Teaching Architectural Design through Character Reading
การสอนออกแบบสถาปัตยกรรมผ่านงานวรรณกรรม

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คณะสถาปัตยกรรมศาสตร์และการออกแบบ มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี กรุงเทพฯ 10150

Abstract

Teaching the understanding of critical thinking within architectural design education supports students to develop design thinking and strengthens individual creative design processes. To comprehend architectural design teaching through critical thinking more effectively, an approach to introduce character reading as a design methodology was investigated in a second year architectural design studio. Through a guided process, students were asked to explore distinctive qualities of characters appearing in a novel and implement them into an architectural design for residential use. The student's performance was measured by evaluating their argumentative approach and their final design. As an outcome, most students successfully showed improved creative and visible development of their designs through character reading and its implementation as a design methodology. Critical thinking as well as character reading proved to be a critical in design education and design thinking.

บทคัดย่อ

บทความนี้เกี่ยวเนื่องจากการสอนการออกแบบทางสถาปัตยกรรมที่สนับสนุนและให้ความสำคัญในการวิเคราะห์ตัวละครจากงานวรรณกรรม บุคลิกพฤติกรรมและลักษณะของตัวละครเป็นตัวกลางที่ถูกนำมาใช้ในกระบวนการการตีความ และนำนัยนั้นเป็นเกณฑ์กำหนดแนวความคิดในการออกแบบ ผู้ศึกษามีการเรียนรู้ที่จะวิเคราะห์ลักษณะตัวละคร เปรียบเสมือนเป็นเจ้าของเป็นผู้ใช้งานหลักของพื้นที่เหมาะสมกับการสอนให้เข้าใจถึงที่มาของพื้นที่ทางสถาปัตยกรรมเพื่อการออกแบบที่พักอาศัยของนักศึกษาคณะสถาปัตยกรรมศาสตร์ชั้นปีที่สอง เกณฑ์ในการประเมินผลและการวัดผลสัมฤทธิ์ของงานออกแบบของผู้ศึกษา พิจารณาจากความสามารถในการอธิบายพื้นที่ใช้งานที่มีความสัมพันธ์กับพฤติกรรมของตัวละครต้นเรื่อง เมื่อกระบวนการศึกษาสิ้นสุดลงพิจารณาเห็นว่า ผู้ศึกษาส่วนใหญ่เกิดพัฒนาการในการสร้างแนวคิดเชิงวิเคราะห์ทางการสร้างพื้นที่ในการออกแบบทางสถาปัตยกรรมที่มีมิติเชิงลึกได้ดีตามจุดประสงค์ที่ตั้งไว้

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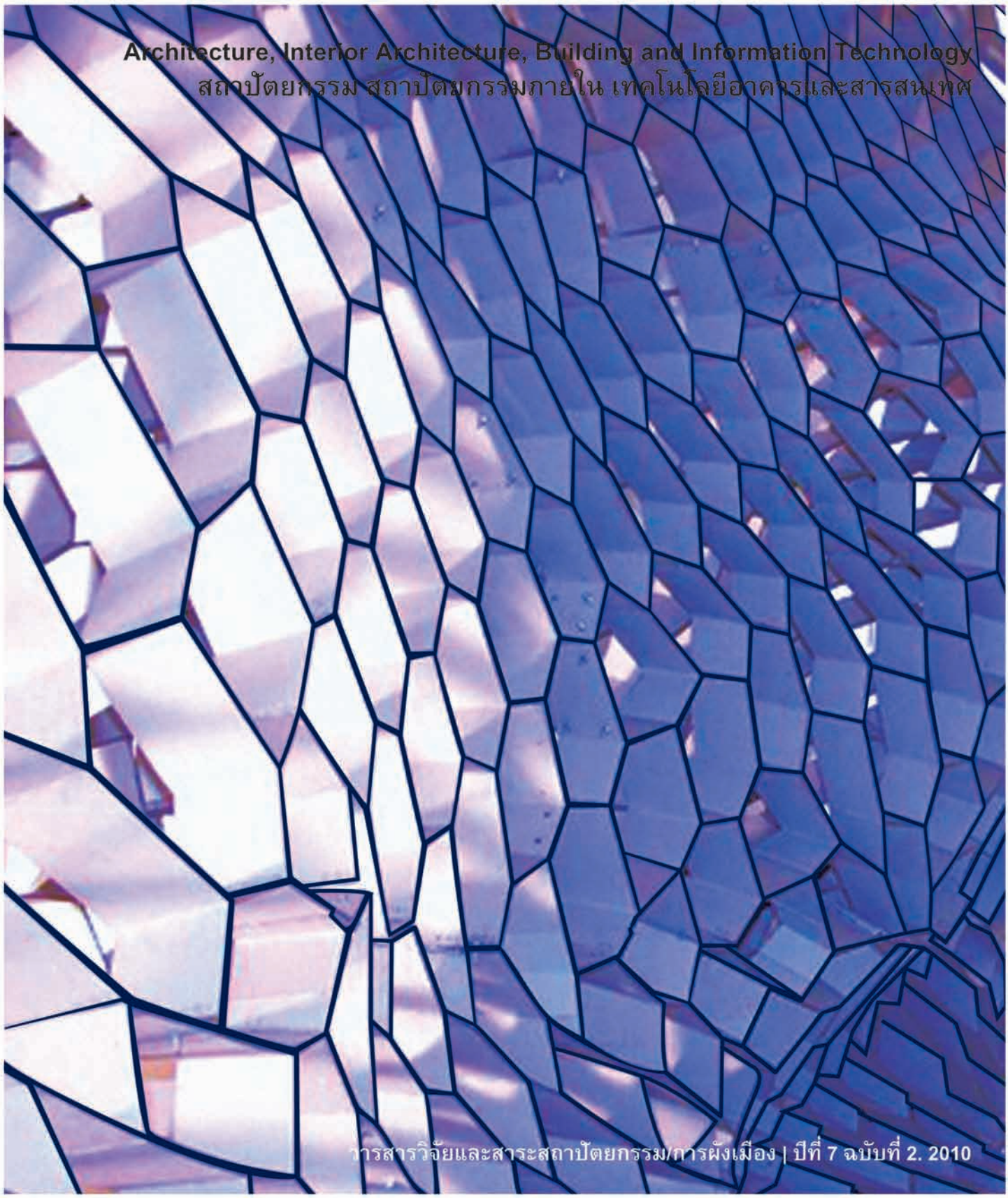

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Editorial

As we are moving in an exponential speed toward the future, it is undeniable that we need to be vigilant about the current situations. JARS brought you two interesting future aspects of building design and energy in this issue.

On the subject of design, three articles reveal relationships between design and other disciplines. One explores the relationship between design and literature, while the others suggest the relationship between design, Eastern philosophy and religions. Two articles explore and define design as an essential tool for supporting the creative economy and succeeding in business present current movements in the realms of design and industry. Other three articles view design as trends that are resulted from cultural influences while discussing the architectural trends based on different cultural impacts. Considering design as a part of the environmental concerns, waste plastic bottles discloses another fascinating way as a new construction material. And also, the exploration on design to improve human quality of life, in an article about the blind. And last but not least, a book review on research methods in design is presented. We hope you find all these current articles interesting and shed some lights into the world of future.

The recent two activities related to building energy in Thailand are the improvement of building regulations and the promotion of green buildings. The large effort in implementing in the Energy Conservation and Promotion (ECP) Act since 1992 could not reduce the amount of energy utilization but only decelerate the growth of overall energy consumption. Therefore, the new building regulation issuing in 2009 expected the higher goal of energy conservation, requiring the complicated energy calculation and various energy conservation measures. There has been also a significant increase in interest of green building guidelines that can be attributed to the public awareness, as well as, international pressure to reduce the environmental impacts such as increase in CO_2 emissions, water and soil pollution occurring due to the exponential growth in the built environment. In this issue of JARS, there are two research articles contributing to the energy management in buildings and the reduction of CO_2 by plant wall. Extensive results of these researches should provide information for readers, researchers and practitioners.

Presently, current and previous issues of JARS are available in the bookstores. In addition, they can be found in the US Library of Congress, Washington DC (http://catalog.loc.gov/).

Finally, we would like to thank our advisory board for contributing and taking part in this journal. Thanks are due to our readers for their continued support and peer reviewers for their efforts in reviewing the papers of this edition.

Dr. Sudaporn Chungloo
Editor-in-Chief

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Keywords

Architectural Design (การออกแบบสถาปัตยกรรม)
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Character Reading (การศึกษาบุคลิกและลักษณะตัวละคร เพื่อการออกแบบทางสถาปัตยกรรม)

1. Introduction

Similar to scientific research, one may argue that in the field of architectural design qualitative as well as quantitative methods of investigating and evaluating design issues exist. Quantitative research, for instance, refers to the systematic empirical investigation of measurable properties and phenomena and their relationships. In a design environment, such properties are quite prominent and often already transformed into guidelines and regulations the design solution must fulfill. The example in many architectural design studios' omnipresent Architects' Data handbook (Neufert, 2000) is a good example of the collection of such design generalizations.

On the other hand, qualitative research is a method of inquiry aiming to gather an in-depth understanding of human behavior and the reasons that govern such behavior. In general, qualitative methods investigate the why and how of decision-making, not just what, where and when. Thus, while quantitative methods represent facts based on reliable data and universal understanding, qualitative methods of design rely on individual understanding, based on intuition, experience, creative skills and perception instead.

Considering this, architectural design students may gain a better comprehension of the importance of a design approach through the existence and interrelationship between universal as well as individual, intuitive elements of design. Such universal, measurable and thus generalizable aspects of design often enough dominate student thinking process when practicing skills, thus reducing practice to sole constraint satisfaction problems. Moreover, the use of design rules without reflection and generalization tends to mislead students in their development and to create context related designs limited to a critical understanding of a given design problem. In addition, qualitative design skills are hard to teach as they do not generally allow for understanding 'yes' or 'no' or any exact definition of what the process is or whether it is an acceptable approach or not. Such qualities of design rather derive from coherences and individual logic. Especially the early stages of design education, students require an understanding of how to negotiate between often conflicting design demands.

Instead of teaching universal or constant design principals, it may be more successful to have students approach design problems through critical thinking. The advantage of using critical thinking within a design context is that it supports the understanding of design problems by allowing designers to think more open-mindedly and to find design solutions by intellectually questioning the appropriateness of a design decision being made. In addition, when practicing critical thinking in an educational environment, the relationship between student and instructor necessitates transforming into one of a mediation of thoughts, based on the support of the instructor to think and investigate the individual design aspect. The ability to enhance creativity and variability in design investigation thus requires not only a tolerant approach between instructor and students, but towards influences and positions from outside the design studio as well. Since critical thinking requires understanding and exchanging ideas, integrating a creative cooperation through mediation of thought can richen student design skills and an acceptance to react to unconventional, unexpected influences.

This goal to improve understanding was implemented into a design-task for architecture students to support a creative solution finding process based on character reading and to strengthen their ability to design and articulate space in a more distinctive and elaborate way. Although the intent to introduce user characteristics for the design and creation of space is not new (Boullée, 1987), its potentials are yet to be realized, especially in residential design, where quality of space is linked to a strong ability to employ user characterization.

The recognition and understanding of user characteristics prior to the design challenge therefore remains an important factor in finding successful design solutions that do not just fulfill constraint satisfaction. Thus, instead of instructing students to practice their design skills based on generalizations, for example designing a single family house for two parents, two children and one dog, students were asked to create a building design that recognizes a unique human being and their various qualities as a significant design element. In a sequential approach, students where encouraged to not only learn how to investigate and understand a human character but how to transform essential characteristics into a design that respects tolerates and reacts to the individuality of its user. Finally, through collaboration with novelist Ngampan Vejjajiva, students were able to learn to analyze character reading based on using descriptive information, and to learn from the inverse, creative process of character building in the domain of literature writing.

2. Related Background

While a wide body of research on the practice of design methodologies exists, the authors would like to point out a few that contribute to the understanding of architectural design education, critical thinking and character reading.

2.1 Architectural Design Education

A widely accepted understanding regarding the process of architectural design is based on design problem formulation (Rittel & Webber, 1973) and a successive, mostly recursive solving process taking into account all apparent possibilities that could resolve the earlier defined problem. Especially at the beginning of a design stage, this formulation is understood as inconsistent or ill-defined (Simon, 1973), mostly due to incomplete information that is traditionally unveiled along the process of design. An example in teaching architectural design practice can be seen in the weekly design exercises provided by Ungers (2006a), where a given space program represents the framework for a design task constrained through programmatic aspects of design such as space program, situation, climate, orientation, material, construction and building technology, etc. These functional aspects are understood as design instruments to calibrate and justify the design (Ungers, 2006b). While this approach by accepting the boundaries of constraints might be agreeable since the method does focus on the technicality of fulfilling constraints; the elaboration of constraints to describe a design problem seems too restrictive to induce a closed system approach where design ideas are not directly transportable into a declarative form.

That a design does not necessarily require being limited to a universal approach has been demonstrated by many postmodern examples. Venturi (1977), for instance, proclaimed multiplicity to be a significant element for the expression of architectural design. Thus, considering the critical assessment of architectural design, besides defining what constitutes architecture, it thus legitimatizes the need to answer the meaning of architecture as well (Panin, 2007).

However, probably due to its unapologetically anti-modernist and overtly subjective character, alternatives to existing design methodologies are scarce and easy to fail academically. An exception to such a lack of options was proposed by Nishimoto (2002) by suggesting descriptive programming as an alternative to purely analytical programming ideas. According to his understanding of design regarding architectural education practice, it should "employ the writing of descriptive text as a viable method of programming and design". Employing descriptive programming enables designers to reach beyond quantitative design aspects. By creating a descriptive method and thus establishing design information based on circumscribing associative

events, demonstrates a rather distinctive method for design succeeding into creative solutions different to common design attempts (Nishimoto, 1993). The conceptual explanation of ideas is thus not considered the most interesting aspect in a design project per se. Instead, descriptive programming expands the possibility of accommodating the "immediate symptoms of culture, without the delay of coherent explanation". The introduction of descriptive information into a design requires designers' ability to evaluate and decide autonomously and successfully to encode them into a meaningful design.

As another example, Herzberger (2000) demonstrated that focusing on individual behaviors does not need to differentiate functional oriented practice. In many of his examples, description and understanding of human behavior leads towards, articulates or describes architectural space and vice versa. The interpretation of how designed space foresees its later occupant's behaviors is therefore an essential part of a design challenge. Consequently, for him, architectural design is understood as an approach where a design outcome is influenced by individual interventions, where "every design of consequence presents a coherent narrative". Taking this understanding into account, the wisdom of individual as well as collective behaviors can be seen as an essential part for the successful production of a design.

Possible methods of learning, such as critical thinking, should thus be employed and trained during the architectural design education.

2.2 Critical Thinking

Critical thinking can thus occur whenever one must figure out what to believe or what to do, and to do so in a reasonable and reflective way. Though reasoning is the cognitive process of looking for reasons, beliefs, conclusions, actions or feelings (Kirwin, 1995), critical thinking requires logic understanding and an exchange of ideas. Through critical thinking, designers are thus expected to increase their creative evaluation process combined with the strength to provide understanding and argumentation to their audience.

In an educational setting, both, design students and educators often face the problem that design thinking, based on individual ideas is easily diminished or overruled due to the rawness of the idea or the undeveloped relationship between existing design requirements. The attempt to employ critical thinking during the design process thus enables designers to find adequate, well-reasoned solutions based on testing against relevant criteria and individual judgment of a design problematic. Instead of requiring students to pragmatically pursue fulfillment of their design tasks, educators should aim to point out controversies so that students are encouraged to take positions.

Since the necessary skills for critical thinking are described as: observation, interpretation, analysis, inference, evaluation, explanation and metacognition, when applying them to the architectural design process, critical thinking can be interpreted as an ability to:

- Identify the design problem(s); find effective ways for meeting those problems
- Gather and organize relevant information
- Realize the significance of prioritization and order of precedence in problem solving
- Construe the available information and evaluate arguments
- Recognize logical relationships between propositions
- Sketch possible design solutions
- Put to test the conclusions and generalizations at which one arrives
- Reconstruct one's patterns of beliefs on the basis of wider experience
- Render accurate judgments about specific things and qualities in everyday life

While anything can be done critically and uncritically, being useful, the methodical approach of critical thinking ideally determines fields or areas that allow for debating such as character reading.

2.3 Character Reading

Yet, architecture could benefit from other disciplines, such as literature, where the consideration of individual behaviors plays a dominant role in the creation process and its understanding and use is more developed. As an art, architectural expression, similar to literature, is conveyed as a symbolic language that can be read via syntactic and semantic rules (Goodman, 1976).

In literature, characters represent an important element for the overall conception in any kind of narrative. The creation of characters represents a significant element in storytelling; they appear to play a defined role, meaning the true nature of a person's character is not necessarily the interest of the writer, according to its need to fulfill its role-play in the plot. Especially the use of adversity implements that the described person is most likely to transform throughout a plot and change his/her characteristic behavior over time. The understanding of characters for the rationale of story writing and its obligation to serve it may easily be obstructive when it comes to design. Such dependency is likely to be reversed, expecting the architecture to comply with its anticipated occupant's behaviors and their expression of daily life in a supportive manner. Thus existing differences between building characters and their reading needs to be recognized and cannot directly be transferred when implementing character behaviors into an architectural design.

For various reasons character reading is often disregarded during the process of design, practically as well as theoretically. Future occupants or clients are often unaware of characteristic behaviors and needs and are easily reluctant to recognize their value. Though potentially supportive, it seems difficult to meaningful interpret and implement characters into a design solution as their results are primarily individual reflection are intricate to communicate and are easily rejected.

Character reading for the purpose of architectural design can thus be seen as part of a design method to bring the projected result closer to its later occupants. By analyzing characteristic behaviors of buildings foreseen users, designs are expected to become more suitable. By employ the method of critical thinking the strength of character reading lies in its ability to unveil characteristic conscious and subconscious behaviors, evaluate their significance and importance regarding the architectural design process and finally implement them fruitfully.

3. Methodology

To understand the benefits of critical thinking within a design context better, a design task had been created for an architectural design studio. The design course is the first of six architectural design courses; with two design fundamental courses as prerequisites. According to the course description, content aims to focus on the "architectural exploration of spatial designs, space planning, architecture in response to climatic factors, basic construction materials and methods and cultural interpretation" (SoA+D, 2004). With the opinion that a lack of reasoning hinders students in providing understandable logic of their own decision-making process, the intention of the design task was to construe 'cultural interpretations' as an 'interpretation of characteristic behaviors' and to place more emphasis on this idea as it was expected to allow students to develop individual standpoints more easily. This was undertaken through the idea of character reading, inducing alternative methods of evaluation and a creative approach of integrating their outcome into a spatial design.

By trying to understand single user demands better, a small program for a single house that suited a second year project emphasized character

analysis and its influence on architectural design. Students were asked to design in accordance to a chosen character described in the novel "824" by the writer Ngampan Vejjajiva (2007), winner of the South East Asian Writers Awards (SEA Write). Told in a narrative story over a period of 24 hours, the novel contains descriptions of the life of eight characters, six individuals and two pairs as shown in student brief in Figure 1.

While there is no single character that leads the story, all described characters in the story appear to be the protagonists. They all have certain significance and complement the plot to represent the uniqueness of Bangkok city life; they include:

- A single women, a fulltime student, who is working part times as a 'merchandise promotion' model and is living together with her single mother
- A French taxi driver, working at nights with manifold likings towards Thai culture such as boxing, tattoos and traditional Thai massage
- A transvestite, who is passionate about costume design and is selling her self-made clothes on the sidewalk during the night
- A young man with rural background, a dedicated Buddhist who recently moved to Bangkok to work as a messenger during daytimes and as a security guard at night
- An angry but warmhearted old man, who loves to pretend being drunk and is living together with a dog who has lost his owner
- An elderly woman with dementia, who used to be a university instructor and is being taken care of by former student who sees in her an unfulfilled love

3.1 Book Selection

The selected book provides significant characteristics that made it ideal for use in studio design. While spread over various characters, the amount of adversity and transformation of the characters during the plot is limited, thus the instructors expected that it would be easier for the students to implement their available information into a design. Moreover, the exclusive description of each character makes it more challenging, as the instructors intended to prevent the students to design their houses based on presumed generalities or conventional behaviors. Further, while all of the protagonists reside in the same street, their lives, backgrounds and destinies remain mostly separated

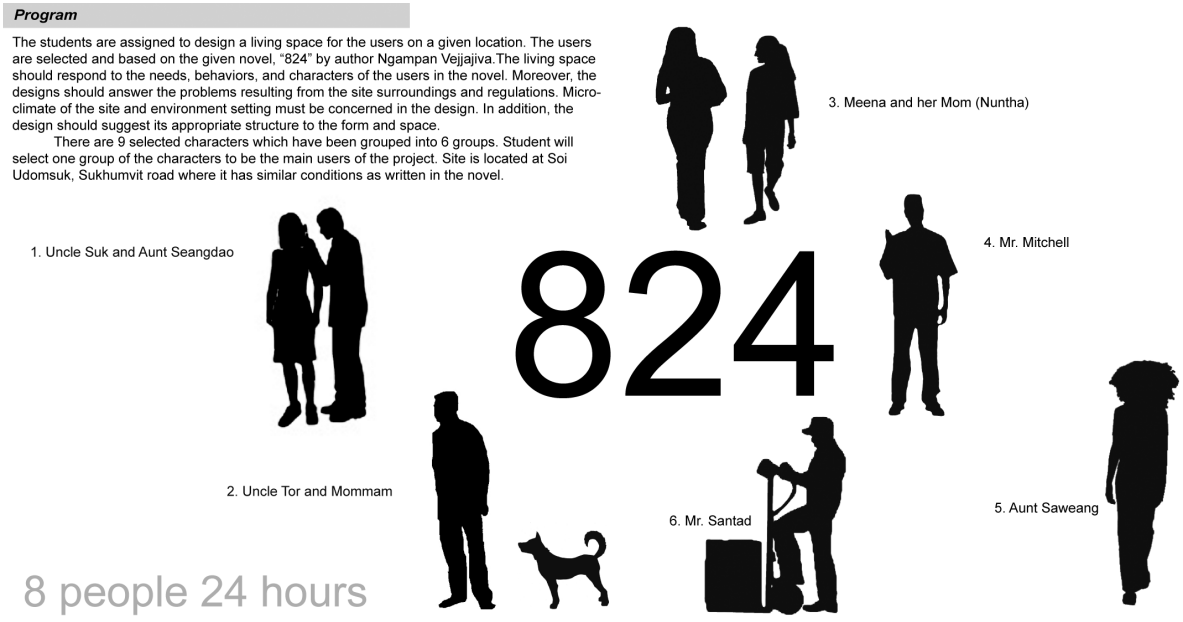


Figure 1. Introduction of design brief in reference to the characters of the book '824'.

from each other, meaning that the characters cannot be understood through their relationships. Instead all of the protagonists mostly remain autonomous; the coherence within the story derives from the locality of the Soi (alley) in which they all live. The circumstance students live within, that is, an environment comparable to descriptions in the book enabled them to understand the characters sufficiently and to associate lives with existing urban, cultural, social as well as climatic conditions. As for the description of the spatial environment, another advantage of the book can be seen that descriptions of the scenery are mostly achieved through the protagonist's actions and not through descriptive illustration. This circumstance not only left a sufficient amount of room for student interpretation to determine their spatial arrangement and/or material settings, but gave them the chance to test their own design in reference to the described actions of their chosen characters. Finally, in addition to the suitability of the book for studio design, the author's availability and her agreement to join and discuss the book with students added to the possibility to extend knowledge regarding the characters and to gain a wider experience in related fields of design. Thus, students were offered the chance to gain insight into ambitions and intentions of literature writers in developing individual characters, allowing investigating the critical understanding of design in comparison to a congruent creative field, where critical thinking and the imaginary understanding are applied as well.

3.2 Implementing Critical Thinking

Through character reading, students were guided to follow and practice their understanding of critical thinking. This meant that students were required to develop a sufficient amount of understanding of the selected character and its direct environment. Students needed to investigate which descriptions in the book where to be understood as meaningful enough to describe the chosen character sufficiently and that allowed for plausible argumentation for describing individual needs and requirements in the design in an acceptable way.

Additionally, though some of the characters did not necessarily convince the students that they would be able to afford private dwelling, students were generally confronted with their own expectations of designing living conditions that could be deemed appropriate to the characters needs. Consequently, idiosyncratic behaviors and conflicting needs of the selected characters demanded students reassess earlier defined programming requirements of the expected design. Thus, students where not only challenged to inquire about individual user characteristics, but to evaluate their significance and the possible consequences that could lead to the transformation of descriptive information into an architectural space layout, responding to the activities and characteristics of the specific character in the book.

3.3 Architectural Design Process: A Stepwise Transformation

With continuous design guidance, students were asked to read the novel and write a short, one page summary of the story to create a pre-selection of character information. Ideally, through simple grouping, for instance by separating between good and bad behavior, a first assessment was made possible. By having a rough understanding regarding the individual contribution of the selected character towards the story, students were then challenged to provide a visual interpretation of the particular character. Figure 2 provides an example of how two students transformed the characters plot into a set of collective images to attain a deeper visual understanding. To allow for a coherent comprehension, the successive work of two students is documented in the following figures.

Through searching and selecting pictures, students were required to choose from magazines and other limited sources to support the decision

Character Analysis

Uncle Suk's character
- Ordinary guy
- Faithful to love
- Hopeful
- Patience
- Trusting
- Steady and calm
- Smart and tall
- Dancer

Aunt Seangdao's character
- Came from well-known family
- Graduated from France
- Beautiful
- Got Pick's disease, losing memory and ability to balance
- Nature lover and attracted by plant
- Dancing trainer

"The story of Sukwit and Seangdao"

Sukwit is ***an ordinary guy*** who is ***faithful to love*** a woman he fell in love in his entire life. He was ***smart and tall*** man. He met Seangdao who was ***beautiful*** since he was a ***dancer*** of the university. At that time she just ***graduated and came back from France.*** They knew each other because they had to practice dancing together. After that she got sick with ***Pick's disease.*** She ***lost her memories and ability to balance.*** She has no one to take care of her. Sukwit is the only person who Seangdao's friend trusts that he can take care of her. Now they live together happily in their house.

Source: Student work of L. Phanchanawanit

Character

UNCLE TOR
BACKGROUND
- A son of Aunt Seang's family's servant.
- Live alone in a heritage house inherited from his mother.
- His wife and son left him.
- His son works oversea and occasionally sent money to him.
- Has no job : earn money from selling his blood.
- Neighbors usually come to drink with him

CHARACTERISTICS
- Hot-tempered
- Conceited
- Has self-confidence
- Willing to help other people when they are in trouble.
- Like to sit on his bamboo bench in front of his house and comment on the news on radio.
- Drinker
- Pretend to be drunk

MOMMAMM
BACKGROUND
- Street dog
- Its owner died in a car accident
- It doesn't know that its owner died so it wait for the owner and then go to the Chinese shrine every night

CHARACTERISTICS
- Very loyal to the owner

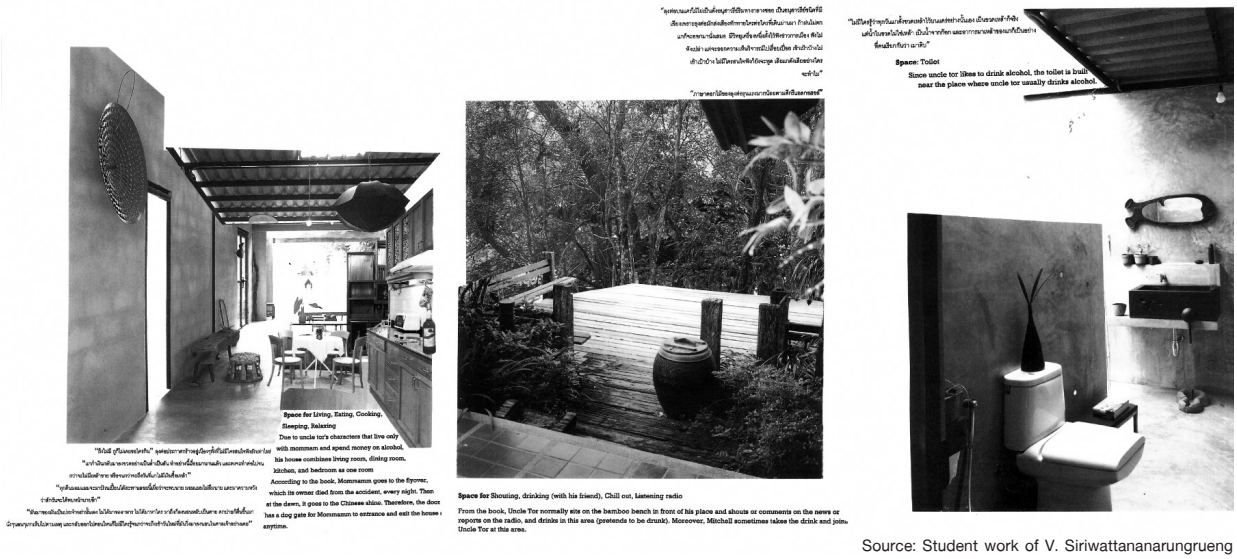
Source: Student work of V. Siriwattananarungrueng

Figure 2. Character description through text and collective images.

making process. Also, by comparing and arranging selected images, students were already involved in deciding what fit together, and what did not. These imaginary interpretations then became a basis to define the associated descriptive scenery or action of each character. Combined into collages, this imaginary environment was then transformed into a space scenario that, would define a habitable space in association with descriptive situations in the plot. The handling, cutting, placing and finally mounting process to a collage intended to support the imaginative ability of students, especially the creation of a space assembly was expected to help visualizing the conscious and subconscious expectations of their designs. The collages are documented in Figure 3.

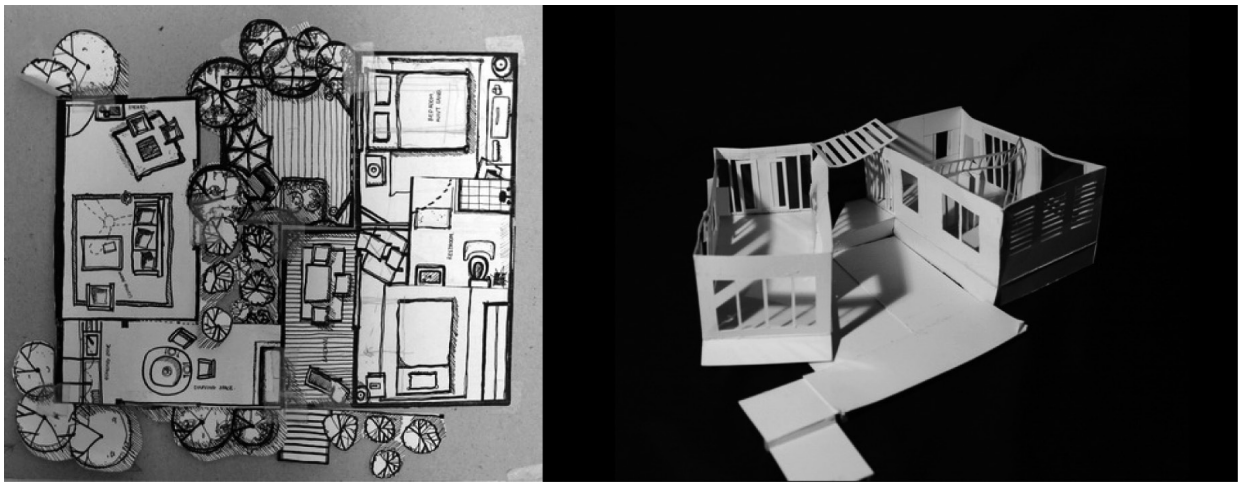
As a further step, by establishing leading keywords that could refer to the personality of the chosen character students were expected to refine their visual understanding and correct their spatial interpretation into a coherent, three dimensional space description. To gain further feed back and to test the outcome of spatial interpretation these intermediate results were then presented to the author. With additional inquiry into the descriptive information of the character and support of the argumentative logic as well as spatial interpretation into an architectural design, students were a sked to continuously develop their design and establish a more detailed space layout based on conventional drawing and model making, shown in Figure 4.

Source: Student work of L. Phanchanawanit

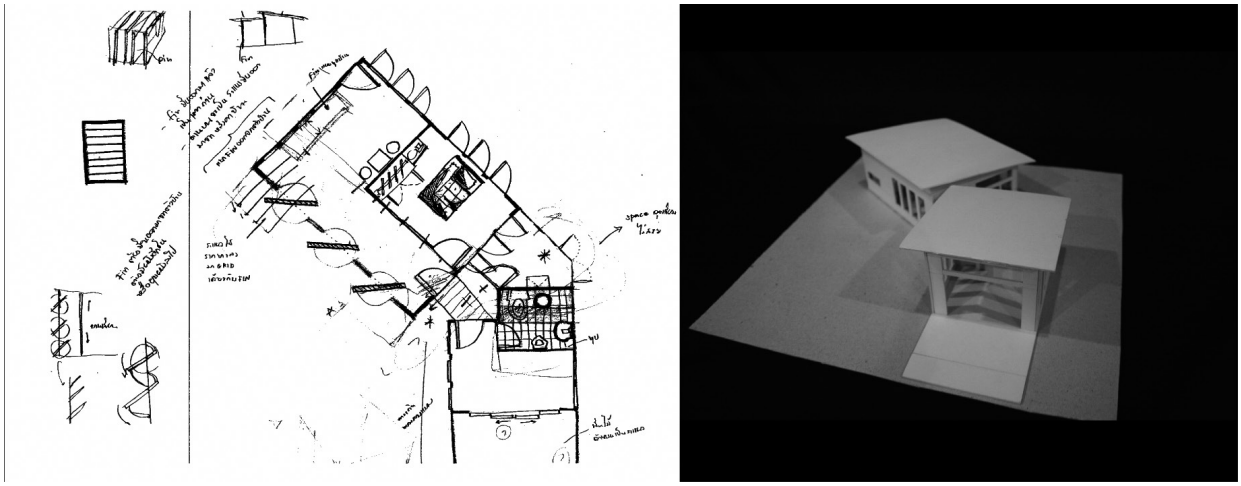


Source: Student work of V. Siriwattananarungrueng

Figure 3. Collages: Visual space description of the characters habitable spaces.



Source: Student work of L. Phanchanawanit



Source: Student work of V. Siriwattananarungrueng

Figure 4. Presentation of a student work by describing the design approach, conclusions and results in form of architectural drawing and models.

In terms of drawing, students were also asked to maintain references to their selected characters and emphasize original descriptive elements of them throughout the architectural design. To guarantee a close relationship between the design and the projected user, students needed to develop strategies to describe their design work through the descriptive information found the novel. Though not compulsory, writing a description of the designed house aimed to encourage students to reconsider their design actions and to clarify their own expectations of what the design was to accomplish.

4. Implementation

4.1 Design Task

The design task for a second year architectural design studio at the School of Architecture and Design (SoA+D) of King Mongkut University of Technology Thonburi has been implemented during the first semester of 2009. As the design represented only a part of the total semester work, time on the project was estimated at six weeks with two days of four-hour studio sessions. To ensure sufficient communication and exchange of ideas,

Source: Author

Figure 5. Pictures of student's final project presentation.

students were given the opportunity to present and discuss their ideas with invited guests during a preliminary as well as final presentation. Figure 5 documents the final presentation.

Cooperation with the author was realized through a preliminary work presentation and a 'Questions and Answer' session for inquiries regarding understanding of the novel and its characters. A total of 87 students participated in the studio task, divided into smaller groups of 7-9 students per instructor. The approach or methodology of how to conquer the design task as well as its implementation primarily remained in the hands of each individual instructor.

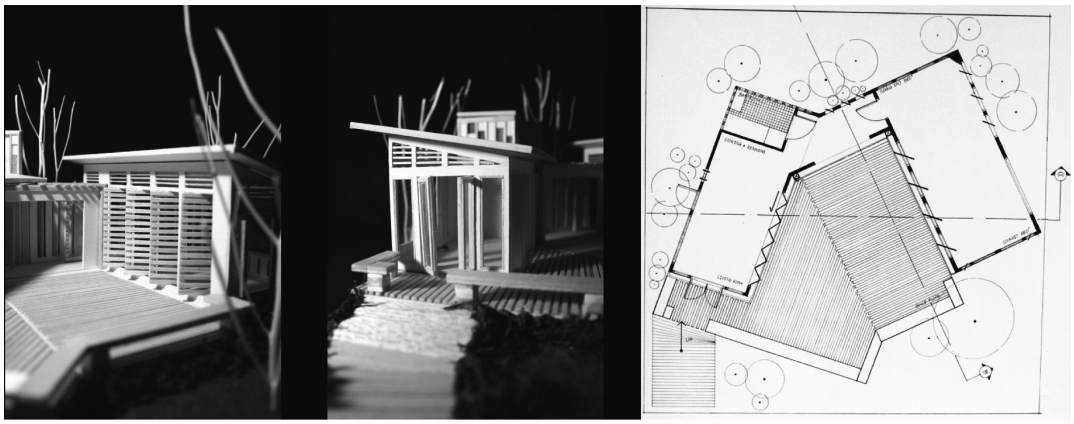
While a main objective of the second year studio is to ensure students ability to communicate design ideas appropriately, it was decided that the presentation of the students work should done in a conventional fashion. Thus, by the use of architectural drawings such as site and floor plans, elevation, section, and model making the outcome of the designs contributed to the curriculum and course description. In addition, students were encouraged to include and present results of the used methodology to derive their designs to describe their work process better. Finally, students were asked to assemble their work in a preformatted booklet and to describe their continuous work process by documenting the evolution of the design. Figure 6 documents student works of the final presentation.

4.2 Results

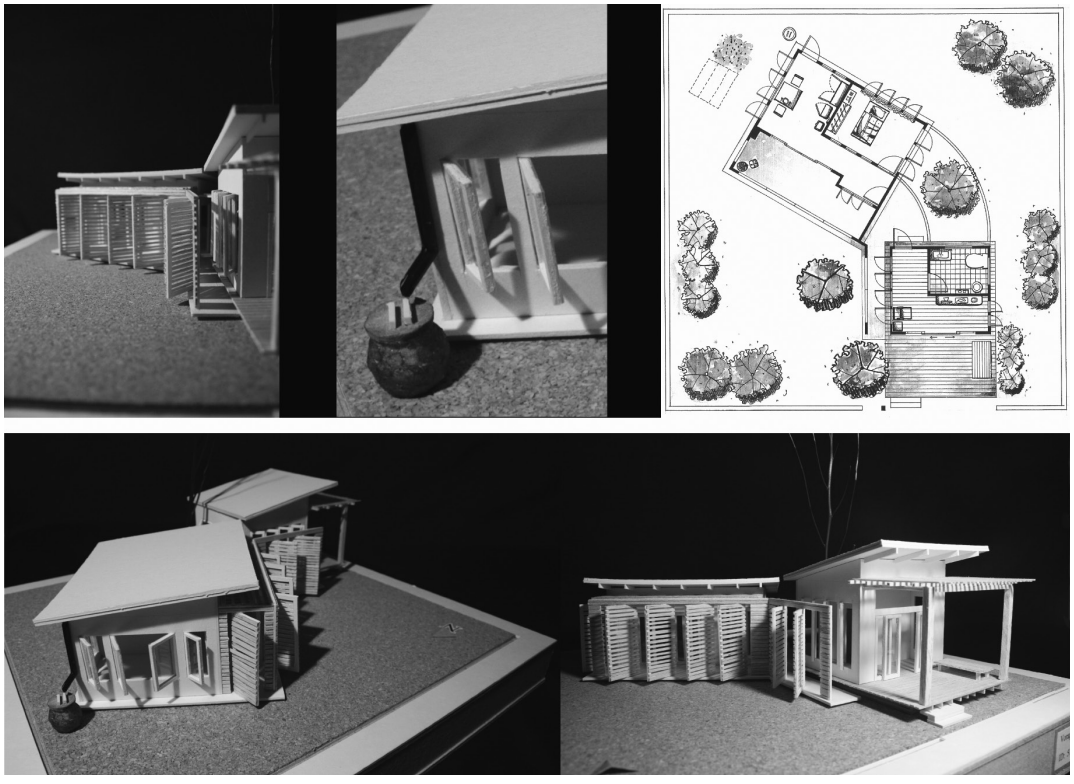
The results of the student work showed that the method of critical thinking and the introduction of descriptive programming techniques could successfully enrich student's creativity as well as their design ability when individual understanding of character building and human behavior was put into the foreground of a design aim.

The success of the implemented design approach was mainly measured from the student's performance during class and the visual and verbal results during the student's final presentation. As a result, the instructor positively observed students continuously improving their design based on an uninterrupted discussion of the analyzed occupant's behaviors and its effects on design. The documented design solutions not only allowed a closer understanding of the user the edifice was built for, but also demonstrated that a rich variety of design solutions could be found when focusing on their individual behaviors. Thus, the proposed process of architecture design education through character reading supports the ability to understand the definition of space that goes beyond space typology. For example, discussions during the studio presentations regarding space often led to how a given character would define 'sleeping space' rather than how to design 'a bed room'.

Moreover, instead of rephrasing design solutions obtaining form data handbooks as experienced during earlier semester presentations,



Source: Student work of L. Phanchanawanit



Source: Student work of V. Siriwattananarungrueng

Figure 6. Examples of the student's final works.

students were able to design independently and to articulate their intensions comprehensively. By using character interpretations, and thus users, many students were able to provide a more coherent understanding of how and why decisions were made in respect to its user. For instance, instead of discussing how big or small kitchens for a single user should be in general terms (with the students argumentation the kitchen designed is correct as it resembles the solutions shown in the data handbook) students were able to describe the suitability of their design for cooking and eating space based on the character chosen and their analyzed behaviors. Thus, the design of the occupant's spaces was derived from quantitative as well as qualitative means. Almost all student work proved to be closer to the character the design represented. Through the sequential approach designed spaces gradually transformed in reference to their intended use, all designs proved to be creative, close to the analyzed information of the selected character as well as highly individual in terms of solutions found. Especially the repeating reassurance between characters reading and its translation into an architectural space layout appeared suitable for the continuous improvement throughout the different practiced techniques from sketching, key-wording and collage production.

During the final design presentation, the instructor's suggestions to provide an exemplary walk through an architectural floor plan based on events in the novel helped to reconnect the person to the design for whom it was intended. Alternatively, a design explanation regarding individual elevations or building orientations and their openings based on the life style or selected activities of the character helped in a similar manner. Thus, the use of literature for the teaching of character reading in architectural design provided a suitable platform to support students to be more specific about user needs rather than derive their design from existing, generic platforms, not allowing for influences regarding concept or inspiration.

Further, the intended aim to free students design outcomes from overgeneralization and an un-reflected use of typology proved to be successful. By preventing typical generalizations, being the smallest level of achievable relativistic consent, and freeing the space from the use of existing design templates the designs documented a far more realistic understanding. Moreover, students gained confidence when choosing, evaluating and, finally, deciding according to their critical consideration and weighing of opposing design demands.

Additionally, through the influence of the literature, the poetic dimension of the student's architectural concept increased and eliminated the use of technical language during the concept explanation. In an exemplary student design, for instance, the taxi driving and native French character Michel sleeps during the day as he works at night; thus bed and window of his sleeping area are oriented towards the West, as it enables him to catch the last rays of sunlight when he stands up and further spiritually connects him with his homeland France.

4.3 Feedback of the Author

During the preliminary design, the studio invited the author of the novel, Ms. Ngampan Vejjajiva to give comments on the student's intermediate design works. Students did not only have a chance to exchange their perspectives with the author and raise questions regarding their understanding and interpretation of individual parts of the novel, but were also challenged to demonstrate and discuss their own design intentions. Figure 7 shows some pictures that were taken during the presentation of student work to Ms. Vejjajiva.

According to Ms. Vejjajiva's remarks during the intermediate presentation, she felt quite satisfied,

Source: Author

Figure 7. Pictures of the preliminary project presentation to the author, Ms. Ngampan Vejjajiva.

as discussion with the students showed that the book and the characters she described within where very well received, a fact that she highly appreciated as it is not easy for her to obtain feedback and evaluate how readers recognized the content of her writings. She claimed that the knowledge and understanding of her book is often not part of the discussions she has regarding her work.

Though the writer only had the chance to see unfinished student designs, she felt positive about how the characters were interpreted and translated into a design scheme. She thus agreed with many of the student designs and the way the characters were described reflected her idea of the protagonist's life. The novelist pointed out that at first glance the characters may appear as controversial to "normal" people; however, in her opinion they represent realistic people that she would meet on Sukhumvit Street (Bangkok's main street). Some of the books characters were actually derived from persons the novelist knows personally. In her opinion, these people represented "common" and "simple" lives and she thus appreciated design schemes that appeared as such, supporting a protagonist's unique personality. In this manner, Ms. Vejjajiva felt that though many house designs were quite modest, which probably best accommodated basic needs and the uniqueness of the characters.

4.4 Difficulties Observed

However, one problem that occurred during the design practice was whether the students were able to understand their chosen character fully. Complications easily occurred due to the characters purpose to support the creation of literature; aspects such as adversity or transformation of protagonist appeared to obstruct character interpretation. For instance, some students seemed unclear whether the behavior to comment on people passing by, and sometimes even screaming at them, should be recognized in the following design or not. Thus, it turned out to be difficult for the students to evaluate, which aspects of a character proved to be significant, guaranteeing fruitful integration into the design.

In addition, while in literature characters are understood to follow a plot, doing what their creator wants them to do, it is obvious that in architectural designs for the purpose of living, user behaviors cannot be fully determined. Therefore, the designers aim must be to capture behavioral manners beyond existing and thus obvious interpretations and to some extend integrate alteration as well. For instance, in the provided novel the protagonist's available information remains a snapshot of life, not foreseeing possible changes in the near future. Students thus focused on the information obtained and neglected or, at least, had difficulties to foresee possible and plausible change in the user's life beyond the story.

Finally, due to the nature of the introduced teaching methodology the design approach clearly appeared to limit students who aimed for self-expression or wanted to experiment freely. For these students, who had their own idea of how or what to design the approach left little room as the design task required them to follow the given sequential approach. However, this was done deliberately since the intent of the exercise was to learn a new approach towards architectural design and to experiment with and practice it throughout the assignment.

However, although this was a difficulty, it was one of the main areas to explore and thus encouraged and wanted.

5. Conclusion

In the education and practice of architectural design, critical thinking remains an important and irreplaceable element for the development of design thinking. The proposed methodology given in this paper has documented that it can support students efficiently in making applicable decisions during the schematic design and design development phase while at the same time allowing for a wider variety of design considerations. Especially the introduction of character reading into the design process proved highly beneficial as it improved student understanding of the chosen characters and thus their importance when influencing and, to some extent, redefining the design brief.

Students results with the described project demonstrated that the approach did not only improve their ability to derive creative variety in design options, but also developed argumentative logic and understanding towards their own problem definition, which finally increased and strengthened their decision-making process. Moreover, character reading proved to be an important design methodology, capable of successfully leading individual design intentions to valid and elaborate design solutions. With the cooperation of the novelist, students benefited from the exchange of ideas as well as the chance to compare their individual design experience with strategies and thinking processes in related disciplines. The author appreciated the depth and involvement in the way students conceived her writing as well as the clarity of the interpretation that the students included the characters in the design task. The initiative of reading characters in reference to their behavior towards space gave her additional supportive feedback on her writing.

Thus, critical thinking, which is portrayed as a way of “taking up the problem of life” (Sumner, 1940) its implementation into design education enabled students to create architectural design work closer to its individual aims and ideas, and in reference to character reading and architectural design, closer to its occupants.

Acknowledgement

The authors would like to thank the novelist Ms. Ngampan Vejjajiva for the cooperation in the studio project, and further acknowledge the participation of colleagues and students at SoA+D. In particular, the following lecturers who have been involved in the design studio and agreed to employ the idea of using the descriptive characters of the novel as a design task for their assigned students: C. Tirapas, S. Boonyachut, K. Dhammadumrong, K. Wattanawanyoo, J. Boonyakiet, P. Smitthakorn, A. Kashemsant, B. Tienwong and W. Pantapatkul.

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