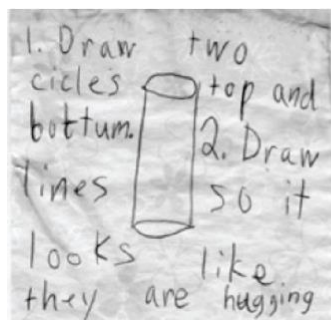


## Play + Epistemology

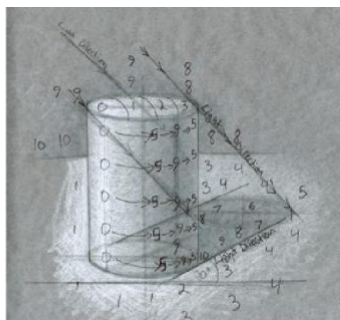
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There is a fundamental relationship between Epistemology and Play and it can be utilized to foster creativity in the beginning design education classroom. We as educators must ask ourselves what kinds of knowledge and experiential backgrounds these students come to us with and how we can utilize play and our surroundings to increase this knowledge. This paper will discuss how we can facilitate this play into a meaningful experience.

Let me start off by sharing what inspired this topic at all.



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7 years ago I was assigned to teach a Foundation drawing course at the University of Cincinnati. It was very structured in nature and students were presented with exacting methods to construct the perfect cube, sphere and cylinder in 2 and 3-point perspective and then subsequently introduce shading to the form. My then 7 year-old daughter was with me while I was grading assignments and she could not understand why my students were having so

much trouble drawing a cylinder. She stated, "it's so simple", just draw two circles and make them hug. She proceeded to draw me a diagram to share with them and told me to explain the process. She was proud of her cylinder drawing. She then continued drawing cubes, spheres and cylinders the rest of the afternoon. Unencumbered by any fear of critique or retribution. She knew she knew how to draw it. Confident in her knowledge and understanding of the process she presented it grandly.

Understanding epistemology and utilizing play are both important in their relationship to beginning design education. Independently, play and epistemology both offer important aspects to human development. Play offers emotional, cognitive, and social rewards while epistemology offers imagination, curiosity, control and knowledge of one's surroundings. They are closely bound in their relationship to design education by providing a meaningful context for students to learn concepts and skills, encourage risk, exploration, and discovery through process.

The Webster Definition explains epistemology as the study of the nature and grounds of knowledge especially with reference to its limits and validity. It is the investigation of what distinguishes justified belief (knowledge) from opinion or put more simply... How do we 'know' what we 'know'?

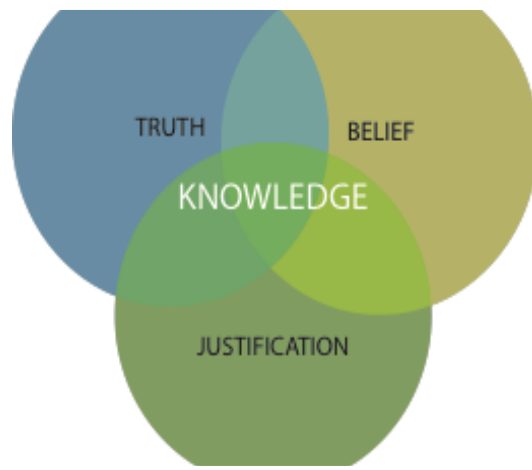
It is the difference between knowing that something is true... and knowing how it is done

The constructivist learning theory (proposed by John Dewey, Piaget and Vigotsky among others), is that three conditions should be present for knowledge to develop —

### First is t Truth.

The *knowledge* that we construct for ourselves as we learn. What does it take to know something? It's not enough just to believe it—we don't know the things we're wrong about. Knowledge seems to be more like a way of getting

at the truth. Our own history allows us to begin to see and form the beliefs we choose, form the particular biases and develop possibilities of what we believe is possible. Something's truth does not require that anyone can know or prove that it is true. Not all truths are established truths. It is your own personal truth.



### **Second: Belief.**

The general idea behind the belief condition is that you can only know what you believe. Some philosophers have argued that knowledge without belief is indeed possible, as in an example of someone not believing that hunting unicorns in Michigan is legal. It is. Lake Superior State University in Michigan does indeed offer a unicorn hunting license.

### **Third: Justification.**

Whether a belief is justified depends wholly senses internal to the subject. Only those features of a student's personal experiences which are directly or introspectively available count as "internal".

They are all individually and jointly necessary for knowledge.

Therefore one's knowledge is based off our past experiences, our beliefs, and our internal validation. We as beginning design student educators are in a precipitous position of creating new realities for our students. Creating new experiences that will be the basis for their future beliefs and personal opinions, creating their new 'knowledge'.

John Dewey believed that human beings learn through a 'hands-on' approach and that learners construct knowledge (meaning) for themselves and that students must interact with their environment in order to adapt and learn.

The very crux of epistemology states that:

1. There is no knowledge independent of the meaning attributed to experience constructed by the learner
2. We need to focus on the student in thinking about learning

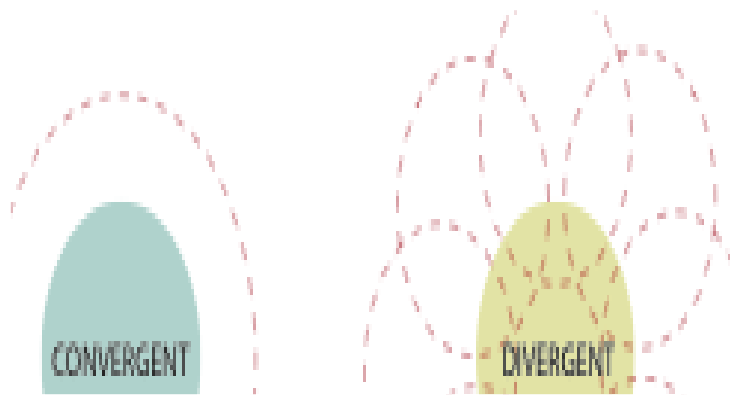
We as art educators need to encourage exploration and experimentation and help our students break the barriers of what are expected of them. To do this we must embrace a pedagogy that understands that the learning process' foundation is based on many things including:

1. Learning is an active process in which our students are most successful when using sensory input to construct meaning out of the experience. We all must learn to learn.
2. We must first construct meaning to best understand the topic of hand. Physical experiences combined with mental engagement are necessary for creating knowledge.
3. Learning is a social experience. Much of their past educational system is directed at isolating the student from social interaction, solitary learning from provided objective material. (Dewey) Dewey's progressive education model proposes a social application of knowledge using interaction with instructors and peers and the application of that knowledge as an integral aspect of learning. Learning in a communal environment encourages students to push their limits, showcases achievements and share our experiences. We also learn from other's mistakes and build from them.
4. Learning is contextual. We learn in relationship to what we already know.
5. We as beginning design student educators are building this scaffolding of knowledge to develop this contextual structure from which our students will develop in future years.

6. The more we know, the more we can learn. We are at a disadvantage that our first year students come to us with such varied degree of knowledge. Our efforts and understanding must be rooted in the fact that our students come to us from different knowledge bases.

7. Motivation is a key component of learning. Unless students are clear in understanding the reasons why they are given a task, they may not be as inspired to dig deep within the trenches of their past experiences to call up the knowledge that's within them.

We must remember that our beginning design students are coming to us from a history compulsory education and rote memorization. We as educators must wean our students from this constricted mindset and offer them the freedom of expression. This can be done by offering them a secure and inspirational environment in which to thrive... an opportunity to learn to learn thru play.



This brings us to PLAY

Play involves exploration, and exploration is, by definition, an act of investigation. Play can play an integral part in establishing the belief and justification of something. There is evidence that play promotes creative problem solving. Psychologists distinguish 2 types of problems CONVERGENT and DIVERGENT.

Some research suggests that the way we play contributes to our ability to more effectively

and efficiently solve divergent problems.

Play can...

1. Solve a problem that calls for a new approach
2. Identify learned ways of thinking and find novel alternatives
3. Find the best innovative approach to solve specific problems
4. Spread what you've learned and effectively communicate your ideas

... in play, the means are more valued than ends.

While epistemology is usually a more solitary experience that helps us determine the sources, structure and limits of our knowledge; PLAY can be accomplished individually or more effectively in the classroom. Both knowledge and play are needed to build a good foundation to test our limits, see rewards and share our experiences.

Freud stated that play is the means in which a child could fully express himself. Even if we are unaware of the expression, play is the outlet for the emotions to be released. This theory of art is focused around a central theme of motivation to create, and what we want to create is hidden and hard to interpret. According to Freud, to "...take inter-relationships between the impressions of the artist's life, his chance experiences [epistemology?] and his works and from them construct his constitution and the instinctual impulses at work in it..." (McPherrin 2005)

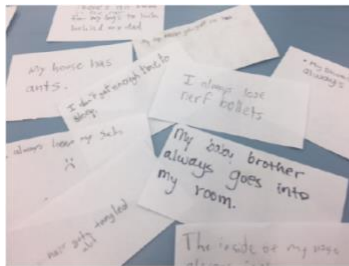
Only in human culture do we adults 'objectify' play into desiring intended behavior. Only very young children seem to play without expected outcomes. Sketching can reopen the categories into which we normally organize and shelve the common experiences of daily life and perhaps challenge ideals. Sketching can take many forms. A sketch may serve a number of purposes: it might record something that the student sees, it might record or develop an idea for later use or it might be used as a quick way of graphically demonstrating an image, idea or principle. Sketches can be made in any medium and not usually intended as a finished work so it is a good starting point to introduce play into the classroom.

It is theorized that as we transition from childhood to adolescence, we fear the judgement of our peers, teachers and sharing ideas. We “learn” to become introverted creatives. The innocent present in children’s artwork is misappropriated from us by the time we mature. Some believe that our artistic talents are repressed, but can resurface. Educator Karen Gallas shares her belief that “art can play an essential role in forming and extending all aspects of a curriculum.”(Gallas 2006) It can also break language and emotional barriers. She also positions that students convey their understanding of their world around them more effectively through play, music, and the arts.

Many of you have probably been gifted a 5 year old’s art project with pride and confidence from the gifter, just as I was presented with my daughter’s cylinder sketch. There is no judgement in the creation of the presented work.

This theory enticed me to develop an experiment introduced to a variety of school-aged children from 5-year old kindergartener’s to 10-year old 6th graders and Freshman College students. Students were arranged into groups of three and tasked with sharing a problem either they, or someone they know, encounter in everyday life. I then gave each of them another group’s problem to solve by using only the materials I provided: tin foil, pipe cleaners, paper clips, rubber bands and bendy straws.

My theory is that the kindergarteners’ would be the most creative and unashamed to invent the most creative contraptions and that the older students would be more fearful of expressing their ideas and constructs with others.

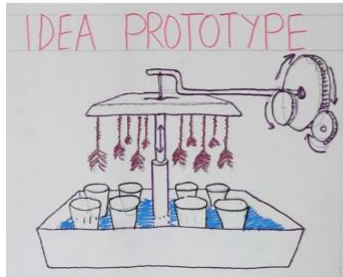


In reality, with the exception of this ingenious spikey doorknob cover to keep one young student’s younger 2-year old sister out of his room, the 5 year olds were more interested in just playing with the pipe cleaners and bendy straws. The college student’s were too concerned in what was an appropriate problem to write down and frustrated that the materials provided were not adequate in developing a presentable representation of what they envisioned, but the sixth graders were unabashed in their creativity. Some of the inventions shared here include, blinders to keep one focused on homework, a backpack carrier to assist in carrying groceries inside and sock suspenders to keep one’s socks from falling down. The students felt safe and unhindered by the risk of ridicule and criticism.



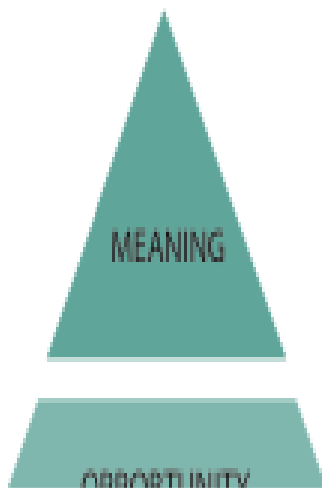
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These same techniques are used in professional creative ‘think-tanks’, from Doug Hall a former P&G executive leading the Eureka Ranch to other workshops such as the X-way workshop sponsored by Nokia and Microsoft that focused on ideas, strategies and discussion around improving Mumbai city. Below the images represents a prototype developed to help a street vendor wash his glassware more efficiently.



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How can we as beginning design student educators encourage and facilitate Play as a tool to increase learning and knowledge? Consider that play is most effective when those involved feel safe in their surroundings. Unhindered by the fear of reproach or failure. How can we best implement this sense of security in the classroom? We as design educators can help encourage and facilitate this enthusiasm and risk taking in the classroom by implementing pedagogy based on Security, Opportunity and Structure.



STRUCTURE

### SECURITY (TRUST)

We must first and foremost create an environment that offers security...security to take risks and not be judged too harshly for solving problems unconventionally. This is contrary to the experience they have left behind. Our beginning design students come to us from a background in rigorous testing and often-finite answers. Filling in the blanks and scolded for veering outside the lines.

### OPPORTUNITY (EXPLORATION)

Secondly, we must offer them opportunity. Do not expect a single outcome, but encouraging multiple execution. Create a pedagogy that allows for flexibility in execution of projects and leads students to a broad range of expected outcomes.

### STRUCTURE (MEANING)

Students must be aware of the learning outcomes. Play can become chaos unless it is structured.

Students construct 'meaning' as they learn. Constructing meaning is learning. We need to create 'learning situations' which channel students into intended directions about the meaning of the experience. There are times for exploratory play and Serious Play. We as educators set the perimeters of a project and share expected learning outcomes. What are the tolerances of a material? Play is thought of to be unstructured but in reality it can be quite structured.





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Above is an example of structuring play for an intended outcome. It was introduced as an Applied forces project in Foundation 3D. Jello was introduced as the material to experiment with tension and limits of the substrate. No grades, no evaluations, just experimentation. Results were photographed and then attempted to replicate in play-doh. Then further refinement in Sculpy a clay that is baked hard. This all way a precursor to a monolithic solids project crafted out of wormy maple wood. ... Different results with different substrates. Building a students knowledge base through belief and justification of their knowledge.

In other words, we must become the stewards of structured opportunities that encourage experimentation and exploration for a desired result. This can sometimes be difficult in our teaching environments. All too often we as educators are teaching in overcrowded, un-efficient, spaces with students lacking resources and little inspiration for creativity. We must overcome this handicap by offering creative techniques to mundane topics. Design students leave us and venture on to aspire working at creative spaces such as google, ideo and many more. Design agencies that expect creativity from their employees will utilize techniques of implementing and building creative infrastructures into the workplace.



©Google One Workplace headquarters Photo ©Bruce Demonte IT Tech, London England

### The 80/20 rule:

Google appreciates new innovations, just as much as it appreciates the individual growth of employees who are responsible for it. To keep the brain gears of these employees moving, Google instructs its employees to take 20 percent of their working hours, to work on a personal project – anything that they are passionate about. Many small features in Gmail today, were ideas that Google employees came up with, during their '20 percent time', along with Google News and Google Shuttle. Beginning design students may not possess the proper language or terminology to express their thoughts or ideas or have the best resources at hand, but we as design educators can help our students better understand or interpret a concept, or express themselves through art and design by reminding them of a time when they used their imaginations more freely. We must allow students the flexibility to explore mediums and the freedom to convey the messages they are trying to express. If we do not allow our students to 'play' with their tools, they may never truly know what they are capable of.

That exploration is done through epistemology. Learning from past mistakes and exploring what works, taking what we know and utilizing it to build a better future. Play allows us to share our knowledge with others. One could argue that students can no longer strive for simple self-fulfillment, but are constantly assessed according to the performance standards of our educational and economic system. Art and design education may be the only outlet left that allows students the freedom of expression, experience in the classroom, exploring aspects of play that encourage creative outlets and freedom of expression can enhance the learning objective.

Let me leave you with one final thought by one of my favorite educator's, Mr. Rogers. "Play gives us a chance to practice what we are learning."