

Enhancing Educational Practices for Gifted Students in Undergraduate Interior Design Programs

(A Focus on Selection Standards, Academic Needs, and Inclusive Learning Environments in Saudi Arabia)

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ABSTRACT

This study aims to explore the academic challenges faced by gifted undergraduate students in inclusive learning environments within interior design programs at universities. Grounded in the Theory of Multiple Intelligences and Personalized Learning Theory, it examines the criteria for identifying talented students, evaluates their effectiveness, and investigates their academic demands and obstacles. The research methodology encompasses literature reviews, theoretical frameworks, and surveys targeting both educators and gifted students. The findings emphasize the importance of considering diverse intelligences, such as visual-spatial, intrapersonal, and social intelligence, in recognizing gifted students. Educator surveys highlight creativity, problem-solving skills, and high motivation as critical indicators, while student surveys reveal deficiencies in existing evaluation methods. These shortcomings suggest that current practices may not adequately capture the true capabilities of gifted learners. Additionally, the study identifies key academic difficulties encountered by these students, including insufficient intellectual stimulation, academic underachievement, social isolation, and the pressure to achieve perfection. These barriers significantly hinder their ability to fully realize their potential in academic and professional settings. By addressing these issues, the research underscores the necessity of further investigations into improving evaluation systems and fostering inclusive environments that accommodate the unique needs of gifted students. This approach is essential to enhancing their intellectual and creative growth, ultimately contributing to a more supportive and effective educational experience in undergraduate interior design programs.

Keywords: Interior design education, academic challenges, gifted undergraduate students, inclusive learning environments.

1. Introduction

The domain of interior design, abundant in creativity and originality, is frequently seen as a demanding scholarly field that necessitates not solely a sharp aesthetic sense but also the capacity to engage in critical thinking and address issues. However, when it comes to gifted undergraduate students—those possessing extraordinary talent and potential—the traditional educational frameworks in Saudi Arabia may fall short. These students frequently encounter barriers that can stifle their unique abilities and learning styles. This paper delves into enhancing educational practices specifically tailored for these gifted students within undergraduate interior design programs across the Kingdom. We aim to scrutinize selection standards, delve into the specific academic needs of these students, and explore the creation of inclusive learning environments that foster their intellectual growth and creative expression. The central argument presented in this paper posits that customized teaching, which adapts educational interactions to the specific requirements and preferences of each learner, is poised to effectively augment involvement and drive among talented students studying interior design when juxtaposed with traditional teaching methodologies.

Building on the identified need for specialized educational frameworks, it becomes essential to dissect how current selection standards in Saudi undergraduate interior design programs might be tailored to better recognize and cultivate the abilities of gifted students. According to ALABDULLATIF (2020), rigorous and nuanced criteria are required to effectively identify giftedness in creative disciplines such as interior design, where traditional metrics of academic achievement may not fully capture a student's potential or innovative capabilities. As supported by research from J Chen, D Yun Dai, and Y Zhou (2013), there is a pressing need for academic environments that not only challenge these students but also adapt to their advanced cognitive processes and divergent thinking patterns. This adaptation could be facilitated through the implementation of dynamic curriculum structures that are flexible enough to accommodate individual learning paces and preferences. Such environments would ideally leverage technology to create a more engaging and personalized learning experience—an approach underscored by Russo and Ford (2015) who advocate for digital platforms' role in providing differentiated learning pathways for gifted learners. This underscores the hypothesis that education tailored to personal aptitudes will likely result in heightened engagement and motivation among gifted interior design students, thereby maximizing their educational outcomes.

The necessity of transforming traditional educational frameworks to accommodate the unique needs and potentials of gifted interior design students in Saudi Arabia cannot be overstated. By integrating personalized instruction into undergraduate programs, we not only enhance the academic engagement and motivation of these talented individuals but also empower them to fully express their creative capabilities. While this paper has outlined a broad framework for such an integration, including revised

selection standards and tailored learning environments, it acknowledges that practical implementation may present challenges and necessitates further research. The journey towards an inclusive and dynamic educational system is ongoing, yet essential. It promises not only to nurture the inherent talents within these gifted students but also to enrich the field of interior design itself with innovative ideas and ground breaking designs that can resonate well beyond academic settings into global markets and cultural landscapes.

1.1 Research Problem:

How can educational practices and learning environments in undergraduate interior design programs be enhanced to effectively support and nurture the academic and creative development of gifted students?

1.2 Objectives:

1. To determine the standards for selecting talented undergraduate interior design students.
2. To understand the academic requirements and needs of gifted undergraduate students in interior design programs in Saudi Arabia.
3. To examine the essential characteristics of an inclusive learning environment for gifted students in interior design at the undergraduate level.

1.3 Research Questions & Hypothesis:

1. What criteria can be used to identify gifted students in interior design at the undergraduate level?
2. What are the academic requirements and needs of gifted undergraduate students in multi-level learning environments in interior design program?
3. What are the characteristics of an inclusive learning environment for gifted students in interior design at the undergraduate level?
4. Hypothesis 1: Students who receive personalized instruction that matches their individual needs and interests will demonstrate higher levels of engagement and motivation in their learning compared to those who receive traditional, one-size-fits-all instruction.

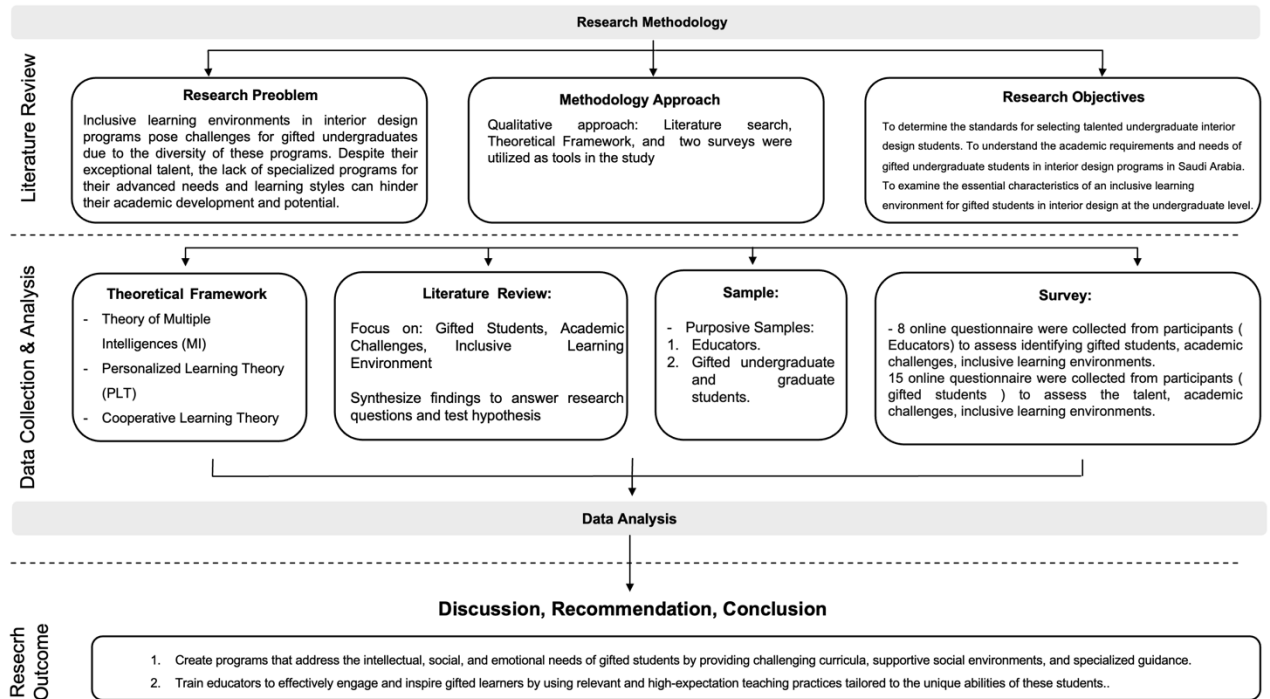


Figure 1: Research Methodology [Figure credit: author]

1.4 Terminology:

Gifted Undergraduate Students: are undergraduate students demonstrate exceptional abilities and potential in the field of interior design.

Inclusive Learning Environment: This refer to pertains to the educational program in interior design at a university in Saudi Arabia, accommodating students of all abilities, including both non-gifted and gifted individuals.

Examinations Interior Design Program Admission: refers to the standardized tests or assessments designed to evaluate the abilities, skills, and knowledge of individuals seeking admission into an interior design program.

1.5 Theoretical Framework:

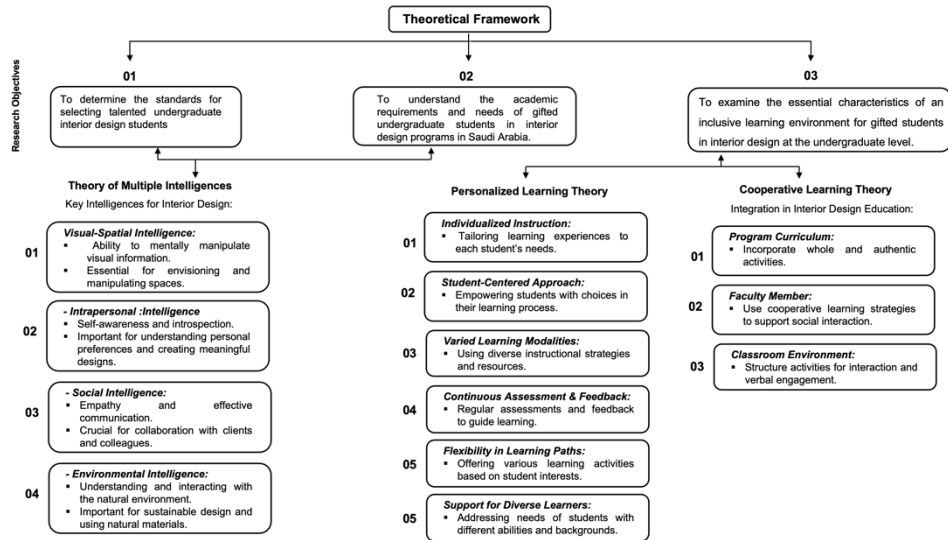


Figure 2: Theoretical framework [Figure credit: author]

The investigation in this study is centered on the criteria used for the identification of gifted students enrolled in the interior design program at the undergraduate level. Additionally, the study aims to recognize the academic obstacles encountered by gifted undergraduate students within educational settings that cater to students with varying levels of abilities. Furthermore, the research seeks to outline the key characteristics of an inclusive learning environment specifically designed to address the needs of these gifted students at University's interior design program.

This framework offers a foundational understanding of the distinct requirements and obstacles faced by gifted students within a variety of educational contexts. Moreover, it functions as a point of reference for developing research inquiries, methodologies, and approaches for data analysis.

1.5.1 Theory of Multiple Intelligences:

Proposed by Howard Gardner (Gardner, H. E. (2000). *Intelligence reframed: Multiple intelligences for the 21st century*. Hachette UK.), this theory suggests that intelligence is not a singular, fixed entity but rather encompasses various intelligences. These include linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and natural intelligence. By considering the theory of multiple intelligences, the study aims to identify specific areas where gifted undergraduate students may encounter challenges in

multi-level learning environments. From the researcher's perspective, it is believed that an interior design student with exceptional abilities may possess several intelligences such as:

- **Visual-Spatial Intelligence:** This refers to the ability to mentally perceive and manipulate visual information—an essential skill in interior design as it involves envisioning and manipulating space and aesthetics.
- **Intrapersonal Intelligence:** This relates to self-awareness, introspection, and understanding one's own emotions and motivations—an important aspect for gifted interior design students who need a strong understanding of themselves and their personal preferences to create well-designed and meaningful interior spaces.
- **Social Intelligence:** This involves understanding and connecting with others through empathy and effective communication skills—crucial for gifted interior design students who often collaborate with clients, colleagues, and professionals.
- **Environmental Intelligence:** This encompasses understanding and interacting with the natural environment, including utilizing natural materials and practicing sustainable design.

Overall, this study aims to explore the specific academic challenges faced by gifted undergraduate students in the multi-level learning environments of Interior Design in SA.

1.5.2 Personalized Learning Theory:

This approach recognizes that learners have diverse backgrounds, interests, learning styles, and learning paces. Key points about personalized learning theory include:

- **Individualized Instruction:** The theory advocates for tailoring learning experiences to address the unique needs and interests of each student. This may involve adapting the curriculum, pace, and teaching strategies according to each student's preferences and skill level.
- **Student-Centered Approach:** Personalized learning places the student at the center of the learning process, empowering them by offering more choice in what they learn, how they learn it, and when they learn it.
- **Varied Learning Modalities:** Recognizing that students have different ways of learning, personalized learning theory encourages the use of diverse instructional strategies and resources such as individual assignments, collaborative projects, technology-based tools, and practical exercises.
- **Continuous Assessment and Feedback:** Personalized learning often includes ongoing assessment to measure student progress and

understanding. Teachers provide regular feedback to help students track their own learning and make necessary adjustments along the way.

- **Flexibility in Learning Paths:** In personalized learning environments, students have opportunities to choose from a range of learning paths or activities based on their interests and goals. This promotes independence and ownership in their educational journey.
- **Support for Diverse Learners:** Personalized learning theory emphasizes addressing the needs of diverse learners—including those with varying abilities, cultural backgrounds, and learning challenges—to create inclusive classrooms where all students can succeed.

1.5.3 The Theory of Cooperative Learning (David W. Johnson) (Roger T. Johnson):

Johnson, R. T., & Johnson, D. W. (2008). It supports the creation of an inclusive learning environment across all three areas:

- **Program Curriculum**
- **Faculty Member**
- **Classroom Environment**

The use of whole and authentic activities, social interaction, and individual accountability, as recommended by Vygotsky's zone of proximal development, can be integrated into the program.

the curriculum is designed with the intention of guaranteeing that every student is actively involved and receives adequate support during their educational process. Faculty members can incorporate cooperative learning strategies to provide social support for achievement and encourage meaningful interaction among students. In the classroom environment, activities should be structured to foster interaction between group members, encourage self-talk or egocentric speech, and provide opportunities for verbal interactions, all of which align with the principles of cooperative learning and inclusive education.

1.6 Research Outlines:

1.6.1 Determine the criteria and standards used in selecting talented students in the interior design program at the undergraduate level.

The process of choosing proficient students for enrollment in bachelor's level interior design courses is a multifaceted procedure that encompasses various criteria and benchmarks. Samanoudy (2020) emphasizes the importance of identifying and supporting gifted students, particularly through the use of creative and critical

thinking strategies. Huang (2023) highlights the need for practical and innovative talents, suggesting a focus on the integration of production and education. However, Aburas (2018) challenges the effectiveness of traditional admission exams, suggesting that they may not be a reliable predictor of student performance. This is further supported by Brunner (2009), who questions the best predictors of future success in interior design programs. These studies concomitantly indicate the necessity for a comprehensive and ingenious strategy in the identification of gifted students, which surpasses conventional metrics and takes into account a variety of competencies and aptitudes.

1.6.2 Evaluate the effectiveness of those criteria and criteria in selecting gifted students and ensuring their proper representation.

The effectiveness of criteria in selecting and representing gifted students is a complex issue. Peters (2019) found that modified screening criteria had only a modest impact on reducing underrepresentation, suggesting a need for more comprehensive strategies. Aboud (2023) and Arslantaş (2021) both emphasized the importance of personal characteristics in teachers of gifted students, with the latter highlighting the need for social skills in the selection process. Bartosh (2022) proposed subject-specific criteria for identifying gifted students, emphasizing the need for clear, objective, and case-specific criteria. These studies collectively suggest that a combination of modified screening criteria, emphasis on personal characteristics in teachers, and subject-specific criteria may be more effective in selecting and representing gifted students.

1.6.3 Understanding The academic challenges for undergraduate gifted students that may be faced in Inclusive learning environments.

Undergraduate gifted students face complex and multifaceted academic challenges in multi-level learning environments. (Hébert & McBee, 2007) both highlight several academic challenges in multi-level learning environments, including:

- Lack of Challenge: Academic content and pace may be too slow, failing to stimulate their intellectual curiosity and learning.
- Underachievement: Without appropriate challenges and motivation, gifted students may become complacent, leading to underachievement despite their potential.
- Social Isolation: In instances where they find few peers at their intellectual level, social integration can be difficult, potentially leading to feelings of isolation.
- Perfectionism: High expectations from oneself or others may result in stress, apprehension of failure, and a pursuit of perfection, all of which have the potential to impede performance and willingness to take risks.

- Boredom and Disengagement: A curriculum that does not cater to their advanced learning needs can lead to boredom and disengagement from academic tasks.
- Inadequate Guidance: Gifted students might require more specialized guidance for their learning pathways and career planning, and a lack of this can lead to frustration and lost potential.
- Balancing Various Interests: Numerous intellectually gifted students possess a diverse array of interests, presenting a challenge in effectively managing their academic responsibilities alongside their unique intellectual endeavors.
- Fixed Mindset: In some cases, gifted students may develop a fixed mindset, believing their abilities are innate rather than improvable through effort, which can limit their learning and resilience.

In conclusion, the journey of gifted students through higher education embodies a paradox where their brightest capabilities can sometimes cast the deepest shadows on their academic and personal paths. It becomes clear that without appropriate interventions and support, these talented young minds may continue to face significant hurdles that hinder their ability to fully engage and succeed in undergraduate settings. Addressing the complex challenges faced by gifted students is not merely an educational obligation but a crucial investment in cultivating the potential leaders, innovators, and thinkers of tomorrow. By implementing specialized support systems tailored to address issues like intellectual stimulation, social integration, and mental flexibility, educational institutions can transform potential obstacles into stepping stones for success. The broader implications suggest a pressing need for continued research and dialogue around supporting gifted learners effectively — recognizing that nurturing these unique individuals could have far-reaching effects beyond academic achievements to influence diverse spheres of societal progress.

1.6.4 Analyzing the basic qualities of the included learning environment and their role in enhancing the learning experience for gifted students in interior design at the undergraduate level.

Research underscores the critical role of inclusive learning environments in higher education, particularly for BIPOC students (Dawson, 2022). Inclusive education practices are essential for accommodating diverse learners, including promoting educational equality (Akbar, 2023).

Basic Qualities of the Included Learning Environment:

- **Physical Environment (Classroom Design, Resources, Technology):**

How a classroom is arranged says a lot about the underlying education philosophies. They exert a subtle influence on what goes on within the space. In a certain aspect, it can be described as architecture serving as a form of teaching. Essentially, a classroom has the capacity to function as a basic environment for imparting a traditional education, or it has the potential to serve as a setting where both the educator and the learner are challenged to engage in higher levels of cognitive development, regardless of comprehension. with or without understanding. Of course, many classrooms fall between these extremes. The presence of creativity in education is vital, mostly for the intellectually brilliant students who are not satisfied with the standard, mundane curriculum that does not challenge them enough. Gifted students need to be motivated to work and exciting them intellectually serves that purpose. The ideal classroom serves as a physical environment where that can happen; it is a place where students can safely push their intellectual limits... This new way of thinking about space recognizes not only that these individuals have special requirements but also that they hold untapped possibilities for pushing the boundaries of art and creativity. Unlike conventional layouts, which tend to appear neat and streamlined, this space abounds in rich and unpredictable forms.

Clearly reveals the limitations of traditional classroom arrangements. They simply don't have the pizzazz and excitement to engage the imagination of our undergraduates. Gifted students and inherently creative individuals working in specialized academic domains like the visual arts can certainly vouch for this. So, what is a dynamic physical college space and why is it important? Ronksley Pavia (2014) summarized it pretty well, we thought, when she wrote: "The implication of genius in a restricted space in a straight line is... that we have to conceive of a true space that will engage the imagination in a way that the mundane, the linear, and the straight just can't." Take, for example, the doctoral thesis of S Waiyarod (2007), an instructive account of a program to foster creativity really among a group of scientifically talented students. The program's theory of change rests on this premise: "If the powers of observation, synthesis of enormous amounts of knowledge, and creativity in thinking are intensified among the talented individuals in any particular field of the natural sciences, what will be the kind of cognitive gains for these individuals?" The laws of gravitational physics are likely to lead to some kind of Enlightenment. Solution design thinking is likely to teach these young people to penetrate the nature of problems and find ways to solve them. When architects for schools pay attention to necessary features, individual and collective needs for various spaces in both traditional and informal physical teaching and learning environments are met. These creative environments for gifted students have a profound effect, not just on academic intelligence but also on creative intelligence. Whether I was observing a labor-intensive science experiment, a heated debate over human rights, a theater rehearsal, or the final hours of an art project, it was clear that being in the same space with intensely engaged undergraduates had a profound effect on their brains.

- **Social Environment (Peer Interactions, Support Networks):**

The trajectory of academic success is influenced not only by individual talent and determination but also significantly by the surrounding social environment. This holds especially true for academically talented undergraduate students, whose distinctive cognitive capacities and learning preferences distinguish them from their classmates. Despite the significant focus on addressing the academic requirements of this group, there is an increasing acknowledgment of the pivotal influence of their social engagements on molding their academic achievements. Peer influences can both propel and impede the academic performance of gifted students, making it a critical area of study for educators and policymakers alike. Through examining the influence of peer interactions, this text will argue that undergraduate gifted students' academic performance is significantly affected by their social environment, highlighting the need for targeted support and interventions in higher education. This exploration not only challenges the conventional focus solely on intellectual development but also opens up a discussion about how educational institutions can better serve their exceptional student populations through holistic support systems.

Building on the premise that social interactions significantly shape educational outcomes, research underscores the nuanced dynamics of peer influence among gifted undergraduate students. According to Cross (2021), fostering an environment where gifted students can interact with intellectual peers is essential for their emotional and academic growth. This interaction not only stimulates cognitive engagement but also serves as a critical platform for emotional support, which can greatly enhance performance. Hernández-Lastiri, Borges, and Cadenas (2019) further explore this notion by studying how continuity in peer interactions directly correlates with sustained academic engagement and success among gifted individuals. Their findings suggest that consistent positive peer influences provide a stability that contributes to better focus and higher achievement rates in rigorous academic settings. Similarly, Langley (2010) points out that integrating high-performing gifted students with peers who may be struggling academically benefits all parties involved, promoting a mutually enriching learning atmosphere that uplifts the entire student cohort. These studies collectively highlight the significant impact of peer networks on gifted students' academic trajectories, suggesting targeted interventions should not only focus on individual aptitudes but also on cultivating supportive and intellectually stimulating social environments within higher education institutions.

- **Instructional Environment (Teaching Methods, Curriculum Design):**

The college scene for talented undergrads can be quite intricate. What is frequently expected for these students is a high level of academic performance in their courses, not solely due to their possession of unique knowledge, but rather owing to their adept utilization of existing knowledge. People just expect that if you put enough "innate smarts" in a room with a few "gifted instructors," inevitably, world-shaking

breakthroughs will result. The idea that being gifted on its own leads to academic achievement and personal growth is a myth that this essay wants to dispel. Instead, it will be argued that the crucial factor influencing the development of gifted individuals is the learning environment. It will be shown that the instructional approach employed to teach these students, tailored to the specific context, has a significantly greater and enduring effect on their overall well-being than the concept of giftedness.

Intricacies of College for Talented Undergraduates:

- Talented students are expected to excel based on preexisting knowledge.
- Common belief: innate intelligence plus gifted instructors lead to breakthroughs.
- Myth: being gifted alone guarantees academic and personal growth.

Environment and Teaching Paradigms:

- Environment significantly impacts gifted students' development.
- Teaching methods in specific contexts have profound, lasting impacts.
- This paper explores how educational models affect exceptional learners.

Types of Exceptional Learners and Instructional Models:

- Definition and explanation of different types of exceptional learners.
- Discussion of prevalent instructional models and associated philosophies.
- Examination of conditions for an "optimally managed" instructional environment.

Impact of Optimized Teaching Methods:

- Research indicates optimized curriculum and teaching methods lead to better outcomes for gifted students.
- Franc Del Pezzo emphasizes the importance of curriculum and instruction.
- Chandler (2015): Curriculum must inspire gifted students; they need engagement and inspiration.

Challenges and Misconceptions in Gifted Education

- Gifted education is often seen as elitist or unnecessary.
- Teaching practices must cater to the unique needs of gifted learners.
- Effective instructional practices are critical for student learning gains.

Educational Reform and Support:

- Growth of gifted students depends on learning environments, not just innate abilities.
- Need for educational institutions to reevaluate support for gifted learners.
- Importance of recognizing and addressing flaws in current education systems.

Investing in Effective Education:

- Supporting gifted students benefits society without harming other student groups.
- Education reform ought to be directed towards ensuring that the educational system caters to the needs of every student.
- Importance of investing in effective educational practices for gifted learners.

1.7 Literature Review:

The researcher indicates a lack of existing literature on gifted undergraduate students in higher education, emphasizing the need for further exploration in this area.

1.7.1 Gifted Undergraduate Students: An Overview .

A. Almukhambetova, and Daniel Hernández-Torran. (2020) offer a study that offers important insights into the nuances of gifted (under)achievement in a setting where giftedness is primarily characterized by great intellectual capability and academic performance. It highlights the widespread use of performance-based criteria to identify talented kids, the ubiquity of gifted education special schools, and the societal focus on developing young people's potential for the benefit of economies and societies at large. Results highlight the critical roles that the learning environments of universities and gifted secondary schools play, as well as the impact of important people like parents, friends, and teachers. These factors emerged as critical determinants, either facilitating or hindering the development of self-determination among gifted graduates, subsequently impacting their ability to adjust and succeed in the university landscape.

Also, Munirah Saud Al-Subaie. (2020), focuses on the lack of attention to talented students in universities in the Kingdom of Saudi Arabia. The study highlights the necessity of concentrating more on gifted children and carrying out additional research and studies to enhance their academic endeavours and teaching standards. It also emphasizes how important it is to have unique partnerships to support care programs for gifted students and to include evidence-based programs into all of them.

1.7.2 Importance of effective criteria and methods for gifted students in the field of creative fields /educational fields .

Research has identified several effective criteria and methods for nurturing the creativity of gifted students in educational and creative fields. Škrabánková (2013) emphasizes the importance of teacher creativity and the selection of appropriate teaching methods, while Piske (2014) underscores the role of creative educational practices, particularly those involving art, in the inclusion of gifted students. Ngiamsunthorn (2020) suggests that challenge-based learning, problem-solving processes, and project-based learning can enhance creative thinking in mathematics, and Ayik (2022) introduces a systematic approach to evaluating creativity in designs created by gifted students, considering the socio-cultural context of the classroom. These studies collectively highlight the need for a combination of teacher creativity, creative educational practices, and specific teaching and learning approaches to effectively nurture the creativity of gifted students.

1.7.3 Examinations for Identifying Talented Students for Interior Design Program Admission.

A range of methods have been proposed for identifying talented individuals for entry into interior design programs. Jane, Kolar. (1987) sought a study to assess the predictive potential of standardized tests for admission into the Interior Design Program at Texas Christian University. The battery of tests included three differential aptitude tests (Space Relations, Abstract Reasoning, and Mechanical Reasoning) alongside the Meier Art Judgement Test. The data analyzed spanned the years 1980 to 1984. The test results were statistically analyzed by researchers to ascertain the test scores' predictive validity for successful program entry. The examinations were designed to identify students' perceptual strengths and shortcomings, but they were not utilized as final admissions criteria. The cumulative GPA of students accepted into the Interior Design program was also compared by the researchers to that of students who were not selected for portfolio assessment. Results highlighted that only the Art Judgement Test and GPA significantly predicted program entry. These findings support earlier research that suggests artistic and perceptual skills may be taught to anyone, regardless of background.

Research on identifying talented students for interior design programs has revealed a variety of factors to consider. Samanoudy (2020) emphasizes the need for creative and critical thinking strategies, while Aburas (2018) suggests that admission exams may not be a reliable indicator of future performance. Baker (1989) underscores the importance of professional qualifications and attributes, such as design theory application and communication skills. Finally, Liu (2021) highlights the industry's expectations for professional competence, including design operation, marketing management, and future design learning capabilities. These findings suggest that a holistic approach, considering both academic and practical skills, may be the most effective way to identify talented students for interior design programs.

1.7.4 Academic Challenges Faced by Gifted Undergraduate Students .

Gifted undergraduate students face a range of academic challenges, including isolation, lack of intellectual stimulation, and the need for psychosocial growth (Hébert, 2007). To address these challenges, universities must create environments that foster creativity and knowledge diffusion, and provide opportunities for research and teaching (Brychová, 1992). Additionally, educators must be equipped to support and challenge gifted learners, which requires a deep understanding of the nature of giftedness and intelligence (Goodnough, 2000).

Additionally, in 2015, (Conejeros-Solar & Gómez-Arizaga, 2015) study looked at the experiences, academic traits, and obstacles gifted college students confront in higher education. The study highlights the disparities in the academic growth and interactions between gifted and nongifted college students by comparing their sociodemographic and academic characteristics. The main difficulties faced by gifted students in college include struggling with managing time having difficulty, with studying and lacking in depth knowledge because of preparation, during high school. The study highlights the necessity of efforts and support that are specifically designed to meet the needs of gifted college students. A self-reported questionnaire was utilized to gather information on sociodemographic, academic, and college persistence factors for this descriptive-comparative study. According to the study, talented students outperformed their nongifted peers academically in high school and college, earning higher grades and test scores for admission. The study did, however, also show how high school type affects college admission scores, with talented students from public high schools typically performing worse on national college entrance exams.

1.7.5 The impact of university learning environments and teacher practices on the success of gifted students.

This Study by (D. Hammond, Matthew T. McBee, and Thomas P. Hébert. 2007) Focuses on qualitative interviews, the authors examined the experiences of six gifted high-achieving university students to understand the factors that allowed the students to continue on their paths to success. The participants in this study revealed a number of issues that were central to their motivation upon arriving at the university. These issues included independence from family, fitting into a social network, the desire to overcome challenges in their lives, internal will, and a need to earn recognition. Our findings should help direct the development of special programs by university educators who are dedicated to meeting the needs of gifted college students.

On the other hand, this paper claims (J. Watters. 2010) that there is international concern about falling enrollments in higher education, particularly the sciences, by gifted students. In this mixed methods study, the top-performing 200 students (approximately 2%) within a particular education jurisdiction at the beginning of their first year at university were surveyed, and 20 were interviewed about their school

experiences using a biographical interpretive design. This study focused on identifying those characteristics of teachers that supported students' interests. Participants identified seven characteristics of teachers that students identified as supportive of their potential career pathways. These included connecting pedagogical practices with student interests, being passionate about their subject matter, having good content knowledge, making learning experiences relevant, setting high expectations of students, being a good explainer of complex ideas, and being a good classroom manager. This study extends our knowledge of how teachers influence gifted students and has implications for both preservice and in-service teacher education and career counseling.

This chapter of the book (*Designing the Learning Environment for Gifted Students*, 2022) discusses theories that guide educators in designing learning environments for gifted students, describes strategies for educators to facilitate the creation of supportive classroom environments, and highlights how grouping practices influence the design of learning experiences for gifted students.

The study of (Marcin, Gierczyk., Steven, I., Pfeiffer. (2021) examined how gifted British and Polish college students retrospectively viewed their school environments in relation to talent development, focusing on the impact of classroom settings. By analyzing the perceptions of 30 students, the research aimed to understand the influence of educational environments on the development of gifted individuals. A comparative analysis between British and Polish students was conducted to identify potential differences in how classroom settings affected talent development. The findings from this study have implications for educational strategies aimed at supporting the growth of gifted undergraduate students, providing valuable insights into how educational environments can shape the development of individuals with exceptional abilities.

2. Methodology:

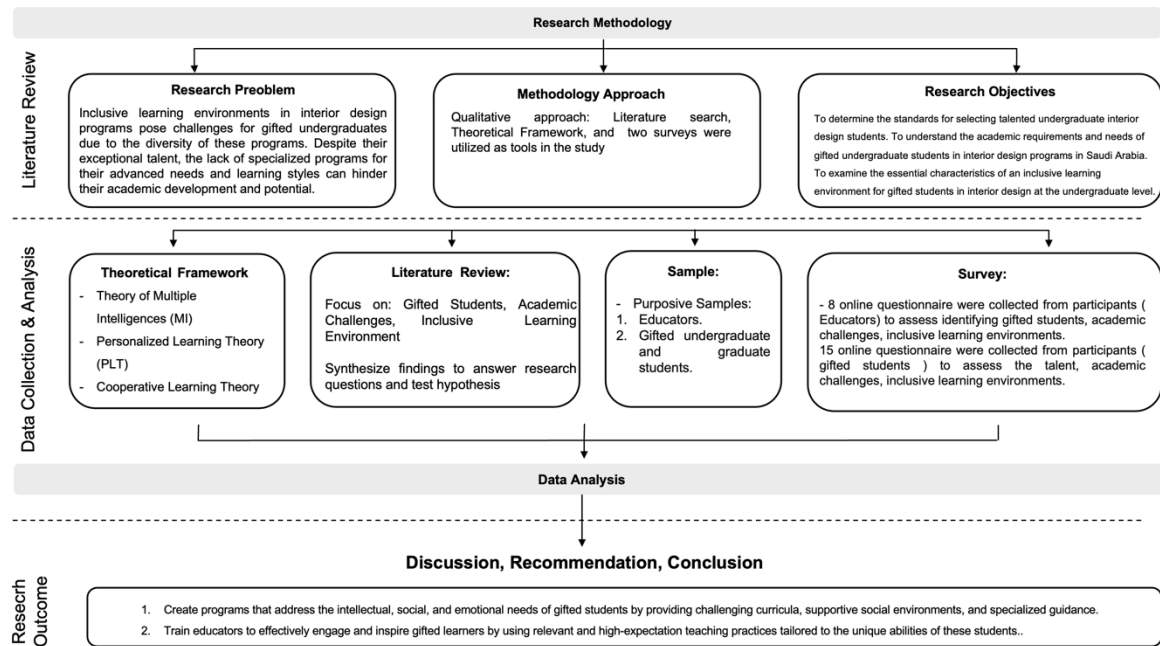


Figure 1: Research Methodology [Figure credit: author]

2.1. Theoretical Foundation and Literature Review:

This research is built on a solid theoretical foundation derived from previous literature in the fields of education and interior design. The collection of literature was conducted in a systematic manner to guarantee a thorough examination of all facets pertaining to the research goals and inquiries was selected to ensure alignment with the research objectives, which include determining the standards for selecting talented students, understanding their academic needs, and identifying essential characteristics of an inclusive and effective learning environment.

2.2. Designing the Questionnaires:

Two questionnaires were designed to achieve the research objectives and collect data from the target sample:

Questionnaire for the First Sample (Teachers):

- **Target Sample:** Interior design faculty members currently teaching in undergraduate programs in Saudi Arabia, including Full Professors, Associate Professors, and Lecturers.

- **Objectives:** To gather teachers' opinions on the academic standards and requirements necessary for identifying talented students in interior design. Additionally, to collect their insights on the academic challenges faced by gifted students and how they can be supported.

Questionnaire for the Second Sample (Gifted Students):

- **Target Sample:** Gifted students in interior design programs, identified based on specific characteristics such as exceptional creativity, advanced problem-solving skills, high levels of motivation and engagement, strong visual and spatial abilities, excellent communication skills, leadership qualities, adaptability and open-mindedness, and a drive for excellence.

- **Objectives:** To measure the level of talent in students before and during their studies in the major, understand their academic needs and requirements, and identify the challenges they face in the current educational environment.

2.5 Linking Theoretical Foundation and Questionnaire Results:

The theoretical foundation was used to guide the formulation of the questionnaire questions and analyze the results. The theories employed (such as Multiple Intelligences Theory, Personalized Learning Theory, and Cooperative Learning Theory) helped interpret the data collected from the questionnaires and provide scientifically based recommendations to support gifted students in interior design programs.

2.6 Ethical Considerations:

Throughout the research process, strict adherence to ethical principles will be maintained. This includes obtaining informed consent from all participants, guaranteeing confidentiality, and protecting their anonymity. Participant privacy and rights will be a top priority.

3. Results and Discussion

The research employed a multifaceted approach, incorporating literature reviews, theoretical frameworks, surveys administered to educators, and surveys conducted with gifted students to address the research questions. Extensive literature reviews provided a foundation for the theoretical framework, elucidating previous research findings and theoretical perspectives relevant to gifted education, particularly in interior design undergraduate programs and higher education. Surveys distributed to educators specializing in gifted education gathered insights into instructional practices, curriculum design, and identification strategies, while surveys administered directly to gifted students solicited feedback on program effectiveness, satisfaction levels, and areas for improvement. By triangulating data from these diverse sources, the research achieved a nuanced understanding of the subject matter, synthesizing

theoretical frameworks with practical perspectives from educators and gifted students, thereby contributing valuable insights to the field of gifted education.

Research Question 1: What criteria can be used to identify gifted students in interior design at the undergraduate level?

3.1.1 Result of Theories & Literature Review:

The subsequent tables offer a succinct summary of the criteria and benchmarks utilized in the recognition of talented students within undergraduate programs specializing in interior design, utilizing insights from the Theory of Multiple Intelligences and Personalized Learning Theory. Moreover, these tables integrate results from contemporary studies on the effectiveness of such criteria.

Table 1: Criteria Based on the Theory of Multiple Intelligences. [Figure credit: author]

Intelligence Type	Importance in Interior Design
Visual-Spatial Intelligence	Essential for envisioning and manipulating space and aesthetics
Intrapersonal Intelligence	Important for understanding personal preferences and creating meaningful interior spaces
Social Intelligence	Crucial for collaborating with clients, colleagues, and professionals

The criteria for identifying gifted students in interior design at the undergraduate level can be effectively analyzed through various theoretical frameworks and empirical studies. The Theory of Multiple Intelligences emphasizes the significance of diverse forms of intelligence within the field of interior design. Visual-spatial intelligence plays a pivotal role in the conceptualization and manipulation of space and aesthetics, while intrapersonal intelligence is fundamental for grasping individual preferences and developing purposeful interior environments. Moreover, social intelligence is essential for fostering successful partnerships with clients, peers, and experts in the industry.

Table 2: Personalized Learning Theory Components. [Figure credit: author]

Component	Implementation in Interior Design Education
Individualized Instruction	Customizing projects and assignments to fit individual student's strengths and areas for growth

Student-Centered Approach	Allowing students to select project topics, design themes, and preferred learning methods
Varied Learning Modalities	Incorporating a mix of solo and group projects, using design software, and hands-on model building
Continuous Assessment and Feedback	Regular critiques, peer reviews, and iterative design processes
Flexibility in Learning Paths	Providing elective courses, independent study options, and opportunities for internships or real-world projects
Support for Diverse Learners	Implementing inclusive teaching practices, offering additional support for students with different learning needs, and celebrating cultural diversity through design

Personalized Learning Theory components further enhance the identification and nurturing of gifted students by emphasizing individualized and student-centered approaches. Customizing projects to fit individual strengths and growth areas, allowing students to choose project topics, design themes, and preferred learning methods, and incorporating varied learning modalities such as solo and group projects, design software, and hands-on model building are vital. Continuous assessment and feedback through regular critiques and peer reviews, flexibility in learning paths via elective courses and internships, and support for diverse learners through inclusive teaching practices are essential components for fostering talent in interior design.

Table 5: Criteria and Standards for Selecting Talented Students. [Figure credit: author]

Criteria and Standards	Studies Highlighting Importance
Creative and Critical Thinking Strategies	Samanoudy (2020)
Practical and Innovative Talents	Huang (2023)
Holistic Approach	Aburas (2018); Brunner (2009)
Professional Qualifications and Attributes	Baker (1989); Liu (2021)
Modified Screening Criteria	Peters (2019); Aboud (2023); Arslantaş (2021); Bartosh (2022)

Empirical studies provide additional criteria and standards for selecting talented students. Creative and critical thinking strategies are emphasized by Samanoudy (2020), while practical and innovative talents are highlighted by Huang (2023). A holistic approach is supported by Aburas (2018) and Brunner (2009), and professional qualifications and attributes are discussed by Baker (1989) and Liu (2021). Modified screening criteria are recommended by several researchers, including Peters (2019), Aboud (2023), Arslantaş (2021), and Bartosh (2022), suggesting a comprehensive approach to selection.

Table 3: Effectiveness of Criteria in Selecting Gifted Students. [Figure credit: author]

Criteria/Method	Relevant Studies
Modified Screening Criteria	Peters (2019)
Emphasis on Personal Characteristics	Aboud (2023); Arslantaş (2021)
Subject-Specific Criteria	Bartosh (2022)
Holistic Approach	Various studies including Samanoudy (2020), Aburas (2018), Baker (1989), Liu (2021)

The efficacy of these criteria is also assessed in existing scholarly works. Modified screening criteria are supported by Peters (2019), while the emphasis on personal characteristics is highlighted by Aboud (2023) and Arslantaş (2021). Subject-specific criteria are discussed by Bartosh (2022), and a holistic approach is validated by multiple studies, including those by Samanoudy (2020), Aburas (2018), Baker (1989), and Liu (2021). These insights collectively suggest that a combination of theoretical frameworks and empirical evidence can provide robust criteria for identifying and supporting gifted students in undergraduate interior design programs.

3.1.2 Result of the Educators Survey:

The demographic characteristics of the faculty members included in the study are outlined as follows. The participants originated from various universities in Saudi Arabia, such as Jeddah University, Imam Abdulrahman University, Prince Muqrin University, Jeddah International College, Taibah University, and King Abdul-Aziz University. The preponderance of participants were of the female gender (100%). Concerning their professional background, a notable proportion (66.7%) had more than ten years of teaching experience, while 22.2% had 4 to 6 years of experience and 11.1% had 6 to 10 years of experience. The respondents held diverse academic positions, including 2 Department Chairs/Heads (22.2%), 3 Assistant Professors (33.3%), and 1 Teaching Assistant (11.1%), with no Lecturers represented. They were primarily involved in teaching both practical and theoretical aspects of interior design. Moreover, the predominant percentage of participants

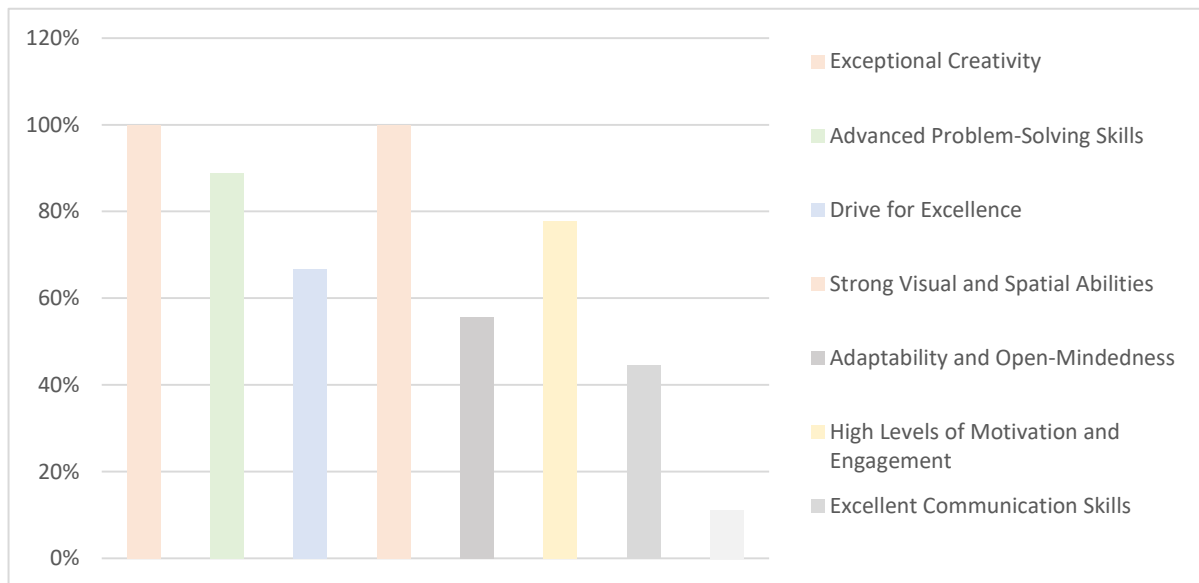
hailed from the College of Art and Design, comprising 55.6%, while the remainder represented the College of Engineering (22.2%) and the College of Design (11.1%). This diverse and experienced group of educators provides a reliable foundation for understanding the identification and support of gifted students in undergraduate interior design programs.

Table 4. Summary of Demographic Data. [Figure credit: author]

Variable		Frequency	Percentage%
Gender	Female	9	100
	Male	0	0
Job titles	Department Chair/Head	2	
	Assistant Professor	3	
	Lecturer	3	
	Teaching Assistant	1	
Experience	4 – 6	2	
	6 – 10	1	
	More than 10	6	
University	Jeddah University	1	
	Imam Abdulrahman University	1	
	Prince Mugin University	3	
	Jeddah International College	1	
	Taibah University	1	
	King Abdul-Aziz University	1	
College	College of Art and Design	5	
	College of Design	1	
	College of Engineering	2	

▪ **Identification Criteria for Gifted Students:**

Figure 3: The criteria to identify gifted students in your interior design program [Figure credit: author]



The majority of respondents (100%) indicated that exceptional creativity and strong visual and spatial abilities are key criteria for identifying gifted students. Advanced problem-solving skills and high levels of motivation and engagement were also highly valued. These criteria suggest a focus on both inherent talent and the drive to excel, highlighting the need for a balance of creative and analytical abilities in the selection process.

3.1.2 Result of the Gifted Students Survey:

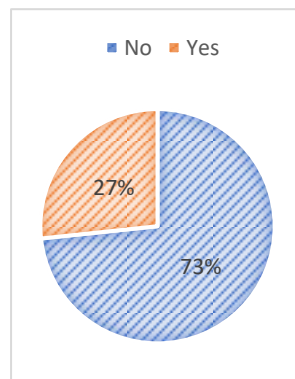
The demographic characteristics of the students included in the study are outlined as follows. The participants originated from various universities in Saudi Arabia, such as Jeddah University, Taif University, Prince Mughrin University, Jeddah International College, and Taibah University. The preponderance of participants were of the female gender (100%). Concerning their academic status, 5 participants were undergraduate students, while 10 participants were graduated students with 1 to 8 years since graduation. The universities represented included Jeddah University (2 participants), Taif University (1 participant), Prince Mughrin University (5 participants), Jeddah International College (1 participant), and Taibah University (6 participants). This diverse sample provides a comprehensive understanding of the different educational backgrounds and experiences of students in interior design programs.

Table 5. Summary of Demographic Data. [Figure credit: author]

Variable		Frequency	Percentage%
Gender	Female	15	100
	Male	0	0
Student Status	Undergraduate Students	5	
	Graduated Students (1 year – 8 years)	10	
University	Jeddah University	2	
	Taif University	1	
	Prince Mugrin University	5	
	Jeddah International College	1	
	Taibah University	6	

▪ Identification Criteria for Gifted Students:

Figure 4: Evaluate previous knowledge and skills in interior design while applying to university .[Figure credit: author]



The vast majority of students, accounting for 73.33%, expressed a sentiment that their existing expertise and capabilities in the field of interior design were not sufficiently evaluated in the course of the application procedure for university admission. This observation implies a plausible deficiency in the selection process, which has the potential to result in the misclassification of students possessing genuine talent. Consequently, it may be imperative for the university to reassess and improve their evaluation techniques in order to more accurately assess the skills and potential of prospective candidates.

▪ **Discussion:**

The literature review reveals that the identification of gifted students in undergraduate interior design programs should focus on specific criteria derived from the Theory of Multiple Intelligences. These criteria encompass visual-spatial intelligence, intrapersonal intelligence, and social intelligence, all of which are fundamental for achieving excellence in the field of interior design. The review highlights the importance of creative and critical thinking, practical talents, and holistic approaches, as emphasized in studies by Samanoudy (2020), Huang (2023), and Peters (2019). Surveys carried out among educators highlight the importance of creativity, robust visual-spatial skills, problem-solving abilities, and elevated levels of motivation as essential factors in the identification of gifted students. However, student surveys indicate a gap in current evaluation methods, suggesting that these methods do not sufficiently assess existing expertise in the field.

Research Question 2: What are the academic requirements and needs of gifted undergraduate students in multi-level learning environments in interior design program?

3.2.1 Result of Theories & Literature Review:

The table presented below synthesizes the academic prerequisites and obstacles encountered by gifted undergraduate individuals in diverse educational settings within interior design curricula. This amalgamation is rooted in the theoretical foundations of the Theory of Multiple Intelligences and Personalized Learning Theory and integrates perspectives from contemporary studies on the efficacy of these standards.

Table 6: The essential academic requirements, challenges, and the theoretical frameworks guiding the identification and support of gifted undergraduate students in interior design programs. [Figure credit: author]

Academic Challenges	Details
Lack of Challenge	Insufficiently stimulating academic content and pace
Underachievement	Complacency and underperformance without appropriate challenges
Social Isolation	Difficulty in social integration due to intellectual disparities
Perfectionism	Stress and performance hindrance due to high expectations

Boredom and Disengagement	Disengagement from unchallenging curricula
Inadequate Guidance	Need for specialized guidance in learning pathways and career planning
Balancing Interests	Challenges in balancing coursework with diverse intellectual pursuits
Fixed Mindset	Limitation in learning and resilience due to belief in innate abilities over effort

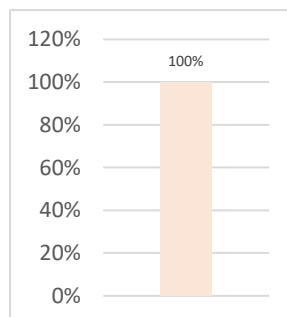
The academic requirements and challenges faced by gifted undergraduate students in multi-level learning environments within interior design programs are comprehensively synthesized through the lens of the Theory of Multiple Intelligences and Personalized Learning Theory. This synthesis incorporates findings from contemporary studies on the effectiveness of these educational standards.

These results underscore the significance of formulating approaches and initiatives tailored to the particular academic requirements of talented students enrolled in interior design programs. This involves utilizing theoretical knowledge and empirical findings to cultivate a setting that is supportive of their cognitive and artistic development.

3.2.2 Result of the Educators Survey:

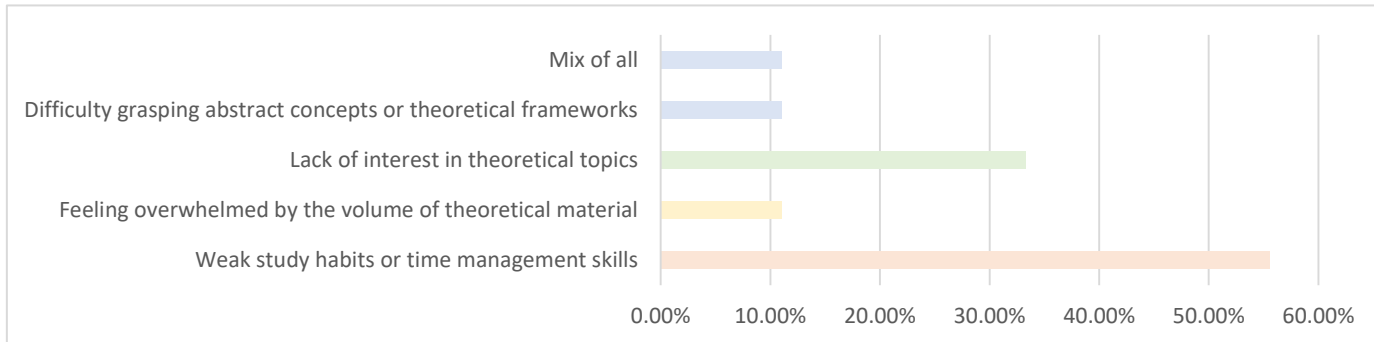
- **Practical vs. Theoretical Performance**

Figure 5: The scale of students who excel in practical aspects of interior design and have lower grades in theoretical aspects. [Figure credit: author]



All respondents have observed students excelling in practical aspects but struggling with theoretical ones. This indicates a need for academic support structures that address this imbalance, ensuring that gifted students can succeed across all areas of their education.

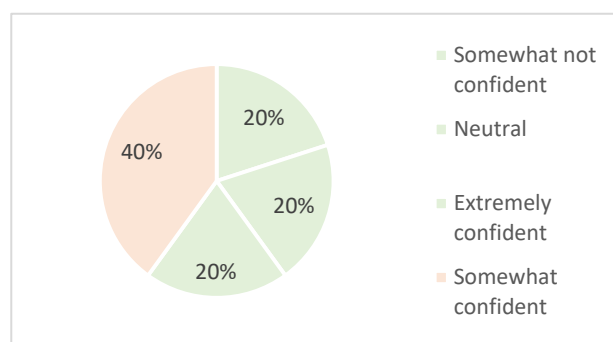
Figure 6: The most common reasons why gifted students may struggle in theoretical or conceptual aspects of interior design. [Figure credit: author]



Understanding the reasons behind students' struggles is essential for creating an inclusive learning environment. By addressing these issues, educators can develop strategies that support all students, ensuring that gifted individuals can thrive in both theoretical and practical aspects of their education.

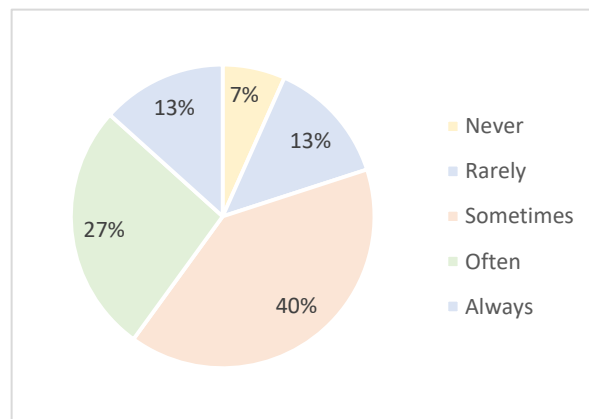
3.2.3 Result of the Gifted Students Survey:

Figure 7: The scale of the confidence of the students before starting the program of interior design. [Figure credit: author]



The chart indicates that the largest group of respondents, 40%, felt "Somewhat Confident" in the context being surveyed. Equal proportions of respondents (20% each) felt "Somewhat Not Confident," "Neutral," and "Extremely Confident." This distribution illustrates that a substantial number of participants exhibited a moderate degree of confidence, alongside a conspicuous presence of ambivalent sentiments that span from low confidence to high confidence.

Figure 7: The scale of the collaboration with peers on projects. [Figure credit: author]



The data suggests that a majority of respondents engage in some level of collaboration, with the most common frequency being "Sometimes" (40.00%), followed by "Often" (26.67%). A significant number of respondents, 13.33%, report that they always collaborate with their peers, indicating that a considerable proportion of students find peer collaboration to be a regular part of their learning process. On the other hand, a smaller group of respondents either never (6.67%) or rarely (13.33%) collaborate, which might indicate either a preference for independent work or potential barriers to collaboration.

Students Suggestions:

- Gifted students in interior design programs in Saudi Arabia require diverse learning opportunities that go beyond the standard curriculum. They seek advanced enrichment programs, curricula, and activities that challenge and stimulate their intellectual capabilities.
- They expect practical experience through internships, cooperative education programs, or collaborations with industry professionals.
- A requirement exists for gaining familiarity with industry practices, access to mentorship opportunities, and participation in networking events in order to establish connections with professionals within the field.
- Students also express a desire for a flexible learning environment that allows for self-paced learning and independent exploration.

▪ **Discussion:**

The literature review identifies several academic challenges faced by gifted undergraduate students in interior design programs, including a lack of challenging content, social isolation, perfectionism, and inadequate guidance. To address these challenges, the review recommends individualized instruction, varied learning modalities, and continuous assessment and feedback. Educators' surveys confirm that many students excel in practical aspects of interior design but struggle with theoretical concepts, highlighting the need for academic support structures that address this imbalance. Student surveys reveal varied confidence levels, indicating a need for better support systems to help gifted students achieve their full potential in both practical and theoretical domains.

Research Question 3: What are the characteristics of an inclusive learning environment for gifted students in interior design at the undergraduate level?

3.3.1 Result of Theories & Literature Review:

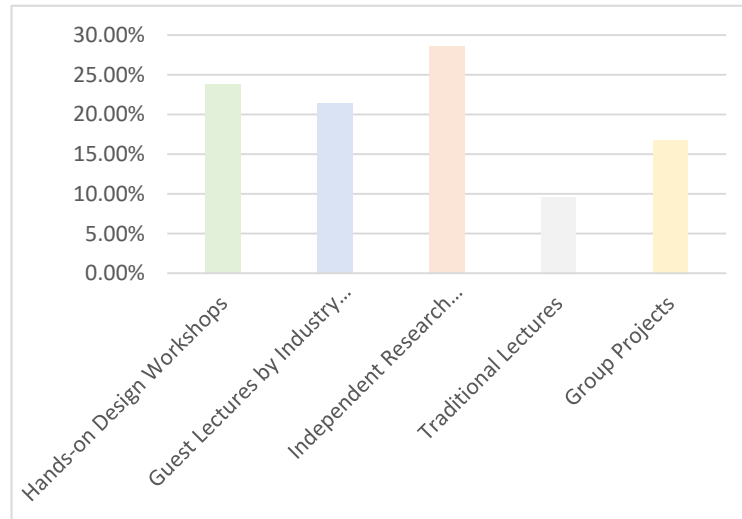
Table 7: Key Qualities of an Inclusive Learning Environment [Figure credit: author]

Aspect	Qualities	Impact
Physical Environment	Innovative classroom design, rich resources	Fosters creativity and intellectual engagement, beyond conventional layouts.
Social Environment	Positive peer interactions, support networks	Enhances cognitive and emotional growth, promotes academic engagement and performance.
Instructional Environment	Inspiring curriculum, effective teaching methods	Supports deep engagement, recognizes unique needs, and promotes academic and personal growth.

An inclusive learning environment for gifted undergraduate students in interior design is delineating features include three primary components: the physical setting, societal surroundings, and educational setting. Each of these aspects plays a crucial role in addressing the unique needs and fostering the development of gifted students.

3.3.2 Result of the Gifted Students Survey:

Figure 7: Teaching methods most effective [Figure credit: author]



Students reported equal effectiveness for various teaching methods, with hands-on design workshops, guest lectures by industry professionals, independent research projects, traditional lectures, and group projects each receiving 20%. This diversity in effective teaching methods highlights the importance of offering a varied and balanced approach to teaching that incorporates practical, interactive, and traditional academic elements to cater to different learning preferences.

Students Suggestions:

- An inclusive learning environment for gifted students in interior design should provide a good internet connection, different seating options, and flexible attendance requirements to accommodate individual learning paces.
- It should emphasize project-based learning and open-ended assignments that allow for multiple approaches and creative solutions.
- The environment should foster open discussions, debates, and peer learning, while respecting individual strengths and differences.
- There should be opportunities for students to engage in real-world projects and experiment with international locations.
- A communication network with industry experts and professionals should be established to provide students with realistic answers to their questions.
- Workshops and lectures from other engineering majors can help connect shared information and broaden students' perspectives.

Discussion:

The literature review outlines the key qualities of an inclusive learning environment for gifted students in interior design. These include innovative physical spaces, supportive social environments, and engaging instructional methods. Such environments foster creativity, intellectual engagement, and academic performance. Surveys with students identify several effective teaching methods, including hands-on design workshops, guest lectures, independent projects, group work, and traditional lectures. This diversity in teaching methods underscores the importance of offering a varied and balanced approach to cater to different learning preferences.

Limitations:

- Scarcity of literature and resources specific to undergraduate interior design gifted programs limits the depth of exploration.
- Lack of comprehensive information on gifted programs at advanced academic stages hinders understanding of the broader landscape.
- Targeted focus on a specific demographic, likely gifted individuals, results in restricted sample size and necessitates a thorough recruitment process.
- Specialized nature of the demographic group requires considerable time to identify and access suitable participants, elongating the research process.

Conclusion:

The study highlights the significant academic challenges faced by gifted undergraduate students in interior design programs at some Universities in Saudi Arabia. These challenges include a lack of cognitive engagement, academic underperformance, social isolation, perfectionism, boredom, insufficient counseling, and difficulty managing diverse interests. The research underscores the necessity of creating inclusive and engaging learning environments tailored to the advanced needs of these students to maximize their potential and academic success. It emphasizes the importance of personalized instruction, varied learning modalities, and continuous assessment and feedback to support gifted students effectively. The conclusion posits that by integrating tailored educational practices, we can enhance the academic engagement and motivation of gifted students, thereby fostering their intellectual growth and creative expression.

Recommendations:

- It is imperative to pay heed to conducting studies related to the unique academic needs and challenges faced by gifted undergraduate students, particularly in specialized fields such as interior design.
- Create programs addressing intellectual, social, and emotional needs with challenging curricula and specialized guidance.
- Train educators to engage and inspire gifted students using high-expectation teaching practices.
- Implement comprehensive exams to accurately identify and place gifted students.
- Establish preparatory and support programs to build confidence and academic skills.
- Design flexible learning spaces with diverse seating and strong internet connectivity, emphasizing project-based learning.
- Provide opportunities for real-world projects and industry expert interactions.
- Promote open discussions, debates, and peer learning to enhance cognitive and emotional growth.

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