



## Naturalistic Child Observation

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### Recommended Citation

Bradley, Rachel () "Naturalistic Child Observation," *Gettysburg Social Sciences Review*. Vol. 5 : Iss. 1 , Article 3.

Available at: <https://cupola.gettysburg.edu/gssr/vol5/iss1/3>

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## Naturalistic Child Observation

### Abstract

Among the many different research methods available naturalistic observation is one of the oldest forms. In this paper advantages and disadvantages of naturalistic observation will be discussed, followed by observations of two preschool children to determine which developmental stage they place in Piaget's cognitive development theory. The results found that each child fit within Piaget's cognitive development theory with each exhibiting different spheres of the preoperational stage. Further research could look at gender differences or certain behavioral incidences only.

### Keywords

Naturalistic, Piaget, Preoperational stage

## **Naturalistic Child Observation**

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**Abstract:** Among the many different research methods available, naturalistic observation is one of the oldest forms. In this paper advantages and disadvantages of naturalistic observation will be discussed, followed by observations of two preschool children, to determine which developmental stage they place in Piaget's cognitive development theory. The results found that each child fit within Piaget's cognitive development theory, with each exhibiting different spheres of the preoperational stage. These findings will be discussed against existing literature. Further research could look at gender differences or certain behavioral incidences only.

## **Introduction**

Naturalistic observation is one of the oldest methods in scientific research, used by the likes of Charles Darwin and Ian Pavlov. This type of observation is descriptive research that aims to observe and record behavior in real-world settings, without manipulation or control over the situation. All theories emphasize some form of observation, whether in a laboratory or natural setting. Ethological theory, a branch of behaviorism, places the strongest emphasis on naturalistic observation, biological in origin. Ethology stresses that behavior is strongly influenced by biology, which is tied to evolution and is characterized by critical or sensitive periods (Santrock et al., 2015). This type of research cannot prove what causes a specific behavior but can give important information about child behavior tying into current theories or possibly challenging pre-existing theories.

Therefore, naturalistic observation differs from an experimental approach in that it looks to observe people in their natural environment test or verify previous research. Experimental research studies causality, the cause, and effect of behavior, in which independent variables are manipulated to see if they cause an effect on a dependent variable.

Further, naturalistic observation is a non-experimental study in which behavior is systematically observed and recorded. This study is non-experimental because nothing is manipulated or controlled hence we cannot arrive at a causal conclusion using this approach. The study to be performed on the participants of this paper is undisguised naturalistic observation (Price et al., 2017, pp 132-133). The participants are made aware of the researcher's presence and the monitoring of their behavior. This is true for the parents of the

participants, but not blatantly to the participants themselves, reducing reactivity or changes in the subject's behavior.

With any study validity is important. This study contains a number of different types of validity. External validity relates to generalization and includes population and ecological validity. Population validity describes how well the sample used can be extrapolated to a population as a whole. The study discussed below cannot be generalized to cover all children as the sample size, being only two, is not representative of the population. Ecological validity looks at the testing environment and determines how much it influences behavior (Shuttleworth, 2009). This naturalistic observation study has high ecological validity as the children are accustomed to the researcher's presence.

As with any method, naturalistic observation comes with its own set of advantages and disadvantages. The main advantages are high ecological and external validity, meaning that the results of such observations can be generalized to real-world situations. Natural observation allows for the study of things that cannot be manipulated in a laboratory setting due to ethical concerns and topics. In this setting, more genuine behaviors can be observed aiding the validation of research already conducted (Lombardo, 2015). The disadvantages of naturalistic observation are occurrences in observer bias, whereby different conclusions are drawn from observed actions and behaviors. Difficulties arise as the subject may be aware they are being observed, changing their behavior to fit what they think the observer wants to see. Another disadvantage is that it is difficult to determine the exact cause of behavior as there are so many uncontrolled variables at play (Lombardo, 2015).

In contrast to naturalistic observation, is experimental research which has its own advantages and disadvantages. The main advantage is that the

experimenter has greater control over variables, including whether they are extraneous or unwanted variables. In this method it is easier to determine cause and effect relationships, yielding better results for repeat testing and confirming pre-existing theories (Occupytheory, 2014). The disadvantages of experimental research are that experiments may not be able to be performed due to ethical or practical reasons. The artificial design of experimental research can cause participant bias or unusual behaviors. Experiments are in themselves subject to human error, in the form of experimenter bias or data collection errors. Experiments are also very time-consuming and expensive to conduct (Occupytheory, 2014).

There are a number of different cognitive theories which relate to conscious thought. Piaget's cognitive development theory is the one used in this paper. In Piaget's theory, he states that children actively construct their understanding of the world, and go through four stages of cognitive development. With each underlined with two processes: organization and adaptation. Organizing experiences with degrees of importance and adapting to new environmental demands. Each of Piaget's four stages is age-related and consists of a distinct way of thinking, each one qualitatively different compared with another. The four stages are sensorimotor, preoperational, concrete operational, and formal operational stage (Santrock et al., 2015). However, for the ages of the children used during this study, only the preoperational stage will be discussed.

The purpose of this paper is to interpret the actual results found whilst conducting naturalistic observation of two preschool children. Based on the results the question of whether Piaget's cognitive development theory applies to each child will be established. The question of whether children of similar age develop

at the same rate will be addressed, based on current work and peer-reviewed literature.

## **Methods**

### **Setting for Child One**

Arrangements were made via Facebook messenger with W's mother, Sarah. W is friends with my daughter and everyone has spent lots of time together since birth. The mother was informed of the reason for the observation; a final project for a psychology course. The mother said there was no issue and that morning work best. An appointment was made for November 18th, 2018 at 10:00 AM.

The observation took place in the W's home. The researcher sat and talked to the mother to allow W to relax into the situation. The mother was provided with and signed informed consent. Observations began after fifteen minutes of casual conversation.

The observation took place in the living room, allowing for a clear view of the entire room where W was present. W was aware of the researcher's presence having formed a good relationship and he did want to keep including the researcher in his activities. W was informed that the researcher was here for university work and to ignore them. W stopped engaging in conversation after being informed.

### **Observation of Child One**

Observation sheet key:

- Red for gross motor skills
- Blue for fine motor skills

- Green for vocal behavior
- Yellow for social behavior

Observation Sheet (Original attached)

**Topic 1**

Student's name: Rachel Bradley

Child's name: W

Observation date: 18/11/2018

Child's DOB: June 14th , 2015

Observation time: 10:15 AM

Child's sex: Male

Observation location: W Home

Child's Activity	Others Involved and Relevant Events
W holding bread in both hands, sandwich grip all fingers and thumb.	Brother (Ollie - age 2) present and Mother. W: Weight 44lbs and height 39 inches
W puts a piece in mouth with left-hand pincher grip, chews.	
W picks up paw patrol helmet, puts on head with both hands. Barks	
W removes helmet and throws on floor	
W to mother "Can you put my turtle outfit on?"	Mother explains " I'm too big for the outfit"
W to mother "Can you put your feet in it?"	Mother "Yes"
W still chewing	
W to mother "I want you to put the whole costume on"	Mother "You want to put your costume on?"
W out loud "My turtle is for halloweening"	
W picks up every item of the turtle outfit, holding in arms	
W to mother "Can you put outfit on?"	Mother "You want the outfit on?"

W Walks off, saying "heya!", "heya!"	Mother "Come here I'll put it on"
W "I got big poops!"	Mother "What are they?"
W "I don't know you tell me?"	Mother "Muscles not poops"
W sits on floor and puts the helmet on, lifts helmet with left hand, puts drink to mouth with right hand.	
W "I'm a ninja turtle!"	
W "For Halloween"	
W takes turtle mask off puts batman mask on.	
W takes batman mask off and puts turtle mask on.	

W tries to put batman masks on top of turtle mask, this does not work so he takes the turtle and batman mask off.	
W puts batman then turtle mask over the top.	
W rubs left eye	
W "Hello, Biol	Mother "Hello, Ollie. Ollie walks over to W.
W "I stabbed Ollie with my knife"	
W lies on his stomach on the floor, kicking feet, puts face on the floor.	
W "Someone pressed a button and leee down	Mother "Lay down"
W to mother "I need my talking phone"	Mother "Your phone?"
W "Yes, my purple phone"	Mother "You don't have one"
W picks up orange block from box, with fingers, shows to researcher.	
W grabs a second block green, inspects the hole that it goes into it and puts block in, adds blue block to set	

W "Making a robot"	Mother "You're making a robot! Do you want help?"
W "Yes so we can purr bad guys"	Mother "Pew! Bad guys?"
W "Yes, big giant robot"	Mother "Here's the base"
W adds another block, pushes down	
W "How does that base look mommy?"	Mother "That's good!"
W "How does that look for a base"?	Mother "Very good!"
W "Now I put my block on"	
W picks up base to put on top of the tower	Mother "No, No, the other way round!"
W "Like this?"	
W moves tower to top with right hand	

### Setting for Child Two

Arrangements were again made via Facebook messenger, a second child was needed for observation. L's mother Becky was contacted and advised that the researcher required another child to observe, as part of a final project. Arrangements were made for the same date, 18th of November, following child one.

On arrival to the home of L, the researcher made pleasant conversation with L's mother and father and was provided with a glass of water. Becky took the informed consent forms, read and signed them. Becky said, "where would the researcher like to sit?" All parties were already sitting at the dining table. The researcher joined them sitting at the head of the table directly opposite L. The researcher felt nervous and a little awkward but had more confidence having just completed an observation.

## Observation of Child Two

Observation Sheet

### Topic 1

Student's name: Rachel Bradley

Child's name: L

Observation date: 18/11/2018

Child's DOB: November 5th, 2014

Observation time: 11:45 AM

Child's sex: Male

Observation location: L home

Child's Activity	Others Involved and Relevant Events
On arrival L is doing a jigsaw puzzle	Mother and father present L: weight 40lbs, height unknown.
L kneeling on a chair over the dining table	
L "I like baby dinosaurs!" "The yellow one is a baby"	
L grabs a puzzle piece with left hand, moves to right hand	
L "hum hum"	Father "Where did you see the puzzle piece?"
L "The Pterodactyl"	Father "Yes", Father passes more of the T-Rex pieces.
L grabs piece with right hand before looking at it and putting the piece in correct slot. Holds in pincher in right hand, leans on flat palm on left hand.	
L "Maybe this one?"	Father "Maybe this one?"
L "No!"	
L "Yes!" right hand turned sideways leaning on table, left hand holds piece and L puts it in the puzzle.	
L leans on table with left hand, finds piece with right, places piece in the	

puzzle.	
L "Yay Yay!" Bangs on table	
L "That doesn't go anywhere Dad, this one goes here"	Father "Now you have to find this piece"
L Looks at the picture on the box	
L "I need a nose" Slips on puzzle	Father "Careful!"
L "Sorry Daddy"	
L pokes puzzle piece in slot. It does not fit, L throws it down.	
L "I found another hand for a dinosaur" picks it up, rotates with left hand clockwise until it fits.	
L Looks at piece, grabs, spins in air, places in hole.	

L Pushes another piece in with two hands.	
L "Papa volcano"	Father "What! "Volcano?"
L "Yes, volcano. Oh No No"	
L "Dinosaurs have to be in the dark"	
L "Just one dinosaur puzzle"	Mother "You have three"
L "No! I have just one"	
L "Say it Mom "Triceratops"	Mother "No I don't want too"
L "Say it Mom"	
L "Say it Mommy"	
L Grabs piece, right hand pushes piece in with thumb	
L "I'm finding 3 pieces, places one piece	
"Two pieces", places one piece	
L "One" places one more piece	

L Puts arm in his shirt	Mother "Name them all to me?"
L Right to left. Points to a dinosaur "Stegosaurus"	
L "Dad, what is it called?"	Father "Yes Stegosaurus"
L Play game	Mother "What do you want to do?" Clean up?
L "No No", "I need the box"	Mother "I gave you the box"
L Gets the box, starts removing along the top strip first.	
L Then passes a piece to mom to put in box.	

L Then moves to next row moving back where he started	
L "No, No, you put it Mom!"	Mother puts puzzle pieces in box
L "It's my puzzle so I have to break it!"	
L moves to next row going right to left	
L "It's my puzzle"	Mother "OK"
L "My puzzle to break!"	

## Results

Behavioral categories are easily distinguishable via a color coding system. With red for gross motor skills, blue for fine motor skills, green for vocal behavior and yellow for social behavior. Gross motor skills are categorized as actions that involve large muscle activities, such as arm movements and walking. Fine motor skills are actions that involve more finely tuned movements, such as finger dexterity. Vocal behavior is defined as talking or making sounds. Social behavior is defined as engaging in the opinions of others, acknowledging other persons, as well as talking to one's self.

### **Child One**

Child one did exhibit good use of gross motor skills. This includes throwing objects, laying down, getting back up and walking around the room. Child one shows fine motor skills by performing a sandwich grip with all fingers and thumbs when eating, pincher grip for putting a piece of bread into his mouth, chewing, lifting a helmet to take a drink, adding and removing two different masks, rubbing his eye, grasping blocks and stacking a tower. Child one exhibits a great deal of vocal behavior, making statements pertaining to events such as Halloween, asking for help to put an outfit on, stating names of characters, imagination statements about robots, out loud speech of tasks and incorrect word usage, which was corrected by his mother. Child one engages in conversations with his mother, acknowledges the presence of his brother and talks to himself with either noises or what he is going to do or make.

### **Child Two**

Child two did exhibit good use of gross motor skills. This includes throwing objects, kneeling on a chair, banging on a table and putting his arm in his shirt. Child two exhibits a lot of fine motor skill by the nature of the task being observed. This includes puzzle piece hand switching, pincher gripping and flat palm, puzzle piece rotation with one hand, pushing with two hands, pushing with thumb, pointing and methodical right to left puzzle piece removal. Child two exhibits a great deal of vocal behavior, such as statements of dislikes in the form of a baby dinosaur, out loud speech of puzzle pieces, statements of what pieces are needed, statements of needs and wants, correct word usage for naming dinosaurs. For social behavior child two exhibits such by engaging in

conversations with his mother and father and talking to himself with either “hum hums” or what he is going to do to complete the puzzle.

## **Discussion**

Having looked at the results for both child one and two, it would seem that both fall into Piaget's cognitive development theory, specifically the preoperational stage. The preoperational stage is the second developmental stage, which lasts from about two to seven years of age; when children begin to represent the world with words, images and drawings. Preoperational thought is the beginning of the ability to reconstruct in thought what has been established in behavior. This thought process is further divided into two sub-stages, symbolic function and intuitive thought (Santrock, Conrad, & Closson, 2015).

Symbolic function is the first substage of preoperational thought and occurs roughly between the ages of two and four. In this stage, imagination is present with young children gaining the ability to represent mentally an object that is not present. This stage has two limitations, egocentrism and animism. Egocentrism is an important feature of preoperational thought and is described as the inability to distinguish between one's own and someone else's perspective. Animism is the belief that inanimate objects have lifelike qualities and are capable of action (Santrock, et al, 2015).

Intuitive thought is the second substage of preoperational thought occurring between four and seven years of age, when children begin to use primitive reasoning. Primitive reasoning is known as centration and conservation. Centration is that of focusing attention on one characteristic to the exclusion of all others. Conservation is the principle that altering an objects or substances appearance does not change its basic properties (Santrock, et al, 2015).

Young children specific to the age group (age 2-7) observed, make advances in two aspects of attention, executive and sustained. Executive attention involves planning, allocating attention to goals, error detection, monitoring progress on tasks and dealing with novel circumstances. Sustained attention is the ability to maintain attention to a selected stimulus for a prolonged period of time (Santrock, et al, 2015).

Child one exhibits aspects of both preoperational thought and sustained attention. It seems that the child one is on the cusp of advancing from the symbolic function substage to intuitive thought substage. Child one is expressing traits found in symbolic function substage, as he has the abilities to represent mentally an object that is not present. An example of this would be having an imaginary knife to stab his brother with. One of the limitations of thought in this stage is animism. Child one does show this trait as whilst making a robot out of blocks, he then gives the robot the capabilities of action in the form of "pew pew, shoot the bad guys".

The primitive reasoning strategies shown in the intuitive thought substage by child one is conservation. Child one shows conservation as he asks his mother, whilst playing in his living room during the observation, if she can put a ninja turtle outfit on. The mother explains that she is too big for the outfit. Child one then states "can you put your feet in it" This is conservation as although the outfit is still the same size his mothers feet are smaller and can fit.

With the aspect of attention or more specifically, sustained attention, child one was able to maintain attention on robot block building for a prolonged period of time. Child one also shows some of the parameters for executive attention, in the form of error detection when he puts a block on the wrong way, but not enough parameters to warrant full executive attention.

Child two also shows parameters in both sub-stages, in symbolic functions sub-stage he shows the limitation of egocentrism as he doesn't see his mothers' perspective. The example being, he states "just one dinosaur puzzle", mother states "you have three", child two shouts "No! I have just one". In the intuitive thought substage he exhibits concentration on a number of instances. The first being when he states "hum hum" when holding and observing a puzzle piece. The second being when he states "I need a nose". The final one, when he states I found another hand for a dinosaur. These are all examples of centration as the child is focusing on one characteristic to the exclusion of all others, whether that is a nose or hand.

Child two in the field of attention shows a great deal of executive attention. In doing such a task as jigsaw puzzle making, this involves many of the parameters found in executive attention. Child two allocates attention to each puzzle piece to complete the goal of finishing. In the spotting and correcting of errors, child two does show this when he finds another hand for a dinosaur, the child picks up the piece, rotates the piece in his left hand clockwise, until it fits into the slot. Child two also monitors his progress throughout the task, until completion. On completion of the jigsaw puzzle his attention then switches to a new goal of putting the jigsaw puzzle away. Again making a goal, methodically removing pieces right to left and dealing with difficult circumstances, such as his mother trying to help.

From the points discussed so far the question of how these findings contribute to existing literature will follow.

Keane and Griffin (2018) state that in using Piaget's cognitive development theory as a theoretical framework, summative and formative assessment types can be used to increase self assessment strategies. With the

latter offering information on how learning and teaching can be improved. With regard to self-assessments they can inform learning but may be age related and environmental in origin. Piaget's theory is characterized by distinct cognitive traits which render certain children more likely to make inaccurate self-assessments. The preoperational stage discussed in this study does in fact result in inaccurate self-assessments due to egocentricity. Child two of this study is observed displaying egocentrism, in not seeing his mothers' perspective. When looking for improvements or potential differences in children, a Piagetian assessment similar to the one shown in this current study could be used to see where a child places and what their learning capabilities could be.

In the study by Keane and Griffin (2018) they applied Piaget's theory with caution, where children's ages were used as a proxy for the development stage, in recognition of the flaws associated with stage theories of development. However, when looking at the method in their study, the children used for the preoperational stage were probably more on the concrete operational stage as they are aged, seven to eight years old. The preoperational stage is between two and seven years old, this may have skewed their data. The ages of the participants used in this study fall perfectly within Piaget's age range and have even been able to distinguish between the two sub-stages; symbolic function and intuitive thought, in the participants.

In the paper by Smith (2018), Piaget's main argument was that from infant to savant, all knowledge is organized and re-organized through its rational formation, which enables its development to become more powerful knowledge. This argument is seen not only in Piaget's stage theory but in this study, by child one and two both exhibiting different spheres of the same stage.

Piaget's studies of infancy were based on journal writing over seven years, comprising 1200 pages of notebooks and 10,000 observations and experiments of his three children. He made a commitment to developmental epistemology (Smith, 2018). Piaget himself, observing his own three children, became the inspiration for his cognitive development theory. He too, found difficulty generalizing his findings to a larger population but he is still a leading figure in cognitive and developmental psychology today ("Importance of Jean Piaget's Work and Findings", n.d.). For the same reason, the small sample size seen in this study should not be a deterrent to the insightful use of Piaget's cognitive development theory.

Piaget grappled with two different challenges for the theory of cognitive development. The first is explaining the human conceptual repertoire. Understanding the acquisition of any specific concept require specifying the innate primitives, and the processes through which they are transformed, through learning, into the adult state. Thus conceptual development includes episodes of change in which new representational resources are constructed, which in turn permits thoughts previously unthinkable. The second challenge is characterizing the domain of general cognitive resources that make learning possible. That is explaining developmental changes in cognitive architecture. In one study on adults with Williams Syndrome provided powerful evidence that a huge database of factual knowledge does not lead to conceptual change (Carey, Zaitchik & Bascandziev, 2015).

Advancements in various fields have allowed us to go well beyond Piaget's theory concerning the learning mechanisms for conceptual repertoire. Neo-Piagetian research aims to correct weaknesses in Piaget's stage theory, which proposes that people develop through various stages of cognitive

development, by looking into developments in working memory capacity. Working memory capacity increases with age, the ability to represent more complex conceptual structure constitutes entering into a new stage of development. Another top-down process, executive function plays into many different cognitive functions such as planning, self control and sustained attention (Carey, Zaitchik & Bascandziev, 2015). Both child one and child two of this study, exhibit working memory and executive function, specifically sustained attention. Child two shows an increased amount of sustained attention, which may be due partly to the task being performed or his age when compared to child one; a difference of seven months.

Piaget was among the first to help us understand the benefits of more authentic testing among children. He stated that every child approaches problems and views experience through the lens of prior experiences. He encouraged testing as a means of focusing on where a child is in the thinking process – not on whether the child is right or wrong (Johnson, 2017). This study is authentic in that it was purely observational; not testing or guiding the participants in any way, documenting the child's thought process.

The findings in this paper contribute to existing literature as the method used can be easily transferred to other age groups, genders and stages of development, allowing for subsequent child development assessment or Piaget theory confirmation.

## **Conclusion**

This study was performed as part of a final project for a developmental psychology course, observational in design. This research aimed to observe preschool children to identify if they effectively place within Piaget's cognitive

development theory, and if so, whether children of similar age develop at the same rate, cognitively.

As stated by Christensen et al. (2011) scientific observation requires an important set of skills. The limitations of this study may fall partly on the researcher themselves. For instance, the researcher would have practiced writing and observing prior, as once you are in the midst of doing the observation it becomes apparent that it is a lot harder than anticipated. Adjustments may have been made to the informed consent forms to include audio recordings, which would have been transcribed later. Hence, visual notes would have been made, followed by audio, or perhaps dictation of the observations.

The methodological approach used in this study was effective in highlighting the four behavioral categories stated; gross motor skills, fine motor skills, vocal behavior and social behavior. While the sample size limits the generalizability of the results. This approach provides new insights into the ease of categorizing behavioral incidences in preschool children. The key learning points gained from the study, in relation to children and development, are that it does seem that children of similar age hit key milestones of learning at around the same time. It was quite eye opening to think of the amount of development we, as humans, go through from birth to adulthood.

The approach taken was one of observation in a natural setting. It was expected that the children would fall within the second stage of the Piagetian theory, preoperational thought, based on their ages. The behaviors of the children were expected for the preschool age selected and they tied nicely into Piaget's cognitive development theory. It was found that although there was only an age difference of seven months between the participants, there were marked

differences between the children furthering my confidence in Piaget's theory. The results of this study did match my expectations overall.

The findings of this study show that with good knowledge of a theory of interest, a well conducted observational study can be achieved. The main points to be included when undertaking a Piagetian-like study include the correct age ranges of the participants, behavioral categories that are easily identifiable and conclusion forming.

As seen in the literature review above Piaget's theory was made possible by observing, documenting and interpreting the results, to arrive at a plausible and tangible conclusion. This was achieved in this study, adding to Piaget's cognitive development theory.

To better understand the implications of these results, future studies could address literacy levels of Piaget's stage transition in children. Other research could be done via structured observation, showing an interest in a limited set of behaviors. The study does show somewhat of a gender bias towards boys; therefore further studies could either observe girls and compare findings or do a mix of each sex. In light of these strengths, limitations and future study ideas, some intriguing questions remain into our understanding of cognitive development.

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