

Critical Analysis of Design Studio Adopting a Narrative Methodology as a Means to Fragmenting Knowledge within Architectural Pedagogy

¹Assoc. Prof. Dr. Mennat-Allah El-Husseiny, ²Prof. Dr. Aly Gabr

Architecture Department, Faculty of Engineering, Cairo University ^{1&2}
E-mail¹: mennatallahelhusseiny@gmail.com; E-mail²: ahgabr@gmail.com

CHAPTER III

The purpose of this paper is to critically analyse a pedagogical approach adopted in graduation design studios at Cairo University. The design studio under investigation in this article adopts a story-telling method, which aims to provide a unique design experience for graduating students other than the functional or digital approaches for dealing with design projects. The methodology used in the article is a qualitative analysis of the approach mentioned and critique of the methods of teaching and learning with application on the outcomes of the studio during the last three cycles. The approach introduced in the before mentioned studio relies on narrative storytelling, as a means of fragmenting knowledge leading to identifiable, pluralistic and inclusive architecture. This methodology of teaching depends on “outside-in” design to create unique public buildings materializing a narrative expressed by each student and developed through layers of investigation and research in order to translate this narrative into an architectural form. This narrative is implemented additionally on the spatial experience of the interior composition. The three cycles are analysed based on documenting and comparing the narratives of the students which describe their cinematic vision of their projects and their formulation of this vision into an architectural outcome. Thus, provides a means for additional innovation in architectural pedagogy and an assessed tool to develop and combine creative and critical thinking in architectural design. This approach is deeply analysed and assessed through three consecutive years concludes with a comprehensive learning tool for architects and educators.

Introduction

The Narrative Approach in Design Studios as a Pedagogical Methodology

The purpose of this paper is to showcase and critically analyse a pedagogical approach adopted in graduation design studios for more than 10 years at Cairo University. The methodology used is to qualitatively analyse the approach and criticize the pedagogical methodology of this studio. The pedagogical approach introduced in the before mentioned studio relies on narrative storytelling, as a means of fragmenting architectural knowledge which leads to identifiable, pluralistic and inclusive architecture. This methodology of teaching depends on “outside-in” design to create unique public buildings which take into account a narrative that is expressed by each student and developed through layers of investigation and research in order to translate this narrative into an architectural form. This narrative is implemented additionally on the spatial experience of the interior composition. The qualitative analysis is conducted on the outcomes of the last three consecutive cycles (2020-2022), to validate the success and weakness points of this teaching methodology. The originality of this research lies in providing an overview of the themes for each cycle reflected on the outcomes of a total of sixty students in the three cycles. The adopted framework of analysis is based on a series of steps, first the conceptual approach expressed by the student as a narrative statement expressing their consciousness of the project post the research phase, followed by diagrammatic abstracted illustrations reflecting their understanding of the written narrative, followed by abstract scaled down physical models iterations justifying the translation of the narrative into 3D form, then testing of the programmatic requirements in parallel to applying the narrative statement on the spatial experience. The significance of this study is the wide spectrum of architectural solutions both on the level of idea and implementation which resulted from this methodology of dealing with design problems. The hypothesis which was considered while designing this learning approach is that regardless of the previous design capabilities of students, this systematic and gradual transformation from narrative to form to spatial experience will aid them to reach a considerable unique outcome. This will be verified through a cross-reading between the outcomes of the three studied cycles.

Cite This Chapter:

El-Husseiny, M.-A., & Gabr, A. (2023). Critical Analysis of Design Studio Adopting a Narrative Methodology as a Means to Fragmenting Knowledge within Architectural Pedagogy. In H. R. Husain, & H. A. Nia, Beyond Blueprints: Advancements in Architectural Education and Innovations (pp. 51-84). Istanbul: Cinius Yayınları.

doi: <https://doi.org/10.38027/ICCAUA2023blue03>

Keywords: Storytelling, Architectural Pedagogy, Graduation Architectural Design Studios, Pluralism in Architecture, New Approaches in Pedagogy, Fragmenting Architectural Knowledge.

2. The Design Studio Approaches and Considerations

The design studio tools, methods, strategies and enhancements are always under question and research, since the studio reflects the core of architectural pedagogy. The design studio creates a simulation for real practices in architectural realm, thus, it blends different knowledge acquired by students from other disciplines during their journey of architecture academia. Precisely in the current era, it is not expected to merely dictate architectural students with codes, regulations and functional requirements associated with buildings, but rather to provide them with a complex design problem, which challenges them to think in a critical manner to correlate the knowledge they can easily access. The role of the tutor, coach, or professor is to design the problem and the methodology of solving this problem, through the integration of the state of the arts knowledge in the design studio. And in the shadows of the current paradigm, it is important to regard problem solving in design studio with regards of the SDGs developed by the United Nations and promoted in architecture by the Union of International Architects, in order to provide a floor for architectural students to raise awareness regarding the current global challenges.

The debates previously raised by scholars will be briefly highlighted in this introduction based on two main lines of thought. First is related to the philosophy of learning and teaching in the design studio from a broader perspective, and then specifically how storytelling is contributing to pedagogy as a more specific methodology incorporated in design.

Design studios are the core of architectural pedagogy (Kurt, 2009) and have been regarded by scholars as a medium for re-thinking since the 1970s (Salama, 2007). The tools and motives behind the studio are seen as to encourage skills development and practice critical thinking, in order to respond the future work environment soon to be undertaken by today's students, (Salama 2007). As Saghafi (2021) debates, there must be more stress on linking knowledge acquisition and application in the design studio. While hands on learning is regarded as the most important asset in the design studio, it ought to be quoted, "tell me and I forget, teach me and I may remember, involve me and I learn", (Xun and Knoblock, 1990). Thus, the studio ought to provide a more "collaborative, multi-sensory, learner-centered, constructivist, experiential problem-based teaching environment", (Kurt, 2009).

Based on Charalambous and Christou (2016), supposition that the research on design studio doesn't change the fact that teaching is still very traditional in terms of merely searching for forms, and that the real challenge lies in the need to search for new arenas of explorations targeting setting a redefinition of architectural education. Additionally, they regard the need to deeply inter-relate different types of knowledge and complex system thinking in the architectural studio based on the needs of our current era. For instance, specialized human studies (Coleman, 2010), the study of material, digital data, systems science, radically change the outcomes of design studios. This relates to the constructivist teaching strategies which Kurt (2009, 2011) introduce as a solution to enable students to gain a better learning experience through "learning communities," "problem-based," "discovery," and "hands-on" problem solving. In accordance with the ideological approach of transforming the design studio from upper hand tutor dictating into hands-on learning by doing process, Lukman et al. (2012) urge the aim of architectural pedagogy to introduce the students to "learning to learn". Critical thinking and creative thinking need to be introduced hand by hand, since the later enhances finding solutions via new formations and alterations, while the former allows for the evaluation of different new alternatives to reach solutions which are more comprehensive and optimized, (Lukman et al. 2012).

The critical approach was further advocated by Ciravo lu (2014) who highlights the need to question and to prove reasoning while allowing creative approaches in design pedagogy, (Bridges, 2006), (Crowther, 2013). Thus, in this process of blending creative and critical thinking, self-critique is an important instrument which allows the student to synthesize the values and draw backs and to reach the most reason rooted solution (Ciravo lu, 2014), (Coleman, 2010), stemming from answering the questions including declarative knowledge "what", procedural knowledge "how" and contextual knowledge "why, when and where", (Bridges, 2006).

In addition to the previous quests which need to be addressed in the studio, Crowther (2013) exposes how the studio can act as a "signature of design". Through the learning process, each studio has a signature reflecting the approaches of thinking to which the students are directed. This acts as a process of introducing branded lines of thought likewise the real life experiences of design practice.

The calls for re-addressing the design studio axes of empowerment return back to Schön's four learning constructs back in 1988, where he highlights the need to understand the difference between results and methods of inquiry, learning about phenomena vs the behaviour of phenomena, the role of prototypes, and finally kinds of skills, (Schön, 1988). Stemming from this those four constructs cannot be regarded in isolation, but rather blended in the comprehensive learning approach. While Salama and O'Reilly (1999) reflects on the transformation from the artistic paradigm to the socio-behavioural paradigm in pedagogy.

2.1. Storytelling and Narrative Strategies, Methodology and Tools in Architectural Design Studios

With regards to the new teaching methodologies which can promote better for the enhancement of skills acquired by architecture students, storytelling has been researched via scholars. Story telling is not only advocated as a practice which enables tutors to deliver the required knowledge in a more experience transfer based way, but also, when exchange of roles takes place between students and tutors, this methodology helps to place students in a real life mimicking experience. The aim here is to explore the strategies related to storytelling in design studio in order to develop a framework for analysis to be applied on the studio under investigation.

Heylighen et al. (2007), discussed an experience for an experimental course at California-Berkley, based on building stories. The research highlighted the discussion forming dialogue about the nature of knowledge in architecture, and the means of transforming knowledge into scenarios of architecture through storytelling. While Morton and O'Brien (2005) criticized the teaching pedagogies of design studios which only depend on visual illustrations without focus on oral presentation techniques. The impact of rhetoric structures and public speaking is considered one of the important methods of real life practices in the architectural practice, (Morton and O'Brien 2005). Additionally Nazidizaji et al. (2015) explained how narration and story- telling is one of the powerful pedagogical tools in academia, which helps in the clarification of different inter-related knowledge. This was also asserted by Fabula et al. (2017) regarding the introduction of narrative story telling in architecture design studios.

Narration allows for the inclusion of pluralism in arts and science, which crosses the boundaries of time and space. This nature of narrative story telling is very relevant to the architectural pedagogy and its inter-connected disciplines, (Thompson, 2019). The possibility of declaring a setting, characters or players, climax, genre, conflicts, experiences and incidents help students to visualize their aspirations while solving an architectural problem into a scenario which they work to materialize.

According to Khodeir (2015), Mehmet et al. (2020) this narrative story telling as a methodology in design studios encourages student's curiosity, because it creates individual identities relaying life stories. This also creates stories beyond representation to actual architecture. Augmenting the reality of how people will react in spaces, how the story is manifested in context, and how emotions are transformative in the experience evokes imaginative thinking while solving complex architectural problems, Hisarligil (2012). Stories cognitively work on multiple planes where listeners move in the simulated worlds envisioned, achieving multilevel learning experiences ranging from superficial to comprehensive understanding, Mehmet et al. (2020). This creates a world where students deliver their preferences, values, culture, purposes in a setting which can be easily altered and developed on through critical thinking.

As quoted by Fabula et al. (2017), "Architecture is embedded storytelling," since like stories and novels, architecture visualizes a world yet to come through the imagination of the architect. The creation of fiction is what marks architecture distinct apart from merely the action of building and material construction (Bernabei et al, 2011), (Havik and Sioli, 2021). Thus, "architects are storytellers not only when they make their own designs but also when they talk about their ideas with clients, builders, and other architects", Fabula et al. (2017). And this process is one which is worth training on from the early teaching process in design studios, (Thompson, 2019).

The five stages for the pedagogical methodology of storytelling are; story finding, storytelling, expanding, processing, and reconstruction, (Mehmet et al. 2020). Tzec et al. (2013), further expand on the pedagogical methodology to include: characters, setting actions, time pins, objects, emotions, intentions and values. While KhakZand et al. (2015), explain that the metaphor-based process consists of three main stages: idea, concept, and form. Accordingly Pasin (2017), argues that pedagogical methodologies transform multi-disciplinary knowledge on architecture and can be gained by means of intellectual, communication and social skills. Parsons (2009) explains that creating a narrative environment in architecture, could be defined as either a situated narrative, or a site-specific narrative. It should be designed from the start till the end, should be formulated to obtain a clear specific closure, a certain genre in terms of its meaning target.

2.2. Narrative Storytelling to Link Critical and Creative Thinking in Design Studios

The following figure, (Fig. 1) represents the methodological correlation of concepts related to adopting problem solving and self-critique from one side, and narrative story telling in design studios, which would be applied and merged as the methodological criteria in analysing the design studio under investigation.

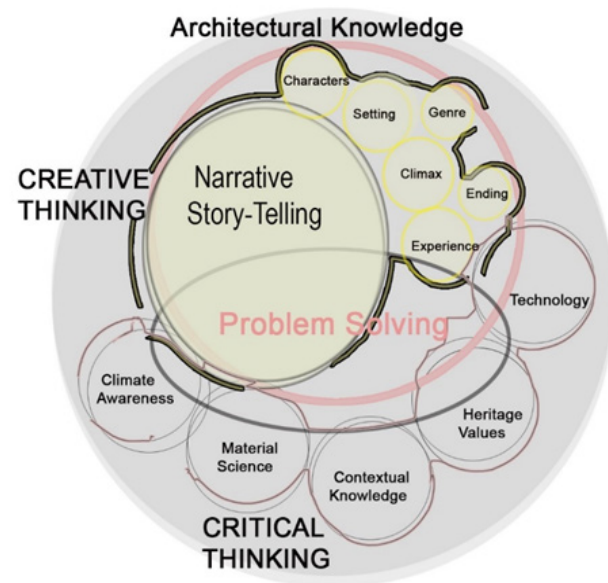


Figure 1. Inter-relation of Storytelling Narrative Approach in Creative thinking to Create a Combination of Creative and Critical Thinking (Developed by Authors, 2023).

3. Materials and Methods: Graduation Design Studio at Cairo University- Three Cycles Review

The materials for analysis of the methodological pedagogy approach of narrative story telling in design studios are the outcomes of a three cycles design studio implemented in the Graduation Design Studio at Cairo University during the period of 2020-2022. The Graduation Design Studio studied here is one of many other offered to students in their final year. The students select the studio based on their preferences and their will to undertake a special approach. Thus, the students are already aware before joining this particular studio with the narrative story telling approach in design they shall experience. It is worth mentioning that the program where this studio is offered is internationally accredited by the Union of International Architects (UIA), and the 16 points related to the high quality education charter are taken into account during the problem definition of the project, and additionally introduced to the students in outline at the beginning of the year. Those aspects in the charter are also an important grading rubric in the final project internal and external jury evaluation.

3.1. Methodology

The methodology of analysis depends on qualitative critical approach, which highlights the degree of success or weakness in implementing the narrative in inter-disciplinary mode to reach an architectural outcome fulfilling the narrative story telling technique. This will be assessed based on the process of narrative development throughout the project since the formulation of the narrative up till the final phase of the project. Furthermore, the combination of creative thinking and critical thinking in problem solving to reach an architectural outcome will be critically assessed in the results. This shall guide the results of the paper in relation to the quality of higher education to provide methodologies to help future architects to think in a more comprehensive approach. Accordingly, this affects the quality of the built environment in the near future.

During the three cycles, the students are first introduced to the selected theme of the cycle, the variations of land-plots they are provided and the narrative design approach break-down. They are advised to undergo an individual storyboard development guided by research on the sites and the theoretical themes in order to develop their own tailoring of the design forces by means of narrative expression. The proposed outcomes of the narratives are discussed by each student, critiqued by the instructors and their peers to develop a complete cinematic scenario of who, where, how and why responses abiding to the general theme and fitting the chosen site.

This phase is the key point of considering a personalized project, since the individuality of the proposals and their uniqueness is highly manifested. Following this, comes the layer to form expression to fit and deal with the site, theme and translate the narrative into a materialistic form best expressing the narrative. This phase obtains a degree of subjectivity in whether or not the narrative is best expressed. However, this is solved through peer discussion and highlighting several keywords to narrow down endless potentials of form. Although in this approach pluralistic expressions are approved to give floor for imaginative explorations. The final phase is related to functionality implementation. This is the phase where the approved physical model is used to implement the programmatic needs, codes, spatial experiences, façade treatments and landscape elements. This phase is the most technical and tricky part since it challenges the students architectural capabilities in transforming their dreams into reality. And accordingly, this becomes a point of assessment of architectural problem solving as will be seen in the upcoming analysis.

3.2. Case Studies Overview

The three cycles under study in this paper adopted the themes of “Media Architecture: 2019-2020”, “Reactionary Architecture of Reason: 2020-2021” and finally “Re-defining Typologies: 2021-2022”. The common attribute in all three cycles were the selection of contextual sites options for the students to select from. In the first cycle, the site options were a land facing the Nile Front in Rod El-Farag and the location of the old Opera House demolished by fire at Downtown Cairo. While the sites selected for the second cycle were a location next to Ain Al-Seera Lake in Al-Fustat, a land plot overlooking the Ancient Walls of Cairo and a location overlooking the new Grand Egyptian Museum and the Pyramids. For the third cycle, a land plot next to the Madrasa of Sultan Hassan was selected, along with River Nile waterfront land plot and finally a location overlooking the walls of Salah El-Din’s citadel in Cairo. Selected sites for the three cycles are shown in the figures below (Fig.2-8).



Figure 2. Cycle 1, Site 1, “Rod El-Farag Overlooking the Nile”, (Authors, 2020).



Figure 3. Cycle 1, Site 2, “Downtown- Opera Square”, (Authors, 2020).

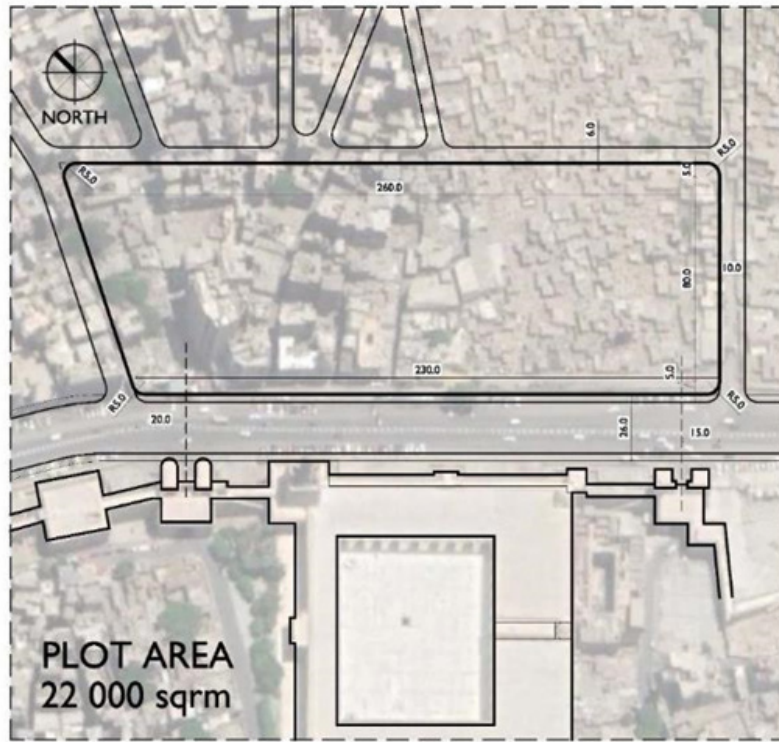


Figure 4. Cycle 2, Site 1, Old Cairo-Overlooking Al-Hakim Mosque, (Authors, 2021)

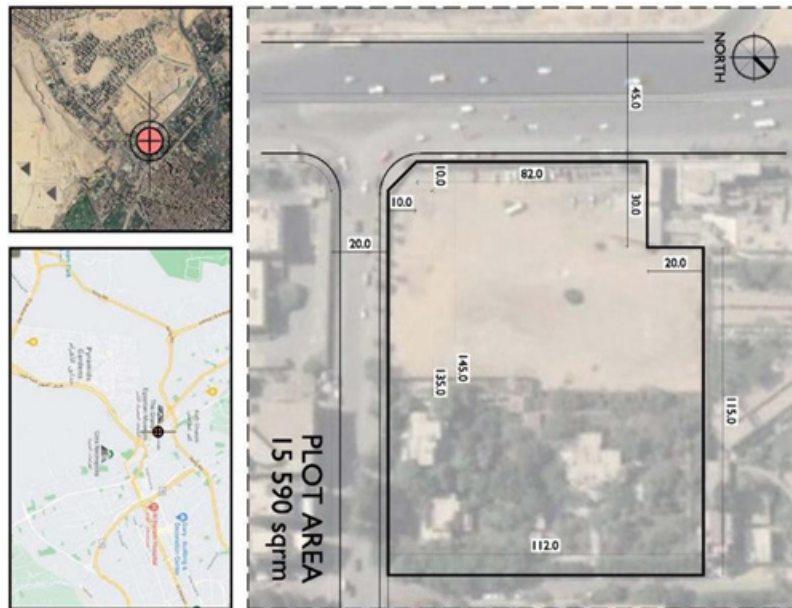


Figure 5. Cycle 2, Site 2, Haram Street Overlooking the Great Pyramids, (Authors, 2021)

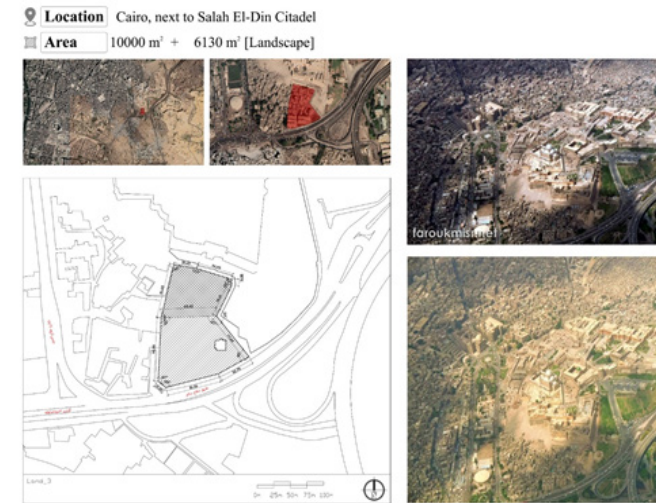


Figure 6. Cycle 3, Site 1, Salah Salem Adjacent to the Citadel Walls, (Authors, 2022)



Figure 7. Cycle 3, Site 2, Mourad Street-Giza, (Authors, 2022)

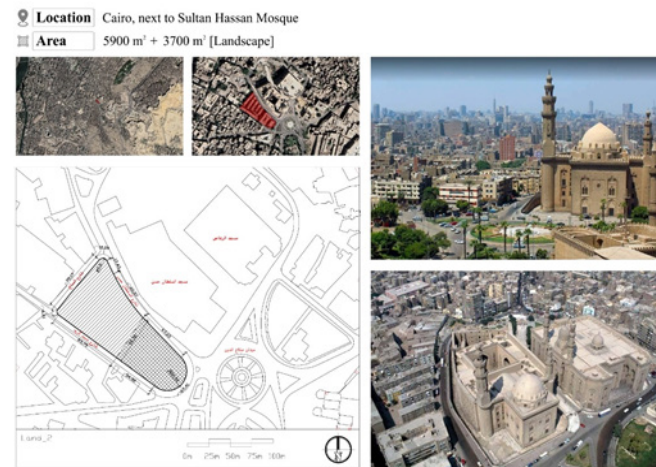


Figure 8. Cycle 3, Site 3, Remela Square Adjacent to Sultan Hassan Mosque, (Authors, 2022)

The initial phase of each cycle was to introduce the dilemma of the theme to the students, based on theoretical approaches adequate to each year's theme. The students are then given some time to investigate three main aspects, the location they would choose from the options provided, contextual challenges of the site and the theoretical approach they would adopt for the program and the components of the project. This phase is one of the most challenging, since the student creates a scenario for the players, the different spaces where those players would interact, how the spaces in mind would interact, compliment or contrast with the context and why.

This research phase concludes with a report which narratively acts as the book the students develop to help assess how their imaginative thinking would respond to the theme, the context and their own narrative scenario. A contextual physical model is in parallel built by each group of students selecting the same location, which helps the students to build and place their narrative imaginative thoughts in 3-dimensional form and experiment how their addition would affect and get affected by the surrounding.

3.3. Narrative Approach in Engaging Creative Thinking in the Design Studio

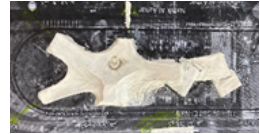


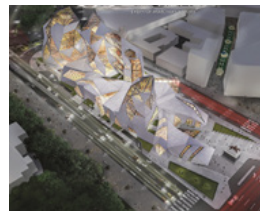






The following phase of developing their narrative research into architectural form relies on summarizing the outcomes of the research into a single concept statement. This statement is presented by each student and long discussions in regards to how this statement is expressive enough to be translated into architecture are undertaken in the studio. The concept statement aim is to reflect a spatial experience which fulfils the aspirations of the student's narrative scenario and reflect a form which would leave a narrative footprint in context. The keywords or conceptual words are briefed from the concept statements and several iterations of form are attempted by the student to reach an experiential expression which reflects their narrative scenarios. During the iterations, the assessment of whether the scaled down 3-dimensionanl expression is mature enough or not to proceed in architectural problem solving is created based on the contextual model adequacy, some architectural tips provided by the tutors on basic functional requirements and the extent to which the concluded form best describes the keywords. In the last point assessment, peer critique during the studio is encouraged to make sure a variety of opinions are corresponding.











The following tables (**Table 1-3**) showcase the methodology adopted in linking narrative story telling throughout the three cycles under study to build a consistent pedagogical approach which helps students translate their ideas and conceptions through creative thinking into a problem solving tool.

3.3.1. First Cycle Analysis: Media Architecture

The challenge in this cycle was to reflect the pluralistic approaches introduced via the sites and also from the theme of "Media Architecture". The first site of the old Opera House plot in Cairo which was demolished as a consequence of fire, and later the land plot was used to build an enormous parking building, had several layers of pluralistic approaches to consider. The sample of 10 students shown below in (**Table 1**), reflect how the imaginative, pluralistic story telling narrative beheld several layers of different responses. With the presence of the informal marketplace at one end of the plot and the statue of Ismail Pacha at other end, the students created differing approaches to foresee the future between the elegant past and the chaotic presence. The second land plot overlooked the Nile and also a newly constructed cables bridge which drifted attention to the old importance of Rod El-Farag in Cairo's economic and trade activities. The narratives of the students encompassed the will to create a global statement while encouraging locals to keep their traditional economic capitals. Between those two tensions, the narratives also included layers of foreseeing the future through the lens of the present assets.

Table 1. Initial Experiential Models Emerging from Narrative Scenarios Vs. Typologies and Final Outcomes in 1st Cycle, Authors, 2023

Initial Keywords	Primary Play-dough Model	Typology/ Program	Final Architecture Outcome
Case 01: -Fluid -Harmony -Reach out		Contemporary Music Centre	
Case 02: -Random Intersections -Re-organizing -Gradual -Link		“Onward” Business Centre	
Case 03: -In between Spaces -Piercing -Artery		“The Spear” Contemporary Art Centre	
Case 04: -Breaking Barriers -Re-direct -Merge		“The Compass”, Business Incubator	
Case 05: -Chaos to order -Fractal - Temporary vs. permanent		Local Market and Exhibition Centre	

Initial Keywords	Primary Play-dough Model	Typology/ Program	Final Architecture Outcome
Case 06: -Platform -Intersects -Breaking Barriers -Rise-up		“Jodran/Walls” Complex Community Centre	
Case 07: -Versatile - Dynamic -Bridging -Exchange		“Hashtag” From pixel to whole, Media Stat-up centre.	
Case 08: -Struggle -Rise -Overpass barriers -Networking		Start-Up and Marketing Centre	
Case 09: -Polarities -Penetrate -Stream -Bonded- Dimensions		“Exhibiting the World of Opposites”	
Case 10: -Rise -Dominant -Memory -Re-introduce		“Business Park” and Ideas Harbour	

The following table (2) provides a qualitative assessment of the process of storytelling narrative formulation for the ten previously presented cases in cycle one. The five stages are evaluated according to the layers of narrative development with the students in the initial phase of conceptualization. Additionally, based on the development of the narrative into a 3-dimensional experiential model elaborating the story. And lastly, according to the reconstruction of the narrative into an architectural product and interior spatial experience. The weights reflect a scale out of 4; where 4 is the best achievement of the phase and 1 is the minimal achievement of the phase. The qualitative value is used as an indicator for success to further elaborate on this analysis in the results and discussion.

Table 2. Relative Weights for the Narrative Story telling Phase in Conceptualizing the Narrative into an Architectural Outcome, Authors, 2023


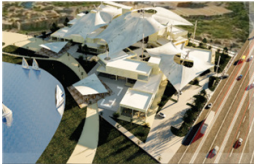






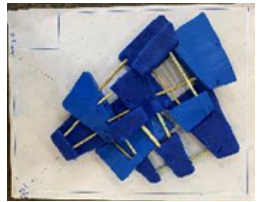

	Story Finding (4)	Storytelling (4)	Expanding (4)	Processing (4)	Reconstruction (4)
Case 01	4	4	3	3	3
Case 02	4	4	4	4	4
Case 03	4	3	2	2	3
Case 04	3	3	4	3	4
Case 05	4	4	3	2	3
Case 06	4	4	3	2	2
Case 07	3	3	4	4	4
Case 08	4	4	3	3	2
Case 09	4	4	2	2	2
Case 10	2	2	2	2	2

As shown in (Table 3), the range of creative solutions for contextual and programmatic reactions ranged to cover ecological, social, communal, economic and spiritual spectrums. This informed the richness of stories presented in this cycle as a way to express a reactionary scenario for the architectural addition in the rich contexts. This is clear in the ideas, narratives and the storytelling break down in (Table 4).

3.3.2. Second Cycle Analysis: Reactionary Architecture of Reason

In the second cycle, for which the work sample of ten students selected are shown in (Table 3) below, the challenge was to peruse a narrative scenario reflecting the theme “Reactionary Architecture of Reason”, and to respond proactively to the valuable contexts of the natural lake, the Fatimid Walls and the Great Pyramid of Giza . The theme implied beholding a responsive responsibility of reaction to current needs, challenges, especially related to SDGs. Accordingly, the cycle as will be displayed held various reactions, whether to re-defining our role towards history, towards the environment or towards the current socio-cultural challenges. Under the umbrella of pluralistic conditions of the current post-modern communities, the students were encouraged to address tangible as well as intangible heritage aspects, to create narrative scenarios which react towards the well-being of the communities their projects are located.

Table 3. Initial Experiential Models Emerging from Narrative Scenarios Vs. Typologies and Final Outcomes in 2nd Cycle, Authors, 2023

Initial Keywords	Primary Play-dough Model	Typology/ Program	Final Architecture Outcome
<p>Case 01:</p> <ul style="list-style-type: none"> -From part to whole -Roots -Tank 		<p>The Up-riser</p> <p>Cultural Heritage Centre</p>	
<p>Case 02:</p> <ul style="list-style-type: none"> -Responsive -Resilient -Elastic -Message driven 		<p>Ecological Centre</p>	
<p>Case 03:</p> <ul style="list-style-type: none"> -Interlocking -Linking -Reaching out 		<p>"Ethar"</p> <p>Community Bank and NGOs</p>	
<p>Case 04:</p> <ul style="list-style-type: none"> -Journey -Raises -Bridge -Storytelling 		<p>Folklore Cultural Centre</p>	
<p>Case 05:</p> <ul style="list-style-type: none"> -Reunite -Connect -Overlap -Bonded divisions 		<p>"Amenta"</p> <p>Museum of Myths</p>	

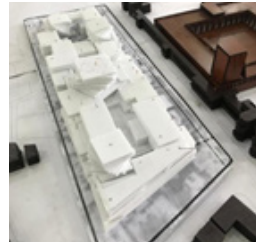









Initial Keywords	Primary Play-dough Model	Typology/ Program	Final Architecture Outcome
<p>Case 06:</p> <ul style="list-style-type: none"> -Multi-layered -Incubator -Metamorphosis -Expose 		<p>"Madar"</p> <p>Traditional Crafts Centre</p>	
<p>Case 07:</p> <ul style="list-style-type: none"> -Echoes -Unveil -Intangible Facets -Gap 		<p>Ancestors Folklore Centre</p>	
<p>Case 08:</p> <ul style="list-style-type: none"> -Layering -Interaction -Diversity -Connection 		<p>"Osoul"</p> <p>Edutainment Interactive Hub</p>	
<p>Case 09:</p> <ul style="list-style-type: none"> -Journey -Multi-faceted -Connecting -Revealing 		<p>The Ostraca Land of Arts</p>	
<p>Case 10:</p> <ul style="list-style-type: none"> -Various -Pixels -Link -Glocal 		<p>"Pixel"</p> <p>Craft Centre</p>	

Table 4. Relative Weights for the Narrative Story telling Phase in Conceptualizing the Narrative into an Architectural Outcome in the 2nd Cycle, Authors, 2023

	Story Finding (4)	Storytelling (4)	Expanding (4)	Processing (4)	Reconstruction (4)
Case 01	3	3	3	2	3
Case 02	4	3	3	2	2
Case 03	4	4	4	4	4
Case 04	4	4	3	2	2
Case 05	4	4	4	4	4
Case 06	4	3	2	2	3
Case 07	4	4	4	3	2
Case 08	4	4	3	3	2
Case 09	4	4	4	4	4
Case 10	3	3	2	2	3

3.3.3. Third Cycle Analysis: Re-defining Typologies

The third and last cycle studied in this paper embraced the theme of “Redefining Typologies”. This call was a reflection of how current typologies can respond to the aftermath of pandemics and unstable conditions in communities. The three selected sites were the land plot adjacent to Madrasa of Sultan Hassan in the heart of historic Cairo, a plot adjacent to the Citadel Walls and plot in Giza overlooking the Nile and Giza Zoo from the other side. The students were encouraged to re-think how to add typologies which complement to the existing typologies of the context which would fit with the current users (players) and the context challenges. Additionally, the new typology derived from the context should consider the energizing of the current state of the community and come up with programmatic impacts to help the community experience well-being and to be self-sustained projects with positive environmental, social and economic implications.

The outcomes of the cycle manifested in the scaled down contextual models are shown in the table below (**Table 5**). The aim in this cycle is to present the outcome in relation to the contextual challenge and to highlight the newly derived typology as a result of the narrative analysis expressed by each student. Additionally, the keywords used by the students to express narratively their aspirations in their new typologies are listed to showcase their levels of personal reaction post the research outcomes and how this reaction was capitalized upon in the narrative to reach a comprehensive architectural project. As in the previous cases, the breakdown of the narrative scenario development for each case is shown in (**Table 6**).

Table 5. Final Outcomes of 3rd Cycle Represented as Contextual Models and the Typology of Each Case with the Relevant Narrative Keywords, Authors, 2023.

			
Case 01: Research Centre Re-direct, Layering, Connection	Case 02: Creative Art Boost Centre Divergence, Interaction, Convergence	Case 03: Sociological Research Centre Roots, Re-orient, Connect	Case 04: Skill Development Centre for Women Uplift, Empower, Direct
			
Case 05: Educational Hub Multiple Axes, Reunite, Elevate, Open up	Case 06: Community Walls Urban Research Centre, Separators Vs. Connectors	Case 07: Visual Documentation Centre Twist, Stack, Reorient	Case 08: Incupedia Hybrid, Interaction, Bridging
			
Case 09: Wearable Architecture Interweaving, Raise, Connection	Case 10: Urban Street Connectivity, Openness, Dynamics	Case 11: Re-thinking Workspace Embedding, Motion	Case 12: Creative Participatory Hub Various, Dynamics, Layering
			
Case 13: Training School for Arts and Architecture Raising Awareness, Bridging the gap, layering	Case 14: Collaborative Hub Juxtaposition, Emergence	Case 15: Iwan - Ideas Market Breaking, Connecting, Layers	Case 16: Cultural Heritage Preservation Centre Uncover, Roots, Raise
			
Case 17: Community Art and Technology Centre Multiplicity, Chaos, Blend, Organized	Case 18: Experimental Crafts Centre Integrate, Reveal, Reach out	Case 19: Recalling Festivals Emergence Redirect, Unite	Case 20: Productive Community Home Reveal, Compact Containment, Linking

Table 6. Relative Weights for the Narrative Story telling Phase in Conceptualizing the Narrative into an Architectural Outcome in the 3rd Cycle, Authors, 2023

	Story Finding (4)	Storytelling (4)	Expanding (4)	Processing (4)	Reconstruction (4)
Case 01	3	3	2	2	3
Case 02	4	4	3	4	4
Case 03	4	4	3	3	3
Case 04	4	4	4	3	4
Case 05	4	4	4	4	4
Case 06	4	4	4	4	4
Case 07	4	4	4	4	4
Case 08	4	4	3	3	4
Case 09	4	4	3	3	4
Case 10	3	3	3	3	3
Case 11	3	2	2	2	2
Case 12	3	3	4	4	4
Case 13	2	2	3	3	3
Case 14	4	4	4	4	4
Case 15	4	4	4	4	4
Case 16	4	4	4	4	4
Case 17	4	4	3	3	4
Case 18	4	3	3	3	3
Case 19	3	3	3	3	3
Case 20	4	4	2	4	4

4. Results: Framework of Narrative Storytelling in Architectural Design Studio as a Methodology to Intertwine Various Disciplines

The results extracted from the above study illustrate the correlation assessed qualitatively based on the authors experience while dealing with the process of narrative story telling in the analysed cycles. The relative weights of the breakdown of the categories of storytelling, on the selected cases as well as the below correlation between elements of creative vs. critical thinking, are not aimed to represent a quantitative finding. The graphical illustrations demonstrate how the problem design and the students responses coordinate with the process of using narrative story telling in design studios to elaborate the critical and creative thinking of students. The results presented in **figures (2, 3, 4)** demonstrate how the problem definition, design and structure enable the students to embrace the technique of narrative storytelling, in a relatively successful method, although, personal variations are tracked.

While **table 7**, links the before extracted method of assessing creative/ critical thinking as means of problem solving in architectural studios across the three cycles. The relative weights are given based on the collective experience, the feedback from students and the process evaluation during the three cycle's studies.

The results in **figure (5)** demonstrate the levels of engagement with the different points, depending on the nature of the cycle and its key motivator related to the theme selected. Thus, those results will enable a better discussion of the process in the next section.

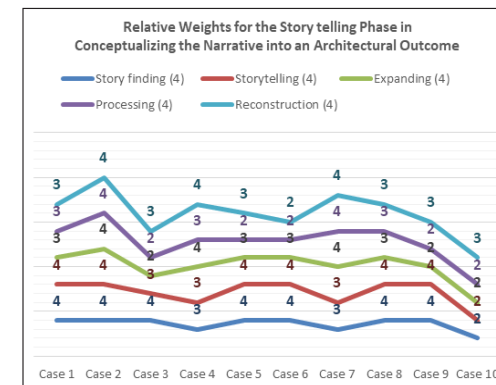


Figure 9. Graphical Representation of the outcomes of the 1st cycle in relevance to narrative storytelling, Authors, 2023.

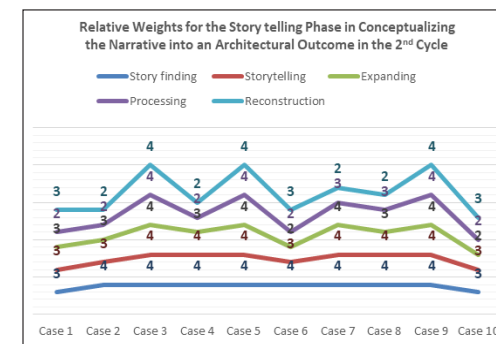


Figure 10. Graphical Representation of the outcomes of the 2nd cycle in relevance to narrative storytelling, Authors, 2023.

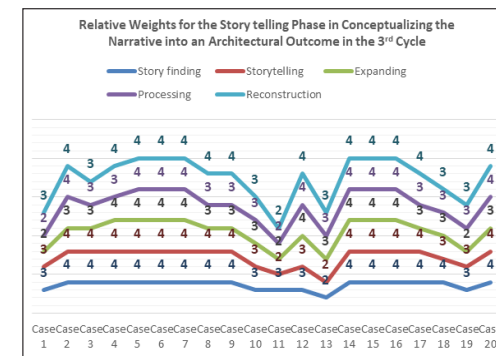


Figure 11. Graphical Representation of the outcomes of the 3rd cycle in relevance to narrative storytelling, Authors, 2023.

Table 7. Relative weights assessing the critical vs. creative thinking problem solving criteria in the 3 Cycles, Authors, 2023

Cycle Number	Critical Thinking					Creative Thinking					
	Contextual Knowledge (5)	Heritage Values (5)	Material Science (5)	Climate Awareness (5)	Technology (5)	Characters Novelty (5)	Setting (5)	Genre (5)	Climax (5)	Ending (5)	Experience (5)
Cycle One	3	3	4	3	3	3	4	4	4	4	4
Cycle Two	4	5	3	3	3	4	4	5	4	3	4
Cycle Three	5	5	3	3	3	5	5	5	4	3	4

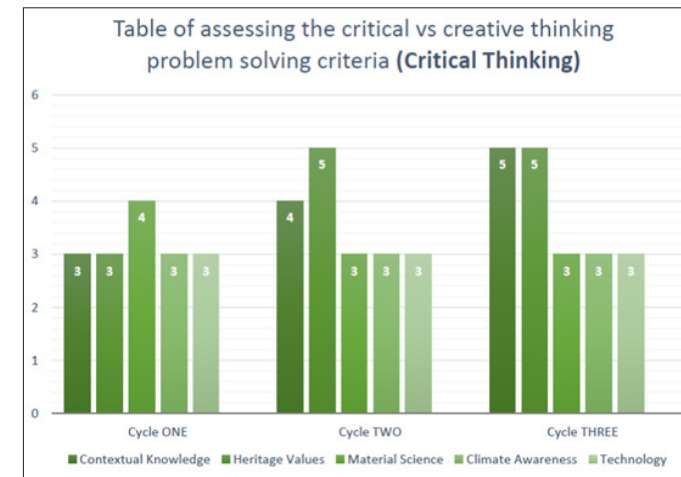
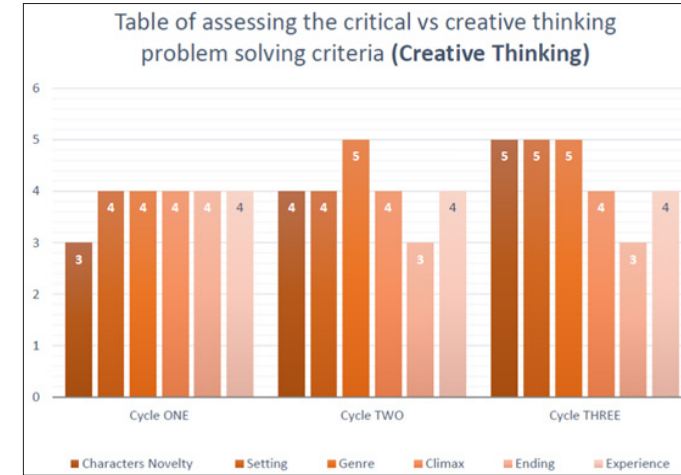


Figure 12. Breakdown Representation of the 3 cycles according to creative and critical attributes, Authors, 2023.

5. Discussion

As shown in the graphical representations from the previous section, there are two main findings that can be concluded from the studio experience analysis. First is the importance of creating a strategic sequential assessment scenario to guide the design studio through. In the analysed cases, the scenario was related to the narrative created by the student and the assessment was the success in breaking down this narrative to adhere to the construction of the experience on the interior and exterior levels. This clear methodological approach helped the students in focusing on small goals at each step in their design process. This is the reason all students succeeded in fulfilling the required outcomes in a manner which reflected excellence, in spite of the individualistic variations stemming from their varying capabilities.

The second finding is related to the success of applying critical vs. creative thinking throughout the process of elaborating the concept statement into an architectural project. The aim of this assessment is to highlight the points of strength and weakness of the adopted approach. Based on the results, it can be observed that contextual and heritage values were highly achieved throughout the three cycles, while less emphasis was subjected to material science, climate awareness and technology. This can be a result of the nature of the studio which starts with the narrative based on the contextual studies. Accordingly, the creative mandates over-ruled the critical thinking attributes. This can be used to better enhance the weights of disciplines required to be delivered to students in other studio based projects.

6. Conclusions

The research aimed to highlight a methodological approach adopted to expand the developmental process of students in creating structured storytelling designs in their final graduation studio. Due to the limitation of the research, it was not possible to expose the methodology as applied to all 60 students in the three cycles under study in depth. Thus, the methodology of narrative story telling will be comprehensively analysed on a sample of ten students from the first two cycles, and 20 students from the third cycle. Prospects for future research can be expanded to include all participating students in this studio to be critically analysed and assessed based on the previous discussion. Additionally, conventional studios can be compared to the methodology of narrative storytelling conversion evaluated in this paper. Also, the research can be expanded to include a criteria for technical assessment of the projects outcomes and how the functional, structural and environmental layers contribute in the enrichment and full materialization of the narrative.

The adopted methodology is only one approach among other successful ones, however, being adopted for several years enabled documentation of the process in a thorough method, and thus possible deep analysis could be undertaken. The benefits of this approach are the step by step approach, taking the student into a journey of self-exploration and potential exploration to the theme, the site and the needs to be fulfilled. Then, gradually, transforming the students aspirations merely expressed via a short narrative into a complete scenario. Following that, the engineering and architectural knowledge of the students are implemented objectively to correspond with the scenario fulfilment.

This gradual movement between disciplines to reach a targeted project and specific vision is best applied on public buildings whose typologies are flexible enough to embrace the approach. This might not be applicable in functional or utility oriented typologies. Although this exercise expands the students imaginative capacities to create full scenarios for their designs.

It is worth mentioning here the enhancements tracked during the analysis and results overview to the pedagogical methodology. The process and outcomes reflect the success of the process to a good extent, yet, some cycles bounced between the stress on context vs. players vs. material science, etc. This cannot be regarded without highlighting the stable fulfilment of the scenario by most students. The other deficiencies relate to the complicated process and the personal variations among students abilities. It is highly recommended thus to apply a smaller experience of narrative story telling approaches throughout the four years of the architecture program, which would enable the students to coordinate the required aspects in a better effective manner in their final design studio.

Additionally, it is recommended to introduce different imaginative thinking strands along the architectural program. This will help students in a methodological approach to fragment the necessary steps fulfilling their visions for a novel contribution in architectural outcomes. Having mentioned so, it is of great importance to embed in the students that their role as architects exceed merely injecting the built environment with additional purposeless additions, but rather to aim to create a comprehensive narrative for the users to experience, and accordingly to change their cognitive awareness of architectural spaces.

Acknowledgements

This researchers would like to extend their appreciation to the Graduation Project students at Cairo University, Faculty of Engineering, Architecture Department, for their valuable efforts, without which, the materials would not have had a scientific contribution.

Conflict of Interests

The authors declare no conflict of interest.

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