Understanding Moral Psychology and Moral Education through the Lens of the Philosophy of Science

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Abstract

This article focuses on discussion concerning moral psychology and moral education from the philosophy of science standpoint. The theoretical model of Lakatos' program in the field of the philosophy of science is introduced and the structure of moral psychology and moral education is analyzed and evaluated by using Lakatos' scientific research program as a theoretical framework. The article begins with a review of the theoretical background of the philosophy of science, then continues by analyzing and evaluating the structure of moral psychology by using a theoretical framework from the philosophy of science, and then considers the case of moral education. The authors conclude with a brief description of significant directions for the introduction of the natural sciences, such as neuroscience and sociobiology, into moral psychology and moral education.

Key words: moral education, moral psychology, moral development, philosophy of science, Lakatos

I. Introduction

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With the development of the natural sciences, issues related to them have increased since a couple of centuries ago; philosophical debates about the natural sciences also have steadily increased. Thus, the philosophy of science, a discipline that deals with the philosophical problems of science, started to become an integral part of mainstream philosophy. Several disciplines, such as social science, that contain the word "science" in their names but are not classified into the category of the natural sciences, also started to become subjects of philosophical-from the viewpoint of the philosophy of science-consideration (Henrickson & McKelvey, 2002). For example, psychology as a scientific discipline in the realm of social science became a field of philosophical consideration.

There are some theoretical controversies over whether psychology is a part of science or not; recently, however, it has now settled into a scientific status (Stein, 1994). In fact, these days, the philosophy of science is interested in philosophical issues specific to particular kinds of science; psychology is also an issue of concern of the philosophy of science (Wilson, 2005). Several issues related to psychology, such as the rationality of human beings, the malleability of human nature, and innate knowledge and ideas have begun to become subjects of philosophical study (Bermudez, 2005; Mason et al., 2008).

The development of neuroscience also has thrown many philosophical problems into modern psychology. The eliminative materialism and naturalization of philosophy, the natural scientific explanation of consciousness, and the location of cognitive function from the results of neuroimaging have started to come under philosophical debate (Bennett & Hacker, 2003). Since contemporary moral psychology has started to introduce theoretical ideas from neuroscience, philosophical issues related to neuroscience should be considered an issue of modern moral psychology; the philosophy of neuroscience seems to be helpful in establishing the proper relationship between existing moral psychology and flourishing studies in neurobiology.

Consequently, philosophical approaches to psychology would help to enhance our understanding of the nature and structure

of psychology; especially, models and tools of the philosophy of science would be useful, because they could work as a framework for analyzing and interpreting theories and research in psychology. In fact, existing theories of the philosophy of science have coped with problems such as how a theory works, can be explained, and is confirmed (Kuipers, 2007). These kinds of viewpoints would also be helpful to understand the nature and structure of moral psychology systematically.

In this paper, we address concerns of moral psychology and moral education from the philosophy of science standpoint. We place particular emphasis on Lakatos' scientific research program as a theoretical framework for analyzing and evaluating the structure of moral psychology and moral education. We then discuss significant directions for the introduction of the natural sciences, such as neuroscience and sociobiology, to moral psychology and moral education.

II. Philosophy of science and the research program

Basically, the term "philosophy of science" is the name given to that branch of philosophy that reflects on and critically analyzes science; it tries to understand the aims and methods of science, along with its principles, practices, and achievements (Salmon, 1999). Since this study focuses on the structure of moral psychology with the help of concepts from the philosophy of science, this study will review some parts of the philosophy of science that deal with the structural aspects of natural science.

In the field of the philosophy of science, Lakatos would be a representative philosopher who systematically studies the nature of scientific research. Within a historical perspective, Popper with his "na?ve falsification" goes beyond inductivism, whereas Lakatos goes beyond Popper by suggesting that "one learns not by accepting or rejecting one single theory but by comparing one research program with another for theoretical, empirical and heuristic progress" (Lakatos, 1974: 320). In fact, Lakatos' program emphasizes the concept of "a series of theories"

instead of "a theory," which is the basic concept from the logic of discovery. In terms of the components of Lakatos' research program, there are four connected components embedded in Lakatos' program: the hard-core (HC) located in the core of the program, the protective belt (PB) surrounding the HC, and the negative heuristic (NH) and positive heuristic (PH), which are both held in the PB (Lakatos, 1970). The HC is the core and foundation of the theory, and it possesses firm and unchangeable features that are very difficult to attack and degenerate in the program; the PB is composed of auxiliary hypotheses for preventing the HC from being attacked; the NH and PH are both strategies embedded in the PB with separate functions to forbid rebuttals and to expand theory. In Lakatos' own words (Lakatos, 1970: 135): "The negative heuristic specifies the hard core which is irrefutable by the methodological discussion of protagonists; the positive heuristic consists of the partially articulated set of suggestions of hints on how to change, develop the refutable variant of research program, how to modify, sophisticate the refutable protective belt."

Lakatos' idea (1999) was conceived from many historical stories of science; he took some of the major theories in physics, like Newton's, Maxwell's, Einstein's, and the quantum theory. He explained that those theories are terribly complicated and growing (not static) entities; they are growing entities with a fixed hard core but an ever-increasing protective belt and mathematical techniques used for problem solving. Moreover, Lakatos suggested that the model of a research program could be applied even to the social sciences. In fact, as Lakatos introduced, there was a philosopher who studied a research program of social science; Latsis (1972) analyzes a neoclassical (research) program of situational determinism following Lakatos' model: it consists of a hard core (Profit maximization, Perfect knowledge, Independence of decision and Perfect market), protective belt (such as 'slack' in decision making), and a positive heuristic (puzzle-solving mechanism).

From the model of Lakatos' scientific research program, we may get several implications about moral psychology and moral

education; in fact, as the era of consilience is now coming, many disciplines that were previously out of the range of moral psychology and moral education are now being rapidly introduced to moral psychology and its educational application, such as neuroscience and sociobiology; thus, the forms of moral psychology and moral education also seem to be changed. In this situation, Lakatos' model would be helpful to understand and establish the proper structure of moral psychology and its relation with moral education, and give us implications about what moral psychology and moral education should do for their improvement. In the next section, this study will analyze the structure of moral psychology with the help of ideas in Lakatos' research program model.

III. Research program of moral psychology

There are many definitions of the term "moral psychology" which have been suggested by many scholars who study within the field. First of all, Lapsley (1996) refers to the term as the study of model development; moreover, some scholars such as Doris and Stich (2006) insisted that moral psychology investigates human functioning in moral contexts, and asks how these results may impact debate in ethical theory; in addition, they tend to use the term more broadly with an interdisciplinary aspect that includes any topics at the intersection of ethics, psychology and even the philosophy of the mind.

A. Hard cores of moral psychology
From those definitions of the term of "moral psychology," we may get several notions that moral psychology deals with the developmental and functional aspects of human processes that are related to morality. In our view, the following three parts can be considered as the hard cores of moral psychology.

First, we may be convinced that in moral psychology, the development of human morality has been one of the main

tenets; it seems to be convincing that scholars in moral psychology tend to study developmental changes in human morality. Especially, the developmental aspect of moral psychology would be firmly established by Jean Piaget; Piaget (1931, 1955, 1960) said that one's intelligence progresses from a state in which one accommodates to the environment and that the main idea was adapting to the world through assimilation and accommodation. Moreover, he insisted that a young child starts to realize that moral rules are cooperative arrangements among equals, agreed upon for mutual benefits, and his/her view point of morality is developed from heteronomous morality to autonomous morality (Rest, 1979); these parts of Piaget's model would be the root of the trend of developmental morality in the history of moral psychology.

This trend of the developmental process of morality in moral psychology is being continued along the history of moral psychology. Kohlberg also supported the idea of moral development; he determined that the process of moral development was principally concerned with justice, which continued throughout the individual's lifetime, and could be classified into six stages (Kohlberg, 1981, 1984). In fact, for this structural development, Blatt suggested a mechanism of development in which the cognitive stimulation of moral discussion, that is, of children hearing themselves and others argue at different stages of moral reasoning, ought to create movement to the next stage for the children involved (Rest, 1994).

Scholars who significantly accede to Kohlberg's intellectual tradition, neo-Kohlbergians represented by Rest, also proposed a developmental perspective; although neo-Kohlbergians accepted Kohlberg's theory that human morality is developed, they denied Kohlberg's notion of Piaget's hard stages and suggested an upward movement in terms of gradually shifting distributions of the use of and preference for more developed moral thinking (Rest et al., 1999). In short, a stream that is out of the direct flow of Piaget-Kohlberg-Neo Kohlbergian is based upon a notion of development that is shared by the flow of

Piaget-Kohlberg-Neo Kohlbergian.

Second, every model of moral psychology tried to relate their model to the actual moral behaviour of actors; moral psychologists have tried to explain or forecast a person's moral behaviour by following their model of human morality. In fact, the problem of moral behaviour has a long history that can be traced to the ancient Greeks, such as Socrates who explained the relationship between knowledge and actual behaviour (Plato, 1986). Moreover, following Socrates, Aristotle (1996) tried to explain moral behaviour that is nurtured by habitual moral behaviour in his book, The Nichomachean Ethics; in this text, he studied the relation between a human with virtues and whether he/she behaves morally (Sahakian, 1974).

These days, similar to ancient times, the explanation of human moral behaviour is an important problem in moral psychology. Scholars who study people's moral character would be people who representatively are interested in people's moral behaviour. Lickona (1993) proposed three components of morality: moral knowing, moral feeling, and moral behaviour; he studied the problematic situation of the relationship between moral judgment and feeling and effective moral behavior. Moreover, Blasi (1995, 2005), another scholar who has been interested in moral character, offers a model of moral identity that provides us with a notion of moral behaviour. He explained that if moral considerations are crucial to the essential self, then self-integrity would hinge on whether one is self-consistent in action.

Kohlberg, who initially seemed to consider the cognitive factor in moral decision making as important, in fact, greatly accounted for the actual behaviour of a moral actor. He also stated the importance of the three different aspects of the internalization of morality: the behavioral, emotional, and judgmental aspects of moral action. Kohlberg (1992) proposed that a behavioral criterion of internalization is that of intrinsically motivated conformity, or resistance to temptation; it would be related to the notion of moral character.

Rest's Four Component Model started with the question:

How does moral behavior come about? From this question, Rest and his colleagues (Rest, 1986; Rest et al., 1999) suggested at least four major internal component processes that lead to moral behaviour: moral sensitivity, moral judgment, moral motivation, and moral character. The model represents processes involved in a moral act, not general traits of people.

Third, the integration of various factors related to moral bahaviour is also one of the main ideas of moral psychology; moral psychologists have tried to integrate several factors that affect human moral behaviour. Kohlberg is well known as a moral psychologist who strongly insisted on the importance of the cognitive factor. However, after encountering much empirical evidence that showed the limits of a moral reasoning based model, Kohlberg introduced a motivational factor into his model. Thus he suggested the integration of judgment of a deontic choice that is related to the question, "what is right," as seen in his original model of moral reasoning, and the judgment of responsibility to act on what one has judged to be right (Kohlberg & Candee, 1984).

After Kohlberg, Neo-Kohlbergians proposed a more complicated, integrated model of human morality. Rest suggested that analyzing the production of moral behavior in terms of the four component model is useful for explaining various failures in moral behavior, and for planning moral education interventions (Narvaez & Rest, 1995). This trend can be interpreted as a continuous trial to introduce and integrate many factors other than cognition as one psychological component that determines moral behaviour.

Scholars who suggested the existence of a moral personality also seriously consider the integration of factors to their model of morality. For instance, Blasi (1995) showed the process of moral integration; he strongly insisted on the integration of morality and identity. It means that moral understanding eventually acquires its own motivational power, moral understanding begins to make its own specific claims and becomes a part of one's motivational system, and one's moral understanding and concerns become a part of one's sense of

identity through the specific way one views and defines oneself. We may understand this model as he strongly insisted on the importance of the integration of understanding and other factors related to motivation and identity to behave morally.

B. Positive heuristics of moral psychology

As already described, it seems to be that there are several hard cores in a research program of moral psychology; scholars in moral psychology note a developmental trend, try to explain the actual relation between their model and moral behaviour, and integrate multiple factors that are related to inducing moral behaviour. From these hard cores, there are several positive heuristics-protective belts that support the hard cores of moral psychology; it includes experiments, observations and other possible methodologies in the field of moral psychology. This part copes with the challenges and refutations that come from outside of the research program.

We may find that several experiments support each hard core of the research program of moral psychology; they make auxiliary hypotheses, provide a protective belt around the hard cores, and cope with risky realities that are not compatible to the existing hard cores or positive heuristics.

First, the developmental trend in moral psychology is based on experimental results; accumulative experiments would construct positive heuristics and a belt around the core of moral psychology. Piaget used a "clinical interview" for his experiment to confirm his model of moral development (Lickona, 1994); he interviewed children to make positive heuristics around the core of his model to protect it. After Piaget, because the Piagetian model and its experimental evidence were basically limited to children's moral development, Kohlberg and his colleagues tried to establish a model of moral development that could be applied to a whole lifetime. He conducted a 20-year longitudinal study of moral development based on the Moral Judgment Interview (MJI), and established moral development stages that can strengthen the hard core of a developmental trend (Colby et al., 1983). A few decades later, to deal with the criticism of

Kohlberg's experiments and his ideas, such as criticism of the strict, hard stages, Rest and his colleagues developed the Defining Issues Test (DIT). By using this test, moral developmental researchers have found that there is gradual upward movement and an established strengthened model of moral development to cope with criticism of an existing hard core of moral psychology (Rest & Thoma, 1986). In short, a hard core of moral psychology, a developmental trend, has coped with many challenging anomalies for the existing core, by adjusting and changing its positive heuristics instead of refuting the hard core through the conducting of many experiments and making of observations; as a result of those trials, though the model of moral development is continuously changing, a hard core of moral psychology, a developmental trend, is not refuted or discarded by challenging evidence, but is preserved by a change of its auxiliary belt.

Second, there also have been continuous changes of positive heuristics around other hard cores; in fact, two rest hard cores, the importance of moral action and the integration of elements, seem to be interconnected. To explain actual moral behaviour, scholars amended their positive heuristics of their model; in this process, generally, scholars have integrated various factors that can affect moral behaviour. To cope with the limits of the explanation of moral behaviour with his model, Kohlberg introduced and integrated the factors of deontic judgment and responsibility judgment (Kohlberg & Candee, 1984). Rest and his colleagues tried to introduce the utilizer dimension as a mediator variable to improve the explainability of the existing model (Rest, 1986). In one part of the experiment, Thoma (1994) developed the U-Score based on the DIT methodology of Rest, to improve between the former judgment model and action relationship; his trial is an adjustment of the protective belt, not a discarding of the hard core, in an attempt to respond to outside criticism.

Moreover, as mentioned above, many scholars incorporate an integration of factors to improve the relationship between their existing model and actual moral action; this kind of trial can be understood as an adjustment of the positive heuristics-protective

belt around their models. Thoma (1994) insisted that the four component model of Rest and his colleagues offers very clear direction for research on moral actions. Moreover, scholars in character education also integrated many factors into their models of morality to cope with external problems; for instance, there is Blasi (2005)'s integration of willpower, will and integrity.

IV. Moral education and research program of moral psychology-with consideration on the relationship between the research program and introduction of natural science

Basically, moral education or character education in schools is rooted in researches on moral psychology. For instance, Nucci (2006) said that most of the developmental research of moral education have roots in the work of Kohlberg and his colleagues, and these days, the trend of moral education has started to attend to the diversity and heterogeneity of lived moral systems. He also stated that educational research includes work related to the integration of affective climate and classroom social interactions that can foster interpersonal morality and basic human decency (Lapsley, 2006; Nucci, 2006).

Although it seems that there are extensive differences among the suggestions of moral education scholars, in our view, the core idea of the scholars matches with the hard core of the research program; a developmental trend, emphasizing actual moral behaviour and the integration of elements, would be applied to moral education.

First, development is also important in moral education as well as in moral psychology. In the general perception of education, not only moral education, we can find that most schools insist that developmental trends and interventions are necessary to induce development; Peters (1972) insisted that education is connected to the development of qualities and that it includes several interventions toward students; Oakeshott (1972) argued that education is a transaction occurring between

the generations, not a natural process or accommodation to circumstances, and by learning, students are "becoming human"; Dearden (1972) commented that education is a process of growth, so stimulation should be provided to the student to induce the growth; and determinism cannot be applied to education, because it denies the potentialities of change, and insists the student's ability is fixed at birth and then unalterable.

Therefore, without the developmental basis of moral education, there would be no chance to change human morality and the trials of educational interventions to make people moral would lose their value. In fact, moral educators steadily emphasize development in human morality; Kohlberg (1966) suggested that moral education should stimulate transition to postconventional morality; Carr (2008) proposed character education as the cultivation of virtue that came from Aristotle to MacIntyre. Although there would be theoretical differences among scholars, from cognitive trend to character education trend, almost moral educators try to foster students' morality through educational methodology.

Second, focusing on moral action also would be an important theme of moral education as it would be for moral psychology. Helping children pursue actual moral behaviour has been the most important goal for all levels of moral education; for instance, the purpose of Kohlberg's just community approach to moral education is basically for the discussion of day-to-day dilemmas and induces the development of moral judgment; thus, it ultimately tries to support creating consistency between judgment and action (Higgins, 1995).

In the traditional character educators' viewpoint, character education's history has Aristotelian roots, and the pedagogical implications are to create or "engrave on our essence" much like carving a character into a piece of wood. "To do good is to know good" is an overly simplistic summary. In line with its Aristotelian tradition, the character approach focuses on action and emphasizes making virtuous behaviors habitual (DeRoche & Williams, 1998; Ryan & Bohlin, 1999). In addition, based on Eisenberg's model, many character education programs focus on

promoting pro-social behavior. Pro-social behavior is described as "behavior intended to benefit another" (Eisenberg et al., 1999). Such behaviors may include comforting, sharing, working or playing cooperatively, and displaying empathy for others, all of which have an element of altruism.

Lastly, moral educators have been interested in the integration of several factors that are related to human morality; many scholars or educators in moral education tried to establish an integrative model of moral education. As mentioned earlier, since moral education tries to induce students' moral behaviour in actual situations, an integrative approach toward moral education has been an important issue for scholars. For instance, to cope with criticism on the former trend of cognitive moral education, neo-Kohlbergians proposed moral education based on the four component model; the application of the four component model implies that all four processes of morality need to be fostered, and it would mean an integrative educational approach, not an approach to only one aspect of morality (Bebeau et al., 1999). From another perspective, Berkowitz (2002), a scholar in the school of character education, suggested that teachers should provide children with opportunities to practice good character, including building skills such as perspective-taking, critical thinking, conflict resolution, peer mediation, student self governance, and involvement in charitable activities; in the program, the curricula most often included lessons in several fields: social skills and awareness, personal improvement/self-management and awareness, and problem-solving/decision-making (Berkowitz & Bier, 2004). In addition, several scholars proposed the convergence of various educational trends that include social and emotional learning (SEL), moral education, and character education (Elias et al., 2008).

We have reviewed theories and methodologies of moral education and tried to find out the relations between them and the hard cores of moral psychology; development in human morality, the importance of pursuing moral action and a convergent-integrative educational approach from various

elements of human morality would be the main themes of moral education. From this analysis, this study will discuss how to cope with the new trend of moral psychology and moral education, and the introduction of the natural sciences, such as neuroscience and sociobiology.

First, several moral psychologists tried to introduce results in natural science to moral psychology. One of the most recent and representative trials was done by Narvaez; basically, Narvaez and Vaydich (2008) insisted that moral psychology which investigates human functioning in a moral context is affected by new trends in technological advancement, especially neuro-science. From such a viewpoint, Narvaez (2008) suggested the "Triune Ethics" theory, which shows the possibility of the relationship between multi-level morality and brain activation. Moreover, Haidt (2007) proposed the introduction of evolutionary theory; he suggested the four principles of "affective revolution," which are intuitive primacy, moral thinking for social doing, that morality binds and builds, and that morality is about more than harm and fairness; he also argued that those principles are linked with evolutionary theory.

Second, there are other kinds of approaches that have mainly been tried by natural scientists: the analysis of moral psychology from the viewpoint of neuro-science or sociobiology-evolutionary theory. In regard to neuro-science, Casebeer and Churchland (2003) explained which parts of the brain cope with moral problem solving; and Greene et al. (2001) examined how emotions are engaged in moral judgment. Mainly, they used Functional MRI (fMRI) to investigate the activation of a human's brain when he/she deals with moral thinking or emotion. Moreover, sociobiologists explained the origin of human morality from evolutionary theory; Darwin (2006), the pioneer of evolutionary theory, believed that instinctive sympathy and moral sentiments are evolved behavioral dispositions that help ensure the survival of the individual and the group to which the individual belongs; for Darwin, morality is transmitted to descendants through heredity, and moral tendencies could appear as inborn virtues in the next generation (Darwin, 2006). Recently

sociolobiologists who basically accede to Darwin's idea insisted that altruistic behaviour has come from kin-selection (Wilson, 1978), the memory of an experience of being helped by others (Fehr & Fischbacher, 2003), evolutionary robustness, stability and initial viability (Axelrod & Hamilton, 1981), or indirect reciprocity-exchanging meat-money to reputation-money (Hawkes, 1993).

Some of them insist that finally, human morality and its psychology will be and should be explained in terms of scientific knowledge; Wilson (1982, 1999) strongly insisted that normative-moral decision making can be fully analyzed and predicted by the natural sciences, and that moral development is only a more complicated and less tractable version of the genetic variance problem with his example that the Kohlbergian stage model can be fully analyzed by sociobiology. However, from the consideration of a research program of moral psychology and its relation with moral education, Wilson and several sociobiologists' radical idea of 'conscilience' does not seem to be convincing.

First, natural scientific ideas would pose a threat to the hard core of development. In fact, some of them proposed the possibility of change; for instance, some molecular biologists and neurobiologists (e.g., Gallagher & Holland, 1994; Ledoux, 2002; Rodrigues et al., 2004) have insisted on the plasticity of the synaptic mechanism of the human circuit, which means that conditioning or learning could affect, even on a molecular level, the amygdala and other emotional circuits. Although they propose the plasticity of the human brain, they do not provide us with direction or a goal of development as moral psychologists generally do; since the idea of development and change in natural science is basically descriptive, it would not be sufficient to set the goals and methodologies of moral education.

Second, pure natural science would not be enough to explain moral action. Models of neurobiology and sociobiology have tried to explain and predict human behaviour by scientific methods. Thanks to the rapid development of technology, we can understand some parts of the mechanism of decision making and action. However, it does not fully explain human moral

behaviour. Various philosophers have argued about the limitations of natural science; Singer (1981) argues that even if we have knowledge of human emotion and a mind that is perfect enough to predict our decisions and behaviours, we are capable of refuting the predictions and of acting differently. Consequently, it seems to be that natural scientific knowledge is not able to perfectly explain or predict what we "are going to" do.

Finally, neural science and evolutionary theory can be harmful to the integrative idea of moral psychology and education. Basically, scholars who tried to explain human morality in terms of natural science have a disposition of reductionism; scientists have tried to explain abstract, conceptual factors of human morality as concrete, materialistic-in reduced manner-elements. However, this trend has received several criticisms; some insisted that there is autonomy in every level of theory, so it could not be fully reduced in terms of a theory at the lower level (Okasha, 2002); others have argued that a complex, dynamic system of a bio-organism cannot be fully predicted by linear or ordinary mathematical models (Alm & Arkin, 2003); practically, an extreme amount of equations and explanations will be necessary when such a complex system is greatly reduced (Van Regenmortel, 2004; Alm & Arkin, 2003). Consequently, the non-conditional introduction of natural science into moral psychology and moral education would cause severe problems, such as a neglect of the complex architecture of human morality and integrated factors of moral psychology; it would critically violate the third hard core of a research program of moral psychology.

V. Concluding thoughts

It seems to be that a direct, full-ranged introduction or adoption of natural science to moral psychology or moral education would not be helpful, but even harmful; the hard cores of moral psychology and education would be threatened

by the non-conditional introduction of natural science. We cannot change existing theories of moral psychology to ideas of natural science as Wilson insisted; it does not produce meaningful results to improve moral education. Instead of an overall shift of theory, it will be useful to adopt results of the natural sciences to amend and increase the protective belt of moral psychology; for instance, Haidt (2007)'s four principles of "affective revolution" that came from an evolutionary basis can strengthen moral theory that only consists of harm and fairness. His idea can make up for the weak point of contemporary moral psychology, increase the explanatory power of the theory, and finally, contribute to positive heuristics; however, his idea does not imply an overall theoretical shift-the refutation of the hard cores-of existing moral psychology.

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