

Participatory Design with Former Street Children: Benefits to Designers and Users

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Introduction

Nehemiah House in Cebu, Philippines is run by a Christian not-for-profit organization in order to provide housing and education for 61 former street children. UNICEF (2001) defines “children of the street” as those who have a family but have made the streets their home¹. Most children of Nehemiah House are from slums of inadequate living environments, and they often beg or work on the streets as a living. Others reside in Nehemiah House because of physical abuse, abandonment, or the death of parent(s). Still others are sent to Nehemiah House willingly by their parents who cannot financially support their child. At Nehemiah House, these at-risk youth are given the opportunity to go to school and live in a warm, controlled, and safe environment.

In 2006, Nehemiah School of Opportunities, Inc. (NSOi) was opened and registered for elementary education, and then in 2008 expanded to accommodate first and second year high school level children². To foster the potential within the children residing in Nehemiah House, NSOi utilizes alternative teaching strategies tailored to the children’s attention spans, temperament, and vulnerability to gang involvement in public schools. The school also accommodates for the age range of students (8-20) that does not correspond to the grades represented. For example, a 19 year-old in a second grade class.

Despite these aspiring goals, the school facilities are severely deficient. Teachers respond to the lack of classrooms by partitioning the ‘social hall’ with moveable tack-boards to support three classes, and using small rooms neighboring the children’s sleeping quarters. A plot of land adjacent to the residential campus – the “Promised Land” is on hold for the construction of new living quarters so that the old complex can hopefully be completely renovated into a school.

I have volunteered at Nehemiah House every summer since 2005, gaining personal grounded experience with these street children. This research project applies design knowledge beyond awareness of users’ needs with a methodology that proposes designing *with* users. The premise of this honors thesis research is as follows: To investigate the reciprocal benefits to designers and users participating in a highly collaborative research project exploring the design and program for re-imagining their school.

¹ Panter-Brick, 15155.

² No middle school concept in Philippines; elementary school is directly followed by four years of “high school”.

Literature Review

The world we live in today and how it is designed may emphasize accessibility for 99% of the population; however, the fact is that it is designed, run by, and for adults rather than for children. Children may get a playground or a play room in a restaurant next to where their parents are dining, but however common these spaces may be, they are still separate entities that are not integrated and seem like design after-thoughts³. Even playgrounds are “sterile and constricting”⁴: Are they truly for children’s play if children are required to be supervised by adults?

In the Philippines, it is often assumed that children are not only under the authority of parents, but are also “*wala pa sa tamang pag-iisip* – a Filipino phrase indicating children do not have the capacity to make informed decisions and therefore act in an acceptable or right way”⁵. This common value makes it difficult for children to be involved in or influence public, “adult” decision-making processes⁶. Children neither have the means or opportunity to participate in these processes; all the more so for “children who are poor, who live in remote areas and who are differently-abled”⁷.

On the other hand, if the voices of the minority are not heard, the process is not completely including everyone, and can only result in a spiral of silence: a situation where the minority starts off not being able to express its opinion because of the majority group’s power, but ends up choosing not to participate because of fear of rejection by the majority. Thus there is a deep need to design with all minorities in mind, including children. This is necessary to see the differing assumptions children hold for the function of a space, especially for a special population such as street children. It is essential to know that although street children may not be highly educated, they have many practical skills and fine tuned senses from living on the streets.

Matthews and Limb (1999) affirm that “research with children should lead to outcomes which encourage empowerment, participation and self-determination consistent with levels of competence”⁸. Consequently, this research project will incorporate children’s unique perspective using a participatory design process. It will give insight into “the richness and innovative

³ Matthews & Limb, 66.

⁴ Matthews & Limb, 69.

⁵ Protacio-de Castro et al., 106.

⁶ Matthews & Limb, 66.

⁷ Protacio-de Castro, 111.

⁸ Matthews & Limb, 83.

perspectives that can be offered”⁹, and “change the environment to reflect each child more personally” and raise their self-esteem¹⁰.

David Driskell’s (2002) work with youth and children to create better cities is an example of participatory design that puts “children in charge” and encourages “shared decision-making”¹¹. His method forces designers to shift the “lopsided power relationships”¹² between adult and youth, and the rich and poor, and “think creatively about how to support young people’s engagement at every age, and how to offer activities with graduated levels of difficulty”¹³. Driskell’s data collection activities included hanging out, interviews, drawings, daily activity schedules, role play, guided tours, photos, behavior mapping, questionnaires, and focus groups. He emphasized ending the process with a way for youth and designers to reflect upon their experience, and provide a venue to exhibit the children’s work to the larger community.

Methodology

The methodology for data collection is modeled after David Driskell’s (2002) innovative action research with youth in cities. Based on the trust already established between the participants and researcher after continual personal contact over the years, this research process was very transparent. Much like in Driskell’s research, the participants played a key role providing the researcher with the data needed by engaging in different activities. Research methods used for the action research were interviews, focus groups, observations, surveys, and a photo journaling and drawing exercise.

The sample population consisted of a subset of NSOi: 15 girls and 11 boys, ranging from ages 9 to 19, from grades 5, 6, and high school year 1 and 2. This upper-grades subset was recommended by the school headmaster due to their ability to understand instruction clearly and respond (because of proficiency in English).

⁹ Johnson, 4.

¹⁰ Ulrich, 14.

¹¹ Driskell, 41.

¹² Driskell, 91.

¹³ Driskell, 77.

Table 1. Gender distribution.

Gender	#
Female	15
Male	11
	26

Table 2. Age distribution.

Age	#
9~12 (age group 1)	6
13~15 (age group 2)	14
16~19 (age group 3)	6
	26

Table 3. Gender distribution per grade.

Grade level	#	Female	Male
Grade 5	6	5	1
Grade 6	5	3	2
HS Yr 1	7	4	3
HS Yr 2	8	4	4
Totals	26	16	10

The researcher required each student to create a photo journal: they photographed aspects of the existing school environment they liked and disliked (5 photographs of each), and wrote an accompanying sentence to explain why they chose to shoot that image. Another individual activity was to “draw your dream school”. Each class in the high school level participated in a focus group. Facilitated by the researcher, the whole class (7-8 students) collaborated on programmatic requirements for their dream school following Edward De Bono’s Six Thinking Hats strategy¹⁴, and presented their discussion as a simple list or a narrative. A couple of students from each class, chosen by convenience sampling, were interviewed by the researcher about their past school building, how it compares to NSOi, and the one feature they had to have in their dream school. These activities were chosen because they posed open-ended questions to the students, which gave a broad, unbiased spectrum of responses.

In order to show that the research fulfilled Matthews and Limb’s statement that “research with children should lead to outcomes which encourage empowerment, participation and self-

¹⁴ “The purpose of the six thinking hats is to unscramble thinking so that a thinker is able to use one thinking mode at a time – instead of trying to do everything at once...to a mapmaking style. ...each of the six hats puts one type of thinking on to the map.” De Bono, 199. Refer to appendix for specific hat representations.

determination consistent with levels of competence”¹⁵, a post-participation survey was distributed. It asked about how much fun and learning the students felt they got out of each activity and how they felt in terms of importance, independence, encouragement, creativity, and group work having been involved in a highly participatory research study. Seventeen of the 26 participants completed the survey.

This research method was carried out at Nehemiah House, in Cebu, Philippines, and the researcher resided in the same complex as the children. NSOi teachers gave permission for the researcher to execute research activities during two class periods (2 hours) each day. The researcher made covert observations of children’s behavior while facilitating data collection activities; these observations were used to further refine other data and were compared to the children’s responses.

Results

The analysis of data collected from the different activities showed recurring elements in children’s drawings, photos, and words. These individual responses were grouped to develop five key themes. The importance of themes for each data collection activity was determined by a tally of how frequently elements in the theme were mentioned by different students; specific to the drawing activity, the researcher assumed higher priority for elements that were emphasized with size or color representation.

Table 4. Description of common themes derived from student responses.

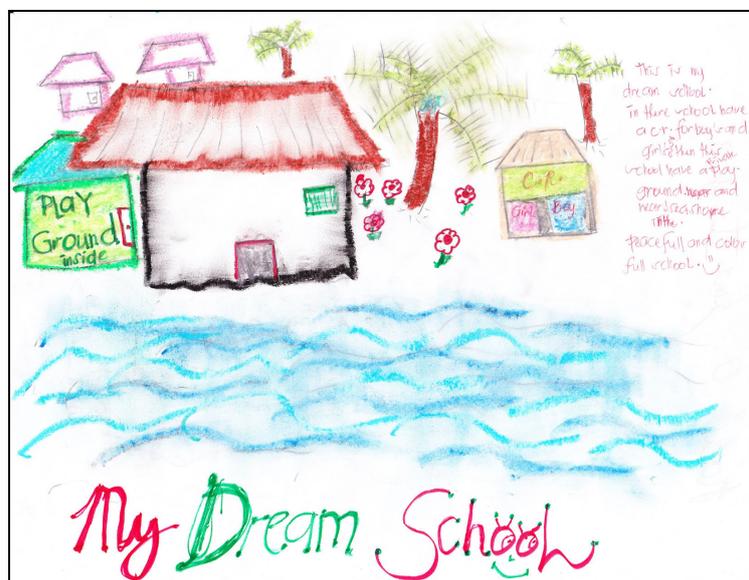
Theme	Elements/characteristics mentioned
Nature	Garden, flowers, trees, recycling, forest, underwater
Recreation	Basketball, playground, pool, slides, seesaw, dog, girls/boys club, sewing
Architecture	Separation of spaces, crowding, stairs, restroom, size, material, window, rooftop, tower, road
Aesthetics	Color, cleanliness, vandalism, fountain, mural
Academic function (function)	Dance room, music room, library, computers, video, high-tech equipment, cinema, flag, car, clock, bus
Indoor Environment Quality (IEQ)	Air-conditioning, noise, fan

¹⁵ Matthews & Limb, 83.

Overall, the findings indicate that Architecture was the most valued, followed by recreation and nature, then academic function, aesthetics, and lastly indoor environmental quality. However, for each exercise, each age group, and each gender, the importance placed on each of these themes was slightly different.

The drawings showed nature as the most prominent theme, followed by academic function, architecture, recreation, aesthetics, and IEQ. Natural elements in girls' drawings were especially emphasized through the use of color and proportion or size relative to other elements in the drawing.

Figure A. Drawing by girl in 2nd year of high school (age 16) emphasizing of nature and color.



Boys' drawings focused more on academic functions; all the references to IEQ were made by boys.

Figure B. Drawing by boy in 1st year of high school (age 16) mapping out functions of space.

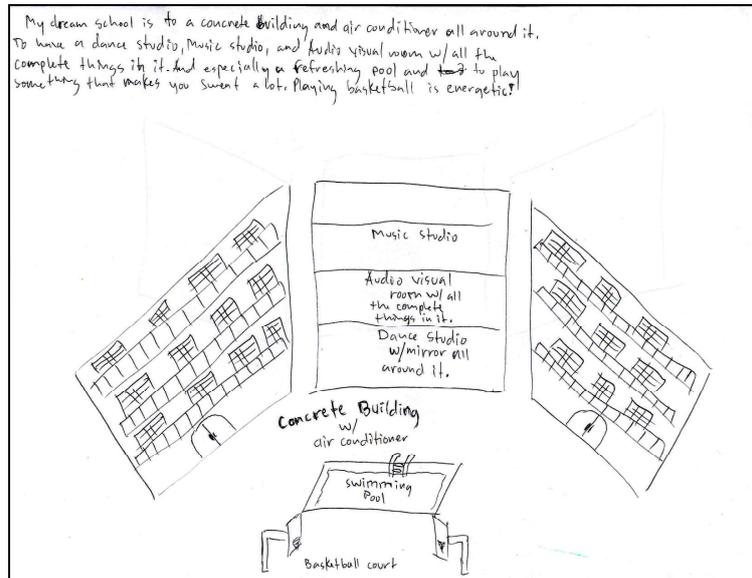
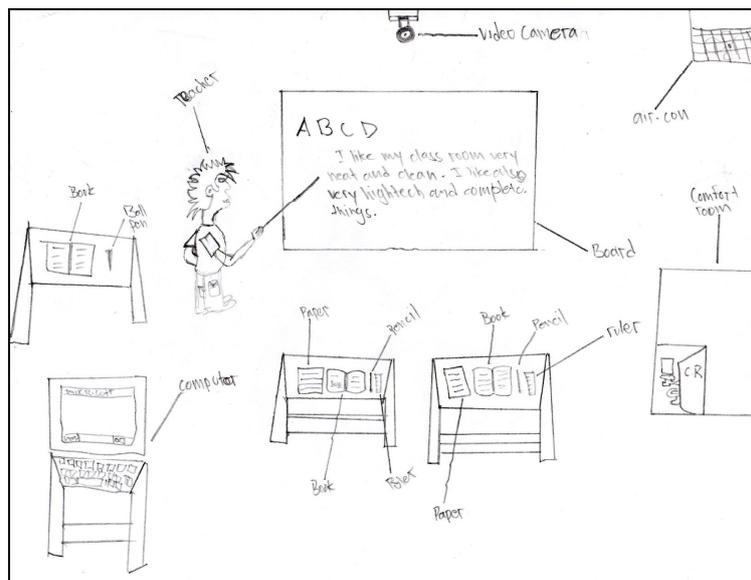


Figure C. Drawing by boy in 6th grade (age 14) showing attention to the interior and IEQ.



In terms of age, group 1 (youngest, 9-12) showed equal interest in nature and architecture, group 2 (13-15) architecture and nature were shown to be equally important after function, and group 3 (16-19) had a significant leaning towards nature, with no representation for IEQ or aesthetics.

Theme hierarchy for the photo journaling exercise was slightly different: architecture, recreation, nature, and function were similarly weighted, then aesthetics, then a heavy drop in

perceived importance for IEQ. Girls were again drawn most to natural elements and architecture, while boys showed equal interest under the themes of function and recreation, followed by architecture. Age group 1 took most photographs of nature, recreation, and architecture; group 3's photographs showed a similar pattern where photographs related to recreation were most frequently captured, then nature-, architecture-, and function-themed photos; group 2's photographs showed a clear interest of architectural components.

Example photos

The photo journals included written reasons for taking the pictures. Analyzing these, it was found that there were more places that students disliked than liked. The older age groups seemed to have thought more about places they disliked than the younger age group. Aesthetics, with function close behind, had the most negative feedback from the students; the girls disliked aesthetic elements, while boys disliked the narrow range of functions supported, and both groups were dissatisfied with their existing school in terms of architecture.

Table 5. Distribution of “liked” themes by age and gender.

LIKES	Group 1 (9-12)	Group 2 (13-15)	Group 3 (16-19)	F	M	Total
Nature	4	5	5	9	5	14
Recreation	4	5	2	4	7	11
Architectural	4	7	3	7	6	13
Aesthetics	1	4	1	5	1	6
Function	2	4	3	4	5	9
IEQ	0	1	0	0	1	1

Table 6. Distribution of “disliked” themes by age and gender.

DISLIKES	Group 1 (9-12)	Group 2 (13-15)	Group 3 (16-19)	F	M	Total
Nature	2	0	0	1	1	2
Recreation	0	0	0	0	0	0
Architectural	1	4	3	4	4	8
Aesthetics	3	4	0	4	3	7
Function	1	5	1	2	5	7
IEQ	0	1	2	1	2	3

The focus group structure gave high school students the opportunity to share their ideas and collaborate with others to think beyond the exterior look and architecture to the academic functions and experience. The second year class decided that their dream school should most importantly have laptops, a swimming pool, a school bus, and be in or linked to Hong Kong in

some way. Other ideas to do with function (library, musical instruments), aesthetics (fountain), or nature (outerspace, underwater, forest, zoo) were either eliminated at the black hat stage¹⁶ or not considered top priority. The first year students were more creative and maximized the ideas discussed during the focus group to create a story introducing their dream school.

“Once upon a time, there was a very tall building. [It was] made by concrete and [it was] a very colorful building. The inside is pink, outside blue with checkered grid. Inside the building, there’s a cinema for science class, English class, history class, and [to] learn skills. Upstairs, there’s a dance studio to learn ballet, hip hop and you can also practice your dance [and] also use for P.E. lessons. Beside the dance studio there’s [the] music studio where you can play instruments, play band, and [record music]. Our school is very high tech because the students learn how to use laptops. Vending machines [are] where we can get food during break time. We have no stairs, only escalator and elevator. Everyone can use except animals and pets. Every classroom is air conditioned and [has a] hi-tech projector. To get to school we use our hi-tech school bus. The hi-tech school bus has a TV [on] every chair and the door is electronic sensor operated. Also [it] has colorful lights, [and] the wheel is colorful with lights.”

Again, the focus was mainly on functional requirements, but not just in terms of what they would do at school, but how they would get to school. The architecture and aesthetics of the building as well as the IEQ were also considered.

The analysis of interviews showed slightly different patterns than those fore-mentioned: the overall largest focus was on architecture, then function, recreation, aesthetics, and surprisingly, IEQ, and then nature. Both girls’ and boys’ descriptions of their past and present school environments represented a similar balance in the themes of architecture, function, and recreation. Boys mentioned function just as frequently as architecture, followed by recreation, and girls talked about recreation and function equally as much but less than architecture. In terms of age groups, as students got older they seemed to focus less on just one aspect of their environment¹⁷. Group 1 showed a clear hierarchy of mentioning architecture above other themes, though more equally dispersed than group 2 who mentioned more about each theme but significantly disregarded nature. Group 3’s responses were most evenly dispersed through out themes.

¹⁶ Part of De Bono’s Six Thinking Hats strategy: “Black Hat devil’s advocate, negative judgment, why it will not work.” (De Bono, 200).

¹⁷ Piaget’s cognitive theory states clearly that cognitive capacity increases with age; with cognitive capacity comes increased ability to manage more information and parallel processing (Whitlock).

According to the post-participation survey, the research-related activities were mostly engaging and educative. The activities were “very interesting” for 88% of respondents, and “very challenging” for 71% of respondents. The photo journal, drawing, and focus group exercises had a larger skew towards students who had fun and learned something. The interview had a broader spectrum of responses: 12% said “OK”, 23% “fun”, and 18% “fun and I learned something”. Self-rating of participation was high with students choosing between “I was excited most of the time” and “I was fully excited all the time and tried my best in everything”. This was clearly reflected in the consequent responses related to feeling important, independent, encouraged, and creative during the participation process. A minority who answered that they were excited most of the time were more likely to say they felt important, independent, encouraged, or creative “a little” or “not at all”. Independence, however, was one that differed from the pattern a little bit: about a third of those students who rated themselves actively engaged at all times said they felt only “a little” independent during the project. For the 14 students who participated in the focus groups, 11 (79%) self-reported being “fully excited and tried my best” and 3 (21%) responded being “excited most of the time”. Of the 11 actively engaged students, 8 students (73%) felt they were better able to work in groups, while the other 3 (27%) were not entirely confident. One (33%) of the 3 students “excited most of the time” was more confident to work in groups, while the other 2 (67%) answered “a little”. The various responses to the open-ended question “What did you learn?” confirmed the participants’ answers to the subsequent survey questions.

Table 7. Categorized direct quotes from students.

Encouragement, importance, group work	“I learned about how to participate in classes.”
Independence	“I learned how to create my own work.” “I learned how to create our own design, and how to protect our own design. It can help our mind also to design our school, very cool.”
Creativity	“I learned about the 6 hats and its expressions” “I learned how to design a project. I learned how to distinguish some things.” “...learning what is right for my dream school. I also learned about how to think about the dream school.”

Discussion

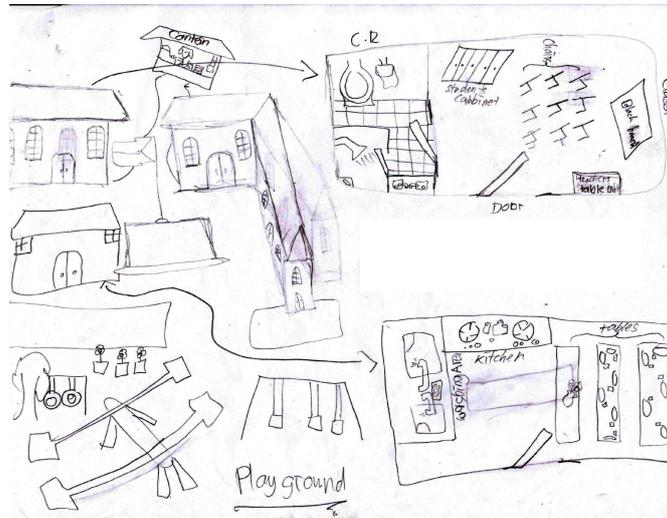
It was interesting to find that the most talked-about or most valued characteristics of the school were not under the theme of aesthetics, but rather architecture, nature, and function. This informs us as designers that children have more sophisticated considerations than ‘does it look pretty?’. Still, Popp and Stronge’s quote “aesthetics matter”¹⁸ holds true. Aesthetic elements were the second-most frequently mentioned theme in the photo journal exercise as attributes students disliked. Is this because there is little that meets their needs? On the other hand, these elements must be valued if children are willing to show strong disagreement to them. Then why is children’s frustration and dissatisfaction with their existing aesthetic environment not more clearly represented in the other data collection exercises? The findings could be alluding to the fact that they are genuinely happy with their environment because they have limited experience with higher technology and material goods associated with affluence. However, responses from other exercises reflect that though the children seem to have become used to the environment, they still desire more when asked.

Furthermore, although IEQ was not a heavily weighted theme, for those children who mentioned it, it was very important to them as mentioned in informal dialogue between children and researcher, which included complaints about not being able to concentrate because the neighboring class was too noisy. The research also made observations of children being easily distracted: walking between or shouting through partitions to interrupt other classes because they were more interested in the conversation going on in that class.

Some may dismiss this research because of the idiosyncrasy of the subject group: they are far behind in academic achievement and their development is unstable. However, although vulnerable, they are not incapable of performing as other children or even adults who are not well-versed in the design process. In fact, one girl drew a floor plan when asked to draw her dream school (Fig. D): where did she learn this skill?

¹⁸ Popp & Stronge, 5.

Figure D. Drawing by 5th grade girl (age 12) showing complex drawing skills.



In general, a participatory design process makes it easy for designers to instill false hope and anticipation to the community they are working with. I tried my best to mitigate this effect by providing a realistic context for the children participating in this study. They were told the results would be used for academic research that mimics a design process that could potentially inform their future school's design process. Another frequent trap to participatory design that I was not able to control for was the possibility of users, who do not necessarily always know exactly what they need, expressing their needs and wants based on what they think the researcher would like.

Further specific limitations of this research are largely rooted in the lack of longitudinal data. The post-participation survey shows results of empowerment, and increased feelings of independence, creativity, and importance; however, it is questionable whether these effects last in the long-term. Are these children more creative-thinking and ambitious in the future compared to peers from similar backgrounds who did not engage in the participatory process? This question poses an area of further study.

Conclusion

This study has shown that given the right methodology and range of activities in a facilitated environment, users can begin to express themselves and their needs. Furthermore, the post-participation survey summarizes that users generally feel more empowered, independent,

and creative as a result of participation. Therefore, both designers and users can reap the benefits of a participatory design process. Obstacles of the users' education level and design experience can be overcome. Even street children have assets and insights to offer that we as designers have overlooked. Matthews and Limb (1999) contend that "children have the environmental adeptness, motivation and ability to help shape their environmental futures"¹⁹. The present study is successful in confirming that the gap in the design process can be bridged through a reciprocal relationship between designer and user. Direct input and feedback from the user who is engaged in the design process can inform the design solution, and the users can in turn feel empowered and educated.

¹⁹ Matthews & Limb, 79.

APPENDIX

Empowerment Through Participatory Design Research Minor's Assent Form

I am doing a study to learn about how participating in the design process affects youth. I am asking you to help because I don't know much about how kids your age are affected by making a contribution to designing your own school.

If you agree to be in my study, you are going to be asked questions about what parts of your school building now you like and why. You will give me a guided tour, take photos of your school, draw your ideal school, and participate in a group discussion with other students in your school. At the end of the study, you will be asked questions on your experience as being a part of this research.

You can ask questions about this study at any time. If you decide at any time not to finish, you can ask us to stop.

The questions I will ask are only about what you think. There are no right or wrong answers because this is not a test.

If you sign this paper, it means that you have read this and that you want to be in the study. If you don't want to be in the study, don't sign this paper. Being in the study is up to you, and no one will be upset if you don't sign this paper or if you change your mind later.

Your signature: _____ Date _____

Your printed name: _____ Date _____

Signature of person obtaining consent: _____ Date _____

Printed name of person obtaining consent: _____ Date _____

Empowerment Through Participatory Design Research Guardian Permission Form

Your child is invited to be in a research study about how children are empowered, or encouraged, by participating in a research project where they are given much responsibility to come up with a design for a potential new school. I am asking that your child take part because your child is in the age group that I want to study. I ask that you read this form and ask any questions you may have before agreeing to allow your child to take part in this study.

The study: The purpose of this study is to find out how much being part of a participatory design study empowers children. If you agree to allow your child to take part, your child will be asked to draw pictures of his or her ideal school, take photos of their favorite or least favorite places in their current school, and explain these drawings and photos in a follow-up 20 minute interview. He or she will also participate with other students in a 40 minute group discussion where they will make decisions about what to include in the final design of the model. Your child may also be observed without being told by the researcher to see how he or she uses the learning space, and whether this aligns with what he or she said in the interview or group discussion.

Risks and benefits: The risks in this study are that your child may be disappointed by the fact that the school they design may not be actually built for them to see and experience. The benefits of the study are that your child will be actively participating in a research study that requires creative thinking, problem solving, and team work skills. This in addition to the fact that they will be given much responsibility to collect data and give opinions will be an educational and engaging experience for your child.

Compensation: Each child in this study will receive a pen and a small note book from the United States. Your child will receive the gift even if he or she stops before finishing the study.

Confidentiality: The records of this study will be kept private. Your child's gender, age, and name will be noted; however their name will only be used for purposes of identification in data analysis. It will not be possible to figure out your child's identity from the information I include in my future paper. Any data collected will be kept securely for three (3) years after the study ends.

Voluntary Participation: Your child's participation in this study is completely voluntary. Your child may skip any questions he or she doesn't feel comfortable answering. Your decision whether or not to allow your child to take part will not affect your current or future relationship with Cornell University or with your child's school. If you decide to allow your child to take part, your child is free to skip any part of the study. You are free to withdraw your child at any time without affecting your relationship with the University or your child's school.

The researcher for this study is myself Seo Yun Yang. You may reach me at 1-607-351-4527, or sy267@cornell.edu. Please feel free to ask any questions you have now, or at any point in the future. If you have any questions or concerns about your child's rights as a research subject, you

may contact the Cornell Institutional Review Board (IRB) at 1-607-255-5138, or you may access their website at <http://www.ird.cornell.edu>. You may also report your concerns or complaints anonymously through [Ethicspoint](#) or by calling toll free at 1-866-293-3077. Ethicspoint is an independent organization that serves as a liaison between the University and the person bringing the complaint so that anonymity can be ensured.

You will be given a copy of this consent form for your records.

Please enter your child's name and sign below if you give consent for your child to participate in this study.

Your child's name: _____

Your signature: _____ Date _____

Your printed name: _____ Date _____

Signature of person obtaining consent: _____ Date _____

Printed name of person obtaining consent: _____ Date _____

This consent form will be kept by the researcher for at least three years beyond the end of the study and was approved by the IRB on May 1, 2009.

Interview with Participants

Gender: M F

Grade:

Age:

Did you go to a school prior to NSO? Y N

If yes:

What school did you attend?

Can you describe the school building for me?

What did you like most about the building?

What did you dislike most about the building?

How does your old school building compare to the NSO building?

Can you describe your current school now?

What do you like the most about NSO?

If you could change anything about NSO, what would it be?

Imagine you were to design your dream school, what would be the one, most important thing that you had to have as part of the school building?

Why?

Post-participation Survey

Please answer the following questions honestly based on your experience during the design project.

Gender: M F

Grade:

Age:

Have you participated in a design project like this before? Y N

 If yes, what was the project and when/where did you participate?

Was the design project interesting?

 Very interesting A little interesting A little boring Very boring

Was the design project challenging?

 Very challenging A little challenging A little easy Very easy

Please rate each part of the program (1=boring, 2=OK, 3=fun, 4=fun and I learned something)

Guided tour/taking photos: 1 2 3 4

Drawing/writing about dream school: 1 2 3 4

Being interviewed: 1 2 3 4

Group discussion: 1 2 3 4

Final presentation: 1 2 3 4

How would you rate your participation in this project?

 5 - I was fully excited all the time and tried my best in everything.

 4 – I was excited most of the time.

 3 – I was excited at first but then it got boring.

2 – I made a little bit of effort to participate but only because I had to.

1 – I did not want to participate.

Did you feel important during the project?

Yes! A little No!

Did you feel independent during the project?

Yes! A little No!

Did you feel encouraged?

Yes! A little No!

Do you feel you are now able to be more creative?

Yes! A little No!

Do you feel you are now able to work better in groups?

Yes! A little No!

What did you learn?

Data Analysis Tables

Drawings

	1	2	3	F	M	
Nature	2	4	3	7	2	9
Recreation	1	2	1	3	1	4
Architectural	2	4	1	4	3	7
Aesthetics	0	3	0	2	1	3
Functional	1	6	1	4	4	8
IEQ	1	1	0	0	2	2

Photos

	1	2	3	F	M	
Nature	4	5	3	8	4	12
Recreation	4	4	5	5	8	13
Architectural	4	7	3	7	7	14
Aesthetics	2	3	0	4	1	5
Functional	3	5	3	3	8	11
IEQ	0	2	2	1	3	4

Interviews (subset of 12)

	1	2	3	F	M	
Nature	2	1	1	3	1	4
Recreation	2	5	1	4	4	8
Architectural	3	5	2	5	5	10
Aesthetics	1	4	1	3	3	6
Functional	1	6	2	4	5	9
IEQ	0	5	0	2	3	5

Focus Groups (subset of 15)

	HS 1	HS 2
Nature	•	•
Recreation	•	•
Architectural	•	•
Aesthetics	•	
Functional	•	•
IEQ	•	

Post-Survey (17 respondents, * implies subset)

Interesting	1	2	3	F	M	
Very	2	8	5	7	8	15
A little	2	0	0	1	1	2

Challenging	1	2	3	F	M	
Very	1	7	4	5	7	12
A little	3	1	1	3	2	5

Photos	1	2	3	F	M	
2-OK	1	1	1	3	0	3
4-fun and I learned something	3	7	4	5	9	14

Drawing	1	2	3	F	M	
2-OK	0	1	2	3	0	3
3-fun	1	3	0	1	3	4
4-fun and I learned something	3	4	3	4	6	10

Interview*	1	2	3	F	M	
2-OK	1	1	0	1	1	2
3-fun	0	3	1	2	2	4
4-fun and I learned something	1	1	1	0	3	3

Discussion*	1	2	3	F	M	
1-boring	0	0	1	1	0	1
2-OK	0	1	0	0	1	1
3-fun	0	2	1	2	1	3
4-fun and I learned something	2	5	1	4	4	8

Participation	1	2	3	F	M	
4-excited most of the time	0	3	0	1	2	3
5-fully excited	4	5	5	7	7	14

Important	1	2	3	F	M	
Yes	4	7	5	8	8	16
A little	0	1	0	0	1	1

Independent	1	2	3	F	M	
Yes	2	5	3	5	5	10
A little	2	3	0	1	4	5
No	0	0	2	2	0	2

Encouraged	1	2	3	F	M	
Yes	3	7	5	8	7	15
A little	1	1	0	0	2	2

Creative	1	2	3	F	M	
Yes	3	7	5	7	8	15
A little	1	1	0	1	1	2

Group work*	1	2	3	F	M	
Yes	1	6	2	3	6	9
A little	1	2	2	4	1	5

Works Cited

- De Bono Edward. *Six Thinking Hats*. Boston: Little, Brown, 1985.
- Driskell, David. *Creating Better Cities with Children and Youth: a Manual for Participation*. London: Earthscan, 2002.
- Johnson, Victoria. *Stepping Forward: Children and Young People's Participation in the Development Process*. London: Intermediate Technology Publications, 1998.
- Matthews, Hugh, and Melanie Limb. "Defining an Agenda for the Geography of Children: Review and Prospect." *Progress in Human Geography* 23.1 (1999): 61-90.
- Panter-Brick, C. "Street Children: Cultural Concerns." *International Encyclopedia of the Social & Behavioral Sciences*. Elsevier Science Ltd, 2001. 15154-15157.
- Patton, Michael Quinn. *Qualitative Research and Evaluation Methods*. Thousand Oaks, Calif.: Sage Publications, 2002.
- Protacio-de Castro, Elizabeth P., Agnes Zenaida V. Camacho, Faye A. G. Balanon, Michelle G. Ong, and Jay A. Yacat. "Walking the Road Together: Issues and Challenges in Facilitating Children's Participation in the Philippines." *Children, Youth and Environments* 17.1 (2006): 105-22. Accessed 19 Sept. 2008. <<http://www.colorado.edu/journals/cye>>.
- Popp, Patricia, and James H. Stronge. "Children and Youth Experiencing High Mobility and Homelessness." Socio Design Foundation. Accessed 1 Feb. 2010.
- Ulrich, Clare. "A PLACE OF THEIR OWN: Children and the Physical Environment." *Human Ecology* Oct. 2004: 11-14.
- Whitlock, Janis. Message to the author. 29 Apr. 2010. E-mail.