

# Reimagining Design Education: Integrating Generative AI Through the Bloom's Taxonomy for Cognitive Growth in Fashion and Interior Design

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## Abstract

As generative artificial intelligence (GAI) technology continues to transform the design industry, traditional design processes are being reshaped by the integration of digital tools, leading to new opportunities for creativity, efficiency, and accessibility. Educators are recognizing the urgent need to integrate GAI into the design curriculum to better prepare students for this rapidly evolving industry. This research examines a pedagogical model structured around the Revised Bloom's Taxonomy (2001) framework to support fashion and interior design students in their cognitive progression when applying generative AI. The model aligns educational activities with corresponding assessment methods. A multidisciplinary educational approach was developed in a university in the United States, beginning with an industry expert-led workshop fostering knowledge and understanding of GAI platforms among students and faculty. A design project followed, providing a staged learning experience for students to create discipline-specific design outcomes. Pre- and post-surveys, along with focus group discussions, revealed gaps in learning and highlighted the need to scaffold educational activities and objectives. The findings indicate that students require greater emphasis on foundational knowledge in GAI programs to successfully integrate it into their design process. Building on the Revised Bloom's framework, the study offers potential instructional strategies for integrating GAI into design pedagogy, enabling graduates to transfer these skills to professional practice.

*Keywords:* Revised Bloom's Taxonomy, generative artificial intelligence, design pedagogy, interior design, fashion design

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## Introduction

The rapid rise of generative AI has sparked significant changes in how we approach teaching and learning in creative fields such as fashion and interior design (Almaz et al., 2024). Design education is often recognized as its own academic field with its unique methods, practices, and ideology (Cross, 1982). Although design disciplines may differ in focus, the essence of design lies in creating new solutions within specific contexts, a process that differs from the approaches used in science (Gregory, 1966). Both undergraduate curricula are typically structured around core studio courses and delivered progressively across academic levels (Bye, 2010). With an emphasis on a design studio over a classroom, it is described as the “heart” of the educational process (Schön, 1984), creating an environment where students engage in experiential learning through iterative design work, guided by mentor critique. The need to integrate GAI into design pedagogy becomes urgent as AI becomes part of everyday life, much like the Internet is today. Its impact will fundamentally change how businesses interact with their users (Haenlein & Kaplan, 2019), making it critical for students to gain these skills and transfer them post-graduation.

The purpose of this study is to examine a pedagogical approach to incorporate new GAI technologies into the student design process using the revised framework of Bloom’s Taxonomy from 2001. Bloom’s method guided the approach to facilitate design students’ progression from basic foundational thinking skills to advanced cognitive development to create unique design outcomes. At the same time, this approach maintains consistency by aligning educators’ teaching tasks with their evaluation methods. Applying this framework, the study outlines the progression of GAI learning activities with corresponding measurable objectives. The findings reveal gaps in knowledge and skill development and offer effective instructional strategies in the use of GAI in design pedagogy, with an objective to better prepare graduates for the transition into industry practice with this valuable skill set. The research aims to explore two questions: (1) Does the use of GAI in the student’s design process contribute to the development of higher-level learning according to the Revised Bloom’s Taxonomy? and (2) How can teaching activities and assessments be aligned to strengthen this model?

## Literature Review

### AI in Fashion and Interior Design Education

The integration of artificial intelligence (AI) technologies into creative industries has advanced rapidly in recent years, profoundly impacting the design fields (Nugroho et al., 2025). This progress has been driven by developments in areas such as machine learning, pattern recognition, algorithms, natural language processing, and the enhancement of supporting hardware (Mahendarto, 2025). Rather than crafting complete solutions, human roles in AI-powered industries are evolving to identify creative challenges, define the direction of innovation, and build the data and technological frameworks that enable AI systems to generate and refine design solutions in real time (Verganti et al., 2020).

As artificial intelligence enters the design studio, it has the potential to enhance efficiency using generative algorithms, thus offering a supporting role to designers through their decision-making processes (Almaz et al., 2024). These technological shifts necessitate a reevaluation of pedagogy. One study revealed that students are open to the emerging impact of AI and concerned that, without proper guidance through education, they could not contribute to harnessing AI’s potential in design (Cao et al., 2023). Another study found it important to

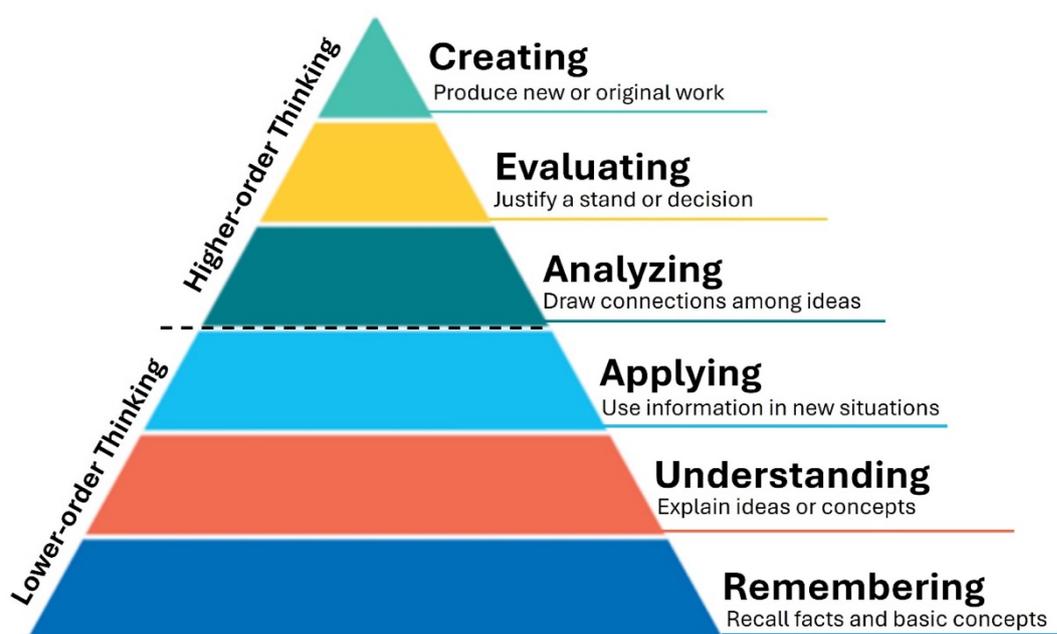
incorporate AI into fashion and interior design, as well as closely related design studies such as architecture, since design's intricate and multifaceted nature makes it a prime area for experimentation with AI applications (Ceylan, 2021). Several authors offer recommendations for incorporating AI technology into the curriculum. A combined approach of traditional design education alongside AI technologies integrated into practical, entrepreneurial activities will enhance students' confidence in performance (Jung & Suh, 2024) and create a more engaging learning environment (Li & Xie, 2022).

### The Evolution of Bloom's Taxonomy

To establish the theoretical foundation for this research, the evolution of Bloom's Taxonomy was examined. First developed in 1956, Bloom's Taxonomy provided a framework for classifying and measuring educational objectives by levels of complexity within the cognitive, affective, and psychomotor domains. The cognitive domain was organized into six levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. This enabled a gradual progression of students' learning from basic recall of knowledge to the development of intellectual abilities and skills, encouraging complex levels of thinking rather than sole memorization (Bloom et al., 1956). A revision in 2001 by Anderson and Krathwohl, as shown in Figure 1, incorporates advancements in the cognitive process dimension, supporting the use of verbs within each category: remembering, understanding, applying, analyzing, evaluating and creating, over the original corresponding nouns: knowledge, comprehension, application, analysis, synthesis and evaluation. The revision also created a hierarchical progression with less rigidity, allowing flexibility for movement between the stages. Their Taxonomy Table provides educators with opportunities to regularly review curriculum and teaching methods when they have realized missed learning goals (Krathwohl, 2002). Revisited by Churches in 2008, this modification addressed the need for a technologically enhanced approach and mapped specific digital tools and activities associated with new action verbs such as googling, discovering and linking.

**Figure 1**

*Anderson et al.'s (2001) Revision of Bloom's Taxonomy*



## Revised Bloom's Taxonomy in Design Education and AI Education

Recent studies have linked both design and AI education to the Revised Bloom's Taxonomy, showing positive development of higher-order thinking skills for some participants but raising concerns for others. A study by Valsson (2022) found that Bloom's Taxonomy levels connected closely with the different stages of the design process undertaken by architecture students. The effective use of hierarchical progression helped students meet the learning objectives of their studio classes. Another study found that AI systems assisted with overcoming the challenges defined in Bloom's framework. When the AI tools were integrated into learning, they enhanced the personal educational experience and promoted interaction, stimulating cognitive processes that deepen the students' understanding and retention (Nehru et al., 2025). Further research revealed a complex picture of how AI affected the cognitive development of language learners. From a positive perspective, the participants found AI applications that guided them through the higher-order thinking stages of the Taxonomy, allowing the students to operate at more sophisticated cognitive levels. However, the study also found that participants expressed concern about their dependence on AI technology, fearing that it would weaken their independent abilities, particularly in the same critical stages of analysis and evaluation (Derakhshan & Taghizadeh, 2025). The literature review highlights the importance of closely aligning educational design activities with the hierarchical framework of Revised Bloom's Taxonomy and exercising caution when integrating AI technologies.

### Methodology

#### Research Design

Using the Revised Bloom's Taxonomy model, this case study explores whether GAI contributes to the student's development of high-level learning and identifies how pedagogy can strengthen this model. The study involved sophomore and junior students across interior and fashion design disciplines at a public university in the United States. Participants were recruited using an approved Institutional Review Board (IRB) purposive sampling method via email invitation, and all students provided informed consent before joining the study.

The case study collected data through three sources: focus group discussions, pre- and post-survey questionnaires. Focus group discussion is a widely used qualitative approach designed to discover an in-depth understanding of social matters by collecting data from a group of purposefully selected individuals (O. Nyumba et al., 2018). The focus group was chosen as a post-project qualitative method to capture students' reflective experiences, group dynamics, and shared insights after completing their AI design projects. Therefore, the focus group discussions in this study aimed to discover the rich experiences of working with GAI Project activities to inform the research questions.

A total of six focus group sessions were conducted with 15 fashion and 16 interior design student participants, each group consisting of five to six members. Each focus group discussion was scheduled for one hour. The researchers conducted cross-interviews, allowing participants to express their thoughts freely. A meeting room in the university where the study was conducted was arranged for the focus groups. The researchers used a set of questions to guide the discussions. The data collection methods during the focus group discussions included audio recording and note-taking. The transcripts were then manually coded and analyzed for further data analysis.

The pre- and post-survey questionnaires were designed to complement the focus group discussions. The data from the pre-survey provides demographic information and a general understanding of participants’ skill levels and prior GAI experience. The collected data aided in developing the GAI project design. The post-survey captured student participants’ learning experiences from the project, thereby addressing the research question of how teaching activities and assessments can be aligned to strengthen this model.

### Project Development

The pre-survey questionnaire helped shape the design of the GAI project. This data revealed that all student participants are in their 2nd and 3rd studies, and most students identified with an intermediate overall skill level in their specific design field. When asked about their experience and familiarity with GAI, 91% of students had never used GAI programs, such as Midjourney or Vizcom, in their design work. Understanding that GAI was new to the majority of students, this data was used to develop teaching activities for GAI beginners, including inviting an AI expert to lead tutorials on basic GAI tools and to help students develop their GAI projects.

The study followed a structured learning intervention that aligned the GAI project activities and learning objectives with the Revised Bloom’s Taxonomy, as illustrated in Figure 2, beginning with the Remembering stage.

**Figure 2**  
*Alignment of GAI Project Activities and Learning Objectives With Revised Bloom’s Taxonomy*

GAI Project Activity	Learning Objective	
Create final design solution.	Develop a structured workflow for integrating GAI into the design process To arrive at a design solution.	<b>Creating</b>
Assess options to best solve the design problem. Refine prompt engineering for targeted design outcomes.	Identify design challenges using GAI visualization.	<b>Evaluating</b>
Illustrate and organize design concepts through visual mapping with GAI.	Explore multiple design iterations using GAI techniques.	<b>Analyzing</b>
Experiment with learned GAI skills to begin design. Prompt writing and use of images in design iteration.	Integrate the GAI programs into the personal design process.	<b>Applying</b>
Workshop with GAI Design specialist: Gather information on use of GAI in design. Extend knowledge from Q&A session with design specialist and instructors. Success with exercises.	Understand how to use the GAI programs with personal design decisions involving prompts and images.	<b>Understanding</b>
Workshop with GAI Design specialist: Through exercises, follow instructions on how to use GAI programs for design. Repeat the steps to remember the process.	Learn how to use the GAI programs and recall information obtained during the workshop.	<b>Remembering</b>

The project began with a week-long GAI expert-led workshop that introduced students to five GAI programs: ChatGPT, Midjourney, Vizcom, Tripo AI, and Luma Dream Machine. The expert provided real-time exercises for students to learn how to use the GAI programs and recall information obtained throughout the workshop. A portion of the workshop was dedicated to two question-and-answer sessions with the AI expert held outside of the structured class time. Discussions arose about the application and extent of GAI use in the professional industry, as well as the personal design decisions and implications surrounding GAI. These conversations helped the students understand the larger context of GAI and the use of these programs in the design industry. Following the workshop, students applied their new knowledge in discipline-specific projects over a three-week period. Based on a shared theme and location, interior design students created schematic design plans, elevations and material boards for a vacation home, while fashion students designed four-look resort wear collections. Following the progression of Bloom's Taxonomy, project activities and learning objectives transitioned from lower to higher-order thinking skills. Students explored multiple design iterations using GAI techniques to organize and analyze their design outputs. They then had to evaluate their design options and refine their prompts, aiming to improve their outcomes while identifying their challenges using GAI visualization. Finally, by developing their personal workflow of integrating GAI, each student created a new design solution.

### **Data Analysis**

Student narratives from the focus group data were analyzed using a manual coding process. This process documented the use of action verbs from the 2001 Revised Bloom's Taxonomy, and given the technological nature of the GAI project, the verbs from Churches' Digital Taxonomy (2008) were also recorded. As exhibited in Figures 3 and 4, the researchers identified the action verbs, shown highlighted in color, that appeared frequently in the focus group responses. This dual-framework approach enabled the study to capture both traditional cognitive processes and digital-age learning behaviors while tracing students' cognitive progression from initial Generative AI exposure to complex design applications.

**Figure 3**  
*Students' Repeated Verbs Highlighted From the Revised Bloom's Taxonomy Action Verbs (Anderson et al., 2001)*

1.Remembering	2.Understanding	3.Applying	4.Analyzing	5.Evaluating	6.Creating
<b>Choose</b>	Classify	<b>Apply</b>	Analyze	Agree	<b>Adapt</b>
<b>Define</b>	Compare	<b>Build</b>	Assume	Appraise	<b>Build</b>
<b>Find</b>	Contrast	Choose	Categorize	Assess	Change
<b>How</b>	Demonstrate	<b>Construct</b>	Classify	Award	Choose
Label	<b>Explain</b>	<b>Develop</b>	<b>Compare</b>	Choose	<b>Combine</b>
List	Extend	Experiment with	Conclusion	Compare	Compile
Match	Illustrate	Identify	<b>Contrast</b>	Conclude	Compose
Name	Infer	Interview	<b>Discover</b>	Criteria	Construct
Omit	<b>Interpret</b>	Make use of	Distinguish	Criticize	<b>Create</b>
Recall	Outline	<b>Model</b>	Divide	<b>Decide</b>	Delete
<b>Relate</b>	<b>Relate</b>	Organize	Examine	Deduct	<b>Design</b>
Select	Rephrase	<b>Plan</b>	<b>Function</b>	Defend	Develop
Show	<b>Show</b>	<b>Select</b>	Inference	Determine	Discuss
Spell	Summarize	<b>Solve</b>	Inspect	Disprove	<b>Elaborate</b>
Tell	Translate	<b>Utilize</b>	List	Estimate	Estimate
What			Motive	Evaluate	Formulate
When			Relationships	Explain	Happen
Where			Simplify	Importance	<b>Imagine</b>
Which			<b>Survey</b>	Influence	Improve
Who			Take part in	Interpret	Invent
<b>Why</b>			<b>Test for Theme</b>	Judge	Make up
				Justify	Maximize
				Mark	Minimize
				Measure	Modify
				Opinion	Original
				Perceive	Originate
				Prioritize	Plan
				Prove	Predict
				Rate	Propose
				<b>Recommend</b>	Solution
				Rule on	Solve
				<b>Select</b>	Suppose
				Support	Test
				Value	Theory

**Figure 4**  
*Students’ Repeated Verbs Highlighted From Bloom’s Digital Taxonomy of Verbs (Churches, 2008)*

1.Remembering	2.Understanding	3.Applying	4.Analyzing	5.Evaluating	6.Creating
Bookmarking	Advanced Search	Acting out	Advertising	Arguing	<b>Adapting</b>
Bullet pointing	Annotation	Administering	Appraising	Assessing	Animating
<b>Copying</b>	Associating	<b>Applying</b>	Attributing	<b>Checking</b>	Blogging
<b>Defining</b>	Boolean search	Articulating	Breaking down	Criticizing	<b>Building</b>
<b>Describing</b>	Categorizing	Calculating	Calculating	Commenting	<b>Collaborating</b>
<b>Duplicating</b>	Classifying	Carrying out	Categorizing	Concluding	Composing
Favouring	Commenting	<b>Changing</b>	Classifying	<b>Considering</b>	Constructing
<b>Finding</b>	Comparing	Charting	<b>Comparing</b>	Convincing	<b>Designing</b>
Googling	Contrasting	Choosing	Concluding	Critiquing	Developing
Highlighting	Converting	Collecting	<b>Contrasting</b>	Debating	Devising
Identifying	Demonstrating	Completing	Correlating	Defending	Directing
Labelling	<b>Describing</b>	Computing	Deconstructing	Detecting	Facilitating
Liking	Differentiating	Constructing	Deducing	Editorializing	Filming
Listening	Discussing	Demonstrating	Differentiating	<b>Experimenting</b>	Formulating
<b>Listing</b>	<b>Discovering</b>	Determining	Discriminating	Grading	<b>Integrating</b>
Locating	Distinguishing	Displaying	Dividing	Hypothesizing	Inventing
<b>Matching</b>	Estimating	Examining	Distinguishing	Judging	Leading
Memorizing	Exemplifying	Executing	Estimating	Justifying	Making
Naming	<b>Explaining</b>	Explaining	<b>Explaining</b>	Measuring	Managing
Networking	Expressing	<b>Implementing</b>	Illustrating	Moderating	Mixing/remixing
Numbering	Extending	Interviewing	Inferring	Monitoring	Modifying
Quoting	Gathering	Judging	<b>Integrating</b>	Networking	Negotiating
Recalling	Generalizing	<b>Editing</b>	<b>Linking</b>	Persuading	Originating
Reading	<b>Grouping</b>	Experimenting	Mashing	Posting	Orating
Reciting	Identifying	Hacking	Mind mapping	Predicting	Planning
Recognizing	Indicating	Loading	<b>Ordering</b>	Rating	Podcasting
Recording	inferring	Operating	Organizing	Recommending	Producing
Retelling	<b>Interpreting</b>	Painting	Outlining	<b>Reflecting</b>	Programming
<b>Repeating</b>	Journalling	Playing	<b>Planning</b>	Reframing	Publishing
Retrieving	Paraphrasing	Preparing	Pointing out	Reviewing	Roleplaying
<b>Searching</b>	Predicting	Presenting	Prioritizing	Revising	Simulating
Selecting	<b>Relating</b>	Running	Questioning	Scoring	Solving
Tabulating	Subscribing	Sharing	<b>Separating</b>	Supporting	Structuring
Telling	Summarizing	<b>Sketching</b>	<b>Structuring</b>	Testing	Video blogging
<b>Visualizing</b>	Tagging	Uploading	Surveying	Validating	Wiki building
	Tweeting	<b>Using</b>			Writing

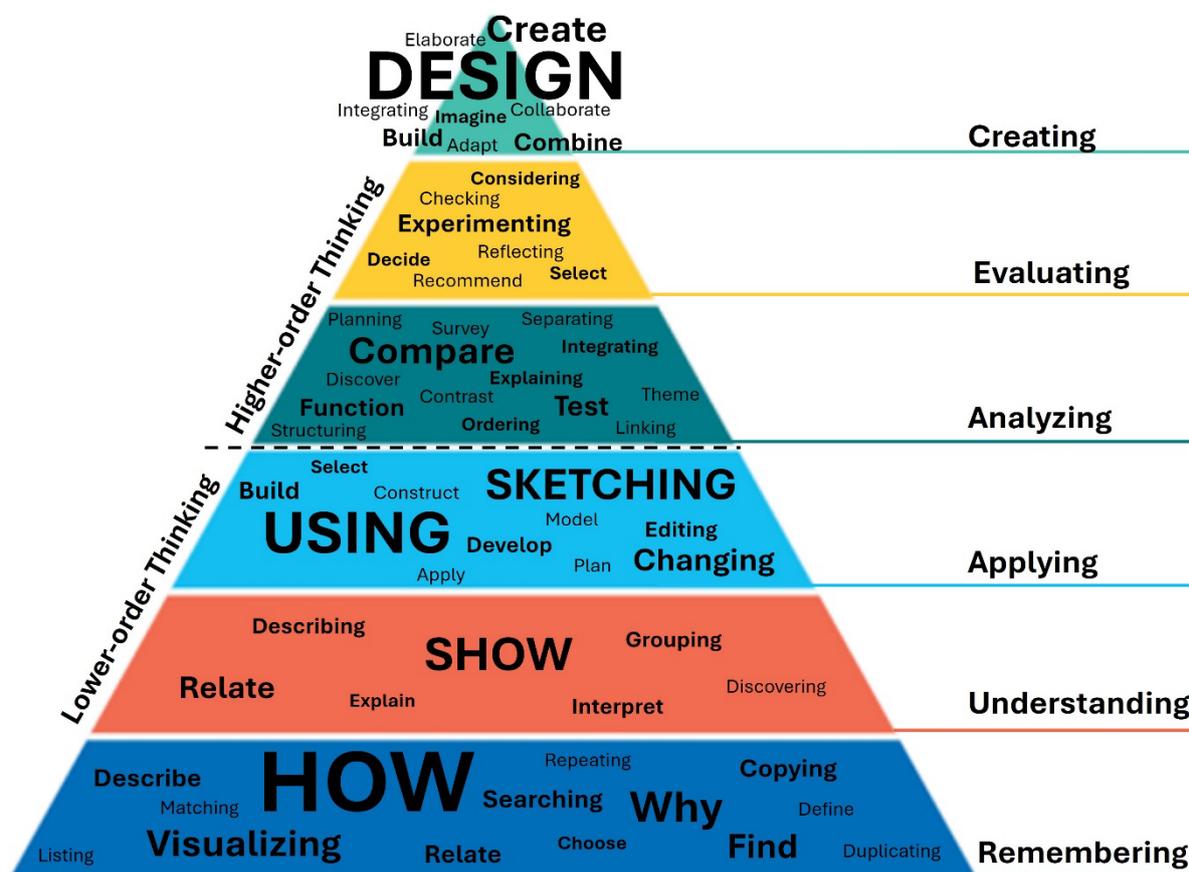
## Results

### Students’ Cognitive Development

The qualitative findings from the focus groups revealed patterns in how students engaged with GAI tools across Bloom’s cognitive hierarchy. The frequency and distribution of the action verbs across the different levels provided clear evidence of where students were operating cognitively and revealed gaps between lower-order foundational skills and the higher-order creative thinking they were attempting to achieve using generative AI tools. The visual

representation in Figure 5 maps the action verbs students used during the focus group discussions, with word size directly correlating to frequency of use: the larger the word, the more often it was used by students.

**Figure 5**  
*Frequently Used Action Verbs by Students in Correlation With Revised Bloom’s Taxonomy*



At the foundational Remembering level, where the focus is on retrieving information and basic concepts from memory, the dominant use of the verbs how, why, and visualizing indicated that students were heavily focused on GAI tools discovery and recalling instruction from the expert. As the students progressed to the second stage, Understanding, the cognitive goal is to explain one’s ideas and demonstrate comprehension of the learning activity. The verbs show and relate appear prominently, suggesting students were working to grasp GAI capabilities. At this level, it was also noted that the use of these verbs decreased compared to the previous stage. By the Applying level, the task is familiar to the student, and they can implement the known information in new situations. The study showed significant engagement, with an increase in the use of the action verbs, particularly using and sketching, which demonstrated hands-on tool manipulation. As lower-order thinking shifts to higher-order thinking in the Analyzing stage, the study sought evidence of organization and reflection on design iterations developed through GAI techniques, enabling the students to make new connections among their design outputs. Results noted several action verbs spoken, but with less frequent usage. Compare and test emerged most often, reinforcing this stage of analytical cognitive development. To master the Evaluating stage, students must justify their design decisions based on established criteria. This level showed even sparser activity, while the final Creating stage saw a dramatic increase, when students should be producing new designs based on the scaffolding of the developed skills. At this highest order of thinking level, the verb design is prominently used, supported by much

smaller verb use. This pattern visually highlights that students jumped to the Creating tasks without sufficient foundation-building in the lower-order thinking stages.

### **Student Reflections**

Further qualitative findings from direct participant quotes during the focus group discussions illuminate the cognitive journey students experienced with GAI tools throughout the various stages of Bloom's taxonomy. Noted is the progression during the design process: from excitement at the Remembering stage, to frustration during the Applying and Analyzing stages, and then back to excitement in the Evaluating stage.

At the Remembering level, students expressed genuine enthusiasm: "I was excited to see how I can use it to figure out what I want." This initial curiosity continued into Understanding, "where one student noted how AI "helped to show how it actually looked like on a person." However, we observed the emergence of frustration during the critical shift at the Applying and Analyzing level. One student explicitly states: "I stopped using it in my design process because I became frustrated with it." And another, "I can make two images in one hour, far faster compared to fighting with AI." This aligns with the disproportionate word sizes captured in Figure 5 between foundational and advanced levels of thinking, which illustrate the cognitive gaps that led to the frustration observed growing at this stage. This pattern demonstrates that frustration occurs precisely when students attempt to apply GAI tools without sufficient foundational mastery. The quotes from higher stages demonstrate recovery. Students who persisted through the application challenges eventually reached sophisticated levels of evaluation and creation, with one noting AI's efficiency "compared to traditional methods." Another stated, "I was trying to experiment with the floor plan where I wish I'd started with AI, because it's so in my design process right now." And further, "For me, you have to have an open mind when it comes to designing with AI."

Upon completion of the project, post-survey metrics indicate that 42% of students were not satisfied with their Generative AI experience, and 43% did not find AI helpful for generating design ideas. With nearly half of the participants experiencing difficulties with GAI, these numbers reinforce those from the focus group narratives, revealing the challenges during the transition from lower- to higher-order thinking stages outlined in Revised Bloom's Taxonomy.

### **Discussion**

The study reveals critical insights surrounding our initial research question on the role of GAI in design education. It explores how students incorporate these tools compared to traditional methods, highlighting important implications for aligning teaching practices with Revised Bloom's Taxonomy. First, regarding its role in the design process, the data indicates that students bypass certain stages of learning with GAI, which led to frustration with this technology. This bypass that ensued fundamentally misaligns with how learning should occur following Revised Bloom's Taxonomy. Students rushed through the learning process of GAI, advancing too quickly from basic tool recognition to complex creative tasks without building essential foundations in understanding and application. To prevent this, it is essential to recognize that this emerging technology requires extended time in the lower-order foundational stages. Educators should require demonstrated competency before allowing students to advance to a higher cognitive level. To strengthen Bloom's model and address the frustration that emerges, the answer to our second research question suggests a need to build robust support systems into teaching activities, such as peer collaboration and implementing low-

stakes practice projects. For example, implementing simple design challenges that utilize specific GAI functions would allow for skill-building without high-pressure outcomes. The study also demonstrates a gain in confidence when proper pedagogical approaches are followed, validating the potential of integrating GAI into the design process. To leverage these confidence gains, the researchers suggest that educators should celebrate early wins to motivate continued learning and incorporate structured self-reflection throughout the learning process. When comparing GAI to traditional design methods, the study found that GAI requires the same foundational learning investment as any design tool, and when properly scaffolded, students found that it “saved a lot of time compared to traditional methods.” The study demonstrates that GAI is not replacing traditional design pedagogy, but rather is used alongside, thus amplifying the importance of systematic educational scaffolding through Revised Bloom’s Taxonomy.

### **Conclusion**

This multidisciplinary project yielded positive overall outcomes regarding the integration of GAI into design students’ processes and the impact on their higher-level thinking through the framework of Revised Bloom’s Taxonomy. The paper highlights gaps in learning and provides potential instructional strategies to fill those gaps. Integrating GAI into this learning structure enables graduates to acquire new skills and transfer them into professional practice, thereby bridging the gap between academic learning and industry application.

Given the study’s limitations, including a small sample size, one should exercise caution when generalizing findings to different student populations. Future research should expand the participant pool and data collection methods to include one-on-one interviews. Additionally, future studies would benefit from testing the instructional recommendations, thereby expanding the breadth of knowledge gained through this learning framework in connection with GAI. Despite these limitations, the research provides a foundation for educators seeking to integrate emerging technologies meaningfully into design curricula.

## References

- Almaz, A. F., El-Agouz, E. A., Abdelfatah, M. T., & Mohamed, I. R. (2024). The Future Role of Artificial Intelligence (AI) Design's Integration into Architectural and Interior Design Education is to Improve Efficiency, Sustainability, and Creativity. *Civil Engineering and Architecture*, 3(12), 1749–72. <https://doi.org/10.13189/cea.2024.120336>
- Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., Raths, J., & Wittrock, M. C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives* (Complete edition). Longman.
- Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook 1: Cognitive domain*. David McKay Company, Inc.
- Bye, E. (2010). A direction for clothing textile design research. *Clothing and Textiles Research Journal*, 28(3), 205–217. <https://doi.org/10.1177/0887302X10371505>
- Cao, Y., Aziz, A. A., & Arshard, W. N. R. M. (2023). University students' perspectives on Artificial Intelligence: A survey of attitudes and awareness among Interior Architecture students. *IJERI: International Journal of Educational Research and Innovation*, (20), 1–21. <https://doi.org/10.46661/ijeri.8429>
- Ceylan, S. (2021). Artificial Intelligence in Architecture: An Educational Perspective. Proceedings of the 13th International Conference on Computer Supported Education. <https://doi.org/10.5220/0010444501000107>
- Churches, A. (2008). Bloom's Digital Taxonomy [PDF]. ResearchGate. [https://www.researchgate.net/publication/228381038\\_Bloom's\\_Digital\\_Taxonomy](https://www.researchgate.net/publication/228381038_Bloom's_Digital_Taxonomy).
- Cross, N. (1982). Designerly ways of knowing. *Design Studies*, 3(4), 221–227. [https://doi.org/10.1016/0142-694x\(82\)90040-0](https://doi.org/10.1016/0142-694x(82)90040-0)
- Derakhshan, A., & Taghizadeh, M. S. (2025). Does Artificial Intelligence (AI) Nurture or Hinder Language Learners' Higher-Order Thinking Skills (HOTS)? A Phenomenological Study on L2 Learners' Perspectives and Lived Experiences. *International Journal of Applied Linguistics*. <https://doi.org/10.1111/ijal.12824>
- Gregory, S. A. (1966). Design and the Design Method, In Gregory, S.A. (eds), *The Design Method* (pp. 3–10). Springer US. [https://doi.org/10.1007/978-1-4899-6331-4\\_1](https://doi.org/10.1007/978-1-4899-6331-4_1)
- Haenlein, M., & Kaplan, A. (2019). A Brief History of Artificial Intelligence: On the Past, Present, and Future of Artificial Intelligence. *California Management Review*, 61(4), 5–14.
- Jung, D., & Suh, S. (2024). Enhancing Soft Skills through Generative AI in Sustainable Fashion Textile Design Education. *Sustainability*, 16(16), 6973. <https://doi.org/10.3390/su16166973>

- Krathwohl, D. R. (2002). A Revision of Bloom's Taxonomy: An Overview. *Theory Into Practice, 41*(4), 212–218. [https://doi.org/10.1207/s15430421tip4104\\_2](https://doi.org/10.1207/s15430421tip4104_2)
- Li, C., & Xie, G. (2022, January). The application of virtual reality technology in interior design education: A case study exploring learner acceptance. In *2022 2nd International Conference on Consumer Electronics and Computer Engineering (ICCECE)* (pp. 680–684). IEEE. <https://doi.org/10.1109/ICCECE54139.2022.9712831>
- Mahendarto, T. (2025). History of Artificial Intelligence and Its Potential to Revolutionising the Interior Design Industry. *Journal of Artificial Intelligence in Architecture, 4*(1), 1–13. <https://doi.org/10.24002/jarina.v4i1.9111>
- Nehru, R. S. S., Paredes, S., Roy, S. C., Cuong, T. Q., & Huong, B. T. T. (2025). Implementing the Revised Bloom's Taxonomy (2001) in AI-Digital and Online Learning Environments: A Strategic Approach. *Indian Journal of Educational Technology, 7*(1), 173–189.
- Nugroho, S. B., Annasit, Annasit, Hamid, A. F., & Setiyono, A. (2025). Application of AI in the Creative Process: Case Study in the Design Industry. *Journal of Social Entrepreneurship and Creative, 2*(1), 24–35. <https://doi.org/10.70177/jseact.v2i1.2053>
- Nyumba, T. O., Wilson, K, Derrick, C. J., & Mukherjee, N. (2018). The Use of Focus Group Discussion Methodology: Insights from Two Decades of Application in Conservation. *Methods in Ecology and Evolution, 9*(1), 20–32. <https://doi.org/10.1111/2041-210X.12860>
- Schön, D. A. (1984). *The Reflective Practitioner: How Professionals Think in Action*. Basic Books. [https://www.academia.edu/36335079/Donald\\_A\\_Sch%C3%B6n\\_The\\_Reflective\\_Practitioner\\_How\\_Professionals\\_Think\\_In\\_Action\\_Basic\\_Books\\_1984\\_pdf](https://www.academia.edu/36335079/Donald_A_Sch%C3%B6n_The_Reflective_Practitioner_How_Professionals_Think_In_Action_Basic_Books_1984_pdf)
- Verganti, R., Vendraminelli, L., & Iansiti, M. (2020). Innovation and design in the age of artificial intelligence. *Journal of Product Innovation Management, 37*(3), 212–227. <https://doi.org/10.1111/jpim.12523>
- Valsson, S. (2022, September 7). Blooms Taxonomy in Studio Design Process in Architecture Education [PDF]. SSRN. <http://doi.org/10.2139/ssrn.4212297>

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