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# **HOW BUILT ENVIRONMENT EDUCATION AFFECTS YOUTH: A CASE STUDY WITH GIRLS IN EAST JERUSALEM**

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Appendix A – Architecture by Girls English Booklet

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## **Acronyms Used**

BE – Built Environment

BEE – Built Environment Education

## ABSTRACT

This qualitative study focuses on how built environment education impacts young people, using as a study case a project conducted by the author in East Jerusalem. The project focused on architectural and design education with a group of twelve teenage girls, aged fourteen. Students developed ideas and designs for a new high school in their neighborhood, using a real and authentic design problem as a challenge. Through a questionnaire, collective and individual interviews, I found similar effects as those recorded in the literature, most of which focuses experiences in Western contexts. Participants developed a stronger awareness and capacity of analysis of the built environment, increased their self-confidence, became more comfortable with teamwork, and learned a number of valuable skills for their future. Youth themselves found the experience valuable as it was intrinsically motivating and enjoyable, expanded their imagination, taught them how to design, and how to make models of things they had imagined. For some participants, the experience awakened or confirmed their interest in architecture as a career path. For many, the project encouraged them to participate in initiatives to improve physical aspects of their neighborhood, either through neighborhood improvement projects, some kind of activism, or by becoming built environment professionals themselves. They believe that the experience was worthwhile, despite the fact that their designs might have no influence on the construction of the new school. Findings suggest that BEE can be empowering for disadvantaged youth, preparing and encouraging them to participate more in improving the BE where they live. A question to be further explored is to which extent this is even possible in the context of East Jerusalem. More research is needed to find out under what conditions BEE can lead to more participation, particularly in non-Western contexts.

## 1. INTRODUCTION

I will begin by introducing myself, as both this research and the project it was based on were very personal experiences. I was born in Brazil, and it was there I studied architecture. During my studies, I became interested in social and community-based architecture, and in particular in participatory design. I later moved to France for more studies and began to work at an NGO, where I learned how the world of architecture intersects with the world of international development. Throughout this time, I focused on different aspects of what is today called *public interest design*, or *community-based architecture*. My life took me to Jerusalem, and to the Global MA Program at the Hebrew University, and eventually to an internship in East Jerusalem, the project Architecture by Girls.

The initial idea was from my internship supervisor, a community planner in Abu Tor. She had identified an opportunity: the Jerusalem municipality had chosen a site for a new high school for girls, but no plans had been made. I was to work with a group of students from the municipal middle school for girls, teach them architecture, and develop a design based on their vision. I should note that I would have happily worked with both girls and boys, but schools in East Jerusalem are separated by gender. The new school was going to be destined for girls, and the existing middle school for girls was the one that was most likely to agree to work with me.

It seemed like a marvelous idea, there were just two problems: I had never worked with youth before and I did not speak a word of Arabic. I was enthusiastically terrified. Through much planning and patience, we managed to make it work. For five months, I met weekly with a group of twelve ninth-graders. I taught them architectural concepts, encouraged them to use their imagination and helped them develop their own concepts. We made many drawings and built scale models. In the end, they presented their work to a group of guests at the Hebrew University. It was a celebration: the project was a success.

Initially, although the project had not been commissioned by the municipality, and we were only hoping to be able to *influence* the school they were going to design, I thought I was doing participatory architecture. I wanted to write this thesis because of questions that have been on my mind through many failed past projects: are participatory processes good for anything if in the end things are not built? Is it ethical to ask people to give so much time and effort for something that might not happen? Should participatory design be restricted to initiatives that have an allocated budget and commitment from authorities to become reality?

In the past, working with adults, I had used some instrumental pedagogical strategies to do participatory design. I needed to teach the basics, in order to allow for a conversation. Children and youth are different. They are learning about the world, they are developing their abilities and their sense of self... they are thinking about what they want to do when they grow up. They are not as impatient with new knowledge. They are playful and creative and spending time on the details and the development of ideas would not be thought of as “a waste of their time”. Not only that, this would be a perfect opportunity to help put together knowledge from different subjects at school. I knew I could teach them something. I knew I wanted to make it fun, interesting, and magical. I wanted

to show them the beautiful side of combining creativity and analysis, thinking of crazy ideas, and grounding them in reality, looking at all the constraints, and seeing the opportunities. Architecture is not often taught as part of the school curriculum. This exercise is by nature interdisciplinary, applying skills from the arts, sciences, geometry, geography... As an open-ended process with no right answer, it forces participants to search for solutions and think creatively. What kinds of skills can they learn from that? Does studying and thinking about changing the built environment change how they think about it? Does it contribute to their self-perception as someone who can actually create change?

As I advanced in my work, I begin to see the educational aspects as just as valuable as anything we might built, if not more. Eventually I realized that I was not doing participatory design at all, but architectural education, a subset of built environment education, or BEE. Yes, we were using a real design problem, which made the project resonate more with the girls. But the potential for real world-impact was low: the design and construction of the new school were, and still are, at the hands of the Jerusalem Municipality, who had neither initiated the project, nor shown enthusiasm for joining in and listening once it was under way. More importantly, we were not engaging in activities that would generate benefits of participatory design. For example, in order to help them gain an understanding of negotiation and of the need to compromise in collective discussions, it would have been necessary to hold meetings with other members of the community to discuss the new school design. For them to feel heard by authorities, authorities would need to be willing to listen.

Once I located the correct literature, under the BEE term, I was able to identify the effects I thought I was observing, like their newfound ability to discuss the built environment and their increasingly impressive design skills. I reconsidered my questions, and instead of asking how participatory design affects youth, the guiding question of my thesis became *how does a built environment education project based on a real design problem affect youth?* I looked at specific aspects, through the sub questions:

- Does it increase their BE awareness and capacity of analysis? Does it give them an understanding of the relationship between the built and natural environment?
- Does it contribute to their self-confidence and their ability to work in teams?
- What kinds of skills can they learn from it?
- What other kinds of benefits were there? Which ones did youth themselves think were important?
- Does it affect their belief of being able to create change in their own community? Does it make them more motivated to participate in initiatives to do so?
- Does the uncertainty of what will happen with the outcome (whether their designs will have any impact on the school that will be built) invalidate the experience?

I hypothesized two extreme scenarios:

- The optimist: throughout the project, the girls will acquire a better understanding of space, learn new skills and feel more empowered. They will develop new ways of seeing and discussing the built

environment. They will feel proud to show their work and of what they have accomplished. If the new school is influenced by their ideas, they will feel connected to it, as they were a part of its creation. If the school is never built, they will be disappointed, but they will still believe the experience was worthwhile. The knowledge and confidence they acquired makes them more motivated to participate in initiatives that promote change in their neighborhood and community. *In this case, the educational aspects matter most on their own. It would be better if their efforts have direct real-world impact, but the lack thereof does not invalidate the experience. There are other paths for lasting impact, as for some participants, having gone through the project makes them more likely to participate in efforts for neighborhood and community change, both now and in the future.*

- The skeptic: throughout the project, the girls learn a thing or two about understanding space, but this does not lead to shifts in perspective. The school design will reflect some of their wishes, but they will not feel that they have learned and that the project was worthwhile. When it is time for the final event, they will feel mostly indifferent. If the school new school takes some of their ideas, they start to feel better about it and begin to believe change is possible. However, if the school is not built or if it is and it takes none of their ideas, none of it will matter. They will feel be disappointed and disillusioned, and will not want to participate in efforts for neighborhood and community change in the future. *In this case, using real design problems for BEE can be a hindrance. It only matters if it has real world impact, since the changes provoked by the process are too small to matter without a physical result. Participants are less likely to participate in efforts for neighborhood and community change, and BEE projects should avoid using real design problems due to this risk.*

In the next section of this thesis, I review the literature on BEE, under its broad definition of any educational project that uses buildings, places and spaces as a context for learning (Uttke 2012). I outline the arguments for it, both for children and youth themselves (such as increased built environment awareness, personal development, skills, knowledge and career awareness) and for society (encouraging more participation of children and youth, leading to a more democratic production and a better built environment for all). While the first are documented by published research, the latter have very few empirical studies to support it. In the third section I give an overview of the Architecture by Girls project, and discuss in more detail three of its significant aspects: politics, working with youth as a foreigner and language, and the experience of developing a program and designs with a group of girls from East Jerusalem.

In the fourth section I present the methodology and findings of my research. Through a questionnaire, a group discussion and individual semi-structured interviews, I was able to gain insight on how the girls experienced the project and how they felt it had affected them. I found many of the same effects recorded in the literature. Some of the aspects they valued the most, however, were glossed over by most proponents of BEE as fairly unimportant. The findings support the notion that BEE can motivate and encourage youth to participate more, but the extent to which that is even possible in this particular context is a question to be explored in further research. Much

more research is needed, particularly on whether BEE affects participation and improves the built environment, particularly in non-Western contexts.

**2. LITERATURE REVIEW**

**2.1 WHAT IS BUILT ENVIRONMENT EDUCATION?**

Built Environment Education addresses the design, social, and political aspects of the urban environment and should give young people an appreciation of their ability to mold the environment to meet their needs (Avery 1989). It can be done through a number of approaches, in order to teach children and youth about architecture, urban planning, urban design, urban art, landscape design, among others. All these initiatives have the common element of using buildings, places and spaces as a context for learning (Uttke 2012).

BEE has been implemented to very different degrees in different countries. Some countries, like Finland, Norway, and Denmark have gone so far as to establish a national policy of teaching children about the built environment in public school systems, while the United Kingdom and the United States have a large number of isolated projects, as do a number of European countries. These are often led by NGOs, professional organizations or are part of outreach programs at design schools or universities. Some of them are organized under umbrella organizations such as the UIA (International Union of Architects), based in the UK, and PLAYCE, based in Finland. Most experiences are in Western countries, but there are some exceptions: I was able to find projects in Turkey (Acer 2016), Egypt, and some in Latin America (these last two were not studies on the effects of the projects). This is largely a practical field, and the scholarly literature is limited (Million, Parnell, & Coelen, 2018) and lacks many empirical studies that look at its effects.

**2.2 WHY DO BUILT ENVIRONMENT EDUCATION?**

The main arguments for BEE have been summarized on the table below. In this section, I will go over each of them and show what has been found to be true in empirical studies.

| <b>BEE can...</b>   | <b>...so that children and youth can...</b>  |
|---|--|
| Increase their BE awareness and capacity of analysis, giving participants an understanding of the relationship between the built and natural environment. | Develop an appreciation for the BE with a sense of its quality, a stronger sense of place, and promote sustainable development |
| Increase their self-confidence and ability to work in teams   | Grow into healthier citizens with the skills needed in the 21 <sup>st</sup> century  |
| Increase their creativity and problem-solving skills  |  |
| Integrate knowledge, increase pupil motivation, and reach more learning types   | Have a more meaningful learning experience   |



|   |  |
|---|--|
| Awaken an interest in the BE and give an understanding of BE professions, while giving contact with BE professionals as role models   | Have career options that include BE professions and - this is more relevant for underrepresented groups              |
| Instill a sense of responsibility, encourage and prepare them to participate in initiatives that concern the BE   | Feel capable and empowered to participate in BE production and in other issues that concern them and their community |
| <p>The basic argument is that the combination of a <b>higher appreciation for the BE</b> by the population, and a <b>more democratic production of the BE</b> should lead to a <b>better BE for children, youth and everyone, more sustainable development</b>. In the process, BEE gives children and <b>youth useful knowledge and skills</b> and <b>supports their personal development</b>.</p> |  |

### 2.2.1 INCREASE THEIR BE AWARENESS AND CAPACITY OF ANALYSIS, GIVING THEM AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN THE BUILT AND NATURAL ENVIRONMENT

#### *Theory*

BEE can increase children and youth’s sensory awareness of the spaces they live in to the sensations induced by form, materials, color and light. It is important to do this early in life, as it can strengthen children’s senses and sense of space during the time these are naturally developing (Arkki, n.d.). It can also give them an understanding of the concepts and reasoning behind their design, functions, forms, materials and meanings (UIA, 2008), giving them the capability to critically analyze spaces and the vocabulary needed to describe them with more precision (Laaksonen & Räsänen, 2006, Arkki, n.d.), further developing their own sense of aesthetic and giving them the ability to perceive architecture in its diversity (Feller, 2017).

*Sense of place* is comprised of place attachment and place meaning (Lewicka 2011; Kudryavtsev, Stedman and Krasny, 2011) it is linked with feelings of belonging and well-being. BEE can contribute to both these aspects, through an enjoyable exploration of the built environment (Laaksonen & Räsänen, 2006), making children and youth more consciously aware of their taken-for-granted places (Adams, Greenwood, Thomashow & Russ, 2016), helping them form an active emotional bond to their milieu (Arkki, n.d.). It can also give them an appreciation of their architectural heritage and of contemporary architecture (UIA, 2008) and support their identification with their environment and society (Laaksonen & Räsänen, 2006).

BEE can give a better understanding of the relationship between the built and natural environment (Šmiechowski, 2006) and the link between sustainable development and quality of life (UIA, 2008), both of which are extremely relevant as “in a short time it will be they who will have the right and the responsibility as active citizens to take initiatives to create a sustainable future.” (UIA, 2008) and take on a role of stewards of the environment (Wake, 2010). In fact, many in favor of BEE argue that it should promote “a sense of responsibility towards the community

and a sense of caring for the environment” (Avery, 1989; similar argument made by Sutton 1996). Some projects go further and allow participants to implement good quality design and pro-environmental strategies in the school and its surroundings (Šmiechowski, 2006; Svennberg, 2006).

### *Effects found in empirical studies*

Many of the studies published found this effect, with students becoming more aware of the built environment and could discuss it with more precision and a critical eye, as they learned the concepts and vocabulary necessary to do so (Rajeva, 2017; Seitamaa-Hakkarainen, Kangasa, Raunio, & Viilo, 2012). In one project, the researcher observed that they developed a sense towards different details in the BE, pretending to be detectives or explorers (Rajeva, 2017). In another case study, a project manager noticed that one participant started to notice architecture everywhere, always thinking about it without realizing it (Parnell & Patsarika, 2010). In a project in Turkey, students themselves reported an increased awareness of the BE (Acer, 2016), and the same effect was observed by facilitators in the De-A-Architectura (Sava, 2017) program over a period of five years, as well as recorded by Seitamaa-Hakkarainen, Kangasa, Raunio, & Viilo (2012).

Only one case study mentioned a strengthened sense of place, with researchers observing that “it became clear that pupils were really excited experiencing their personal and familiar environment, feeling a sense of identity.” (Rajeva, 2017). Sutton and Kemp (2002) found that the children who participated in the project had developed better understanding of the relationship with the natural environment.

## **2.2.2 INCREASE THEIR SELF-CONFIDENCE AND ABILITY TO WORK IN TEAMS**

### *Theory*

As an inherently collaborative experience, design education (whether focused on architecture or not) can strengthen children and youth’s abilities to work in teams. It can increase their self-confidence by teaching that their ideas have value, and increase their ability to self-manage through the lengthened focus necessary to achieve worthwhile results (Laaksonen & Räsänen, 2006; Adams & Hards, 2006; UIA 2008; Arkki, n.d.; Topping, 1978).

### *Effects found in empirical studies*

Participants strengthened interpersonal skills and abilities to do work collaboratively in teams (Adams & Hards, 2006, Rajeva, 2017). Moreover, in the Joinedupdesign program (Parnell and Patsarika, 2010), students themselves felt that their involvement raised their aspirations, increasing their confidence as they took on a role of responsibility, produced high-quality outputs and felt that their contribution had been valued. The architects and teachers involved in the project thought that the celebration of students’ achievement outside the classroom

setting gave was important, because it gave students' other frameworks to develop their capacity and skills. In the Bulgaria case study (Rajeva, 2017), the researcher observed that in the last sessions students had increased self-confidence.

### **2.2.3 INCREASE THEIR CREATIVITY AND PROBLEM-SOLVING SKILLS**

#### *Theory*

Depending on the program, there are number of useful skills that can be gained or strengthened through BEE, from drawing, using measurements and scale, to improved creative and analytical thinking (Laaksonen & Räsänen, 2006; UIA, 2008; Adams & Hards, 2006; Arkki, n.d.). Additionally, the call for design education has been gaining traction over the last decade, as the notion of “design thinking” (Stanford D School, n.d.) or the adaptation of the design process to other types of problem-solving, has become more popular as a way to develop “21<sup>st</sup> century skills” in the citizens of tomorrow (Acer, 2016) as creativity and innovation are seen as essential elements of the knowledge society (Drotner, 2011). For example, Arkki, a school in Finland dedicated to teaching architecture and design to children, says that their interdisciplinary programs help to develop key competences like the 5Cs – complex problem solving, creativity, critical thinking, communication and collaboration (Arkki, n.d.). Learning how to identify needs, frame problems, work collaboratively and channel their creativity in a concrete way, are all skills that are useful for a number of careers (Davis, 1998).

#### *Effects found in empirical studies*

Studies found that participants developed more creative thinking and problem-solving skills, both through the observations of teachers and researchers (Davis, 2004; Rajeva, 2017) and through the eyes of participants themselves (Acer, 2016; Parnell and Patrsarika, 2010). Often, they developed design skills, by gaining an understanding of the design process, learning to explore ideas and options, and developing a sense of scale and 3d shapes (Rajeva, 2017; Seitamaa-Hakkarainen, Kangasa, Raunioa, & Viilola, 2012; Uttke, 2012). Students improved their communication skills, becoming more proficient at formulating their own demands, using visual mediums to represent them and improving oral presentation skills (Uttke, 2012; Davis, 2004; Rajeva, 2017).

### **2.2.4 INTEGRATE KNOWLEDGE, INCREASE PUPIL MOTIVATION, AND REACH MORE LEARNING TYPES**

#### *Theory*

Studying, exploring, and attempting to design the built environment aggregates knowledge from different disciplines - e.g. geography, history, mathematics, the art - and irrigates them through a holistic experience (Svennberg, 2006; Feller, 2017; UIA, 2008; Acer, 2016). The hands-on aspect can lead to deeper learning, as

children sometimes feel that the school curriculum is disconnected from their lives (Topping, 1978). Learning about architecture and urban planning can contextualize knowledge from other disciplines and give them more significance (Laaksonen & Räsänen, 2006; UIA, 2008), while allowing children “opportunities to see the world as whole” (Svennberg, 2006), to challenge themselves and experience the “joy of discovery” (Arkki). The variety of styles in the activities can reach more kinds of learners, particularly those who find the traditional classroom context challenging (CABE, 2016).

### *Effects found in empirical studies*

Many of the case studies found that BEE integrated knowledge from different disciplines (Adams & Hards, 2006), in one case by building connections among teachers, subject areas, and community, and making learning active (e.g. Davis, 2004). Additionally, BEE often involves a variety of learning styles and media, making it possible to reach more types learner, which was found to be the case by teachers in two of the programs reports (Adams & Hards, 2006; Davis, 2004). In the Bulgarian case study, the researcher observed that even the children who were very shy at the beginning, later became more active and enthusiastic, finding new friends in the group (Rajeva, 2017). The tactile aspect of some activities (model-making, building things) is particularly appreciated by many children, (Rajeva, 2017), who enjoy “making things with their hands, things they have imagined (Sava, 2017; Acer, 2016). Equally exciting are the opportunities for interactive learning outside the school grounds (Adams & Hards, 2006). Davis (2004) found that BEE promoted self-directed learning, while both Acer (2016) and Rajeva (2017) found that the activities increased intrinsic motivation and led students to focus for a relatively long period of time.

In the cases where BE professionals were involved, it was found to enrich the learning experience (Adams & Hards, 2006) and form special bonds with the children (Sava, 2017). In the Turkish case study described by Acer (2016) participants felt that the project was particularly enjoyable because it did not follow the format used in other lessons, and they were free to move around, share ideas and relax.

### **2.2.5 AWAKEN AN INTEREST IN THE BE AND GIVE AN UNDERSTANDING OF BE PROFESSIONS, WHILE GIVING CONTACT WITH BE PROFESSIONALS AS ROLE MODELS**

#### *Theory*

An architectural education project allows for “the discovery that architecture is a creative intellectual task of research and design that draws on humanity, culture, heritage, nature and society” (UIA, 2008). Similar claims can be made about BEE projects that focus on urban planning, or on landscape design. A child or youth that feels affinity to these professions would be happy to have an opportunity to find out more and try their hand at it. But this interest does not need to be there from the start (Dawes and Larson, 2011), and can be developed throughout

the activities, as they begin to believe that the skills they are learning will serve their future goals, develop a sense of competence, or begin to pursue a purpose.

This is particularly relevant for children and youth from disadvantaged groups, who may not have as many opportunities to interact with BE professionals (Sutton & Kemp, 2002). While this aspect is important for some of the participants in any given project, it is not the main goal of BEE, and initiatives should not limit themselves to simply promoting the profession (Önder, 2013).

#### *Effects found in empirical studies*

As expected, architectural education programs tend to increase the interest in architecture (e.g. Acer, 2016; Rajeva, 2017). Often, there are a few students for whom the project is found to be more meaningful, awakening or confirming their interest to pursue a built environment profession through an “inspiring” experience (e.g. Parnell and Patrsarika, 2010; Topping, 1978). In most cases at least it gives a basic understanding of what architects do (e.g. Sutton and Kemp, 2002).

### **2.2.6 INSTILL A SENSE OF RESPONSIBILITY, ENCOURAGE AND PREPARE THEM TO PARTICIPATE IN INITIATIVES THAT CONCERN THE BE**

#### *Theory*

For most proponents of BEE, one of its key roles is to give children and youth the skills and motivation to participate in the creation and changes of the BE, as this is their right according to the UN convention of the rights of the child (ref). BEE can help them feel responsible and able to take part in decision-making processes that affect their own lives and their community (Avery 1989; Wake 2010; Sutton, 1996).

BEE can inspire a desire in children and youth “to participate in the complex and magical process that constructs the house, the town and the region” (UIA, 2008). In order to do so effectively, they need skills and knowledge such as the vocabulary necessary to discuss the qualities of buildings, places and how they relate to the life of a community (UIA, 2008), as well as the awareness of roles and processes that create the BE (UIA, 2008; Laaksonen & Räsänen, 2006). Million and Heinrich (2014) argue that BEE and participation complement each other, and that BEE should be deliberately integrated into participatory processes as the gained skills foster process and product quality of youth participation.

The goal is to make the production of the built environment more democratic, as children possess unique knowledge of the environment they live in, and it is vital that this knowledge is taken seriously and weighed up in the decisions that are taken (Svennberg, 2006; Sutton, 1996; Sanoff, 1993). But the reasoning to encourage participation is not limited to their roles as children and youth, but also as adult citizens, as this work will lay a solid foundation to enable future citizens, builders and decision-makers, to participate actively in planning processes and act responsibly (Feller, 2017), participating in decision-making and building of our future

environment (Arkki, n.d., Laaksonen & Räsänen, 2006; UIA, 2018; Commission for Architecture and the Build Environment, 2010).

The basic argument is that an increase in the sense of BE quality and a more participatory process of production of the BE will lead to a better BE, that responds to the needs of society because it is directly involved in its creation and is well educated to identify the qualities of a good BE (Adams & Hards, 2006; Arkki, n.d.). Additionally, children and youth expressing their needs publicly can encourage designers and decision-makers to take their needs into account (Dael, Helmer-Petersen, Grønbech, Rasmussen, & Madsen, 2011; Laaksonen & Räsänen, 2006; Million, Parnell, & Coelen, 2018). This is beneficial to society in general as a good BE, “produced in genuine dialogue with the community it serves, can reduce feelings of disconnection and contribute to a more harmonious society where citizens feel empowered and heritage and creativity are reconciled.” (UIA, 2018)

### *Effects found in empirical studies*

In the program reports, adults in the project thought that the participating children and youth became cultivated responsible citizens (Davis, 2004; Adams & Hards, 2006) and were surprised at their capabilities at producing high quality materials that they presented with confidence (Parnell and Patsarika, 2010). In Million and Heinrich’s article (2014), the youth participating in the project stated that BEE helped them have the skills to participate, and the participation aspect, in turn, made them feel more engaged in the project. In one of the cases reviewed by Uttke (2012), youth developed a stronger interest in political decision-making (by starting to read local newspapers, for example), and acquired knowledge on roles and responsibilities for the creation for the creation of the BE. These findings support the idea that BEE prepares for participation, but none of the studies looked at whether the children and youth started to participate more in initiatives concerning BE production, or felt more inclined to do so.

### **3. THE ARCHITECTURE BY GIRLS PROJECT**

#### **3.1 PROJECT OVERVIEW**

The Architecture by Girls project was the focus of an internship required for me to complete the Glocal MA Program in International Development Studies. Activities took place between October 2017 and March 2018. I worked with a group of twelve female students – originally, we had sixteen, but four dropped out - all fourteen years of age, from a municipal school in Abu Tor, East Jerusalem. They live in Abu Tor and Silwan, both working class, conservative Muslim neighborhoods that have many infrastructure problems. Most of their parents do not have a university degree, and all but three of their mothers do not work outside the home. Project objectives were:

- To develop a design for a new high school based on the views of the students, which could serve as a tool to influence the final design that will be developed by the authorities.
- To introduce students to the world of architecture and spatial planning through this hands-on experience, giving them knowledge about career options related to this field (such as architecture, design, engineering, and urban planning)
- To increase the students' understanding of the built environment, capacity for visual expression, ability to work in teams and express their own needs and opinions.
- To make sure that decision-makers responsible for the future school that will might be built one day are exposed to the ideas and priorities of the students.
- To increase the students' verbal competency in the English language

The project was developed through weekly sessions of 1h30, culminating in a final event in March 2018. I planned and led all sessions, but in about half the meetings I had help from a second facilitator – female Palestinian architects, urban planners, and design students. Through short presentations and practical activities, the girls learned architectural concepts, developed new skills, and identified their own needs and wishes for a new high school in their neighborhood. The content and strategies were flexible, and adapted to their interests. Eventually, they developed three conceptual designs, and built scale models for the new school. The table below summarizes the content of each session (for more photos of the activities, see Appendix A)

Table 1 - Lesson plan for the project Architecture by Girls

| N° | Date       | Title                                      | Activities  |
|----|------------|--|---|
| 1  | 07/10/2017 | Introduction to architecture               | <ul style="list-style-type: none"> <li>- Introductions, games to get to know each other.</li> <li>- What is your favorite place? Learning the value of architecture</li> <li>- Our own school: drawing what do we like and dislike about it</li> </ul>  |
| 2  | 14/10/2017 | Seeing architecture: our school building   | <ul style="list-style-type: none"> <li>- Explorative walk in their school building with the building plan</li> <li>- Preparing for the next session, students had to think about: what do we like about the school? What don't we like? What can we do better in the new school?</li> </ul>   |
| 3  | 28/10/2017 | Learning from examples (computer lab)      | <ul style="list-style-type: none"> <li>- Short presentation: What is architecture? Presentation of some famous architecture/architects. What do architects do? examples of school architecture to inspire us.</li> <li>- Answers from last week: building a preliminary program</li> <li>- The students searched online for references of school architecture they like. We gave them a list of websites to use and ideas to think about.</li> </ul>  |
| 4  | 21/10/2017 | Understanding the context                  | <ul style="list-style-type: none"> <li>- Site visit, and introduction to topography and what we can learn from the site</li> </ul>  |
| 5  | 04/11/2017 | Unleashing the imagination                 | <p>What do we want the spaces in the school to look like? Let's start with the courtyard... what would the best courtyard in the world look like?</p>   |
| 6  | 11/11/2017 | Understanding volume                       | <ul style="list-style-type: none"> <li>- Short presentation: community planner (Islam) explaining about the site and the issues around it.</li> <li>- How do we build on a slope? The volume on the site: using the study model to think about how the building could fit into the site</li> </ul>  |
| 7  | 18/11/2017 | An architect and planner in East Jerusalem | <p>Guest lecture with a Palestinian female architect and Urban Planner, Urban Clinic). She spoke to the girls on the following topics:</p> <ul style="list-style-type: none"> <li>- The options in the built environment professions, and the differences between them</li> <li>- The particularities of being an architect in East Jerusalem</li> <li>- The links between architecture, planning and engineering</li> <li>- The issues of housing demolitions in East Jerusalem</li> </ul> |
| 8  | 24/11/2017 | Brainstorming Ideas                        | <p>After laying out the program and we had drawings produced so far, we did a brainstorming session, in order to have as many ideas as possible around the themes we had identified as important qualities for the new school.</p>  |
| 9  | 02/12/2017 | From ideas to design                       | <p>In groups, a preliminary design started being developed, with the zoning of building areas according to the preliminary program</p>  |
| 10 | 10/12/2017 | Architecture and technology                | <p>Hansen House field trip - we used the Makerspace to learn about 3D printing and laser cutting technology.</p>  |
| 11 | 16/12/2017 | Refining the design                        | <p>Under the guidance of a foreign and a Palestinian architect, each group worked to develop their own design for the new school</p>  |
| 12 | 21/12/2017 |  |   |
| 13 | 13/01/2018 | Choosing priorities                        | <p>Students reviewed their ideas for the new school and attributed "points" to prioritize them.</p>   |



|    |            |                                      |   |
|----|------------|--------------------------------------|---|
| 14 | 27/01/2018 | Scale Model                          | Students made the scale model: the buildings and the green spaces around it.              |
| 15 | 10/02/2018 |                                      |   |
| 16 | 08/03/2018 | Final Event at the Hebrew University | Students presented the project at the Hebrew University                                   |
| 17 | 15/03/2018 | Presentation at School               | Students presented the project to their own classmates and all the students at the school |

### 3.2 THE FINAL EVENT

The final event of the project took place in March 2018, in the Mt Scopus Campus of the Hebrew University of Jerusalem. All twelve participants, along with seven of their mothers, and three representatives of the school staff attended, as well as twenty other guests, some of which were connected to the Jerusalem municipality. Others were in academia or simply had an interest in the topic.



Figure 1 - Trilingual posters and booklets produced for the final event – the booklets (Appendix A) were sent out digitally to decision-makers and potential allies to support the inclusion of the girls' ideas in the final design.

The exhibition materials – in English, Arabic, and Hebrew – had three components:

1. Process: an introduction to the context and an overview of what students learned and did throughout the project
2. Priorities: a list of the ideas and wishes given by the girls, as well as the priority they assigned to each item.

This was divided into four categories:

- a. Other schools have this, but mine doesn't...
- b. My ideal school should have these spaces outside...
- c. My ideal school should have these spaces inside...
- d. These are the sports I would like to play....

3. Designs: the students made their own proposals for the new school in three conceptual designs. This was presented in posters and in the scale models they built.



Figure 2- In the final event, guests could see the work done during the project and interact with the students. Some of the girls' mothers were also able to attend.

Each group of girls wrote their own speeches, and prepared over three sessions to be able to deliver them confidently, in English, to an audience of strangers. The day was a success: students, teachers, parents, and guests who attended gave overwhelmingly positive feedback. The chances of impacting how the new school will be built were modest: although we invited decision-makers to the exhibition, only one was able to attend. Nevertheless, the booklet summarizing the project was printed out in English, Hebrew and Arabic and distributed physically and digitally to a number of different parties, including staff from the Jerusalem municipality.



Figure 3 - Scale models for each design made by the students. They gave a speech explaining their choices to the audience in English.

One week after their presentation at the Hebrew University, the materials were brought to their school where they proudly presented their work to the other students.



Figure 4 - One week after presenting at the Hebrew University, the girls presented the project to other students in their own school.

### 3.3 A SECOND PROJECT – THE MAKING JERUSALEM COMPETITION

A few weeks after the final event, PICO Kids, one of the partner organizations in the project, invited our group to participate in a design competition, as the first school from East Jerusalem to compete. The theme was “water and sustainability” and the design developed by the girls was an aquaponics system for their own school. Over the span of two weeks, they sketched ideas, made small paper models, and planned how to build and present it on the day of the competition. On the big day, they had to adjust their design, use power tools, and stay motivated through the pressure and heat. They manage to finish it, and won first place their challenge. This project was not a part of the original plan, but I chose to include it here because it was cited at times during the interviews and had an impact on their overall experience.



Figure 5 - After the Architecture by Girls project, the same group of students participated in a design competition, Making Jerusalem, with the support of PICO Kids. They developed a design for an aquaponics system for their school.



Figure 6 - On the day of the competition, they made a prototype of their design and won the first place for their challenge.

### **3.4 THREE SIGNIFICANT ASPECTS**

Throughout the project, many interesting aspects stood out. I selected three of them to explore in this thesis: 1) how politics impacted the project; 2) My foreignness and the mutual curiosity that increased opportunities for learning; and 3) The wonders of leading a group of teenagers through the process of planning and designing a school for themselves;

#### **3.4.1 EVERYTHING IS POLITICAL: A REAL DESIGN PROBLEM AND THE HOUSE IN THE MIDDLE OF THE SITE**

The Israeli-Palestinian conflict was always present in some way or another. It was the background to many conversations I had with school staff, and with the two Palestinian architects who advised me throughout the project. Every decision that could become controversial or make parents uncomfortable was double checked with them. Like many East Jerusalemites, they are forced to walk a fine line between what is perceived as normalization and what needs to be done to improve the well-being of their community. As a foreigner, it was very difficult to know where the line should be drawn.

The design problem was based on reality: the Jerusalem municipality had already selected a site, but no plans had been made yet. We decided to use it as a base, this way we could do a site visit, and the girls would have the experience of creating a design with the real constraints the location had to offer – just like a real architect. The site was difficult: it had an irregular shape, a steep slope, and currently had both a street and a house, where a family has lived for many years. It is the subject of a court case and will likely be demolished.

Although I had some reservations, I initially did not think this was of much consequence. It is not so unusual that a family needs to be relocated for the construction of a school in an informal or semi-formal area. But as time passed, it became clear that we would need to find a way to address it somehow: housing demolitions in East Jerusalem are not like anywhere else. They are an ever-present threat and have an important symbolic and emotional toll to Palestinians who live in the city. The turning point was the day we had a guest speaker: a Palestinian female urban planner. I invited her to speak to give the students more contact with role models from their own communities. The plan was that she would tell them her story, and explain the differences between the different types of built environment professions, like engineering, architecture and urban planning. This was valuable to the girls, and they listened. But soon the session was taken over by questions and they seemed much more engaged: for over thirty minutes, all they asked about were housing demolitions. The issue was clearly weighing on their minds.

I finally understood what the difference was from other contexts I was familiar with: housing demolitions are mostly politically motivated, and there was never any relocation plan – once your home was gone, that was it. There are no housing programs for the population of East Jerusalem, despite an increasing need due to population growth. This demolition too, even if legally justified and important for the construction of the school, will feel to the community just like all the others: another act of violence, leaving another family homeless and all the others with demolition orders even more afraid. It would be yet another attempt, in a series of institutionalized policies, to push them out of the city.

I wanted to, no, I had an *ethical obligation*, to do everything in my power to ensure the girls did not feel responsible for that, nor be blamed for it, in any way. Imagine if they were giving their presentation at school, and a girl who lives in that house asked if they wanted to displace her family. Or worse yet, if when the school is built, neighbors get the mistaken impression that our project had any influence on what the court decided would happen to the house. How would the girls be made to feel then? Therefore, for this project's purpose, we decided to draw a line around the area of the house and consider it as not part of the site making each design around it. We were lucky: the house was on the border, and the site was big enough to accommodate a high school comfortably without that section. Later interviews confirmed we had made the best possible choice: they felt proud to imagine something for their community, and avoid creating more harm.

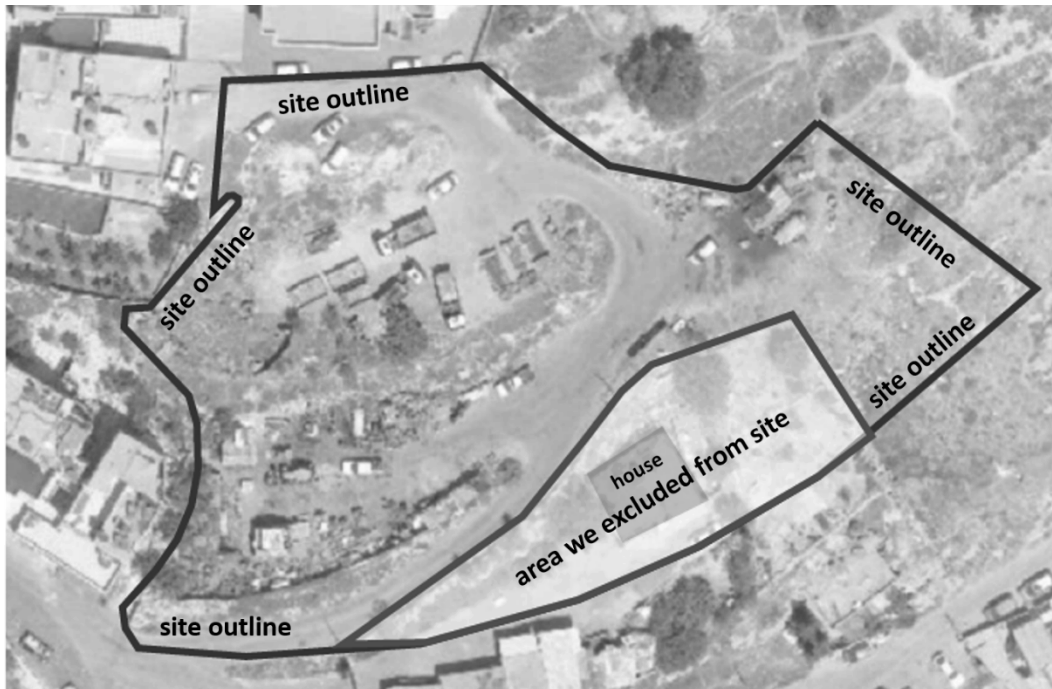


Figure 7 - Satellite image with the future school site outline and the location of the existing house. We drew a line around the area the house and its yard occupy and deemed it “not a part of our site”.

### 3.4.2 THE FOREIGNER IN THE ROOM: LANGUAGE AND CULTURAL EXCHANGE

The group was selected among the top students in the 9<sup>th</sup> grade. They were smart and interested, but in the beginning, only a few had a good enough English level to hold a conversation. While I had language help in half the sessions, I conducted the other half alone. I brought flashcards with key terms in both languages, made use of google translate, patience, and a lot of laughter. It is my opinion that their improvement in English had as much to do with their need to speak it occasionally as it did with their wish to communicate with me. While I understand all the reservations of having foreigners try to “save the world” in someone else’s home, this felt more like cultural exchange, fed by mutual curiosity, and a wish to learn something exciting.

I did not want them to think that these career options were open only to foreign women. I made it a point to bring as many female Palestinian design professionals (architects, urban planners, and design school students) into our sessions, in order to give the girls role models. They were often the second facilitator, and reduced the language barrier, which was particularly helpful in the beginning of the design phase. By the second project, the Make Jerusalem competition, their skills were stronger and we had developed a work rhythm, so it was possible to work with them without translation.

### 3.4.3 THE SCHOOL WE WANT: THINKING ABOUT THE PROGRAM AND UNLEASHING THE IMAGINATION

The Abu Tor Preparatory School for Girls is currently located in two residential rental buildings that have been somewhat adapted to their needs. The five hundred students are crowded in often too-small classrooms, and despite the best efforts of the school principal, it still lacks facilities such a science laboratory and a proper library. These problems became evident in the project, when the girls would talk about the many things they wanted to see in a new school: they were often things found in new schools anyway. The idea sessions ended up having several stages to get to more specific thoughts than the initial simplistic notions of “a big and beautiful school” that were difficult to move beyond.



Figure 8 – Drawing the best courtyard in the world (left) and "crazy idea" day (right), when they were asked to brainstorm as many ideas for the new school as they could within two hours.

From a practical standpoint, much more important than *where* they would place the library, were the *types of spaces* they needed and wanted in a new school building. In one session they were encouraged to come up with “crazy ideas” as quickly as possible so that we could have a number of options to choose from. Some were perhaps not very realistic within the constraints of city regulations and limited budgets, like building a pool or a giant fish tank, but others would be less costly and offer pleasant results: a multi-functional room that could be used for dancing, playing music, or celebrating birthdays. A track that goes around the school site, for exercising, or riding a bicycle safely. Fun and comfortable sitting areas both inside and outdoors. I asked myself if their demand for so many activities inside school grounds might be linked to how outdoor spaces are perceived as unsafe for girls, and the general lack of sports facilities available to them in the vicinity. Or perhaps they just want to make school a little less serious. The ideas were voted on and divided into four categories (see Appendix A for a full list of ideas with the corresponding drawing):

- Things other schools have and I wish mine did
- Indoor spaces that I want for my new school
- Outdoor spaces that I want for my new school
- These are the sports I want to play'



Figure 9 - Some of their ideas that became very popular: the birthday room and a bicycle lane to ride around the school. Each girl had six heart stickers to distribute among all ideas in each category. For a full list of ideas with the corresponding rank and drawing, see Appendix A.

The students were divided into groups and each one developed their own design concept for the new school. Each design had some special feature to make the school, as one girl put it, “have a different shape, so it would not be so boring for the students”. One group proposed an inner courtyard that connected to outdoor spaces on the first floor, where plants would help to make the transition. In another one, a terraced design let the green spaces be a part of the upper floor as well, and the library was placed in the top floor, so that students could “enjoy the view and relax”. In the third project, the school was split in two buildings linked by a suspended walkway that crossed the existing an existing street in the site that they chose to keep. In the smaller building, sports facilities and the library were to be placed. This second building could be open to the community in the hours the school was closed.



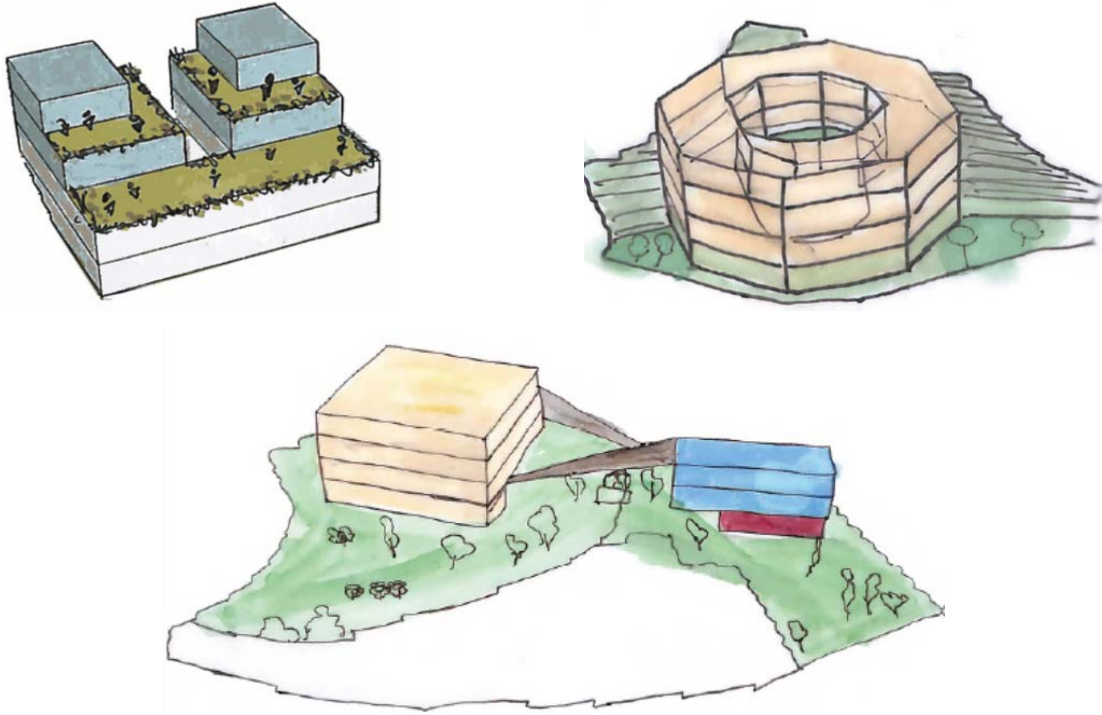


Figure 10 - Conceptual designs proposed by each group.

All three designs had given special attention to green areas. I suppose this came from a realization early on of how important the outside spaces were to them. In one exercise, they drew what they liked and disliked about their school, and most of their thoughts were about the school yards. Another reason for that might also be the overall lack of green in streets and the small number of parks, in their neighborhood and in East Jerusalem overall.

#### 4. METHODOLOGY

The research methodology initially relied observations during the project, a short questionnaire and a group discussion. The questionnaire used a five-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. It was meant to measure three variables: *confidence in ability and in expressing opinions* (items 1 and 2), *comfort working in a team* (items 3 and 4), and *belief in themselves as agents of change* (items 5 and 6). It was translated into Arabic and answered anonymously at the beginning of the project and at the end, after the final event. It was hypothesized that, if the project went well, all averages should increase. The results are summarized in the table below:

|   | Question  | Beginning of 1 <sup>st</sup> project (average) | End of 1 <sup>st</sup> project (average) | Change |
|---|---|--|--|--------|
| 1 | I think that I can contribute to this project with my ideas.            | 4.5  | 4.4                                      | ↓ 0.09 |
| 2 | I feel confident in expressing my opinions, even if others don't agree. | 4.4  | 4.5                                      | ↑ 0.09 |
| 3 | I feel comfortable working in a team.                                   | 4.8  | 4.4                                      | ↓ 0.4  |
| 4 | I think that we can accomplish more by working together.                | 4.5  | 4.3                                      | ↓ 0.2  |
| 5 | I think that I can create change in my community.                       | 3.4  | 4.5                                      | ↑ 1.1  |
| 6 | I think that together we can change our neighborhood for the better.    | 4.2  | 4.8                                      | ↑ 0.6  |

The increases on the averages on items 5 and 6 seemed to support the hypothesis, while the decreases on items 3 and 4 seemed to indicate that their comfort with teamwork had actually decreased after the project. This could very well reflect reality of slightly lower confidence and worse view on teamwork, but the group discussion contradicted it, with students claiming that these aspects had actually improved for them. In order to understand this better, I conducted individual semi-structured interviews with each student, with the presence of an English-Arabic interpreter.

The interviews were clearly the better methodological choice: they painted a nuanced picture of each girls' experience, and revealed so much more information, with such depth that I would not have been able to gather any other way. They turned out to match the results from the questionnaire: some girls did have negative teamwork experiences, and this in turn had some negative effect in their self-confidence.

In hindsight, if I were to repeat this research with a mixed methods approach, I would have used different questions - from reliable and tested scales used to measure these concepts. I also would have included a way to pair the first and second questionnaires. I would still conduct the individual interviews, and perhaps have allotted time to do them earlier. Since I did not, I was only able to interview the girls after the second project (the Make Jerusalem Competition), and some of their answers refer to that experience, instead of to the first project.

Interviews lasted for approximately 1h, starting with guiding questions (see Appendix B – interview guide) and then they were encouraged to talk freely. To protect the anonymity of their statements – their participation in the project is public knowledge - I used pseudonyms that had no resemblance to their real names.

There is of course, a potential for bias, as I fulfilled the roles of project facilitator and researcher. Some time passed between the project phase and the research phase, allowing for some distance, but it is possible it will still have some influence in how I perceived the results. It is equally possible that this affected how the girls answered questions during the interviews, as they might have chosen to give answers that they thought would please me. I specifically asked them to give honest answers, but it is difficult to know if that was the case. However, this dual role had some positive aspects as well: we had already built rapport, and it was easy to jump into a relaxed conversation. I had insights about how the project experience had taken place, and could ask them specific questions relating to my observations. I acknowledge all these problems, and have strived for objectivity as best as I could.

## 5. FINDINGS

As mentioned before, the research question is *how does a built environment education project based on a real design problem affect youth?* In this section, I present the findings through each sub question.

### 5.1 DOES BEE INCREASE THEIR BE AWARENESS AND CAPACITY OF ANALYSIS? DOES IT GIVE THEM AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN THE BUILT AND NATURAL ENVIRONMENT?

*Yes, both at building and neighborhood level, and they understand a little better the relationship between the built and natural environment.*

Eight students reported seeing their school *building* differently, with a more critical eye, explaining that it should have larger classrooms, better ventilation and, as three of them put, it “have a more interesting shape”. Miriam explained her change in perception,

“[the project] changed my idea of what a school should look like, physically. I always thought it could only be one way, but now there is this whole new thing, many possibilities.”

But not only the school building, some students begin to think about the *architecture all around them*,

“Now I look at the buildings near my house, how they were designed, their structure... I used to think buildings could only be boxes, but now I know they can have their own design.”

-- Zahra, echoed by three others, on how now they know buildings can have “many shapes”

Some of the girls also mentioned the importance of considering many aspects when designing a building,

“It is important to look at the needs of students, and not only to have stone, but also to have green spaces and other facilities like sports and other things.”

-- Tamara, 14

For most participants this new awareness was also extended to the *urban level*, with many saying they now think about how streets should be wider and houses should be less close together. This was a little surprising, as the urban scale was not strongly integrated in the project - only one session was dedicated to the topic, with a Palestinian female urban planner as a guest speaker. It seems that session had an important impact, but the students were also able to draw the parallels themselves,

Hiba: I now think about the physical environment in the neighborhood. The streets can be wider, cleaner, the sewage can be better... our school had a really bad entrance in our design we really wanted to make it wide and very nice for everyone.

Me: But we didn't talk about the neighborhood that much in the project how did you get to these conclusions?

Hiba: I just connected the concepts we learned from architecture, about changing the physical environment. They can also be applied to the streets.

Five girls reported that both the first project and the competition made them think more about the *importance of green areas* in the neighborhood and in school grounds. This was also evident in their designs for the new school, all of which featured strongly outdoors spaces and vegetation. One student saw it as something the women in her community could do,

“[the project] made me think about awareness for women in my community, to keep the flowers and gardens nice...we should take care of our environment to make it more beautiful. The women should also do that in their gardens at home.”

-- Tahani, 14

## **5.2 DOES IT CONTRIBUTE TO THEIR SELF-CONFIDENCE AND THEIR ABILITY TO WORK IN TEAMS?**

*The sense of accomplishment increased their self-confidence, and the freer atmosphere benefitted some students. The teamwork experience was positive for most, but a negative experience affected the self-confidence for some.*

Originally, the project was intended to strengthen participants self-confidence and ability to express themselves, but *half of them reported already feeling quite confident* in speaking up in other contexts, and that the project did not have affect them in that aspect. Three others reported *being more confident to speak up during the project* than in other situations and cited two reasons for it: being comfortable with their teammates, who they had chosen themselves; and feeling freer, with less structure and rules than in classrooms,

“We could talk freely... in class there are rules. In this project I could come and go as I wanted, we were having fun and knew each other, not under pressure, like in class.”

- Sidra, 14, sentiment echoed by Miriam and Hiba

Additionally, some of the them reported that the project giving them a confidence boost by giving them a sense of accomplishment,

“At the beginning, I didn't think I could do it, design a building... but I was shocked by the result! I achieved something, this is important to me. In the future, I will remember this: if I can do that, then I can do other things I try as well.”

- Hiba, 15, similar statement given by Miriam

Sidra was also surprised by their accomplishments and thought it was important that others saw and recognized it as well,

"We didn't know that we had the thoughts and ideas to create a school. It was important that we did it, and that others accepted our ideas and recognized what we did."

-- Sidra, 14

All the students said they felt proud of their accomplishments. One of them mentioned emotionally how it was perceived by her family,

"My father was so proud! He would tell everyone who would come to our home about how his daughter was an architect."

-- Fatima, 14

Later, she commented on how she thought that these types of projects are important for kids in her community, in light of the inequality they face due to the conflict,

"In our situation, under occupation, we don't get to experience these kinds of projects so much, so it was very nice that we got this new experience. These projects usually are not available for Arabic schools; the funding goes to the Israeli schools."

-- Fatima, 14, similar comments by two other students

For most of the girls, winning the competition in the second project had a strong impact, because,

"It was a victory in a short time. All the other kids were Israeli, they already knew so much, we thought we had no chance! We were really surprised when we won."

-- Miriam, 14

Perhaps Tamara put it best, when she explained what she would tell other kids,

"I recommend to anyone, if they have the chance, to be in such projects, to not be afraid and try it. I was afraid in the [competition] project... but now I feel like I can do anything, even by myself. I'd like to think I will not be afraid. Also, you should interact with others, even if they don't speak the same language, you should communicate, you will have more experience from them."

- Tamara, 14

Another goal was to give them an opportunity to experience more teamwork and strengthen their ability to work collaboratively. During the project, I could see that two of the teams were working well together, while the third team seemed to struggle, arguing frequently, but eventually coming to a decision. This was confirmed during interviews, where most students reported a positive experience, building off each other's ideas,

“Each one would give their ideas, and we would discuss them: if someone disagreed, we'd change the idea so that everyone could support it. For example, Ahed gave an idea, and in the beginning, I didn't like it, but in the end, we got to a decision everyone liked.”

-- Tamara, 14

They attributed this success to being able to choose their teammates, and to everyone in their team being interested in the project and working hard, as one girl put it,

“Often in other projects, some students aren't able to handle responsibility. In this project everyone was interested, they wanted to do everything and give their ideas.”

– Fatima, 14

Some students had not done much teamwork, like Miriam, for whom the project was something of a revelation,

“I always thought that working individually was much better. But through this project I could see that working in a team can also be productive. Now I know how to work in a team and accept their ideas”

– Miriam, 14

However, one student reported having difficulties,

“My teammates in this project didn't really understand me. I had a good idea, but the team didn't always accept it... then I wouldn't say anything anymore. Sometimes I wouldn't say anything because I was worried about their reactions.”

– Khulud, 14

Her teammates acknowledged the issue, but still felt that they had a good experience and learned from it. For example, I had this exchange with Hiba,

Hiba: I liked the idea of working in teams. Each girl had an “added value”, all the ideas put together were better than the individual. The final product was more creative because of all those contributions

Me: What about Khulud, were there any difficulties there? I saw you had arguments sometimes...

Hiba: Yes, it was problem. She would often judge the idea before listening.

Me: How did you deal with that? Did you just explain it and it got better?

Hiba: No (laughs). Me: ... but you agreed on something... how?

Hiba: We would try and find ways to convince each other of the ideas. And I would let go of the superficial things, that were not very important.

-- Hiba, 14, the same strategy was described by Sidra, another student in her group

The ability to say what they think and group dynamics were linked in this project: two students reported feeling less comfortable expressing themselves than they usually are in the classroom, cited difficulties within their group as a main obstacle and they were both in the team that had more problems.

### **5.3 WHAT KINDS OF SKILLS CAN THEY LEARN FROM IT?**

*Participants felt they “expanded their imagination”, gained familiarity with the design process, and improved their presentation skills*

During the project, the students were able to learn a number of new skills. Some of them were mentioned in the speeches they prepared for their presentation at the Hebrew University, like the concept of scale, a basic understanding of topography, and how to make a scale model. Other girls mentioned learning notions about architecture and aquaponics, scale and measurements, and "how to express ideas" as important things they learned during both projects. One of the students summarized it in her presentation,

“We learned many things, for example, how to design, and how to find the needs of future students. We learned how to look at the needs of society and how to challenge the reality in which we live. We learned a creative way of thinking.”

-- Miriam, 14

For me, their progress was very clear. During the second project, the Make Jerusalem Competition, when they were developing the design, they confidently and fluidly eased into “design mode”, making sketches and building on each other’s ideas. On one occasion, a student showed an idea she found online, she wanted us to make something similar. When I asked her how we could make it, she said she did not know. I told her she had to tell us how to make it if we were going to use it. She said, “I can’t find it on the internet... well, can I imagine it?” I told her she could, and she proceeded to start sketching. On another occasion, two students asked to use the board early in a session and proceeded to draw an elaborate sketch, with explanatory notes, while the other girls made comments and suggestions.

I was curious to see if the link between the two experiences was as obvious to them as it was to me, and if they felt that what they learned in the first project had helped them in the second. Most girls thought it had, especially as a process,

“I had learned how to design things according to the needs. We learned how to make drawings, think about dimensions. It was little different though.”



-- Khulud, 14

"I think designing really helped me, knowing how to design in the second project, had more ideas... we knew then that expressing your ideas is really important."

-- Sidra, 14

She and the five other students who named "design" as one of the skills they learned thought it might be useful in the future. One girl, who had no intention of pursuing a design profession, reasoned,

"Intellectually, it's just good to know. Also, if there is a similar project (like in the competition) in the future, we are already prepared and have something to contribute. maybe I don't have to design a building, I can just use it to change my home from the inside."

-- Fatima, 14

The ability to make scale models and to think creatively were mentioned as skills that helped them in the second project,

"[The second project] was easier, because we had already expanded our imagination. We *knew about how to make things in a smaller scale to build bigger*. It helped me understand the tools we could use. I don't think we would be able to do the second project well if we hadn't done the first one! I think the scale model influenced me the most, working with the models helped to understand what we could make with the materials or not."

- Miriam, 14, similar sentiment expressed by Tahani.

For some of the students the experience of presenting at the university was significant,

"I learned how to prepare and present, and not to be nervous. It was good."

-- Amina, 14, similar sentiment expressed by Sidra

## **5.4 WHAT OTHER KINDS OF BENEFITS WERE THERE? WHICH ONES DID YOUTH THEMSELVES THINK WERE IMPORTANT?**

### **5.4.1 CAREER AWARENESS: WHAT DO ARCHITECTS, URBAN PLANNERS, ENGINEERS, AND DESIGNERS DO?**

This section focuses on what other kinds of benefits and skills can youth gain from BEE projects such as this one – focusing on architecture and design, and using an authentic design problem that is close to their own reality? Which ones do youth feel is important for them?

Some participants already had an interest in architecture and they placed particular importance on the opportunity of understanding of architects actually do, and to learn whether or not they enjoy it or feel they are suited for it. For six students the project increased their interest in the field of architecture, like for Miriam,

Miriam: I think that maybe I want to study architecture. Now I understand the differences between the different types of engineering and it opened my eyes to the field of architecture.

Me: In any particular way?

Miriam: Yes, we learned about Zaha Hadid [a famous female Iraqi architect], about the on the ground situation in East Jerusalem, how the municipality deals with Palestinians. I didn't know how much work it was just to design a building, let alone build it!

The experiences also increased Zahra's inclination to pursue a career in an engineering or design field,

"I want to be an engineer or an architect, and do things like the [the competition project]. Before, I wanted to be a doctor or a teacher, but now I think that's boring."

One girl decided to rule out architecture or urban planning as a career path, despite having a positive experience, and wants to be a doctor instead. The female Palestinian urban planner who was a guest speaker in one session had explained what it was like to practice her profession in East Jerusalem, and this helped her make her decision,

"I don't think I will have the same freedom to create as we did during the project, because of the political constraints here... I don't think I would be happy."

-- Hiba, 14

For others, it become a solid back up plan, just behind their first option of becoming a doctor,

"I think I want to be a doctor, but after this project I think about architecture or engineering as an option, if the doctor option doesn't work... it depends on my grades."

-- Khulud, 14, similar sentiment expressed by Ruba and Sidra

One student had joined out of curiosity, but had no interest in pursuing a career in architecture,

Fatima: My aunt is an architect, and I wanted to know more about what she does, how do you design and make things. I also just like trying new things and be a part of new projects Before I thought architecture was just drawing something to be built, but now I know there is much more to think about, like topography and measurements.

Me: Is this important to you?

Fatima: Yes, intellectually, it's just good to know.

Three students who had no interest in becoming architects had in order to improve their English, but found the project enjoyable and thought that learning about architecture and the built environment had intrinsic value, as I explain in the next subsection.

#### **5.4.2 SPARKS: ENJOYMENT, MOTIVATION, AND THE WONDER OF MAKING THINGS WITH THEIR HANDS**

Throughout the project, students were very engaged, actively participating and contributing with their own ideas. My impression was that some girls enjoyed the project because they found the topic interesting, but for others, it was the other way around. I confess that I let their excitement guide the project: boring activities were quickly dropped in favor of things that made them more interested. They said enthusiastically that they enjoyed the project and would recommend it to other students,

"It was amazing, I loved it so much. I loved making models and making something so big, I felt I really achieved something. And I loved presenting at the university, people there were really happy to see the project and hear us speak."

-- Tahani, 14

"It was a new adventure! A new experience... I'll remember everything, the teamwork, the things you taught us. It was very nice."

-- Ruba, 14

"[I liked it] because it was different from classes: there were no exams and we didn't have to write down the lessons, only learn it in our heads. In other projects I was in, it was not so interesting!"

-- Zahra, 14

"[I liked doing] something that wasn't just theoretical, books and stuff, there was a practical side to it. I liked that we did the scale models, that we went from drawing to making things. I liked getting to try out what architects do."

-- Fatima, 14

But perhaps the most conclusive evidence of their enjoyment is the fact that they kept attending sessions until the very end: they were under no obligation to do so, especially when the project ran two months longer than expected. Initially, four out of sixteen participants dropped out in the first six weeks, but the remaining twelve continue to show up week after week. One girl explained how this was not typical for her, as she often chose not to participate in many extra-curricular activities,

Ruba: The bad thing was having to stay in school so much (laughs) after class...

Me: But you came anyway! Why?

Ruba: Yes, because I was interested, but I was tired from school.

Me: Do you participate in other after-school activities?

Ruba: Sometimes I come to school to study or to work on projects, but no other activities. The project didn't take so much time. The girls who are in many school projects have no time because they have to come and they also have to work at home for it, but in this project, it was just showing up, with practical sessions.

When asked about their favorite parts, the design process and the tactile aspects of both projects were strongly appreciated, with seven girls naming *creating and making something* as their favorite experience,

"I enjoyed towards the end of the project... when we were drawing and making prototypes, we could see our designs and touch what we made. "

-- Salwa, 14

"When we built the model, it was fun to put the pieces together. Many times, we did it wrong, so we had to take it out and do it again (laughs)."

-- Ruba, 14

But this was not only a fun aspect: it gave them skills that served in turn to make them more interested in making things, increasing their learning,

"I now can build models for the things I draw, make them more real. It makes me motivated to see what I designed and afterwards you can start thinking about building things on the ground."

-- Khulud, 14

And felt that it would be worth it to embark on a similar experience,

"If time went back, and I had to choose it again, I would do the project. I have no regrets, just the opposite."

-- Hiba, 14, sentiment echoed repeatedly by all

### 5.4.3 RELATIONSHIPS AND LANGUAGE: THE FOREIGNER IN THE ROOM AND THE BILINGUAL SESSIONS

Due to *special circumstances*, namely that I was the one conducting the project and had only very basic Arabic, language was an important aspect. Through colleagues and volunteers, I had assistance from an Arabic speaking facilitator in roughly half of the sessions. The other half were conducted with some flashcards, a little google translate, help from the most proficient students, and a lot of laughter. Their interest in the project and curiosity towards me – the wish to simply communicate – encouraged them to speak more and more, and by the end their improvement was clear.

When we begin the second project, six months after the first one, we were able to work completely in English without many issues. This did not mean everyone was fluent: some still had difficulties understanding and expressing themselves. But we had gotten into a rhythm, and they knew when to help each other and when a drawing would suffice. Interestingly, none of the students mentioned language as a negative aspect, instead seeing it as a challenge they were able to overcome, and were surprised to see that they could,

"I thought it would be impossible to work in a foreign language, but it was ok in the end. I was surprised that I could talk to you, to know that I could do it. I need to practice, it encouraged me to practice more my English."

-- Sidra, similar statements given by six other students.

In fact, five of the students mentioned improving their English as a major reason for joining the project. For one student, being able to communicate in English was a particular source of pride,

"I was very nervous, presenting in front of an audience, in English. After the presentation, one of the guests asked me questions in English, and I had to answer. I felt good about being able to communicate in English, and felt very happy at the end of the day."

– Hiba, 14

Some students mentioned how they were pleased to work a foreigner and the relationship we built. They also mentioned how the less hierarchical relationship we had helped them feel relaxed and more motivated,

"It was the first time someone, a foreign student like you, had come to our school and try to ask us about our needs. It was hard for us to think about what we wanted, what we wanted to do, it was an opportunity but also a challenge."

-- Tamara, 14, similar sentiment expressed by Ruba

"I really enjoyed working with you. I had this experience in working in a foreign language. It was also very nice the way we worked together, how it was more of a friendship, not like other teachers, you didn't give orders."

-- Miriam, 14, echoed by Sidra

### **5.5 DOES IT AFFECT THEIR BELIEF OF BEING ABLE TO CREATE CHANGE IN THEIR OWN COMMUNITY? DOES IT MAKE THEM MORE MOTIVATED TO PARTICIPATE IN INITIATIVES TO DO SO?**

*They felt more motivated to engage in initiatives to promote changes in the physical environment in their neighborhoods*

Most of the students named physical aspects they would like to change in their environment, such as the design of the schools, the lack of green spaces and the characters of the streets. Some had strategies for how they would bring about this change, for example,

"I could become an activist, demanding from authorities our rights, the things we need in our neighborhood."

-- Hiba, 14

Like her, four other students believed activism was the path they would choose, while three students cited joining community projects, and one student said the way she would change things would be by becoming an architect herself. For two students the path was less clear, like for Fatima, who did not know how she would help bring about the change she desired in her neighborhood's schools, but nevertheless felt that the project helped her believe that she could,

"The ideas came from the students and it was good that they got to think about improving the school and to do something for their country. We began to feel that we could improve our society... and not just me, the other students in the school start thinking that too."

-- Fatima, 14

Three students said they wanted to change social norms and behavior in their community, like Miriam, who wishes she could change her communities' expectations and limitations on women, regarding their access to education and being allowed to travel on her own, saying,

"I think it starts with me, I will get more educated, understand the situation better and people will listen to me more because I will have a degree."

-- Miriam, 14

Two other girls felt that their experience in the project encouraged them to participate or engage more in organized initiatives to improve the physical aspects of their neighborhood,

“Even before this project, I was part of another one to make a garden in the neighborhood, we don’t have enough of them. But after this project I was more interested in the gardens, I know how important they are, they make you happier and more relaxed!”

-- Zahra, 14

Tamara also wanted to join more community projects and felt that the project made her think more about how you should create change without harming the community,

“It made me think about the houses that is in the area of the school – this made me think about how we should make changes taking care not to hurt anyone.”

-- Tamara, 14

#### **5.6 DOES THE UNCERTAINTY OF WHAT WILL HAPPEN WITH THE OUTCOME (WHETHER THEIR DESIGNS WILL HAVE ANY IMPACT ON THE SCHOOL THAT WILL BE BUILT) INVALIDATE THE EXPERIENCE?**

*No, it does not. A misunderstanding regarding the circumstances of the project misled the students, but they still felt the product was worthwhile. Their disappointment is a reminder that when working with children and youth, it is best to explain multiple times to prevent this problem.*

I was aware from the beginning of the project that it was important not to raise any unrealistic expectations regarding the impact of their designs on the school that will eventually be built on that site. The project had not been commissioned by the municipality, and plans to build the school are not yet underway. The strategy was to make a final public event, in a place where we could invite decision-makers and hope that they would include some of the ideas in the new design.

I sincerely believed I had made this very clear to the students, but somehow it got lost in translation, and I discovered in the group discussion after the final event that most of them believed their ideas would surely be included in the future school. After explaining the situation in more detail, they naturally expressed their disappointment, and I apologized for the confusion. I asked whether they thought that I should not have done the project under these circumstances: for example, if there was an opportunity to do a similar project in another school, with the same uncertainty, should I simply not do it? Would it be too upsetting for the students to be worth it? They were unanimous in saying that I should do it either way, but that I should be certain they understand the details,

“We are sad, but it was good anyway. We learned many things and it was very interesting. But we wish we knew how uncertain it was before.”

-- Fatima, 14

By the time of the individual interviews, most students saw this issue in a more positive light,

“We have to try. Even if they don't use it, it was a good idea to do it, because we learned and it was a good experience.”

-- Khulud, 14

But one still felt disappointed, because for her the most important meaning of the project was to contribute to a better school for her community,

“I was upset, because I thought in the beginning that they would use our ideas for sure. But it's not necessary that everything you design will be built...it was good, we learned from the project, we got to practice English and we also learned a lot about architecture, how to make buildings... and to be able to think about being architects in the future.”

-- Tamara, 14



## 6. DISCUSSION

### 6.1 BUILT ENVIRONMENT AWARENESS AND CAPACITY OF ANALYSIS

Some of my findings were similar to those presented in the literature review. I found an increase in their BE awareness, both at the building *and* neighborhood level, and a better understanding of the relationship between the built and natural environment – or as they described it, understanding the importance of green areas. These last two were somewhat surprising, as they were not part of the main project objectives and were not strongly featured in the program. It seems the brief, but very relevant, session we had with a local urban planner had an important impact. The lesson on the importance of green areas was not a part of the program, but rather was built collectively the process of thinking of the needs and possible solutions for the new school. It is possible that they found this change in their perception so relevant because their current school, their neighborhood, and East Jerusalem in general, suffer from a lack of green urban spaces that are accessible to them.

Throughout my conversations and interviews with the girls, I did not find any evidence that their sense of place had been strengthened. This is likely because the places we were exploring – their own school, and to a much lesser extent, neighborhood – were already places that had strong meaning for them. Instead, what I found is that they begin to have a more critical way of seeing these places. It is not that they believe those places are all bad (although some did say they now “think it’s so ugly”) but that they can see that they are not completely adequate for the activities they are meant to hold. The fact that they included most of these problems in the things they would like to change leads me to believe they are seeing these issues with a propositive outlook, and not just negative, pessimist outlook. This effect could have been stronger with project with more concrete results on the built environment, but these require the kind of budget and political will that this particular project did not have. It would be interesting to compare with the effects on participants of projects that did have concrete outcomes.

### 6.2 PERSONAL DEVELOPMENT: SELF-CONFIDENCE AND TEAMWORK SKILLS

One of the project goals was to support their personal development by helping them increase their self-confidence. However, half of the girls reported already being confident to begin with, stating that they always felt comfortable expressing their opinion, in class or in other projects. I attribute this to their school, which despite having inadequate facilities in some aspects, is ran by a very committed headmistress and staff. Some of the others benefitted from the looser structure and more relaxed atmosphere of the sessions, when compared to a classroom: they could come and go as they pleased, talk freely, and put on music to draw, for example. Their confidence was also affected by the feelings of accomplishment in both the Architecture by Girls project and the competition.

In the Architecture by Girls project, creating a beautiful design, making scale models, preparing a presentation and delivering it in a foreign language to an audience of strangers were all things that made the students very proud. As seen in their words, this gave them a sense of being able to accomplish anything they set their minds to. This was definitely reinforced during the second project, when they were able to make a design in a short time and win the competition, despite not having as many advantages as the other groups. Some students had also expressed their awareness of how they do not get the same type of programs and resources as their peers in West Jerusalem, which must have an effect in how far they believe they can get in life. These experiences may help to counter these beliefs.

Most of them had a positive experience of teamwork, where they valued each other's input, and felt that all members of the group pulled their weight. This effect is found in the literature, but it is not limited to BEE or design education and can be found in most project-based learning initiatives. Although design education lends itself particularly *well* for this kind of practice, as participants have to look for creative solutions collaboratively: they *need* to agree on an idea, otherwise nothing gets done. One group had more difficulties, and this affected negatively two team members, who were more afraid to give their opinions and ideas. They were burdened by a student who had trouble valuing the ideas of others. Perhaps if I had caught on to this sooner, I could have helped them work this out more productively. But even learning to work with a difficult person is a part of learning to work in groups, and the other students in her group acknowledged this.

### **6.3 SKILLS**

Looking at the skills they gained from the project, three stood out: increased creativity, or "expanding the imagination", familiarity with the design process and improved presentation skills. Their progress was particularly evident when they were designing for the competition, using the skills they had learned in the first project. These were found in the literature in design education initiatives, whether or not they concern architectural projects. As "design thinking" becomes more popular and the need for "21<sup>st</sup> century skills" make themselves necessary, such initiatives become even more relevant. School curriculums are slow to catch up. After school project can help close this gap. To a certain extent, the girls' performance in the competition supports this argument.

### **6.4 BENEFITS PARTICIPANTS VALUED**

#### **6.4.1 CAREER AWARENESS**

Most of the studies glossed over the importance of career awareness, possibly to avoid giving the impression that the primary point of such projects is to recruit more architects. I did not worry about this much: the girls are from a community underrepresented in the profession, and as Palestinian women, in the labor force in general. With the exception of two students who had adult relatives who were architects, most of the them had very little

knowledge of what architects actually do, or understood the difference between architects, engineers, or urban planners. Their statements showed that they valued this knowledge and that the opportunity to try out some of the activities relating to these professions allowed them to rule out or include them in their list of possibilities. Additionally, most of their fathers work in blue-collar jobs, and most of the women they interact with are either stay-at-home mothers or teachers. Therefore, it is likely it would be hard for them to envision other kinds of careers without role models. Although I believe this had a positive effect, none of their statements indicated they were aware of it. Perhaps if interviewed in a few years, when they have begun to make career choices, they would be able to look back and say how it influenced them.

#### **6.4.2 IT HAD TO BE FUN, INTERESTING, AND MEANINGFUL**

Activities needed to be enjoyable – this was the main strategy to decrease the chances of losing participants in such a long voluntary project. In the interviews, some girls confessed to being initially concerned with how much longer the project would make them stay in school grounds, but that worry faded as they begin to have fun. I found that the more they enjoyed it, the more they were willing to work hard and rise to the challenges they were facing. Most of the cases reported in the literature do find that most children and youth enjoy the hands-on aspect of these projects, as well as how the themes explored relate to their daily lives (Sutton 1996). This is consistent with what is known of how children and youth become engaged (Dawes and Larson, 2017). They may join a program for other reasons or outside pressure, but may become engaged as they form a personal connection through learning for the future (when they see a link between skills they are learning and their future goals), developing a sense of competence (by doing well and having that recognized by others), and pursuing a purpose (an intention to accomplish something that is meaningful for them and benefits others). Additionally, there is intrinsic value to increasing their well-being, which is thought to play an important role for youth development (Park, 2004).

#### **6.4.3 RELATIONSHIPS AND LANGUAGE**

Working in a foreign language might have made the project very difficult, and students might get discouraged. However, when asked about this, most saw it as a challenge they were happy to overcome. Having a second facilitator in half of the sessions certainly helped to reduce the communication gap, and the fun activities kept them coming back each week. But I suspect most of their improvement in English stemmed from their wish to communicate *with me, from the relationship we built*. I am not immune to bias in discussing this particular topic, but most of the students made statements to that effect, did outside observers, such as school staff and guests who attended a few of the sessions. This line of reasoning is backed up by the youth development literature, where Rhodes (2004) argues that creating relationships with caring adults, who are not under the same obligations

as schoolteachers, is an essential component for positive youth development. This happens because these adults as they help develop youth's social skills, improve their emotional well-being and serve as role models.

## **6.5 ENCOURAGEMENT TO PARTICIPATE IN INITIATIVES CONCERNING THE BE**

The most relevant aspect of the findings are the answers to the question of whether they wanted to change anything in their own community, neighborhood, or school. Two thirds of the girls named physical aspects in their school and neighborhood they would like to change, having gained an understanding of *how buildings and spaces could be shaped differently*. Most of them had some sort of plan to make it happen, whether it would be by participating in community projects, becoming an activist, "giving architects ideas" or becoming built environment professionals themselves. Surprisingly, this effect is mostly absent in the empirical studies, despite often being theorized as one of the key justifications for BEE. Uttke's review (2012) mentions a project that made participants more interested in politics by reading local news, and Million and Heinrich (2014) describe a project where participants felt that BEE helped prepare them for participation – but neither articles mentions youth believing BEE motivated them to participate.

Our findings indicate that the project helped them see concrete ways that their neighborhood could be improved, and many stated their intent to create change either by participating in community projects, doing other kinds of activism, or becoming built environment professionals themselves. Two girls already participated in neighborhood improvement projects, and stated that this experience made them feel more engaged in it. I cannot rule out a self-selection bias, meaning that the students who joined might have been the ones who already planned to work for community change anyway. Either way, the project made them more equipped to participate effectively.

However, if the intent is to increase youth participation in neighborhood planning and design, BEE are only part of the solution. It is also necessary to create opportunities that are inviting and accessible to youth to participate. What should that look like in occupied East Jerusalem? That is a good question for activists and scholars to explore in further projects and research. But a study by Barnett and Brennan (2006) in a different context has found that capacity-building and opportunities for youth to present new ideas are both predictors of youth involvement in community development efforts.

There are external limitations in their abilities and opportunities to participate, imposed by the conflict. Very succinctly, they are created both through the Israeli policies implemented in East Jerusalem (low budget allocation, housing demolitions, constructions of more Jewish homes, their lack of Israeli citizenship and need to constantly renew their permit to remain in the city, to name a few) and through the anti-normalization stance, widespread among Palestinian residents of Jerusalem (as a form of protest to the aforementioned policies and as a refusal to legitimize Israeli authority over the Eastern portion of the city). The first group of measures aims to keep East Jerusalem neighborhood in poor conditions, so that more residents will leave the city, and the Jewish majority will be achieved (Margalit, 2014). Meanwhile, the latter group of limitations pressures East Jerusalemites

to not engage with the Israeli municipality in ways that could be construed as legitimizing their authority, therefore normalizing the occupation. This reasoning may or may not include participating in city planning and design, depending on who you ask, as people tend to draw their limits differently.

Additionally, there are internal cultural tensions that might hinder their participation or reduce its impact. As noted by Acer (2016) in the Turkish study case, societies that are traditionally more hierarchical will have a harder time listening to children and youth, and in particular to girls. If these had been a real participatory project, it is likely these issues would have been brought to the surface. I am unsure about the extent to which this would have been an issue. When I was doing the project, everyone I met in East Jerusalem – including community leaders – expressed enthusiastic support. But this could have been, as was suggested by my Palestinian colleagues, because the project focused primarily on education. Again, more research on other experiences is needed.

## **6.6 DOES NOT BUILDING IT MATTER?**

My last question was whether the uncertainty of the outcome invalidated the positive effects, was answered more thoroughly than I had expected it to be. I had initially hypothesized that as long as everyone was properly informed, the positive effects will hold. But I failed at this important task. Seeing their disappointment was heartbreaking, but the way they talked about it in the interviews indicate that no lasting harm has been done. In hindsight, I should have explained more times when I had an interpreter, and asked them to explain it back to me. I conclude that it is not unethical to have youth or children participate in projects that might not be built, but people should be clearly informed. When this concerns children or other vulnerable groups, special attention should be given to make sure they *really* understand and that no one feels tricked into participating.

## **7. CONCLUSION**

This thesis focused on the effects of a built environment education project named “Architecture by Girls”. I am a Brazilian international student, and I had conducted this project as the internship component of the Glocal MA Program, at the Hebrew University of Jerusalem. Between October 2017 and March 2018, I met weekly with a group of twelve teenage girls from East Jerusalem, all aged fourteen. Throughout that time, they learned architectural concepts, identified their own needs, and developed designs for a new high school for girls in their neighborhood. At the end, they proudly presented their work at the Hebrew University to a group of guests. The project was based on a real design problem, on a site that is destined for the construction of a new high school for girls. However, despite our efforts, the likelihood that the Jerusalem Municipality will incorporate some of their ideas into the new school’s design remains low.

Initially, I believed that I was doing participatory architecture, but I later realized the notion of Built Environment Education (BEE) was a better fit, both conceptually and in terms of the effects I was observing. In the second

section of this thesis, I reviewed the literature on BEE, both the theoretical arguments and empirical studies that examined whether these effects took place in reality. Six main effects had been theorized and mostly confirmed by empirical studies:

1. Increase their BE awareness and capacity of analysis, giving them an understanding of the relationship between the built and natural environment;
2. Increase their self-confidence and ability to work in teams;
3. Increase their creativity and problem-solving skills;
4. Integrate knowledge, increase pupil motivation, and reach more learning types;
5. Awaken an interest in the BE and give an understanding of BE professions, while giving contact with BE professionals as role models;
6. Instill a sense of responsibility, encourage and prepare them to participate in initiatives that concern the BE;

The last effect was the most understudied, and none of the publications I found focused on whether BEE led to more youth participation, despite most of the projects they described being done in contexts where more possibilities for participation are open to children and youth.

I was both the project facilitator and researcher, and research methodology initially included a questionnaire and a group discussion, but these did not give enough data and some of it seemed contradictory. In order to remedy this, I conducted semi-structured individual interviews with the presence of an interpreter. Findings are similar to what had been recorded in the literature, with a few key differences:

- Some of the things the girls valued were considered of lesser consequence in the literature: their enjoyment and interest in project activities (and how the enjoyment increased interest and vice-versa), having gained a better understanding of careers in the BE (and an opportunity to try and see if they were any good at it), and the relationship they developed with the facilitator (who was a foreigner and a BE professional). These elements are often mentioned in the youth development literature as fundamental to a program's success (Benson and Scales, 2009; Rhodes, 2004) and on understanding of the psychological processes of how youth become engaged (Dawes and Larson 2011).
- Did it matter that it might not be built? Some. The uncertainty of what we were doing got lost in translation somewhere, and some of the students finished the project under the impression that their ideas would definitely be included. Once they learned the truth, they were understandably disappointed, but still believed the experience to have been worthwhile, answering the question of whether I should do another project if it is under similar circumstances with a definite yes.

- Most of them cited specific things they would like to change in their neighborhood and had concrete plans to help that change happen, either through participation in neighborhood improvement projects (two girls), some type of activism (six girls) or by becoming built environment professionals themselves (three girls, but overlapping with the other two groups).

These findings support the argument that BEE initiatives can be an effective way to prepare encourage youth to participate in the BE production. If more participation is the goal, BEE programs need to be combined with more opportunities and forums for youth participation. More research needs to be done to see if youth in other contexts experience the same effect. I wonder, for example, if this effect is more pronounced in places where there is more obvious need for improvements in the BE.

This study had a small number of participants and results are not generalizable. The group was not typical, even for girls from Abu Tor, as they had been selected among the top students in their class. Results could be different with other profiles of youth, in other locations, with different age groups, or with boys. I imagine that differences would likely appear in what aspects participants value most, and whether the project makes them more motivated to participate in initiatives to change their neighborhood.

In the East Jerusalem context, where opportunities for participation and effective neighborhood improvements are limited by the occupation, it would be interesting to examine if they manage to effectively act for neighborhood change or, if instead, they get discouraged over time. It would be interesting to look at the short- and long-term effects of other BEE initiatives in East Jerusalem. Perhaps it would be possible to compose a picture of long-term impacts for former participants, and whether they went on to promote change in their communities. An interesting question to explore is what elements are needed in a BEE program for it to encourage more participation.

Furthermore, I wonder what kinds of impacts this type of empowerment process can have within the context of East Jerusalem. Undoubtedly, there are inherent benefits to improving the quality of the BE in their neighborhood, and to enhancing children's and youth's sense of belonging. But it is harder to imagine that this sense of belonging could be extended to the rest of the city, as long as the conflict lasts. What are the limits of children and youth participation strategies? Research on this topic, allied with attempts to identify strategies of what could be done, would be of great value for those working in the field.

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**APPENDIX A— ARCHITECTURE BY GIRLS ENGLISH BOOKLET**

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# Architecture by Girls:

Designing a School in East  
Jerusalem With Students



# Architecture by Girls

This exhibition is the result of a series of workshops over a course of four months with a group of 12 fourteen-year-old students from the Al-thori Preparatory School for Girls. The goal was to introduce students to the world of architecture through a hands-on design experience, giving them an opportunity to learn and to express themselves through the design of a new high school for their neighborhood.

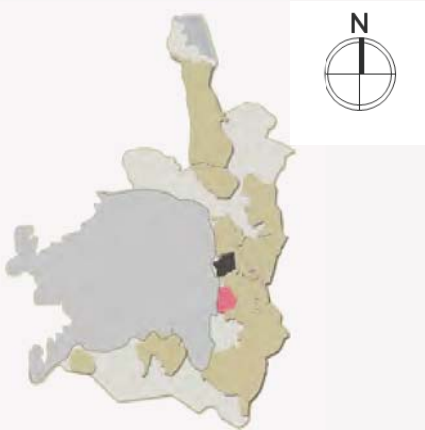
The first part of the exhibition focuses on the process and activities that took place between October 2017 and February 2018. The second part focuses on the outcomes: a series of ideas and wishes, in order of priority voted by the students, and three design proposals, developed in teams of four with the help of project facilitators.

Initially, the idea was to develop a design that reflected the needs of the students. But as the conversations went on, the pedagogical aspect became more important: architecture is not often taught as part of the school curriculum. This exercise is by nature interdisciplinary, applying skills from the arts, sciences, geometry, geography... As an open-ended process with no right answer, it forces participants to search for solutions and think creatively.

We started by introducing the students to essential concepts, increasing their awareness about the built environment. We took the time to explain what each profession does: architecture, urban planning, civil engineering. But the vast majority of the sessions were not lectures, but centered around practical activities, because the only way to know if you like to design is by trying it out.

**Luisa Venancio,**  
**Project Coordinator**

# Context and Site



Abu Tor (Al-thori) is a neighborhood in East Jerusalem located south of the Old City and Southwest of Silwan. It has a dense, urban fabric, and suffers from infrastructure problems. The neighborhood has no public high school for girls, a demand that goes unmet.

There is a site zoned for public use and destined for a high school for girls, but this project is independent of official plans and future construction of the school. Our hope, is that by showing girls' ideas and wishes we can inspire those responsible for making decisions.

Despite freedom from some of the real-world constraints, there were still challenges. The site is difficult: it has an unusual shape, a steep slope and some built elements on it: a road and a house, where a family has lived for many years. As of this moment, it is the subject of a court case and its future is unknown.

As in much of East Jerusalem, housing demolitions is an important and difficult issue for the residents of Abu Tor (Al-thori). In early sessions, it became clear that it was also important for our students. Therefore, for this project's purpose, we decided to draw a line around the area of the house and consider it as "not part of the site" making each design around it.

# Introduction to Architecture



Early sessions were meant to introduce key concepts, always through activities and games that relate to their daily lives.



At first, students were invited to think about a place, and a reason for why they like it. Places like “school” “my aunt’s home” “the mall” came up, with reasons like “it’s big and beautiful” or “it’s quiet and calm” or “my friends are there”. Then we could see what architecture is about: how spaces are created, but also how they make you feel and how they are used.



The following week, with printed plans of the buildings, the students gave a tour of their school, marking each space on the plans at hand. This was to help understand how a building is translated into a plan, and vice-versa, as well as see the different activities and uses that a school contains, beyond classrooms and courtyards.

In another session, they visited the site with the architect, in order to see the place where the future school would be built. They had with them a printout of the satellite image of the site, and a short explanation about topography and contours was given in advance.





# Unleashing the Imagination

The next step was to develop ideas and unleash the imagination. This was done through different exercises in five sessions. Activities included:

- Thinking about and asking their teachers three questions: what do we like about our current school? What don't we like? What can we do better in a new one? We put those ideas on a whiteboard and it became the base for future sessions.
- Internet research: students were given websites to do internet research of designs of schools in other countries.
- Drawings, talking about drawings, then drawing some more.

## The Best Courtyard in the World

In two groups, students drew their best version of a future courtyard: including plenty of trees, comfortable seating areas sports areas, a cafeteria, and a fountain.



# Brainstorming Session

With all drawings and references spread on a large table. The girls were given small pieces of paper and one mission: to have as many ideas as possible, around the themes that still were missing. We started with the list of quality-feelings from session one, such as “happy and fun”, “comfortable and relaxing”, “culture and heritage”, and “interaction with friends”. We also thought of spaces that had been explored in drawings: classrooms, the library, some outside spaces and inside common areas.

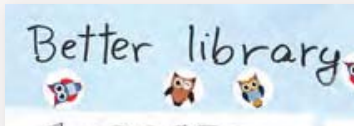


# Choosing Priorities

With enough ideas in hand it was time to prioritize: what was really important to the students? What mattered most? Ideas were organized into categories, and each student got a number of stickers (4 or 6) and could distribute them among the ideas in any way they wanted.

# Other schools have this, mine does not and I wish it did...

Because the school where they study now is in a rented building, it lacks many spaces that are usually built in new schools.



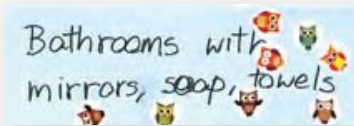
15% A bigger library, with comfortable reading areas.



15% Science labs



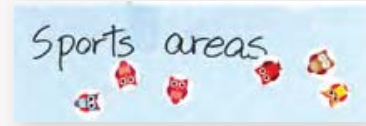
15% Better nurse's room for sick students



13% Mirrors in all bathrooms



12% A bigger computer lab



10% Sports Facilities



10% A bigger art room



12% A cafeteria for the students

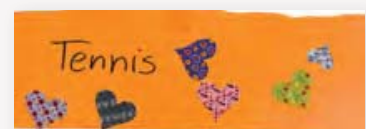
## These are the sports I would like to play...



23% Swimming



18% Yoga



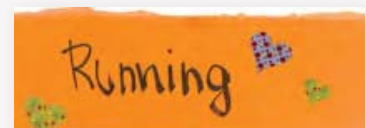
15% Tennis



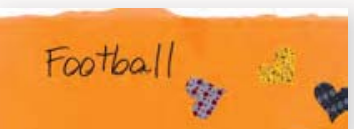
13% Basketball



10% Dance



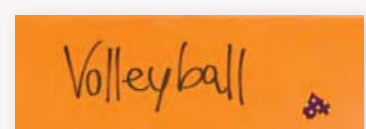
8% Running



8% Football



5% Table Tennis



3% Volleyball

# My school will be special in these ways...

## With these spaces inside...



33% Lockers for students



21% Comfortable inside sitting areas



18% Classrooms with round sitting, so "all students can hear the teacher and have the confidence to participate".



13% A room for birthday parties



10% A room for music lessons



3% A room for traditional meals



3% A room for traditional dances

## With these spaces outside...



25% Trees with nice sitting areas



25% A bicycle lane for students to enjoy during breaks.



23% Fun areas to sit in the grass



13% A water fountain



10% A covered open area to protect from sun and rain



3% A garden for students to plant

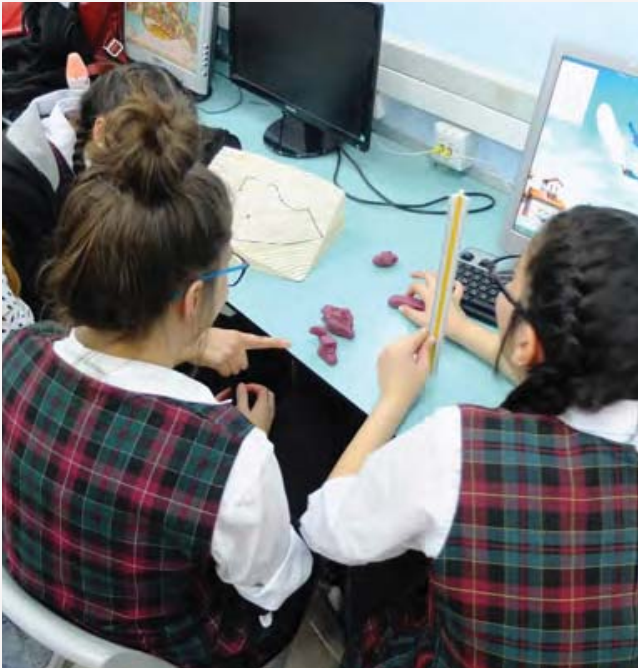


3% A fish tank for students to feed the fish

# Design Phase

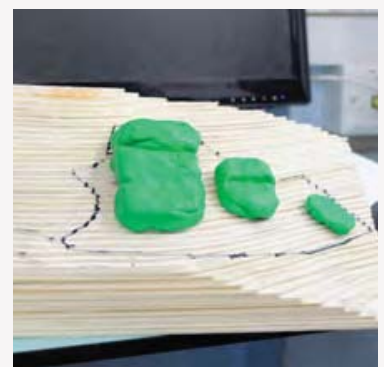
The beginning of the design phase was done with the introduction to volume.

The students used modeling clay on a cardboard base to explore the possibilities of how their building could be, each group with a different idea.



In a later session, they made a first attempt at zoning the areas where main elements should be on the site: main building(s), courtyard, access for cars and pedestrians, and a parking lot.

Then, each group worked under guidance to develop their initial thoughts into a concept, with a site plan and schematic sections.



# Scale Model

Through a partnership with the PICO kids at the Maker's Lab in the Hansen House, the students were introduced to 3D printing and laser-cutting technology.

On a field trip, the students had the chance to try some of the machines. They designed small items for themselves, pendants and keychains, and watched as they were made.

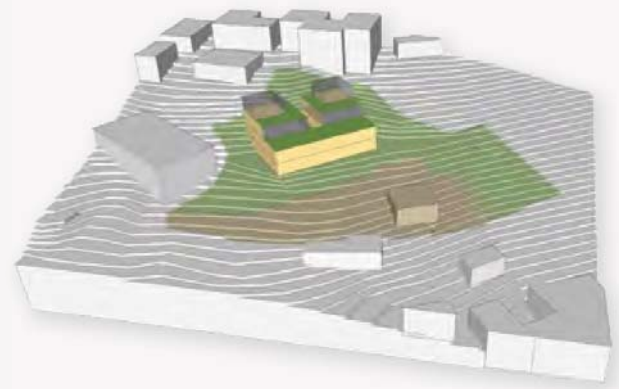
The same technology was used to make the site model and the pieces of each building designed by each groups. The students then assembled each building and placed greenery in the courtyards, according to their own designs.



# Terraced School

## Students:

Danya  
Yara  
Sara  
Ghaida

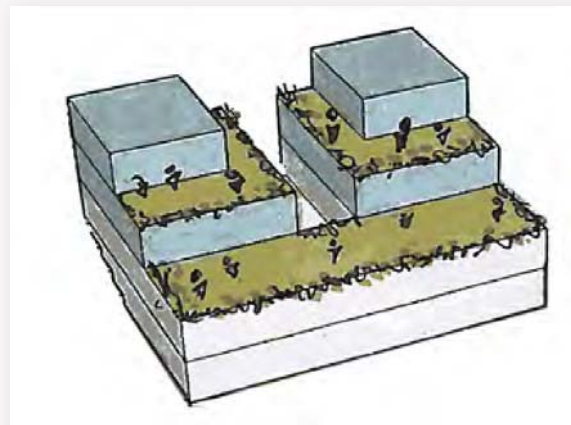
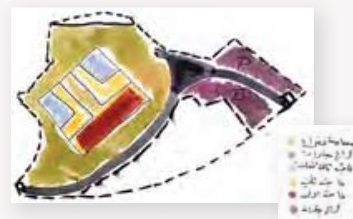
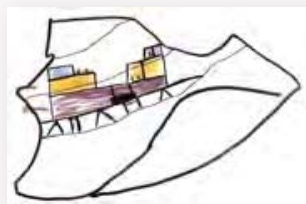


The design's main feature is its terraced gardens, all with a view towards the valley. This concept was developed as response to the steep slope of the site, and to be different from what the other schools look like.

The students in this group chose to design only one building, in order to make it easier to move between spaces.

On the top floors, next to the gardens, there are the labs, the art room, the library, and "all other spaces for extra-curricular and fun activities."

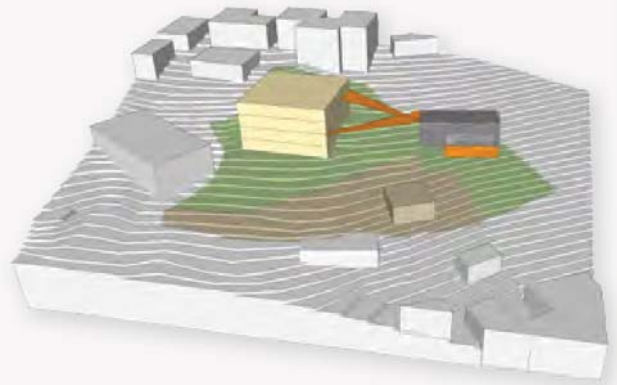
It is very important to the students that the new school has everything they wished for the space where they study now: larger classrooms, a science lab, a beautiful library, and plenty of green areas.



# Young Architects School

## Students:

Malak  
Batoul  
Sundos  
Lama



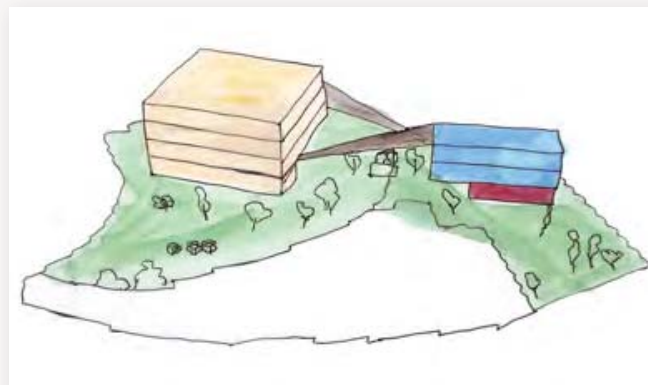
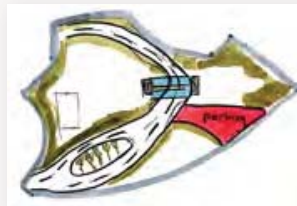
The students in this group wanted their design to “reflect their experience of being an architect during the project.” They chose to divide the spaces in two buildings connected by inclined bridges, for an aesthetic statement.

The main building has typical classrooms and main school activities. The secondary building has a separate access to the public. It contains the library and sports areas. During most of the day, it is part of the school.

Once the bell rings, it can remain open to the neighborhood and serve the community.

Outside, plenty of green areas around the two buildings, to create a relaxing atmosphere.

Below the bridge, there is a fountain and a seating area for students to enjoy.

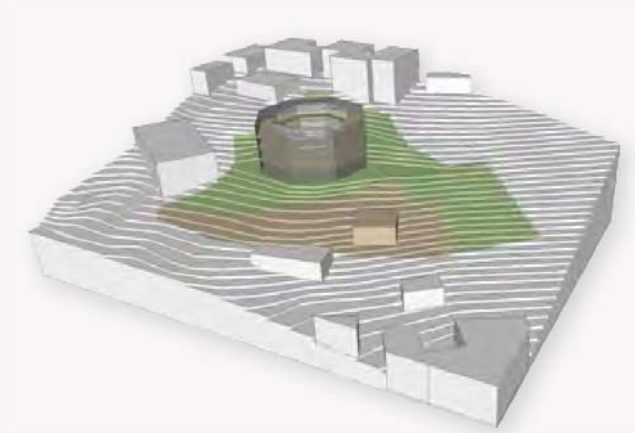




# Courtyard School

## Students:

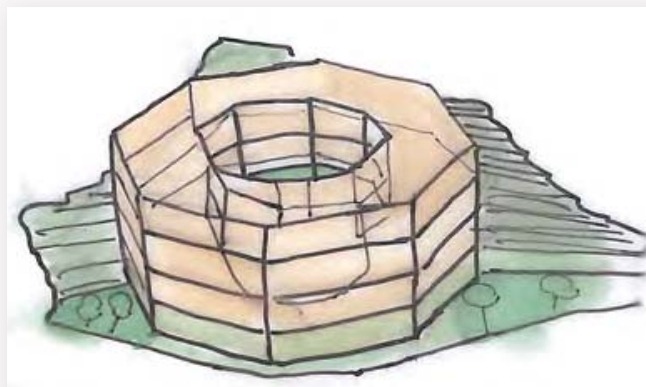
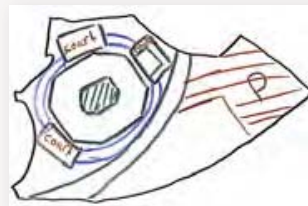
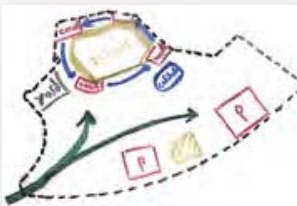
Rahaf  
Hadeel  
Yasmeen  
Marwa



The initial concept was of a central courtyard connected to outer gardens. This proved difficult due to the topography and outline of the site. The concept evolved, with the first floor becoming an extension of the green areas outside. It serves as a link them to the inner garden, and each floor retreats, creating balconies with gardens and allowing plenty of light.

This way, the students can take breaks inside and outside the school building, creating a more comfortable and relaxed atmosphere.

The top floor is meant for labs and other practical activities, where they can “look at the view, put on some music and enjoy it”.



# Team

## **Project Coordinators:**

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## **Team Members:**

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Hiba Shahtoot

Ismael Pharoun

Sireen Alawi

# Supported By



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PICO Makers

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## **APPENDIX B – SEMI-STRUCTURED INTERVIEW GUIDE**

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## Interview Guide

1. Can you tell me how the project was for you? What do you think you will remember from it in a few years? A memory? Something you learned? Something you found out you like or are good at?
2. Can you tell me about what it was like to work with your team to create something? Are you good friends with them? What were the hard parts? The fun parts? Can you give me an example? Did you feel that your opinion mattered? Can you tell me about one time that you gave an idea that you ended up using?
3. How do you feel about saying the things you think? About voicing your thoughts when others disagree? How did you feel about giving your ideas in the project? Can you tell me a story about it?
4. When you think about your neighborhood, your community, what would you want to make better? How would you do that? How do you see your role in improving that? Did the project make you think about that differently in any way? In what way?
5. Can you tell me about something that happened during the project that was hard? Made you sad? Upset? Frustrated?
6. You know that we don't know what will happen with the school. How does that make you feel? Do you think the project was worth it? If I have the opportunity to do it again with another school, without knowing what will happen, do you think I should do it?
7. Did the project make you think about anything you hadn't thought about before? Do you see anything differently from before and after the project? What do you think you have now (experience, skill) that your classmates who didn't do the project don't have?