.58; F=3.902; p<5%), even though their decision quality is no better. In addition, correct AI input boosts student confidence, while incorrect AI input dampens student confidence for both easy (0.17 vs. -0.30; F=14.25, p<0.1%) and difficulty (0.17 vs. -0.28; F= 12.80; p<0.1%) questions. Noticeably, for those in the correct AI input group, both their decision quality and confidence improve, while for those in incorrect AI input group, both decision quality and confidence deteriorate.

		Sum of Squares	df	Mean Square	F	Sig.
Con_easy	Between Groups	4.008	1	4.008	4.286	0.040
	Within Groups	158.992	170	0.935		
	Total	163.000	171			
Con_hard	Between Groups	3.713	1	3.713	3.902	0.050
	Within Groups	161.752	170	0.951		
	Total	165.465	171			
Conchg_easy_AI	Between Groups	9.344	1	9.344	14.245	0.000
	Within Groups	111.510	170	0.656		
	Total	120.855	171			
Conchg_hard_AI	Between Groups	8.815	1	8.815	12.799	0.000
	Within Groups	117.092	170	0.689		
	Total	125.907	171			

Table 10: ANOVA test of AI on Confidence

H2 predicts that when AI input coincides with student judgement, student will (a) feel more confident and (b) find AI input more reliable, than when AI input differs from student judgement.We test the hypothesis for both easy and hard questions. Easy_same is used to indicate if the participants' decision for easy question is the same (1) or different (0) from AI input. Con_easy is the confidence level for easy question before AI input; and Con_easy_AI is the confidence level after AI input. In addition, students are asked to rate the following questions on their perception of AI usefulness, with 1 meaning least reliable/preferred/positive, and 5 meaning the most reliable/preferred/positive.

1. How reliable did you find the AI output?
2. Would you prefer to have AI output available in future problem-solving activities?
3. How would you describe your overall experience with integrating AI output into your problem-solving process?

The means of their responses are presented below:

Easy_same		Con_easy	Conchg_easy_AI	AI_reliable	AI_preference	AI_overall
0	Mean	3.56	-0.30	3.51	3.68	3.69
	N	110	110	110	110	110
	Std. Dev	1.018	0.785	0.875	0.834	0.714
1	Mean	3.39	0.45	3.77	3.98	3.98
	N	62	62	62	62	62
	Std. Dev	0.894	0.717	0.711	0.820	0.689
Total	Mean	3.50	-0.03	3.60	3.79	3.80
	N	172	172	172	172	172
	Std. Dev	0.976	0.841	0.828	0.839	0.717

Table 11: Means of confidence for easy question.

A MNOVA test is conducted to determine of the impact of Easy_same. The results show that before AI input, those participants who happen to make the same decision as the AI don't display higher confidence than those whose decisions differ from AI (3.39 vs. 3.56; F=1.299; p=25.6%). However, after AI input, those who make the same decision as AI demonstrate a positive change in confidence level (+0.45) while those whose decision differ become less confident (-.0.30). The effect of this confidence change is significant (F=38.677; p<0.1%). Those who make the same decision as AI also perceive AI as more reliable (3.77 vs. 3.51; F4.144, p=4.3%), more preferred (3.98 vs. 3.68; F=5.263; p = 2.3%) and more positive (3.98 vs. 3.69; F=6.849; p=1.0%) (see Table 12).

We also calculated means in confidence, confidence change and AI perceptions for the hard question. There only 25 students whose decisions are the same as AI, while majoritystudents (147) disagree with AI. Although students who agree with AI input report a confidence boost (+.12) while those who disagree report drop in confidence (-0.25), and the former group report better perception of AI (3.76 vs 3.58 for reliability; 4.04 vs. 3.75 for being preferred, 3.96 vs. 3.77 for more positive), such differences are not statistically significant.

Combining test results from the easy and hard questions, we report at least partial support for H2, i.e., for easy question.

Tests of Between-Subjects Effects

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Con_easy	1.236[a]	1	1.236	1.299	0.256
	Conchg_easy_AI	22.400[b]	1	22.400	38.677	0.000
	AI_reliable	2.787[c]	1	2.787	4.144	0.043
	AI_preference	3.618[d]	1	3.618	5.263	0.023
	AI_overall	3.403[e]	1	3.403	6.849	0.010
Intercept	Con_easy	1915.654	1	1915.654	2013.185	0.000
	Conchg_easy_AI	0.911	1	0.911	1.574	0.211
	AI_reliable	882.135	1	882.135	1311.673	0.000
	AI_preference	744.897	1	744.897	1083.741	0.000
	AI_overall	741.775	1	741.775	1492.774	0.000
Easy_same	Con_easy	1.236	1	1.236	1.299	0.256
	Conchg_easy_AI	22.400	1	22.400	38.677	0.000
	AI_reliable	2.787	1	2.787	4.144	0.043
	AI_preference	3.618	1	3.618	5.263	0.023
	AI_overall	3.403	1	3.403	6.849	0.010
Error	Con_easy	161.764	170	0.952		
	Conchg_easy_AI	98.455	170	0.579		
	AI_reliable	114.330	170	0.673		
	AI_preference	116.848	170	0.687		
	AI_overall	84.475	170	0.497		
Total	Con_easy	2270.000	172			
	Conchg_easy_AI	121.000	172			
	AI_reliable	1104.000	172			
	AI_preference	960.000	172			
	AI_overall	923.000	172			

Corrected Total	Con_easy	163.000	171			
	Conchg_easy_AI	120.855	171			
	AI_reliable	117.116	171			
	AI_preference	120.465	171			
	AI_overall	87.878	171			

a. R Squared = .008 (Adjusted R Squared = .002)

b. R Squared = .185 (Adjusted R Squared = .181)

c. R Squared = .024 (Adjusted R Squared = .018)

d. R Squared = .030 (Adjusted R Squared = .024)

e. R Squared = .039 (Adjusted R Squared = .033)

Table 12: MNOVA test of Confidence on Easy_same

V. CONCLUSIONS

This study demonstrates that AI chatbot support significantly influences student decision-making, with effects depending on both accuracy and task difficulty. Correct AI input enhances decision quality—particularly for complex problems—while incorrect AI input can mislead students and reduce performance.

The findings also highlight the psychological impact of AI, showing that agreement with AI increases confidence and trust, whereas disagreement reduces both. Importantly, students often fail to detect incorrect AI input, raising concerns about overreliance on AI systems.

These results have important implications for business education. Integrating AI tools into curricula can improve learning outcomes, but educators must also emphasize critical thinking and AI literacy to ensure students can effectively evaluate AI-generated information.

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