

TEACHING CONCEPTUAL APPROACHES TO INTERIOR ARCHITECTURE STUDENTS BY INTEGRATING THEORY AND PRACTICE

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ABSTRACT

For interior architects, conceptual approach acts as a purpose, and lead to the realization of the final design which requires to be functional yet original and valuable. Existing research has mainly exposed findings related to conceptual approaches in architecture, but it is crucial to consider the conceptual approaches for interior architecture in its own content. Creativity is an important factor for competing in design and education. Current study was developed with concern to the importance of offering a course related to concept development in interior architecture programmes. Integrating theory and practice by offering lectures and exercises about key topics of understanding, communicating and developing concepts were the methods adopted for this course. Results showed that student weaknesses such as communication of ideas with weak presentation skills and an inability to distinguish the main design concept from design ideas was improved towards the end of the semester. The findings of this study contributes to raise awareness about the importance of considering interior architecture concept independently from architecture and transfer this awareness to the level of educational programmes. Moreover, offering theory and practice related to concept development will help interior architecture students gain a higher degree of awareness on creative design development.

Keywords: Conceptual development, impressive communication, creative thinking

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Introduction

One of the major difficulties for beginner level interior architecture students is formulating a design concept during the initial phase of a design. Dogan (2013) refers to the concept development phase as one of the greatest challenges for architecture students during their education. One of the challenges is very much related to taking concept development from theory in to practice. As Osmond and Turner (2009: 15) addressed "When students accept that part of the creative process is being stuck in the bubble or they accept the toleration of uncertainty while they search for inspiration, then they have achieved the confidence to play with both conventional ideas and challenge these with new thoughts". But reaching this awareness will not be an easy task for students without sufficient theoretical and practical content.

Existing research has mainly exposed findings related to conceptual approaches in architecture but since "architects are adept at structural problem-solving and creative design for both exterior and interior building design and that interior architecture focuses on the functionality of a space (MasterClass 2021)", it is crucial to consider the conceptual approaches for interior architecture in its own content.

This paper is based on the author's long-term observations on the difficulties interior architecture students experience in creating a creative and logical concept for their design projects. In 2018, a course called 'conceptual approaches in interior design' was introduced in the bachelor program curriculum of Department of Interior Architecture and Environmental Design. The aim of this course was increasing knowledge among students on conceptual approaches and helping students develop skills in communicating their conceptual ideas. Student progress during the course was recorded in detail and their improvements were followed through systematic exercises and questionnaires. In this regard, the findings contribute to the development of both teaching strategies and curricula. Results show the need to place more emphasis on integrating theory and practice in order to enhance creative patterns among students.

Literature Review

Design concept is a very important yet confusing subject defined by variety of terms such as "theme, basic idea and guiding principle (Janson and Tigges 2014: 70)". Design concept can be seen as an approach that unites design elements to create a whole (Piotrowski 2009), a survey often developed as an outgrowth of the market, client, location, and the context (Lopez 1995) or as an idea that helps designers connect their thinking and observation (Rieber 2004).

According to John Coles and Naomi House (2007:10) "Design concept is an expression of the key ideas with which the designer intends to work in order to generate a scheme". Anthony Sully refers to the concept of interior space as "an idea, a formation of something that will eventually drive an actionable reality within the interior that allows the activities of the project to take place (p. xxiii)". In general, "A design concept answers a need and intention and is a clarification of tractability in the realization (Andreasen Hansen & Cashp 2015: 163)".

Concept development is a key factor during communication between interior architects and in cases where clients seek confidence in making sure that the design will progress in the right direction (Coles & House 2007, Dodsworth 2009). So, interior architects use concept as a formula to describe the character of the space and the functional and aesthetical aspects of their project proposal to the client (Piotrowski 1992). Furthermore, concept designers tend to anticipate the needs for the future, a clearer understanding about time, costs, and required technical aspects (Kim & Wilemon 2002).

For interior architects, conceptual approach acts as a purpose, and this defines principles that will lead to the realization of the final design which requires to be functional yet original and valuable (Ylirisku 2013, Christiaan 2002). It is important that the conceptual approach of an interior represents the character of the place rather than the appearance of the space (Janson and Tigges 2014), therefore, the concept statement in interior architecture is also defined as the "heart and soul" of a space. A logical concept statement for interior space will focus on both function and aesthetics (Leydecker 2013, Kilmer & Kilmer 2014). Philip Plowright (2014: 245) discusses that "The contemporary use of concept as an architectural design method developed over several centuries and owes much to the idea that architecture, like art, must express something beyond its own materiality". Parallel with Plowright, Dodsworth (2009: 40) claim that "conceptual work is not about perfection; it is about capturing and communicating the spirit and character of a space".

Gibbs (2005) defines the stages of developing a creative concept for interior architects in three main phases: The first phase is to decide on the concept itself which might be achieved by defining keywords during the briefings with client or the analysis stage, or through shaping creative ideas. In second phase concept development needs to be continued by doing further analysis and detailing about that specific

concept. The final phase is presenting the conceptual approach as a formalized board.

Developing a good concept for a design project is very much related with the ability to think creatively. Design thinking is a skill that can be gained through practice and problem-solving exercises (Lawson 2005, Kimbell 2011, Travis 2011). Researchers believe that building on critical and creative thinking require full engagement with the design problem and understanding the nature of the problem (Nagasundaram 1997, Reiter-Palmon et al. 2009, Paul & Elder 2008). Design education can be improved by including clearer explanations on creative thinking, which may help future designers create concepts that capable of solving design problems and lead to unleashed innovation (Ambrose & Harris 2010). Allowing students to discuss the formulation of design concepts and visualize their thoughts will help them to create a design flow. These movements are especially helpful during design development and encourage creative leaping between options and taking decisions (Lawson 2006).

Using concept diagrams for developing and expressing design concepts is a popular method in architecture. Studies also claimed that using concept diagrams in architectural education help students stay focused on design problems throughout the design process (Dogan 2013). Steven Holl (2002: 73) states that, "I depend entirely on concept diagrams; I consider them my secret weapon. They allow me to move afresh from one project to the next, from one site to the next". According to Lockard (1973), using diagrams in developing an architectural design allow architects to explore the variation of design solutions through "seeing, comprehending and responding". In general, as Tenbrink, Dalton, and Williams has stated "if architecture is both a thing and an activity, then surely, the architectural diagram can be both an activity and a thing, not only in of itself, but also as an interchangeable artefact standing for the, as yet, unrealized building". Like many fields of design, symbolism has also played a role on shaping the concept of architectural space (Lazutina, et al. 2016). According to Shcherbinin (2005), images and symbols have played an important role in identifying art and architecture throughout history. In general, symbolism in architecture is a method to convey certain conceptions and ideas with the use of art and imagery (Cirlot 2001, Mankus 2014). However, symbolism has lost popularity in contemporary design because it is no longer considered to be appealing and original (Cable 1981).

Similar to symbolism, metaphors and analogies are two other methods that designers use in developing concepts for architectural spaces. Analogy can be described as the 'reconceptualization' or relating the 'unfamiliar' to the 'familiar' or 'mapping the relational structure' (Casakin & Timmeren 2015). Broadbent describes "analogic design" as the "most potent source of creative ideas in architecture" (Broadbent 1973: 35). Studies also claim that verbal and visual analogies help architecture students develop skills in creative design and structural solutions (Casakin 2010).

Metaphors in architecture date back to ancient times, when people started to build shelters inspired by bird nests (Ayiran 2011). Many identical buildings are the outcome of metaphoric concepts such as the Ronchamp Chapel designed by Le Corbusier (Jencks 1991) or the Swiss Re Headquarters by Norman Foster (Jencks 2005). Similar to analogy, metaphors can also be described as relating a familiar experience to a new and unknown experience, however the similarities between familiar and new unknown in analogy is more visible and sensory than in metaphors (Ortony 1991, Lakoff 1987, Casakin 2006). Metaphoric concepts are also emphasized in architectural education to familiarize students with visual metaphors and then introduce them to working with abstraction (Caballero, 2014).

Essence is another conceptual approach in architecture which is the outcome of the relationship between human and the space (Abel 1982) and as Norberg-Schulz (1980) describes, designers need to recognize the users as an integral part of the environment and explore everyday life in order to find the essence of architectural space. Wolfflin's theory likens the essence of architectural space to human physical movement in space and similarly, Schmarsow emphasizes the role of transitional spaces in defining the essence of architectural space since rooms, passages, and courtyards allow movement from one place to another (Schwarzer & Schmarsow 1991). Studies also claimed that focusing on the essence of an architectural space as a conceptual approach have led designers to create environments that transform into a place. Hence, in this approach, the environment and life within the space becomes the main concern (Laiprakobsup 2010).

In practicing the profession of interior architecture, the preference is to develop a concept after an in-depth analysis of the project. In-depth means understanding the existing structure, function and activities that will take place within the content of the new design; technical and economic constraints, user interaction and client expectations and desires (Dodsworth 2009). However, the constraints concerning the client, budget and property should not hinder creativity, because the integral part of a creative project is a creative concept (Gibbs 2005).

While developing and implementing a good design concept, it is necessary for designers to also learn how to communicate their concept (Mas et al. 2013, Piotrowski 2020). In design education, communicating a concept is considered to be a challenging task. In design education, students present their conceptual approaches to instructors who already have technical knowledge and the ability to detect their intentions, however after graduation, students need to create informative conceptual presentations capable of conveying their ideas and messages to non-expert clients (Gobert 1999). What needs to be taught to students is that “a fine set of presentation drawings for the purpose of graphic communication is invaluable in designer-client relationship. As the design concept evolves, more formal methods of presentation are needed that effectively communicate to the targeted audience (Yee 2013: 375)”.

Finally, what studies recommend to designers to create information-rich presentations are developing skills in combining different visual and graphic styles in a way to create a cohesive, clear and interesting presentation (Uddin 1997). Studies encourage students and young designers to not only be creative, but also create concepts that provide logical reasons (Tait 2018). Studies report that clients preferred 3D models and animations rather than drawings and 2D presentations (McLain-Kark et al. 1998). At this point it seems necessary to inform students about the recent development in the market and encourage them to work on combining different media in communicating their design concepts.

The literature review revealed that improving the abilities of interior architecture students in developing creative and logical concepts will contribute to their further success as designers. Creativity is an important factor for competing in design in contemporary society, therefore more attention should be given to enhancing students' creative ideas and concept development during education (Nussbaumer & Guerin 2000, Rodgers & Jones 2017).

Context of Study

The course studied in this research is called ‘Conceptual Approaches in Interior Design’ which is taught at the Department of Interior Architecture and Environmental Design. This course is a second-year; single-semester, three-hour course. The course introduces basic knowledge on creating a conceptual design that considers the context and supports the user, function and client. The expected learning outcomes of the course are ability to understand, develop and communicate a design concept.

The Fall 2020-21 semester has been the third time the course has been opened however, the course was lectured online due to the lockdown caused by the pandemic of 2020. 42 students enrolled in this course. Compared to previous years, certain changes have been introduced to teaching strategies and the content. This decision was made based on the problems and difficulties experienced by students in developing design concept at the end of the semester. The assumption was a lack of practice on the lecture subjects. Based on this assumption, the new content was designed to support theoretic lectures with specific exercises (Figure 1).

Content	Previous Teaching Strategies	New Teaching Strategies
Appropriate conceptual approaches in interior space	Described through theoretical lectures	Described through theoretical lectures and exercises
Brand identity and reviewing interior designers' successful conceptual approaches	Described through theoretical lectures	Described through theoretical lectures, watching relevant videos and exercise
Communicating conceptual approaches	Described through theoretical lectures	Described through theoretical lectures and exercises

Figure 1. Changes to the course content with the aim of integrating theory and practice

Most of the students who took the course were in their first (8) and the second year (30) and only 4 out of 42 students were in their fourth year. Survey participation was on a voluntary basis and students were informed at the beginning of the semester that the results of the questionnaires would be used for research purposes. Students showed full participation in the questionnaire survey but since five students failed because of absence, the information was eventually obtained from 37 students.

Assessment of Content Effectiveness

The current study has adopted both direct and indirect methods for evaluating the effectiveness of the new course content. Direct methods intended to track the outcome of student exercises, verbal presentations and poster presentations with the intention of assessing their skills in understanding, developing and communicating design concept. To fulfil content validity of assignments' assessment, both assignment and its evaluation criteria were designed based on the course objectives (Figure 2). Almost same criteria were repeated in evaluating students' assignments to ensure the consistency in their progress.

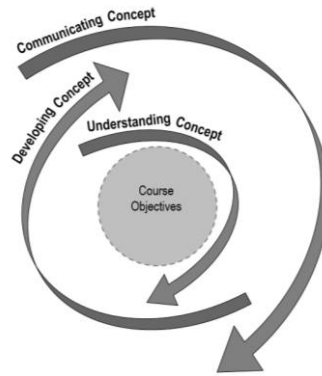


Figure 2. Main course objectives and respective student evaluation criteria

Indirect methods include findings from student questionnaire surveys that were specially designed to evaluate student knowledge before and after specific lectures and practices (Maki 2004, National Research Council 2003). Indirect evaluation of students was intended to assess students' knowledge on the main topic discussed throughout the semester (Figure 2). To design valid questionnaires, choice of words was taken into consideration to ensure that all respondent understand and interpret the question the same way. It was also intended to design questions that assess students' knowledge of understanding, developing and communicating the design concept.

The questionnaire survey that was completed at the beginning and the end of the course mainly consisted of multiple-choice questions with two open-ended questions that were analyzed using thematic coding. Another questionnaire survey was applied halfway through semester, after completing a few lectures on understanding the conceptual approaches for interior spaces. The aim was to evaluate students' knowledge on the subjects discussed in the lectures. Table 1 shows that pattern of shaping the instruments that evaluate students' skills and knowledge gained throughout the semester.

Table 1- Instruments used in direct and indirect evaluation methodology

Methodology	Description	Evaluated Materials	Relevant Course Objective
Direct Evaluation	Students were asked to complete assignments related to what they learned in that lecture.	Scenario and Concept Ass.	Understanding Concept
		Mood Board Ass.	Developing Concept
		Interior Space Identity Project Ass.	Developing and Understanding Concept
		Communicating Concept In Poster Presentation	Understanding and Communicating Concept
		Design Project Concept Sheet	Developing and Communicating Concept
Indirect Evaluation	Same questionnaire about the main course subjects applied at the beginning and at the end of the semester.	Online Questionnaire Evaluating	Understanding, Developing and Communicating Concept
	The questionnaire was applied 2 weeks after the final lecture on understanding the design concept.	Online Questionnaire Evaluating Students Knowledge	Understanding Design Concept

Two control measures were also applied to evaluate students' progress in developing and communication design concept from their design instructors' point of view. First, students' design instructors were asked to

rate each student's skills in communicating their design concepts after midterm and final juries. Secondly, in the following semester students' new design instructors were asked to rate each student's ability in developing a creative and logical concept.

Direct Evaluation Findings

Students completed five assignments throughout the semester and each assignment was intended to evaluate one main learning outcome of the course. The first lecture focused on describing the appropriate conceptual approaches for interior spaces. Subjects like types of conceptual approaches, brain storming, design analysis and briefing, and shaping design scenario were reviewed during the lectures. At the end of a series of lectures, students were asked to conduct research on different interior design projects published in Dezeen.com and choose three appealing projects to present the concept and scenario behind these projects in the form of a brief PowerPoint presentation. Students' presentation were evaluated based on correct selection of identical projects, understanding the conceptual approach of each project and creating an expressive visual presentation. 39 students submitted their assignment and 20 students (51%) were evaluated with grades above average.

- Student weaknesses in this assignment were noted as:
- Failure in providing examples with identical interior design approaches
- Failure in interpreting descriptions on the website; instead copy and pasting the same text
- Failure in distinguishing the general design concept from design ideas
- Failure in selecting relevant visuals that represent the discussed topics

At the end of the presentations, an additional lecture was scheduled to discuss the noted weaknesses. The second topic was mood board preparation as a technique to develop and present a design concept. This subject was the last subject under the topic of 'appropriate conceptual approaches in interior space'. The mood board preparation was described both theoretically and in practice. At the end of the lecture, four imaginary design subjects were proposed to students who were then asked to create an inspiration mood board that would present their conceptual approach for their chosen subject. Students were also reminded to focus on creating a mood board that expresses the essence of an interior space and not only the appearance.

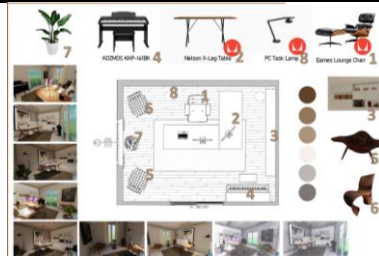
Students' presentation were evaluated based on proposing design solutions that contribute to identical interior and shaping a design language and also creating an expressive visual presentation. 39 students submitted the assignments and 25 students (64%) were evaluated with grades above average. Figure 2 shows some of the work submitted by the students.



Kitchen design for a wheelchair user



Bedroom design for a 16 year-old boy who loves basketball



Home office design for a female graphic designer



Playroom design for pre-schoolers

Figure 3. Some mood board exercises for an imaginary design subject

The midterm project was proposed to the students right after the lectures on interior space brand identity.

In this assignment, students were expected to choose a project on interior branding and use audio and visual materials to explain how designer(s) have shaped the interior space brand identity. At the end of their report, students were also expected to suggest at least three design solutions that would contribute to the brand identity of the project.

Students submissions were evaluated based on correct selection of identical interior projects, understanding the conceptual approach of the selected projects, proposing additional design solutions that contribute to the main concept and creating expressive visual presentation. 29 out of the 39 students (74 %) were evaluated above average.



Figure 4. One student report presenting the interior branding of an interior design project

The fourth assignment was proposed to students right after a series of lectures about concept communication. In this assignment, students were asked to choose an interior design project from Dezeen.com, expected to first, try to understand the conceptual approach of the project before working as a team to design a poster that would convey this conceptual approach. Students poster presentations were evaluated based on a good understanding of the conceptual approach of the designer(s), using the visual materials that contribute to expressing the main design concept and creating a creative presentation sheet.

36 students submitted this assignment and 28 students (78%) were evaluated above average. It was observed that students have gained better presentation skills compared to the first assignments, especially in terms of choosing visuals that express the conceptual approach. It was also observed that students performed better in distinguishing the general design concept from the supplementary design ideas.

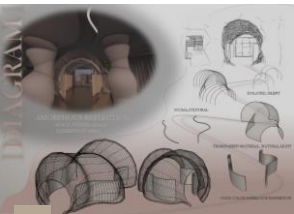
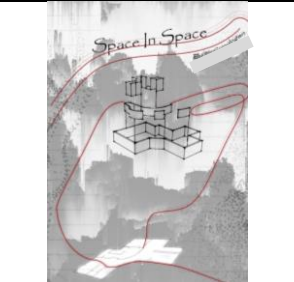
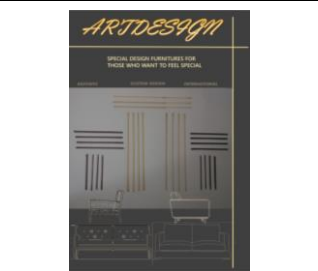
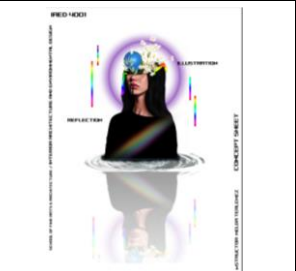
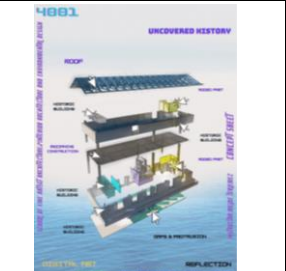


Figure 5. Some student concept sheets for their favorite interior design project

The series of lectures continued until the end of the semester with a special focus on concept communication using concept diagrams. At the end of the semester, students were asked to present their conceptual approach for their design project through visual media. The submission was announced to be in digital format, so students were free to use digital effects. Students were also allowed to get one critique on their submission before the deadline. The critiques took place during an online group meeting like any other lecture, so all the students were able to listen to their peers.

Students' poster presentation were evaluated based on student's ability in developing a logical and interesting concept and creating a sheet the communicate their conceptual approach in an expressive and creative manner. In the final submission, 30 out of 37 students were graded above average (81%). Also, it was noted that 15% of students used different visual effects (Video, GIF, Animation) for their presentation and there was a significant improvement in the student concept sheet for the midterm design jury and final jury.

Table 2- Progress of some student concept sheets from midterm to final submission

Midterm	Final	Midterm	Final
			
Student a	Student b		
			
Student c	Student d		
			
Student e	Student f		

Indirect Evaluation Findings

The first questionnaire survey was completed by students during the first session. Students were also asked to recomplete the same questionnaire at the end of the semester. None of the students knew that the questionnaire was going to be repeated at the end of the semester. The questionnaire aimed to evaluate student knowledge on design concept, different types of conceptual approaches in architectural space, and methods for developing and communicating concepts. A comparison between the percentage of correct and incorrect answers at the beginning and at the end of the semester demonstrated the level of progress among students.

According to the findings at the beginning of the semester, 67% of students claimed not having any idea about a design concept. However, this percentage dropped to 9% at the end of the semester. The content of

the lectures aimed to encourage students in considering the subjects such as user, function and context, because it was observed that student interest in using symbols or their personal interest generally prevented them from considering a concept that proposed functional and contextual design solutions. Consequently, students were asked to select three key factors in developing sound conceptual approaches for interior spaces. While at the beginning of the semester 62% of students preferred using symbols in creating a conceptual approach followed by 54% using design principles and 50% using personal interest. At the end of the semester these percentages fell to 27% personal interest, 19% using a symbol and 16% using design principles.

Furthermore, students were asked to choose the best timing for concept development. At the beginning of the semester, 67% of students believed that a design concept should be created right after meeting the client and before visiting the site. At the end of the semester this percentage dropped to 16% with 81% percent of students choosing 'after visiting the site and finalising the design analysis' as a response. Findings also showed that most of the students already knew that a successful conceptual approach must be understood by both designers and non-designers, and this percentage increased slightly at the end of the semester.

The content of the course aimed to encourage students in finding keywords that can express a concept and describe the ambience of a space. At the beginning of the semester, student responses indicated that they preferred using symbols (38%) or an abstract subject (30%) to create a conceptual approach while only 16% preferred using keywords. At the end of the semester, the percentage of preferring keywords increased to 65% whereas preferring symbols and abstraction dropped considerably. Figure 7 shows changes in in student responses to the questions above in both surveys.

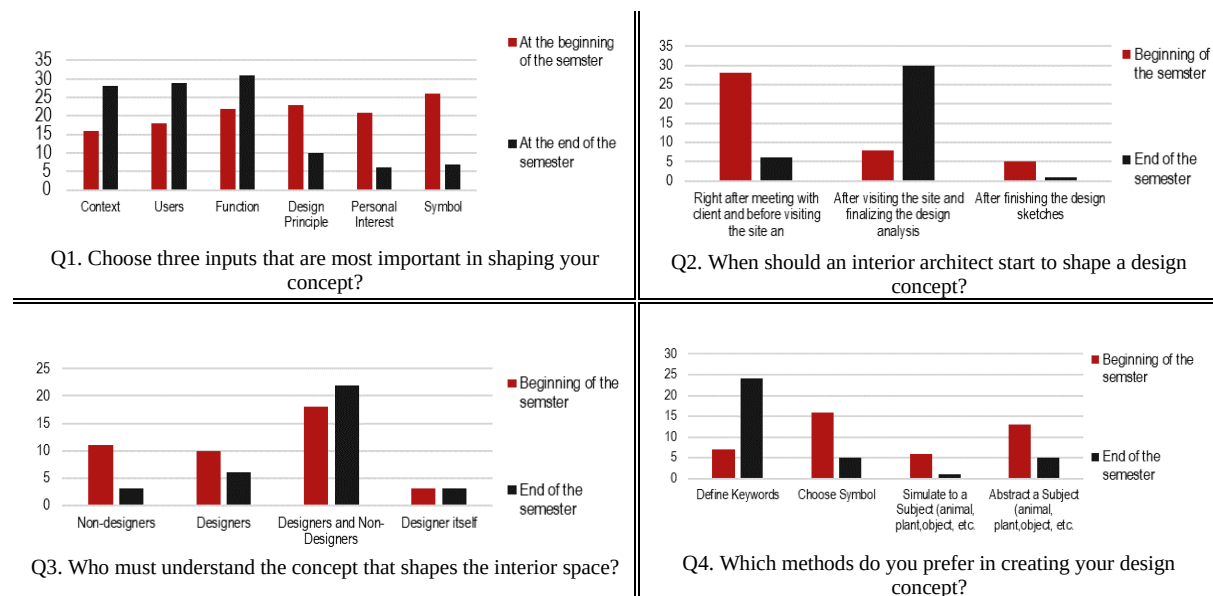


Figure 6. Difference in student responses to questions on concept development between the beginning and end of the course

Later, five questions each presenting a visual that expresses a specific type of conceptual approach were proposed to students. Findings showed that student familiarity with concept diagrams showed a considerable improvement, however improvement was limited in distinguishing metaphors and analogies. Student familiarity with essence showed almost no improvement (Table 3).

Table 3- Difference in the percentage of students in distinguishing different conceptual approach typologies between the beginning and end of the semester

Correct answer	Correct answers at the beginning of the semester	Correct answers at the end of the semester
Metaphor	17%	49%
Analogy	14%	32%
Diagram	31%	89%
Diagram	33%	94%
Essence	7%	8%

The questions in final section of the questionnaire aimed to evaluate student knowledge on presenting a design concept at the beginning and end of the semester. While at the beginning of the semester 90% of students claimed not knowing any method to present their concept, this percentage dropped to 19% at the end of the semester. The course aimed to teach students the need to develop their concept presentation during the development of their project, so students were also asked if they think their concept presentation required review at the beginning and end of the of the project. At the beginning of the semester 71% of students answered no to this question and this percentage dropped to 19% at the end.

In open-ended questions, students were asked to define a design concept. 64% of students answered this question at the beginning of the semester and this percentage rose to 75% at the end of the semester. At the beginning of the semester, the common keywords used to describe a concept was 'a subject that shapes design (22%)' and 'inspiration (15%)', whereas the common keywords at the end of the semester changed to 'subject that defines the identity of space (28%)', 'expression of design ideas (21%)', 'main idea that serves function and user (18%)' and 'theme that guides the design (18%)'. The final answers were very coherent with the content of the lectures.

The second open-ended question asked students to name any method they knew to develop their concept. The number of students who answered this question at the beginning of the semester was very limited. 5% referred to a symbol, 7% to abstraction, 5% to keywords, 2% to sketching while 81% gave no answer. The number of students who answered this question increased and the answer changed considerably by the end of the semester. 76% answered the question and 46% named more than one method. 30% referred to concept diagrams, 19% design analysis, 19% keywords, 16% essence, 13% abstraction, 13% research, 11% metaphors, 8% analogies and 3% symbols.

In second survey, five interior design projects were selected from Dezeen.com and students were asked to read the project descriptions on the website and mark the suitable phrase expressing the design concept of these projects. One of the proposed answers expressed the main concept while the rest expressed design solutions that enhanced the main idea. According to the findings, most students were able to distinguish the conceptual approach (Table 4).

Table 4. Difference between the percentage of students with correct and incorrect recognition of main design concepts of the project

Questions	Percentage of correct answers	Percentage of incorrect answers
Q1	61%	49%
Q2	61%	49%
Q3	80%	20%
Q4	61%	49%
Q5	83%	17%

Finding from Control Measures

All students who have enrolled in conceptual approaches were evaluated by instructors who have attended their design jury. In this respect, design instructors were participated in a questionnaire at the end of the midterm and final design juries and rate students' skills in developing and communicating design concept based on the criteria below.

- Creativity
- Logicality (Responsive to function, users, context)
- Expressive Verbal Presentation
- Expressive Visual Presentation
- Creative Visual Presentation

Comparison between the findings from both questionnaires confirmed that students have shown considerable improvement in developing and communicating a design concept (Table 5).

Table 5- Students' progress in developing and communicating design concept according to their design instructors

	Rating Criteria	Instructors' rating after midterm jury					Instructors' rating after final jury				
		1 Very Poor	2 Poor	3 Moderate	4 Good	5 Very Good	1 Very Poor	2 Poor	3 Moderate	4 Good	5 Very Good
1 st Grades	a	-	3	2	-	-	-	-	1	3	1
	b	1	2	2	-	-	-	-	1	4	-
	c	1	3	1	-	-	-	-	2	3	-
	d	1	2	2	-	-	-	-	1	4	-
	e	1	3	1	-	-	-	-	1	4	-
2 nd Grades	a	8	11	4	5	-		4	7	11	6
	b	10	11	4	3	-	2	4	8	12	2
	c	6	12	8	2	-	2	6	6	10	4
	d	7	9	6	6	-	-	4	7	12	5
	e	10	9	5	4	-	2	5	5	11	5
4 th Grades	a	-	2	2	-	-	-	-	1	3	
	b	-	1	3	-	-	-	-	1	2	1
	c	-	1	2	1	-	-	-	1	2	1
	d	-	3	1	-	-	-	-	1	1	2
	e	-	3	1	-	-	-	-	1	2	1

In continue, another rating was completed by students' design instructors in spring 2021 right after stage of concept development was over in their design course schedule. In this evaluation instructors have rated 20 students' (54%) skills in developing a creative concept as good and 8 students (22%) as very good. Instructors have also rated 17 students' (46%) skills in developing logical concept as good and 12 students (32%) as very good. Findings from this stage was also promising.

Conclusion and Discussions

This study was developed with concern to the importance of offering a course related to concept development in interior architecture programmes. In this respect, the content and the progress of students in a course called 'conceptual approaches in interior design' was evaluated and established. Integrating theory and practice by offering lectures and exercises about key topics of understanding, communicating and developing concepts were the methods adopted for this course. Furthermore, the role of this new teaching strategy was evaluated by keeping track of changes in student knowledge and skills about the key course subjects.

Results from the direct evaluation of assignments showed that main student weaknesses at the beginning of the semester was regarding the communication of ideas with weak presentation skills and an inability to distinguish the main design concept from design ideas. Results from final assignments showed that students improved their presentation skills and understanding the design concept. Likewise, questionnaire results also showed that student knowledge improved in terms of understanding and communicating the design concept. Results from the questionnaires also showed that student knowledge on the subjects below increased, which could be accounted for an increase in their knowledge about developing a concept:

- Inputs that play an important role in shaping conceptual approaches in interior spaces
- Timely concept development for an interior architecture project
- Methodologies for shaping responsive concepts

This study suggests that integrating theoretical lectures with practical exercises has played an important role in building awareness and also help students identify connections between the discussed theoretical subjects and their experience through practice. Results show that since the amount of time spared for learning

and practicing the concept diagrams was considerably more than understanding and applying essence as the conceptual approach in interior spaces, students have shown less interest towards essence and are consequently less informed.

It should be added that every student has a different style of learning and with different teaching strategies students will find their own pattern. In the current study, students were introduced to different conceptual typologies, methodologies and presentations and asked to practice these subjects in their own pace and ability. Enabling students to realise their creative potential is essential for their growth and innovation in the interior design profession (Portillo, 1996). Developing creative concepts goes beyond the reach of formal interior architecture education. It must be supported by complementary courses which propose practices at the beginning of the earliest years.

Current study is limited in its generalizability because of the sample size and methodologies. However, the findings of this study will contribute to raising awareness about the importance of considering interior architecture concept independently from architecture and transfer this awareness to the level of educational programmes. Moreover, interior architecture students will gain a higher degree of awareness and confidence on creative design development, which will in turn build on interior architecture both academically and professionally. Findings from current study lead to further researches on developing new methodologies and practices to improve students' ability in developing creative design concepts during their education.

References

- Abel, Chris. *Architecture as Identity, I: The Essence of Architecture*. In: *Semiotics* 1980. Springer, Boston, MA. https://doi.org/10.1007/978-1-4684-9137-1_1, 1982.
- Ambrose, Gavin. Harris, Paul. *Basics Design: Design Thinking*. Lausanne, Switzerland: AVA Publishing SA, 2010.
- Andreasen, Martin. M, Hansen, Claus. Thorp. & Cash, Philip. *Conceptual design: Interpretations, mindset and models*. Cham: Springer, 2015.
- Ayiran, Nezi. "The role of metaphors in the formation of architectural identity". *ITU A|Z*, 9(2), 2012:1-21.
- Bletcher, Joanna. "The Constellation: A framework for conceptualising design as a process of innovation", *The Design Journal*, 2017: S4552-S4564, DOI: 10.1080/14606925.2017.1352952
- Broadbent, Geoffrey. *Design in architecture: architecture and the human sciences*. London, New York, Wiley, 1973.
- Caballero, Rosario. "Thinking, drawing and writing architecture through metaphor". *Redalyc*, 28, 2014:155-179.
- Cable, Cochran. *Symbolism in architecture*. Monticello, IL: Vance Bibliographies, (1981).
- Casakin, Hernan. "Visual analogy, visual displays, and the nature of design problems: the effect of expertise". *Environmental Planning and Design: Design B.*, 37, 2010:170-188.
- Casakin, Hernan. Timmeren, Arjan. Van. "Analogies as Creative Inspiration Sources in the Design Studio: The Teamwork". *Athens Journal of Architecture*, 1(1), 2015: 51-64. doi: 10.30958/aja.1-1-4
- Cirlot, Juan. Eduardo. *Dictionary of symbols*. London: Routledge, 2001.
- Coles, John. House, Naomi. *The fundamentals of interior architecture*. Lausanne: AVA Academia, 2007.
- Dodsworth, Simon. *The fundamentals of interior design*. London: Bloomsbury Visual Arts, 2009.
- Dogan, Fehmi. "Architectural Design Students' Explorations through Conceptual Diagrams", *The Design Journal*, 16:1, 2013:103-124, doi:10.2752/175630613X13328375149002.
- Gibbs, Jenny. *Interior design*. London, UK: Laurence King, 2005.
- Gobert, Janice D. "Expertise in the Comprehension of Architectural Plans: Knowledge Acquisition and Inference Making". (John S. Gero and Barbara. Tversky, Eds.), In *Visual and Spatial Reasoning in Design '99*, Key Centre of Design Computing and Cognition: University of Sydney, AU, 1999.
- Hadian, Amir. Sasan. "Using Metaphor and Analogy for Understanding Structural Concepts in Architectural Education; an Iranian Perspective". *Open House International*, 40(2), 2015:29-36. doi:10.1108/OHI-02-2015-B0005
- Holl, Steven. *Idea and Phenomena*, Lars Muller Publishers. 2002.
- Jencks, Charles. *The language of post-modern architecture*. New York: Rizzoli, 1991.
- Jencks, Charles. *The iconic building: The power of enigma*. London: Frances Lincoln, 2005.
- Kilmer, Rosemary. Kilmer, W. Otie. *Designing interiors*. Hoboken, NJ: Wiley. (2014).
- Kim, Jongbae. Wilemon, David. "Focusing the fuzzy front-end in new product development". *R&D Management*, 32(4), 2002: 269–279.

- Laiprakobsup, Narongpon. In between place: The emergence of the essence (Doctoral dissertation, 2010). College Station, TX: Texas A & M University, 2010.
- Lakoff, George. The Contemporary Theory of Metaphor (Andrew. Ortony, Ed.). In *Metaphor and thought* (pp. 202-251). Cambridge etc.: Cambridge University Press, 1998.
- Lazutinaa, Tatyana.V. Pupyshvab, Irina. N. Shcherbininb, Mikhail. Baksheeva, Vladimir. N. Patrakovac, Galina. V. "Semiotics of Art: Language of Architecture as a Complex System of Signs". *International Journal of Environmental Science Education*, 11(17), 2016: 9991-9998.
- Lewis, Theodore. Creativity, A Framework for the Design/Problem: Solving Discourse in Technology Education. *Journal of Technology Education*, 17(1), 2005: 35-52.
- Leydecker, Sylvia. In Between: Interior Design Between Architecture and Design. In *Designing interior architecture: Concept, typology, material, construction* (pp. 10-61). Basel, Switzerland: Birkhäuser Verlag AG, 2013.
- Lockard, William. Kirby. *Design Drawing Experience*. Tucson: Pepper Publishing, 1973.
- Lopez, Michael. J. *Retail store planning & design manual* (2nd ed.). New York. John Wiley & Sons, (1995).
- Maki, Peggy. *Assessing for Learning*. Sterling, VA: Stylus. (2004).
- Mankus, Martynas. "Manifestations of Symbolism in Architecture of Postmodernism". *Journal of Architecture and Urbanism*, 38(4), 2014: 274-282. doi:10.3846/20297955.2014.998853.
- Mas, Angeles. Blasco, Vicente. Lerma, Carlos. Angulo, Quiteria. "Comprehension of Architectural Construction through Multimedia Active Learning". *Canadian Center of Science and Education*, 3(2), 2013:1-12, doi:10.5539/hes.v3n2p1.
- McLain-Kark, John. Dhuru, Shilpa. Parrott, Kathleen. Lovingood, Rebecca. Client comparison of three design presentation methods. *Journal of Interior Design*, 24(1), 1998: 1-11. doi:10.1111/j.1939-1668.1998.tb00557.x
- Nagasundaram, Murli. Creativity, Group Support Systems, and Systems Development. In *Systems Development Methods for the Next Century* (Wojtkowski, W. Gregory, Wita. Wojtkowski, Stanislaw. Wrycza, Armi. Krajowej, & Joze. Zupancic, Eds.). Boston: Springer, 1997: 39–48.
- National Research Council. *Evaluating and Improving Undergraduate Teaching in Science, Technology, Engineering, and Mathematics*, (Marye Anne Fox & Norman Hackerman, Eds.), Washington, DC: The National Academies Press, 2003. <http://www.nap.edu/catalog/10024.html> .
- Norberg-Schulz, Christian. *Genius loci: Towards a phenomenology of architecture*. London: Academy Editions, 1980.
- Nussbaumer, Linda L. Guerin, Denise. A. "The Relationship Between Learning Styles and Visualization Skills Among Interior Design Students". *Journal of Interior Design*, 26(2), 2000: 1-15. doi:10.1111/j.1939-1668.2000.tb00355.x
- Ortony, Andrew. *Metaphor and Thought*. New York: Cambridge University Press, 1991.
- Osmond, Jane. Turner, Andrew. The threshold concept journey: From identification to application. In *Threshold concepts and transformational learning*, (Jan. H. F. Meyer, Ray. Land & Caroline. Baillie, Eds.), (pp. 347-364). Rotterdam, the Netherlands: Sense Publishers, 2009.
- Paul, Richard. Elder, Linda. *The Nature and Functions of Critical & Creative Thinking*. Tomales: Foundation for Critical Thinking Press, 2008.
- Pekkala, Janne. Ylirisku, Salu. "The Role of Design Concepts in the Development of Digitalized Industrial Services", *The Design Journal*, 20:sup1, 2017: S2813-S2822, DOI: 10.1080/14606925.2017.1352792
- Piotrowski, Christine. M. *Interior design management: A handbook for owners and managers*. New York: Wiley, 1992.
- Piotrowski, Christine. M. *Becoming an interior designer: A guide to careers in design*. Chichester: J. Wiley and Sons, 2009.
- Piotrowski, Christine. M. *Professional practice for interior designers*. Hoboken, NJ: John Wiley & Sons, 2020.
- Plowright, Philip. D. *Revealing Architectural Design*. London: Routledge, 2014.
- Portillo, M. (1996). Uncovering Implicit Theories of Creativity in Beginning Design Students. *Journal of Interior Design*, 22(2), 15–24. doi:10.1111/j.1939-1668.1996.tb00232.x
- Reiter-Palmon, Roni. Illies, Marcy. Young, Cross, Kobe. Lisa. Buboltz, Cara. Beth. Nimps, Tom. "Creativity and Domain Specificity: The Effect of Task Type on Multiple Indexes of Creative Problem Solving". *Psychology of Aesthetics, Creativity & the Arts*, 3, 2009: 73–80.
- Rodgers, Paul. Jones, Paul. "Comparing University Design Students' and Tutors' Perceptions of Creativity". *The Design Journal*, 20(4), 2017: 435–457. doi:10.1080/14606925.2017.1323503
- Schwarzer, Mitchell. W. Schmarsow, August. "The Emergence of Architectural Space: August Schmarsow's Theory of Raumgestaltung". *Assemblage*, 15, 1991: 48-61, doi:10.2307/3171125.
- Sully, Anthony. *Interior Design: Conceptual basis*. New York: Springer International Pu, 2016.
- Tait, James. *The architecture concept book: An inspirational guide to creative ideas, strategies and practices*. London: Thames & Hudson, 2018.

- Tenbrink, Thora. Dalton, Ruth. C. Jago, A. Williams. The Language of Architectural Diagrams, Creative Commons License CC-BY 14th International Conference on Spatial Information Theory (COSIT 2019). (Sabine. Timpf, Christoph. Schlieder, Markus. Kattenbeck, Bernd. Ludwig, & Kathleen. Stewart., Ed.); 17, 2019:1–14.
- Janson, Alban. Tigges, Florian. Fundamental Concepts of Architecture: The Vocabulary of Spatial Situations. Birkhäuser: Switzerland, 2014.
- Travis, Stephanie. "Conceptual Thinking: The Design Concept in Interior Design Education". *Design Principles & Practice: An International Journal*, 5(6), 2011: 679-694.
- Uddin, Saleh. Composite drawing: Techniques for architectural design presentation. New York: McGraw-Hill, 1997.
- Rieber, Robert. W. Development of Thinking and Formation of Concepts in the Adolescent. In *The Essential* (Rieber, Robert W. & Robinson, David, Eds.), (pp. 415–470). New York: Kluwer, 2004.
- Yee, Rendow. Architectural drawing: A visual compendium of types and methods. Hoboken, NJ: Wiley, 2013.
- Ylirisku, Salu. Frame it simple! Towards a theory of conceptual designing (Doctoral dissertation). Helsinki, Finland: Aalto University, 2013.