福島大　2013年

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次の英文を読み，下の設問(1)～(6)に日本語で答えなさい。

About thirty years ago, the field of child development got a shock. Up until that time, it had been thought that when babies imitate a physical movement, it was *learned*. The theory was that the visual perception of a movement and the execution of the imitative movement were independent of each other and controlled by different parts of the brain. Then a study of imitative behavior of young infants suggested perhaps the visual perception of a movement such as sticking out a tongue and the production of the movement (actually copying the movement) were not separately acquired abilities but were linked somehow. Since then, many independent studies have shown that newborns from the age of forty-two minutes to seventy-two hours can imitate facial expressions accurately.

Think about it. One can only be amazed at what the brain is doing when it is less than one hour old. It sees there is a face with a tongue sticking out, somehow knows it too has a face with a tongue under its command, decides it will imitate the action, finds the tongue in its long list of body parts, gives it a little test run, commands it to be stuck out ―― and out it goes. How does a baby know a tongue is a tongue? How does she know what nervous system is in charge of the tongue? How does she know how to move it? Obviously, it was not learned by looking in a mirror, nor had anyone taught it to her. *The ability to imitate must be innate*.

Imitation is the beginning of a baby’s social interaction. Babies will imitate human actions, but not those of objects; they understand they are like other people. The brain has specific nerve circuits for identifying biological motion and inanimate object motion, along with specific circuits to identify faces and facial movement. What can a baby do to enter the social world before it can sit up or control its head or talk? How can she interact with another person and form a social link? When you first hold a baby, what links her to you and you to her are her imitative actions. You stick out your tongue, she sticks out her tongue. (a)She doesn’t lie there like an object but responds in a way that you can relate to.

After about three months of age, this type of imitation can no longer become obvious. Imitative abilities then develop that show that the infant understands the meaning of what is being copied: the imitative movements don’t have to be exact but are directed toward a goal. The infant puts the sand in the bucket, but the fingers on the shovel don’t have to be held in exactly the same way as the fingers of the person showing her how to use the shovel; the goal is getting the sand in the bucket. We have all seen how young children play when they are together, so (b)it comes as no surprise that children aged eighteen to thirty months use imitation in their social exchanges, take turns between being the imitator and the imitatee, share topics, and in short, use imitation as communication. Imitating others is a powerful mechanism in learning and acculturation.

【Adapted from Michael S. Gazzaniga, *HUMAN: The Science Behind What Makes Your Brain Unique*, HarperCollins Publishers (2008), pp. 160-161】

[注] inanimate：not alive; showing no sign of life

acculturation：the process by which a human being acquires the culture of a particular society from infancy

[設問]

(1) 約30年前，子供の発達を研究する分野で，運動の視覚的認識と模倣運動の実行に関する考え方に大きな変化が起こりました。変化の前後の考え方を説明しなさい。

(2) 赤ん坊は模倣する能力を生まれながらに持っていると考えられる理由は何ですか。

(3) 赤ん坊が他の人間と同じであることを理解していると考えられる理由は何ですか。

(4) 下線部(a)の1例として，どのようなことが挙げられていますか。

(5) 生後約3か月から，赤ん坊の模倣運動にどのような変化が見られますか。

(6) 下線部(b)を日本語にしなさい。