

Name:

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Infant Logic

My Reason for Writing about this Topic

Adults possess the ability both to reason and to think logically, and it is believed that the same is similar to children. In quite a long time, scientists have considered language to be a vital and compulsory sign of logic, the aspect of guessing someone's thought and coming out with the right understanding is not an apparent thing. In the year 2014, research held by some psychologists showed that that kind of logic started in infants at the age of 3 to 5 years. In 2012, Cesana-Arlotti, a psychologist from Johns Hopkins University and others came up with the idea that such kind of thinking starts at a younger age than the one suggested earlier (1264). Cesana-Arlottiet al. further argued that if the one thinks logically, then the one produce specific outcomes, and, as a result - evidence, that cannot be disallowed is seen (1264). This basis gives way to more information; we can conclude that infants' logic achieves complete development through the same procedure. This research is of interest to me because I am fascinated by the fact that a language is just a form of communication and it cannot solely be the single measure of how intelligible an infant is.

My Thesis

It is amazing how the young individuals are wired to function with a lot of resemblance to their hereditary parents, in spite of not being able to portray all faculties of a fully functioning

adult mind. Language is not a measure of the ability to reason logically and because of that infants do possess a level of logic, albeit small.

Approach to the Paper

The late Dr. T. Berry Brazelton, a pediatrician who passed on at the age of 99, also gave out his standing by reasoning that toddlers are not some “lamp of clay” (Stadtler, Gorski, and Brazelton, 1360). He noted that the toddlers are beings that are complicated, but with reasonable and consequential behavior. In the field of research, Dr. Brazelton started making an investigation for the meaningfulness of the toddler’s reasoning and later discovered that it was more tortuous than he thought (Stadtler, Gorski, and Brazelton, 1361).

In a research experiment, Arlotti and his partners put kids between the ages of 12 to 19 months who had not learned how to speak on the laps of their mothers who were blindfolded to prevent the toddlers from noticing their mother’s facial expressions. The study involved placing different pictures before them, such as an umbrella and a flower, in animation form. Each child watched keenly as a spoon was used to scoop the umbrella, but the babies would not see whichever object was picked up, so they moved closer to the screen. When the screen failed to show the remaining objects, like the flower, the toddlers would suspect that the umbrella was in the cup since they weren’t able to see it. However, instead of the flower remaining alone, there appeared other two umbrellas. The eyes remained focused on the cup. When something strange happens, children stare at the place where the thing has happened because it was contrary to their expectation, (Cesana-Arlotti et al., 1264).

Similarly, the children may glue their eyes longer to where the other umbrella originated from because they watched for other things coming from behind the screen, as at their sensing. This observation could be the very beginning of the ability to question things that do not fall on

the conventional side of the standard. Psychologist Cesana-Arlotti added that it was extremely troublesome for the infant to follow the series of how the objects were being placed, and then scooped away, and reappear again. Even without a practical way of explaining it, it's notable that children had a level of reasoning in their minds of how the sudden scenes may have taken place, though they would not explain verbally. Similar observations all the more support the author's interpretation.

A group of researchers from different universities in Europe also observed children from the age of 12 to 19 months who were practicing speaking. They noticed that the children were interested in certain aspects. In this experiment, the objects were kept behind a dark wall. The image showed that a piece of the cup was used to take away the dinosaur, the expected results were that the flower remained (Cesana-Arlotti et al., 1265). On the contrary, the wall was removed and instead of the expected result, two dinosaurs became noticeable.

It was in the childrens' observation that something was missed. However, they were not able to speak up about it. The researchers used the eye-tracking method and noticed that infants concentrated more on the possible origin of the new dinosaur. Nicolò Cesana-Arlotti, the study author and a postdoctoral associate in the Department of Psychology stated that; "The observations we have shows that the achievement of rational expressions may not be the origin of the most important rational building blocks in mind" (1265). Later, he notes that a significant section of a person reasoning relays to thinking about other possibilities and asks out the opposing ones: Between the dinosaur and the flower, which one gets to sit behind the wall? When reasoning formally, it refers to the disjunctive syllogism. It is either A OR B.

Cesana-Arlotta et al. also observed that the children's pupils enlarge when seeing the animations that qualified as insensible sights (1266). Widened pupils is a common phenomenon

even in adults who are familiar with logic and reason, and this gives more proofs that toddlers know how things are supposed to be. Goswami reported that the toddlers' advances of using some of the test types are very technical (440).

Most of our characteristics and reasoning is starting its development when we are young, proving that toddlers can reason at an age, as early as one-year shows, that it goes to farther developing with the very same idea while growing older (Overtone, 22). Most humans would attest that they mostly reason when they inwardly speak to themselves in their minds. This research shows that toddlers who are learning speech also go through the same logic and are reasoning in that manner before they can speak up with clarity (Csibra et al., 112). Language is not just what eventually comes out of the mouth; there is reasoning before that and perception, and also the ability to wonder and interrogate ideas.

Another factor that the researchers indicated is the results did not emphasize the significance of speaking and gestures to the development of the toddler's brain and their resultant analysis. The ability to associate visual input with verbalized names is a proper depiction of the infant's logic. The new discussion appeals that it is not essential that speaking is the core shape of the human's brain and thinking (Bauer, 29). If it were, then the majority of intelligent people who stutter and stammer in their words would be erroneously categorized as daft. This thinking is wrong.

The researchers put into consideration that a lot of analysis is required to find how such results may show the way to better approach when dealing with the infants' cognitive disorders as well as their original state of thinking (Rosch, 13). Cesana-Arlotti finds out that language and symbolic communication to infants does not negate child brain development. Research suggests that maybe it is not important to shape the brain's logical capacity. He further suggests that he

plans to research on how preverbal logic might affect the ability to reason that comes out once the language is developed, however, language may give more reasoning abilities that are unavailable to the brain that is speechless. Nicolo Cesana-Arlotti aims at researching more on mental growth and development of toddlers. He aims at investigating the earliest age, at which children can think logically, that is, children's age at which their minds can be more creative and flexible. He proposes to research more on mental and brain development of a kid.

Babies are seen as mini-statisticians and can conclude the probability of actions and events not seen. By using a computer model, it was further observed that children could predict the outcome of occurrences accurately when some information is presented. The example is an engineering artificial intelligence model that is very useful in many life aspects. Knowledge of objects of infants are not the feelings. Instead of it, they do some facets of probabilistic and rational reasoning. Young children grasp vast information on daily events since physical objects cannot come into existence on how hierarchies work socially. A study shows that a 6-month-old can adequately deduce the difference between a friendly and an unfriendly dog.

Scientists conducted several experiments that indicate that size is essential in marking dominance among animals and humans. Since a child cannot respond to questions verbally, researchers use a cognitive study method known as the "violation of expectations" (Kaufman and Baer, 220). Even though there is evidence supporting the ability to follow logic and question it when it does not add up, we cannot say that the reasoning ability of children is optimum.

According to Berger, Tzur, and Posner, infants can notice inconsistencies such as arithmetic errors, and they realized that children stared longer at the wrong arithmetic answers compared to the correct ones (12649). Another author reported that "logical cognition has its origins in infancy antedating the development of abstract tools" (Rosch,74). It happens, she adds,

because "the actions of infants of ages between six and twelve months can be interpreted already to include elementary logical and mathematical in a pragmatic rather than symbolic form" (Rosch, 74). One can safely assume that the only reason why they could not voice their disagreement is that of the language barrier, which is wholly a different concept from logical reasoning, this data is adequately captured in table 1 under the charts below. After showing videos and photos of unpleasant situations or activities to children, it follows conventional rules causes them to look away which means that they are annoyed with such. However, when they are shown images of weird circumstances on a circus and other pleasant actions, they enjoy and glare at such a lengthy period.

Intended Audience

This research once completed will be invaluable and can contribute immensely towards early childhood education. Thus, professions that may form part of the audience include pediatrician healthcare providers like nurses as well as preschool teachers. It is good to know that just because a child has not answered a posed question does not mean that they have not understood. Punishing children for the apparent lack of speech while they show fascination nonverbally may impair their cognitive learning process (Hu, 95). Parents and guardians will find this study of significance because they are the first contact people with children who are in the early stages of learning. Moreover, counselors who attend to first-time mothers as well as people who care for the mentally challenged children.

Chart

Table 1

Examples of cognitive abilities that children perform at different ages.

At three or four days, a baby can discriminate between collections of two and three items. Under certain conditions, infants can even distinguish three items from four.
By four and a half months, a baby "can tell" that one plus one is two and that two minus one is one.
A little later, infants "can tell" that two plus one is three and that three minus one is two.
These abilities are not restricted to visual arrays. Babies can also discriminate numbers of sounds. At three or four days, a baby can discriminate between sounds of two or three syllables.
And at about seven months, babies can recognize the numerical equivalence between arrays of objects and drumbeats of the same number.

Source: "The Brain's Innate Arithmetic." Cogsci.ucsd.edu. N.p., 2018. Web. 19 Apr. 2018.

Sources to use

This proposal is based on examining primary sources and first-hand experiments such as those conducted by Cesana-Arlotti. In addition to primary sources, interviews can be conducted in both nursing mothers and experienced ones. Interviews will help bring into perspective the theoretical findings of the experiments. Data from primary sources will take preeminence.

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