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Redefining the Culture of Learning

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Subject

Children are a common interest for the future that everyone shares. The general primary education system in the United States is lacking in terms of preparing students to contribute to society in a positive way. Many different philosophies seek to improve education, including the Montessori approach. This method of education emphasizes learning through interactions between the child and their environment. Multi-age classrooms encourage collaboration and students learn at their own pace. The valuable elements of a Montessori education are incorporated into the design of many Montessori classrooms and materials. Since each school is privately operated, however, some may not reach the expectations of the ideal Montessori classroom.

Thesis

The relationship between creativity and the amount of structure in a learning environment is correlated. Architecture can inform the advancement of creativity by engaging the child's body and mind in a multisensory learning experience. If children are given the freedom to learn from unobstructed interactions with their environment, they will more actively promote creativity. Observing children in both a Montessori learning environment and a more traditional environment, and introducing new materials to both groups will communicate different creativity levels of the children observed. The Montessori classroom ideal can be greatly improved as well and rendered into a superior learning environment on a universal scale. The results of the studies with the children will translate into a design for furniture and other material typologies for classrooms across the country and eventually into a design for the Pittsburgh Montessori School.

Methods

The strategy for this project will be to introduce a series of related experiments that build upon each other in the study of children's creativity and learning. These experiments will include:

- Giving the children a set of non-traditional building materials (i.e. everyday materials from the home) and asking them to create something from the materials
- Students working on small space making exercises with a set of given materials
- Students working on larger space making exercises where they build a structure to their own scale using materials given and parts of the classroom space
- Students working with a given set of materials to build what they choose, but without using any adhesives during construction
- Other exercises that will emphasize the use of some senses while restricting others, such as creating something while blindfolded

The exercises will demonstrate how students interact with the spaces around them and how their creativity relates to their growth of knowledge. The exercises will engage as many of the senses and as much of the body as possible. By using the body to perform the exercises, the children will remember more about what they are learning and will enjoy the learning process.

Major factors I will be considering in my experimentation and research with relation to creativity and learning will be gender, culture, and economic background. The use of a diverse subject group will be important to my research. I plan on working with children ages 5-6. I am using a small, specific age group because of the vast jumps in development that young children go through. I chose this specific age group because of the high level of curiosity, the vast imaginations, the creativity, and the naiveté of the group. They are also old enough to comprehend, analyze, and evaluate, which will be important to the project.

Timeline

During the first semester I will start to perform the experiments and gather research from those and other sources on how children's creativity is related to their environment. This research will inform designs of materials and furniture for use in many types of learning environments, including Montessori and traditional. Prototypes will be created while in the experimental phase to be used during the exercises with the children. The design of a new

Montessori school will be worked on simultaneously with the furniture prototypes and will be carried further during the second semester.

Influences

Several past projects have contributed to my interest in the subject, and research that was conducted along with those projects will be useful as I move forward. The furniture design build project my studio worked on in the Fall '12 semester with Mick McNutt will provide a valuable precedent as well as a valuable connection to the school. I have also done research on various educational theories, such as Montessori and Reggio Emilia, in other studios. I have worked at the Carnegie Museum of Art in the Education department for the past two summers. This has given me valuable experience working with children and has provided a connection to the museum that could help with this project.

Other Advisors

I am taking a Principles of Child Development course in the Psychology department this semester. This course will help me with learning about different stages and types of development, including physical, perceptual, cognitive, emotional, and social. I have already mentioned my project to my professor, David Rakison, and will ask for his input during various stages of my project.

I have also made connections to the Education department at the Carnegie Museum of Art through my work there. Juliet Pusateri and Ashley Andrykovitch will be my main contacts at the museum, and have already expressed interest in discussing my project.

Sources

Several sources from the 18th-early 20th centuries and today have very forward-thinking thoughts on education and more in depth research will be done on different theories:

- Johann Heinrich Pestalozzi
- John Dewey
- Jean Piaget
- Reggio Emilia
- Progressive education

- Waldorf schools
- Project based learning
- KnowledgeWorks
- 2Revolutions

Both architecture and art contain many inspirational ideas for the project I am planning.

Architects include:

- Aldo van Eyck- structuralism, prototype primary schools in the Netherlands

I have found works of art as well that are inspirational in that they all involve the audience, some with the actual creation of the piece, in a playful, imaginative way. I plan on using my initial experiments in a similar manner, where the way the children interact with the piece helps to determine what it becomes.

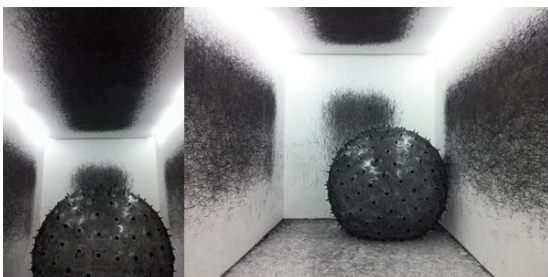
- The Obliteration Room by Yayoi Kusama
- Room of Heights by Roman Ondaks
- A helium filled kinetic drawing sculpture by Karina Smigla-Bobinski
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Bibliography

Dudek, Mark. *Children's Spaces*. Oxford: Architectural Press, 2005.

The author discusses the importance of understanding and appreciating children's views on their own learning spaces. He emphasizes the importance of reading and reacting to the physical engagement and verbal and non-verbal communication between the children and their environments.

Hebert, Elizabeth and Anne Meek. *Children, Learning, and School Design: a first national invitational conference for architects and educators*. Illinois: Winnetka Public Schools, 1992.

Hendricks, Barbara E. *Designing for Play*. Surrey, England: Ashgate Publishing Ltd., 2011.

This book touches on some of the problems of spaces for children, including that children are often not consulted in the design and that adults have too much control over children's spaces.

Lefavre, Liane and Döll. *Ground-Up City: Play as a design tool*. Rotterdam: 010 Publishers, 2007.

Pellegrini, Anthony D. *The Role of Play in Human Development*. Oxford: University Press, 2009.

The author discusses the immediate and deferred benefits of play and talks about important aspects of play and learning, including objects, exploration, and tool use.

Sanoff, Henry and Joan Sanoff. *Learning Environments for Children*. Humanics Ltd., 1981.

The authors give basic design requirements for different spaces and subjects in a child's learning environment.

Singer, Dorothy G. and Jerome Singer. *The House of Make Believe: children's play and the developing imagination*. Cambridge, MA: Harvard University Press, 1990.

This book emphasizes the fact that children know the most about their play and work and that researchers should both observe and interact with the children in their environments to best learn about their actions.

Slade, Arietta and Dennie Palmer Wolf. *Children at Play: clinical and developmental approaches to meaning and representation*. New York: Oxford University Press, 1994.

The authors discuss the values of play for children and emphasize the importance of the researcher being involved in the act of playing rather than simply observing.

Precedents

Beltzig, Gunter. *Kindergarten Architecture*. Madera, CA: Ginko Press, 2001.

Dudek, Mark. *Kindergarten Architecture: space for the imagination*. New York: E & FN Spon, 1996.

Exley, Peter. *Design for Kids*. Mulgrave, Vic.: Woodbridge, 2007.

Gelfand, Lisa. *Sustainable School Architecture: design for primary and secondary schools*. Hoboken, N.J.: John Wiley & Sons, 2010.

Hille, R. Thomas. *Modern Schools: A century of design for education*. Hoboken, N.J.: John Wiley and Sons, 2011.

Yee, Roger. *Educational Environments*. New York: Visual Reference Publications, Inc., 2007.