

Grading Criteria

Introduction

6 / 6 Research question makes clear what was the topic of investigation.

5 / 6 Relevance, or importance of investigating this topic

Contextual Elements

6 / 6 Day, date, and time of each of two observations

3 / 3 Activity that the children participated in during the observation (e.g., snack, free play, etc.)

3 / 3 Site characteristics including layout and props when relevant (tricycles, large open area, etc)

Observations

15 / 15 Observations are clearly related to motor skills and more specifically, to the research topic of interest.

13 / 15 Comparisons are drawn across the behaviors of the two age groups.

15 / 15 Children's actual behaviors are described and are used to discuss larger issues such as gross motor skills, coordination, etc.

Studies/Theories

18 / 18 Three theories, ideas, or research findings that are relevant to motor development are considered and presented clearly enough (and in enough detail) to allow the reader to understand them (6 pts/each)

27 / 27 Each theory, idea, or finding cited is clearly related to the observations. (9 pts/each)

Conclusions

6 / 6 The observations are connected back to the research question.

6 / 6 The implications of the observations is considered.

Miscellaneous

9 / 9 Writing is clear and concise

3 / 3 Spelling and grammar

3 / 3 References are included

9 / 9 Observation notes are attached

*** Penalty of 2.5 pts for each page over 6.

147 / 150 TOTAL POINTS (divide by 10 for score out of 15)

15
15

Record

Question: Understanding the cognitive development of children, changes in attention, perception, problem solving, language, memory, reasoning and conceptual understanding that occur as they progress from infants to adolescents, is critical to the very fabric of our society. It helps parents raise their children, helps physicians heal corporal ailments, helps psychologists answer questions about human nature, and helps our government choose appropriate social policies. A child's improvement in memory, attention, problem solving skills, understanding of psychological states and concept development are a fascinating and crucial part of this development because these skills can dictate their social interactions, mental progression and emotional growth. In an attempt to better understand this acquisition we can ask ourselves: is their one template model that the cognitive development of children follows, or are there two many varying aspects and circumstances that affect this development?

ext. validity

Context for addressing the question: Our observations were naturalistic and thus a laboratory did not mold the children's actions. Data was collected in their everyday classroom setting, giving the results more external validity. The pre-school children, ages thirty-seven to sixty-one months were observed on Tuesday, April 1, 2003 from 1:45 until 2:15 pm. Their activity time was in the playroom in the children's school (see figure 1). The children were given a variety of activities through which they were allowed to rotate. There was a sandbox, a water table, a painting station, an area to play with play dough, a large box full of shapes to explore and a light table. The activities required little individual instruction and were activities that children had the opportunity to explore on a nearly daily basis. The instructors helped to facilitate cognitive development by creating an environment that encourages interaction, curiosity, exploration and problem solving. The instructor's interactions with individual preschoolers, asking questions that provoked thought and required attention, also helped to facilitate development.

The kindergarten children, ages sixty-one to seventy-three months, were observed on Tuesday, April 1, 2003 from 9:45 to 10:15. Their activity time was in a classroom in the children's school (see figure 2). The children were given a variety of highly structured activities as well as some more open-ended activities through which they rotated. At one table

children splatter painted posters, at a second they made “backwards crowns” for April fool’s day and at a third they created small barnyard scenes. These activities were highly structured, carefully explained and unique to this particular day. The instructors were highly involved, and following directions, as well as learning new skills, were involved. At the same time a second set of activities were occurring: children could either play board games or draw pictures. This set of activities is available each day for the kindergarteners. This type of activity requires no individual instruction and encouraged interactions among the children, not with the instructors. The kindergarten instructors helped to facilitate cognitive development by encouraging interaction among children and with adults, by introducing new problems to explore and by fostering creativity. The instructor’s individual interactions also aid cognitive development by encouraging children so solve problems for themselves, as opposed to simply providing an immediate solution

The physical set up of both activity time rooms were very similar and the variety of different activities encouraged interaction and exploration. The creative activities presented by the teacher for the different age groups were appropriate for their skill and developmental level and thus facilitated cognitive, social and intellectual development. The preschooler’s activities helped improve their communication, fostered curiosity and encouraged creativity. At the same time, the kindergartener’s activities required that they have a basic ability to multitask and more extensive ability to follow careful instructions.

Observations as relating to specific theories and concepts: There are four particularly influential theories on cognitive development that our book explores: Piagetian, information processing, core knowledge, and sociocultural. The development of children however is so extensive and multifaceted that no single theory or model can capture it. Thus, in observing the children clear examples of all four theories became evident.

Saw Piaget’s theory builds upon three assumptions: that children’s mental and physical activity contributes to their own development, that young children learn many important lessons on their own, and that children are intrinsically motivated to learn. An example of such self-teaching and motivation occurred in the preschool classroom. A group of children were placing small plastic shapes in a cup with a one-inch hole in its bottom and watching them fall through.

Every few minutes the shapes would stop falling through the hole, the children would be disappointed, dump the pieces out the other side and begin again. It was evident to me that they stopped flowing through the hole because the star shaped piece was too large and blocked the hole, however the children seemed confused. After cycling through this process numerous times one little girl jumped up excitedly and exclaimed "the star, the star." Other children looked at her blankly and she replied, "It doesn't go." The children had taught themselves that a shape larger than the hole could not fit through and consequently caused the hole to be blocked, stopping the flow of shapes. Kindergartener's also taught themselves during their activity period. While making the "backwards crowns" the children were trying to glue the two ends of somewhat waxy paper together. The glue kept coming apart and one of the children walked up to the instructor and said, "the glue doesn't work, can we have the stapler"?" These scenes clearly exhibit Piaget's theory that children teach themselves through their own actions and interactions. They are also ideal examples of a basic function of cognitive growth, organization, or integrating observations into coherent knowledge. The young girl observed the cup and shapes, integrated her knowledge and formed a conclusion as to what was occurring. The kindergarteners quickly integrated their knowledge to conclude that the glue could not hold such slippery paper. There was a drastic difference however between the two age groups when it came to their ability to organize observations. It took the preschoolers numerous trials to discover that the star was blocking the hole, a fairly simple concept. On the other hand it took the kindergarteners only a minute to discover that the glue would not hold and devise an alternate plan. Thus, we see that Piaget's fundamental assumptions about children teaching themselves are true and that this rate of self-education grows exponentially as children gain more knowledge of the world.

Core knowledge theorists suggest that children enter our world with specialized learning abilities that allow them to quickly acquire crucial knowledge. They argue that this innate knowledge is domain specific, limited to a specific area. A preschool aged girl had some basic knowledge of psychology, or knowledge of people. As a little boy walked out of the room holding his mom's hand and looking ready to cry she called out his name. When he came over she gave him a big hug, smiled and said bye. He walked away with a grin on his face. It seemed

as if she knew he was upset and that this simple gesture would make him happy. A kindergartener also seemed to have basic knowledge of another one of the categories, biology. When a teacher angrily asked a young boy why he had left the room without a teacher he responded, "I was thirsty" and upon further questioning said "but I couldn't find you." He continued to explain that if you're thirsty you have to drink or you might get sick because your body needs water. We see that even young children do seem to have some knowledge of biology, physics and psychology as core knowledge theorists suggest. It is also apparent that children build on innate knowledge very rapidly. The kindergarten aged children seemed to understand more, have more knowledge and draw connections within categories far better.

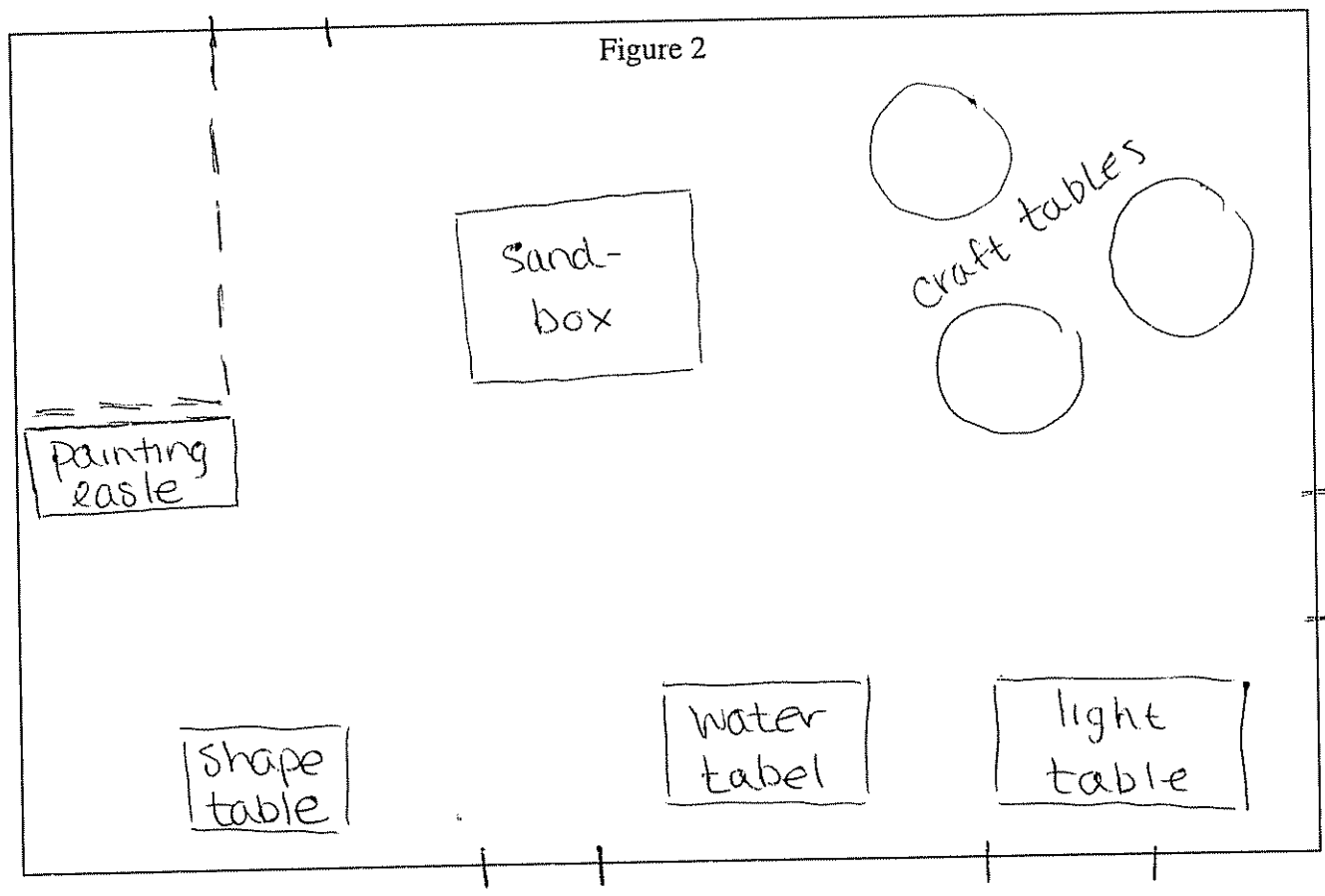
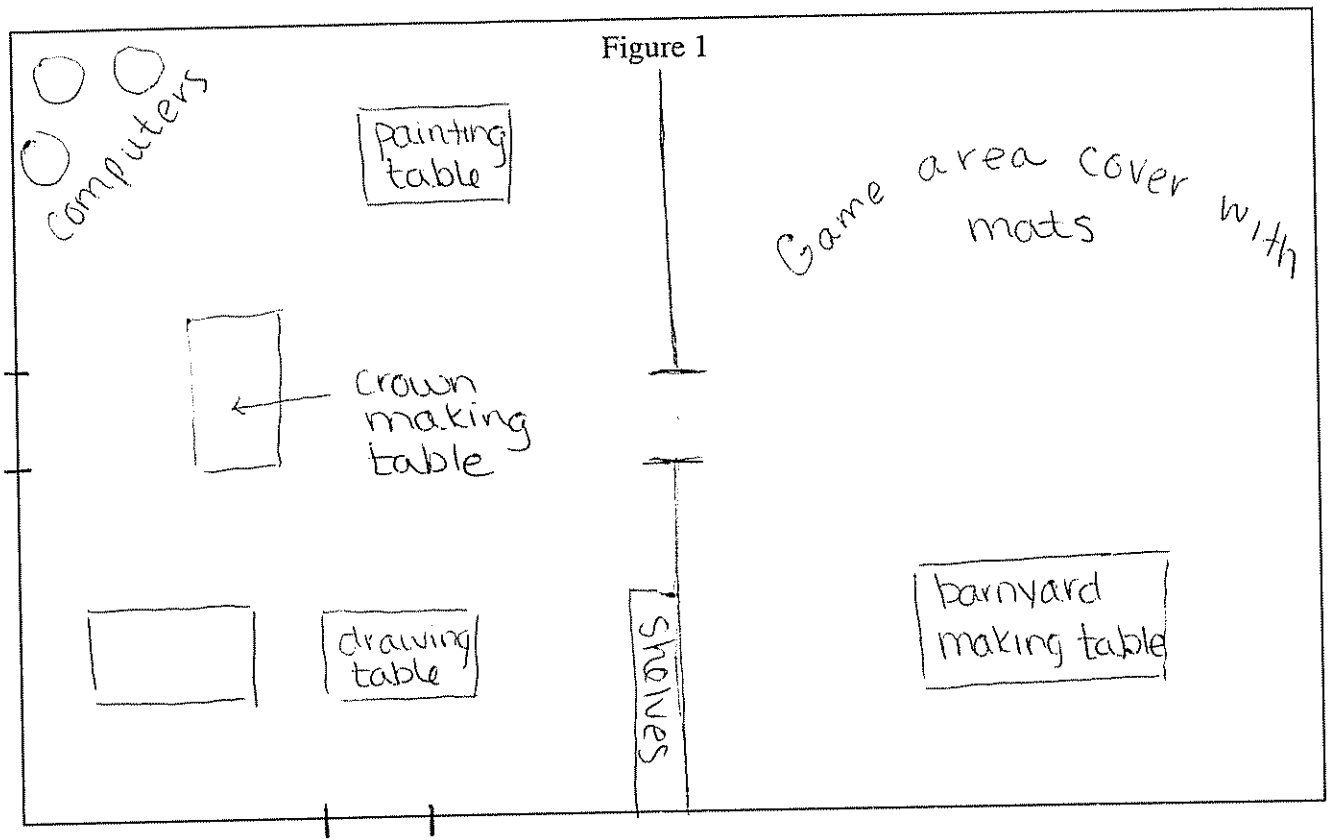
Information-Processing theorists think that children are undergoing continuous cognitive change and believe that analogical reasoning, or understanding new problems in familiar terms, is a key method that children use in their learning process. The instructors at the children's school use analytical reasoning to help children solve problems. At the painting station in the preschool student's activity room there were a series of sponge stamp figurines to dip in paint and stamp on paper. One little girl was trying to use the stamps as a paintbrush and creating a disaster. The teacher came over and said "do you remember the stamps and ink we used at the other table yesterday" the little girl nodded her head and the instructor continued. She picked up the sponge stamp saying "you do this exactly the same way" and demonstrated how to stamp the figure onto the page. In the kindergarten class one young boy was trying to reach a book on a shelf. He was standing on tiptoes but couldn't quite make it. One of the assistants came over and asked if he needed help. When he said "no" she asked if he remembered how they taught them to reach the cubbies on the top shelf. He immediately pulled over a small step stool and used it to reach the out of grasp object. Consequently, we see that in an attempt to facilitate problem solving teachers give young children hints that involve analogical reasoning. There is however a significant difference between the analogical reasoning ability of preschoolers and kindergarteners. The kindergarteners needed only to be reminded of the similar problem, while the preschoolers required that the familiar problem be not only referenced but also explained, compared and guided. Information processing theorists' idea that children are problem solvers who use

analogical reasoning as a key tool is corroborated by my observation at the children's school and it was also evident that the speed of analogical reasoning increased drastically with experience.

The final theory, sociocultural, suggests that children's development is greatly facilitated by their interactions with other people. Teachers clearly encourage interaction between the children and also between children and adults as a learning mechanism at the children's school. Guided participation was used again and again as a tool in both the preschool and kindergarten classes. After seeing several children unable to stamp the sponge figures the teachers began to stamp the figures for children and then simply allow them to decorate the figures. Thus, the children could create artwork that they would have been unable to make on their own. In the kindergarten classroom a similar set up was used. The fence rails and other aspects of the barnyard scene had already been cut out so the children could simply glue them on and color them. Yet again the children were then able to create a piece of artwork that would have been impossible to make at their level without this guided participation. Guided participation is key for the development of both age groups. The difference lies in the difficulty of the task for which guided participation is necessary in order to complete it. Preschool age children need help to complete tasks that kindergarteners can easily complete on their own. It was clear through the observations at the children's school that the sociocultural theorists are correct in their perspective that human interaction is a fundamental aspect of cognitive development. We have thus seen that because the development of children is so extensive and multifaceted no single theory can capture it and all four theories shed light on important aspects of this development.

Conclusion: Thus we have learned through our observation, and in concordance with the theories of Piaget, Gelman and Williams among others, that cognitive development is very multifaceted and can be explained only by combining and expanding upon a variety of models and theories. The one thread however that connects all these developments is that as children gain knowledge about the world and grow older they quickly become much more adept at employing strategies to further their development and gain more knowledge. Piaget was correct that children actively father their own learning and have a thirst for knowledge. Core knowledge theorists seem to be correct in their idea that children have innate knowledge in certain specified areas.

Information processing theorists were also correct in their statement that analytical reasoning is a crucial tool for cognitive development. Finally, sociocultural theorists were also correct with their perspective that human interaction is of utmost importance in development.



Child Observations:

Date: 4-1-03 1:45 - 2:15

Age Category: preschool (37-41 months)

Description of Space:

4 doors (1 to playground, 1 to bathroom)

1 large rectangular room, many tables
visually very open

Description of Activities:

sandbox, light table, water table

Painting station

Craft tables with clay activity

Notes:

- filling cup with hole in bottom. One shape keeps getting stuck and blocking hole. One girl figures it out.
- Children having trouble stamping sponge figures in paint. Helped by teachers
- Seem to enjoy make-believe cooking in sand and dishwashing in water table

Quotes:

- "no, I want the shell" - crying
- "bye, see you tomorrow" w/ big hug
- "the star, the star" "it doesn't go"

Child Observations:

Date: 4-1-03 (9:45 - 10:15 am)

Age Category: Kindergarten (61 - 73 months)

Description of Space:

2 doors (none directly to outside)

1 large room divided in half by waist height wall
many tables, three computers, carpet

Description of Activities:

- free activities: drawing, board games, etc.
- structures crafts: splatter painting, making of "backward day" crown, making of barnyard scene.

Notes:

- making crowns, discussing hockey game
can not make clue stick, use stapler
- Young boy gets in trouble for leaving room w/o teacher. Says he was thirsty.
- group of children are making "flags" out of colored tape.
- teachers help with finger painting and barnyard
- boy can't reach book, teacher gives clue to help

Quotes:

"I was thirsty. I could get sick if I don't drink water."

"She's my best friend. I am on one, two, three, four, five, six best friend lists."