PEARSON NEW INTERNATIONAL EDITION

Theories of Development
Concepts and Applications

William Crain

Sixth Edition

ALWAYS LEARNING

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Pearson Education Limited
Edinburgh Gate
Harlow
Essex CM20 2JE
England and Associated Companies throughout the world

Visit us on the World Wide Web at: www.pearsoned.co.uk

ISBN 10: 1-292-02262-0
ISBN 13: 978-1-292-02262-8

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

Printed in the United States of America

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Early Theories: Preformationism, Locke, and Rousseau

The two great pioneers in child psychology were John Locke and Jean-Jacques Rousseau. Locke was the father of environmentalism and learning theory; his heirs are scientists such as Ivan Pavlov and B. F. Skinner. Rousseau began the developmental tradition in psychology; his followers include Arnold Gesell, Maria Montessori, Heinz Werner, and Jean Piaget. Both Locke and Rousseau made radical departures from an earlier outlook called preformationism.

PREFORMATIONISM

For centuries, people seem to have looked on children as fully formed miniature adults. The French historian Philippe Ariès (1914–1984) described how this view was predominant during the Middle Ages. Medieval paintings and sculptures, for example, routinely portrayed children—even newborns—with adult body proportions and facial characteristics. The children were distinguished only by their size. It was as if the children had arrived preformed in the adult mold (Ariès, 1960, pp. 33–34).

In medieval social life, too, Ariès argued, children were treated like adults. When they were 6 or 7 years old, they were typically sent off to other villages to begin working as apprentices. They learned carpentry, farming, domestic service, weaving, and other crafts and trades on the job. The child lived as a boarder in a master's house and often worked alongside other apprentices who were much older than he or she. No one paid much attention to the child's age, for the child had basically entered adult society. The child wore the same clothes, played the same games, and participated in the same festivals as the grownups

(Ariès, 1960, pp. 71–72, 411). "Wherever people worked," Ariès said, "and also wherever they amused themselves, even in the taverns of ill repute, children mingled with the adults" (p. 368).

Ariès acknowledged that younger children—before the age of 6 or 7—were treated differently. People recognized their need for protection and care. But on the whole, Ariès suggested, people were indifferent to children's special characteristics. No one bothered to study, for example, the infant's developing speech or motor development; and when artists included children in their paintings, they depicted even newborns as miniature adults.

Some historians have challenged Ariès's views. Because medieval written documents are sparse, it's difficult to evaluate all the disagreements, but historians such as Barbara Hanawalt (1986) and Shulamith Shahar (1990) have gathered enough evidence to indicate that Ariès was sometimes prone to overstatement. It appears that apprenticeships, while common, were not as universal as Ariès claimed, and that 6- and 7-year-olds sometimes entered the adult workplace more gradually than Ariès implied. Still, by the age of 12 or so, most children were carrying out adult responsibilities, and I believe that Ariès's critics have done more to qualify Ariès's accounts than to refute them.

Moreover, other sources have shown that the image of children that Ariès highlighted—that of the child as a little adult—has been prevalent throughout the ages. This image is perhaps most evident in preformationistic theories in embryology. For centuries, many scientists believed that a tiny, fully formed human, or homunculus, is implanted in the sperm or the egg at conception (see Figure 1). They believed that the human is "preformed" at the instant of

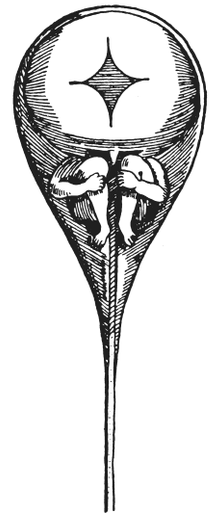

FIGURE 1
Drawing by Hartsoeker (1694) of a fully formed human in the sperm.
(Reprinted in Needham, 1959, p. 206.)

conception and only grows in size and bulk until birth. Preformationism in embryology dates back at least to the fifth century B.C.E. and is found in scientific thinking throughout the ages. As late as the 18th century, most scientists held preformationist views. They admitted that they had no direct evidence for a fully formed homunculus, but they argued that this was only because it is transparent or too small to see (Balinsky, 1981, p. 11; Needham, 1959, pp. 34–35, 91, 213–222).

As we look back on the "little adult" views of the past, it's easy to regard them as quaint and antiquated. But we often lapse into the same thinking today, as when we expect young children to be able to sit as still as we can in social settings, or when we assume that their thinking is the same as ours. For example, I was recently standing in a supermarket checkout line and heard a mother next to me upbraid her toddler for having put several items that he liked into the shopping cart: "You know I can't afford those things," the mother said, as if the toddler had an adult knowledge of grocery budgets. We are vulnerable to an adult egocentrism and assume that even young children think as we do, even if our attitude isn't as dominant as it once was (Ausubel, 1958, p. 24).

In embryology, preformationism gave way during the 18th century, when microscopic investigations showed that the embryo developed in a gradual, sequential manner. In European social thought, preformationism began to decline earlier, in the 16th century, accompanying changes in the occupational world.

During the Middle Ages, most of the occupations—such as farming, carpentry, domestic service, metal work, and weaving—required skill, but the adults believed that 6- and 7-year-olds could begin learning them on the job. Children, therefore, were able to mix in with adults. After 1500 or so, the occupational world showed clear signs of change. With the invention of the printing press, the growth of commerce and market economies, and the rise of cities and nation-states, the occupational world began to take on a "white-collar" look. New opportunities arose for merchants, lawyers, bankers, journalists, and government officials—occupations that required reading, writing, and math. The members of a rising middle class saw that they could advance their families' fortunes by providing their children with the academic instruction that these new occupations required. This new demand for education sparked a tremendous growth of schools in 16th- and 17th-century Europe (Crain, 1993).

The upshot was that growing numbers of parents (especially in the middle class) were no longer willing to send their children off to work at the age of 6 or 7 years. Parents wanted their children to go to school first. Parents began keeping their children in school at least until they were 12 years old, and often until they were well into their teens. Thus the growth of schools gave the child a new status. The child was no longer someone who was ready for the adult world, but someone who had to be kept apart from it while undergoing

an extensive education. The child was seen less as a little adult and more as a future adult (Ariès, 1960, pp. 329, 412).

LOCKE'S ENVIRONMENTALISM

Biographical Introduction

As the rising middle class pursued new opportunities, it challenged the traditional feudal order. The middle class no longer accepted a society in which everyone's place was predetermined by birth. It sought a brighter future, pinning great hopes on education to bring it about. In so doing, it helped usher in the modern way of life.

But the feudal regime wasn't about to just hand over its authority. It imposed economic regulations and waged an ideological war. It accused the new middle class—the bourgeoisie—of selfishly abandoning loyalty, honor, and the old ways.

In these battles, those seeking change drew inspiration from the intellectuals of the 18th-century Enlightenment, such as Denis Diderot and Nicolas de Condorcet. These writers argued that if people could rid themselves of the authoritarian state and church, people could live freely and democratically, and science, technology, and education would produce great progress for all. These writers, in turn, drew heavily on the late-17th-century theories of the British philosopher John Locke (1632–1704).

Writing in language that was refreshingly clear and sensible, Locke rejected the widespread belief that there are vast, innate differences among people. Instead, Locke argued, people are largely shaped by their social environments, especially by their education. Locke then showed how this happens and how education could be improved. To many Enlightenment thinkers, Locke's writings were full of wonderful possibilities. If one could change people's environments and education, one could produce an egalitarian, democratic society (Gay, 1969, pp. 511–516).

Locke was born in the village of Somerset, England. His father, a small landowner, was the first to instill in him a belief in democracy. Locke attended the Westminster School and Oxford University, but found both plagued by the pedantic lessons so prevalent in his day. Although he seems to have been a rather shy boy, he frequently became so bored and restless in class that he preferred to talk to his classmates rather than pay attention to the instructor (Pheardon, 1952, p. vii; Quick, 1880, p. xx; Sahakian & Sahakian, 1975).

Still, Locke did well enough at Oxford to gain appointments at the university tutoring Greek and moral philosophy. For a while, Locke had trouble deciding on his future. A devout Christian, he thought he might become ordained in the Church of England, but he decided to study medicine instead,

primarily so he could learn about the natural sciences. He assisted a noteworthy chemist, Robert Boyle, and was deeply impressed by the scientific method and its reliance on empirical evidence. As a physician, Locke successfully treated Lord Ashley, later the Earl of Shaftesbury; became Shaftesbury's friend and personal secretary; and also tutored his grandson. His association with Shaftesbury, however, eventually proved troublesome. When Shaftesbury was imprisoned for criticizing the king, Locke was forced to flee England and find asylum in Holland. There, Locke wrote a series of letters to his friend Edward Clark, offering advice on the upbringing of Clark's son. These letters inspired Locke's most important work on education, *Some Thoughts Concerning Education* (1693). After the successful Revolution of 1688, Locke returned to England and saw the publication of two other great books. The first was his *Essay Concerning Human Understanding* (1690), which established him as the father of empiricism in philosophy and learning theory in psychology. His other great book was *Two Treatises on Government* (1689), which set forth many of the central ideas in the U.S. Constitution (Lamprecht, 1928; Russell, 1945).

Locke's View of Development

The starting point of Locke's theory was his refutation of the doctrine of innate ideas. Prior to Locke, many philosophers held that some ideas, such as mathematical truths and beliefs in God, are innate, existing in the mind prior to experience. Locke argued that observations of children will show that these ideas are not present from the beginning and that they are learned. He said it is more accurate to think of the child's mind as a blank slate, and whatever comes into the mind comes from the environment. We might consider

> the mind to be, as we say, white paper void of all characteristics, without any *ideas.* How comes it to be furnished? . . . Whence has it all the materials of reason and knowledge? To this I answer, in one word, from *experience;* in that all our knowledge is founded, and from that it ultimately derives itself. (1690, vol. 1, bk. 2, sec. 2, emphasis in original)

Locke did qualify this statement a bit. He noted that although most of a person's knowledge comes from the environment, a person also can learn, in time, by reflecting on his or her own thinking and beliefs (1690, vol. 1, bk. 2, chap. 1). Locke also acknowledged that there are some innate differences among individuals (1693, sec. 1).

But on the whole, Locke said, it's the environment that molds the mind. And the environment's influence, Locke emphasized, is especially powerful in the child's early years. This is when the child's mind is most pliable, when

we can mold it as we wish. And once we do so, its basic nature is set for life (1693, secs. 1, 32).

Precisely how does the environment exert its effects? First, many of our thoughts and feelings develop through *associations.* Two ideas regularly occur together, so we cannot think of one without simultaneously thinking of the other. For example, if a child has had bad experiences in a particular room, the child cannot enter it without automatically experiencing a negative feeling (Locke, 1690, vol. 1, bk. 2, chap. 33, sec. 15).

Much of our behavior also develops through *repetition.* When we do something over and over, such as brushing our teeth, the practice becomes a natural habit, and we feel uneasy when we have failed to perform it (Locke, 1693, sec. 66).

We also learn through *imitation.* We are prone to do what we see others do, so models influence our character. If we are frequently exposed to silly and quarrelsome people, we become silly and quarrelsome ourselves; if we are exposed to more noble minds, we too become more noble (1693, sec. 67).

Finally, and most important, we learn through *rewards* and *punishments.* We engage in behavior that brings praise, compliments, and other rewards; we refrain from those actions that produce unpleasant consequences (sec. 54).

These principles, Locke believed, often work together in the development of character. For example, a little girl is likely to hang up her clothes if she sees her parents hang theirs up, through imitation. After she hangs up her clothes a few times in succession, this good trait becomes a habit, and this habit becomes all the stronger if she receives some praise or compliment for it.

The previous example illustrates the usefulness of Locke's ideas for bringing up a child. Let us now look more closely at his views on education.

Locke's Educational Philosophy

Locke thought of education broadly, as the formation of the child's character as well as academic learning. In fact, he gave greater weight to character development, so we will consider this first.

Self-Control. Locke said the main goal of education is self-control: "It seems plain to me that the principle of all virtue and excellency lies in a power of denying ourselves the satisfaction of our own desires, where reason does not authorize them" (1693, sec. 38).

To instill self-discipline, we first should tend to the child's physical health. When the body is sick and weak, one has little ability to control its demands. Accordingly, Locke advised us to give children plenty of exercise so their bodies will become strong, and he suggested that children play outdoors in all seasons so they will learn to endure the hardships of all kinds of weather (secs. 1–16, 33).

If children are to acquire discipline, we must be firm with them from the start. Many parents coddle their children and give in to their every whim; the parents think that such indulgence is all right because their children are still small. But the adults fail to realize that early habits are difficult to break. Children who find that they can get whatever they want, simply by asking or crying out, never unlearn this bad habit. So parents should never reward children when they desire things they do not need. Children should learn that they will get favorable results only when they ask for things that their parents consider appropriate (secs. 38–40).

The Best Rewards and Punishments. From the beginning, then, we should pay close attention to how we reinforce our children's behavior. We should reward only reasonable behavior, never behavior that is unreasonable or self-indulgent.

The use of rewards and punishments, however, is a tricky matter. Not all rewards and punishments produce desirable effects. Locke was especially opposed to the use of *physical punishment.* In the first place, its use establishes undesirable associations. If a child is beaten or chastised for letting her mind wander during reading lessons, she will not only associate pain with mind wandering, but with the sight of books as well. Further, physical punishment is often ineffective. The child submits while the rod is in sight, but just as soon as the child sees that no one is looking, she does whatever she wants. Finally, when physical punishment does work, it usually works too well. It succeeds in "breaking the mind; and then, in the place of a disorderly young fellow, you have a low-spirited moped creature" (sec. 51).

Similarly, not all kinds of rewards are desirable. Locke opposed the use of money or sweets as rewards because their use undermines the main goal of education: to curb desires and to submit to reason. When we reward with food or money, we only encourage children to find happiness in these things (sec. 52).

The best rewards are praise and flattery, and the best punishment is disapproval. When children do well, we should compliment them, making them feel proud; when they do poorly, we should give them a cold glance, making them feel ashamed. Children are very sensitive to approval and disapproval, especially from their parents and those on whom they depend. So we can use these reactions to instill rational and virtuous behavior (sec. 57).

We also can strengthen the effectiveness of our approval and disapproval by pairing these reactions with other consequences. For example, when a little boy asks politely for a piece of fruit, we give it to him, and we also compliment him on his politeness. In this way, he learns to associate approval with agreeable consequences and thus becomes more concerned about it. Alternatively, when he breaks something he likes, we add a look of disappointment in him, so he will come to associate our disapproval with negative consequences. Through such practices, we deepen the child's concern for the opinions of others. Locke

said that if you can make children "in love with the pleasure of being well thought on, you may turn them as you please, and they will be in love with all the ways of virtue" (sec. 58).

Small Steps. Locke was concerned that children acquire many fears. For example, children are initially attracted to animals, but when one hurts a child's finger, she associates the sight of the animal with pain and fears all animals of the same species. Locke wanted children to grow up to be brave adults, so he recommended a method for eliminating fears. He didn't advise adults to just rush in and try to break the child of fears, but to eliminate them by "gentle degrees" (sec. 115). If a child fears a chicken, we should first let someone else sit beside the chicken at some distance from the child, until the child can watch the animal without fear. Then we should slowly and gradually bring the child closer to the chicken, making sure the child can observe the chicken without anxiety. Finally, we let the child touch the chicken while the chicken is held by another, until the child herself can handle the animal comfortably.

Rules. Most parents set down all kinds of rules and then punish their children when they disobey them. This practice is basically useless. Children have great difficulty comprehending and remembering rules in the abstract, and they naturally resent getting punished for failing to comply with a rule that they could barely keep in mind. As an alternative to commands, Locke suggested two procedures.

First, since children learn more from example than precept, we can teach them much by exposing them to good models. Children will eagerly model their behavior after that of a virtuous person, especially when we compliment them for doing so (sec. 68).

Second, Locke suggested that, instead of issuing commands, we have children practice the desired behavior. For example, instead of instructing children to bow whenever they meet a lady, it is better to give them actual practice in bowing, complimenting them each time they bow correctly. After repeated practice, they will bow as naturally as they breathe, without any thought or reflection, which is essentially foreign to them anyway (sec. 66).

Children's Special Characteristics. Locke's discussion of the futility of teaching rules that exceed a child's understanding introduced something new into his system. Before this, he had written as if the child's mind were a lump of clay that we could mold in any way we wished. Now, however, he was saying that children have their own cognitive capacities that set limits on what we can teach. He also suggested that children have temperaments peculiar to their age, such as a liking for noise, raucous games, and gaiety, and he added that it would be foolish to try to change their natural dispositions (sec. 63). Thus Locke seemed to admit that children are not blank slates

after all. As various scholars have pointed out (e.g., Kessen, 1965, pp. 59, 72; Russell, 1945, p. 606), Locke was not above a certain amount of inconsistency. If he had insights that contradicted his basic environmentalism, the inconsistency didn't trouble him.

Academic Instruction. Locke was upset by the academic instruction of his time, which forced children to spend long hours a day struggling with material that made no sense to them. Locke pointed out that instruction is most effective when children enjoy it. He suggested that children could learn many things, such as reading letters and words, through games (secs. 148, 150). Locke also recommended that instruction be arranged in steps, so children could thoroughly master one topic before going on to the next, and he wanted children to see the order and usefulness of their studies (secs. 180, 195).

Locke acknowledged that children will dislike some of the lessons that adults consider necessary for their future. In these cases, the teacher should try to ease the children through them. Certainly the teacher should avoid physical punishment or strong verbal rebukes. Harsh discipline simply makes the child fearful, and a teacher can't do much with a fearful child. As Locke put it, "'Tis as impossible to draw fair and regular characters on a trembling mind as on shaking paper" (1693, sec. 167). It is better to rely on the kinds of rewards and punishments discussed earlier—praise and disapproval.

In an interesting passage (secs. 118–119), Locke emphasized the need to take advantage of the child's natural curiosity. Children, he said, learn for the sake of learning; their minds seek knowledge like the eye seeks light. If we simply listen to their questions and answer them directly, their minds will expand beyond what we would have imagined possible. In fact, Locke attributed such power to the child's natural curiosity that it makes one wonder about his general thesis. If the child's curiosity is so powerful, why do we need to use external rewards and punishments for learning? Perhaps they are necessary in the training of the child's character, but it may be that children will develop their intellectual powers through intrinsic curiosity alone. But if Locke saw such a possibility, he didn't say anything about it, and in the end he reverted to his environmental thesis. When children reason clearly, we should compliment and flatter them. In this way, we teach them to reason (sec. 119).

Evaluation

As a psychologist, Locke was far ahead of his time. His principles of learning—the principles of association, repetition, modeling, and rewards and punishments—all have become cornerstones of one or another version of modern learning theory. His thoughts on changing behavior by "gentle degrees" is fundamental to some of the most contemporary thinking in