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| Abstract | Child Science is "an integrative and interdisciplinary study of children that transcends and bridges barriers between the humanities and sciences." Child science is also a new interdisciplinary approach to children's issues com-bining methodological rigor and empiricism applicable in the field of child-rearing and education. In child science, "children are viewed as both biological and social human beings requiring analysis of all factors in their lives includ-ing living environment, social surroundings and natural environment". The Japanese Society of Child Science was established in 2003 to promote academic and pragmatic activities of this discipline. The fourth annual meet-ing, The Annual Child Science Conference, was supported by the Centre for Advanced Research on Logic and Sensibility and held at the Keio University, Mita Campus on September 15th and 16th in 2007 This brief report summa-rizes the activities of the conference. |
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The 4th Annual Child Science Conference (The Annual Meeting of the Japanese Society of Child Science)

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Child Science is “an integrative and interdisciplinary study of children that transcends and bridges barriers between the humanities and sciences.” Child science is also a new interdisciplinary approach to children’s issues combining methodological rigor and empiricism applicable in the field of child-rearing and education. In child science, “children are viewed as both biological and social human beings requiring analysis of all factors in their lives including living environment, social surroundings and natural environment”.¹

The Japanese Society of Child Science was established in 2003 to promote academic and pragmatic activities of this discipline. The fourth annual meeting, The Annual Child Science Conference, was supported by the Centre for Advanced Research on Logic and Sensibility and held at the Keio University, Mita Campus on September 15th and 16th in 2007. This brief report summarizes the activities of the conference.

¹ The definitions of the child science are quoted from the official home page of the Japanese Society of Child Science (<http://www.childresearch.net/KODOMOGAKU/index.html>).



I. Outline

The central topic of the fourth Annual Child Science Conference was entitled “Life sciences and child science: Children, evolution and the brain”. This topic was the main agenda of Child Science aiming to bridge the gap between natural sciences and humanities. Life sciences have dramatically developed, especially since middle of the last century when molecular genetic aspects of life became a central issue of this field. In addition, in recent years, brain science studies and the primate studies have also made remarkable progress. This meeting focused on two perspectives of recent advances in evolution (Day 1) and brain sciences (Day 2) shed light on the biological and social activities of children. Over 200 participants attended the two day meeting.

II. Evolution and Children

1. Plenary Lecture I: “Uniqueness of human children from the evolutionary point of view” (Mariko Hasegawa, The Graduate University for Advanced Studies)

Traditionally, the uniqueness of *homo sapiens* has been characterized by high

cognitive abilities of the human brain. The lecture focused on human growth, aging and longevity and specifically contrasted species where childhood does not occur.

2. Round Table: “Charles Darwin as a founder of Child Science” (Mariko Hasegawa, Youichi Sakakihara [Ochanomizu University], Juko Ando, & Osamu Sakura[University of Tokyo])

“A biographical sketch of an infant” (1887) by Charles Darwin can be regarded as the first “child scientific” work which investigates children as natural creatures. In this short paper, Darwin made an objective description of his own child’s behaviors, emotions, ways of thinking, communication, etc. This kind of scientific attitude combined with his evolutionary theory led to new perspectives in modern psychology, psychiatry and child science.

3. Symposium I: “Children in Evolution”

3.1. Comparison between human children and chimpanzee children (Noriko Nakamura, Showa women’s University)

The most distinguishing feature of the human infant in comparison with chimpanzee is construction of trinomial (self-the other-object) relationship. Their developmental processes were illustrated by pictures of human infants and chimpanzees.

3.2. Contribution of child and endeavor of parent: ecological anthropology of child rearing (David Sprague, National Institute for Agro-environmental Sciences)

From the theory of life history, the cost of child rearing is extremely high among humans when compared with other primates. The potential to reimburse costs to parents by child assistance to a family business was examined.

III. Brain science and children

1. Plenary Lecture : II “Education for children from brain science” (Hideaki Koizumi, Fellow, Corporate Chief Scientist & Corporate Director, Hitachi, Ltd.)

The child sciences founded by Dr. Noboru Kobayashi is an integrative investigation of total and dynamic processes in human development. There are several synchronistic factors involved in the process of its establishment such as international trends in human sciences, the development of neuroimaging technologies and genetics.

2. Symposium II: “Science for children at risk” chaired by Junichi Yamamoto (Keio University)

2.1. Psychological and brain scientific approaches to autism treatment (Shigeru Kitamura, Juntendo University School of Medicine)

Applied behavioral analysis and neuroimaging studies have contributed to high density treatment for autism with remarkable outcomes.

2.2. Staying up late and sleeping in the morning destroy body environment (Jun Kouyama, Tokyo-Kita Social Insurance Hospital)

Compared with China and the United States, Japanese children stay up later and sleeping longer in the morning, which are unusual lifestyle habits from an evolutionary perspective. Biological clock-oriented lifestyles are highly recommended for Japanese children to promote a healthy development.[PJ5]

2.3. Are hormones a determinant of sex[PJ6]? (Tomonobu Hasegawa, Keio University School of Medicine)

Gender identity is hypothesized to be formed by exposure to androgen and post-natal treatment, but they are not sufficient exposures to account for gender identity disorder.

3. General Lecture

3.1. Genetic and environmental influences to brain development of children. (Takao Takahashi, Keio University, School of Medicine)

Genetics are a dominant factor in fetal development. Environmental factors play an important role in human development after birth. Both genetic and environmental influences interact with each other in order for children to have healthy mind and body. Brain formation is derived by genetically determined ontogenetic development modified by the environment. Education is an activity manipulating this interactive process.

3.2. Twin method and developmental processes of brain and behavior (Juko Ando, Keio University, Faculty of Letters)

The twin method can reveal genetic aspects of human development. Genetic influences are very dynamic, changing their contribution to brain formation in developmental processes. Genetic influences sometimes increase rather than decrease from birth to childhood. The role of experience is unlike drawing pictures on a blank slate, but rather providing opportunities where genetic predispositions may emerge.

4. Symposium and Lectures on Sensibility

There were four presentations related to human sensibility contrasting logic (which characterizes evolution and brain science).

4.1. Symposium “Different kinds of encounters of children with the world” chaired by Hiromoto Makabe (Keio University, Faculty of Letters)

4.1.1 “Sound Education Project” (Hideki Suzuki, Keio Yochisha Elementary School)

The “Sound Education Project” emphasized input instead of output which is usually focused on during educational activities. Auditory input of surrounding high quality sound in everyday life was found to stimulate children’s sensibility.

4.1.2. “What is happening in an art museum with no people?” (Miki Tsukada, Setagaya Art Museum)

The “In Art Museum with No People” project was a workshop for teenagers and young adults to find a way to express themselves in exhibition rooms by performing. It is not to develop their artistic sensibility but just keep “secret time and place” from the everyday world, which is one of the most important missions of art museums.

Table 1. Titles and authors of the posters at the Fourth Child Science Conference.

| No. | Title | Authors | Affiliation |
|-----|--|---|--|
| 1 | Exploratory research of expression recognition structure of rearer- in the process of construction “Expression Recognition Test for Adult” | Kumi Matsuda | Sapporo Welfare, Childcare and Vocational School |
| 2 | Change of children in nursery school with whom volunteer university students played | Mitsue Yakou | Kansai University of Welfare Sciences |
| 3 | Relationship between nursery-elementary school difference and anxiety when first graders enter school | Kuniaki Suzuki | Aoki Elementary School Yokohama City |
| 4 | Learning of nursery school students who have relationship with disabled children. | Kanako Mito | Chubu Rosai Nursing School |
| 5 | 130-year history of school and child health described in a school diary | Hiroshi Tomari | Hitotsubashi University |
| 6 | The formation of the view of “war” by child readers in the child magazine “early childhood club” | Takuya Tanaka | Kibi International University |
| 7 | Humanness of children while eating. | Yuri Ueno | Tokyo University |
| 8 | How does a Japanese macaque mother watch her child staying away? | Kenji Oonishi | Osaka University |
| 9 | Cognitive development in object manipulation in chimpanzee and human | Misato Hayashi | Primate Research Institute, Kyoto University |
| 10 | Comparison of laugh between chimpanzee and human infant. | Takahisa Matsusaka | Japan Monkey Center |
| 11 | Examination of the surplus brain growth hypothesis of the autism spectrum baby in the general population. | Yuko Kamio et al. | National Center for Neurology and Psychiatry |
| 12 | Development, malfunction, and social support of attentional function of the child. | Shinji Okazaki | Tsukuba University |
| 13 | Examination of motor serial automatization process in reading disability | Hidefumi Tsutsumi & Harumitsu Murohashi | Hokkaido University |
| 14 | Examination of a phoneme / intonation perception in the autistic children. | Nozomi Naoi et al. | Keio University・CREST |
| 15 | Measurement of the brain activity by NIRS while listening stories read in mother tongue and the non-mother tongue. | Akitsugu Konno, Yuko Hagiwara | Tohoku University・JST Tokyo Metropolitan University・JST |
| 16 | Influence of the early education of English in the metalanguage recognition of infants. | Natsuko Katsura, Yuko Hagiwara, et al. | Tohoku University・JST Tokyo Metropolitan University・JST |
| 17 | Comparison of semantic processing by ERP in infancy and adulthood. | Yuka Suzuki, Yuko Hagiwara, et al. | Tohoku University・JST Tokyo Metropolitan University・JST |
| 18 | Comparison of semantic and syntax processing of infancy and adulthood by ERP. | Yuichiro Fukumitsu, Yuko Hagiwara, et al. | Tohoku University・JST Tokyo Metropolitan University・JST |
| 19 | Study of developmental disorders by NIRS. | Toru Yoshikawa, Shuji Horjo, et al. | Nagoya University |
| 20 | Perception of social causality in infants examined by eyetracker. | Tomoyo Morita, Norihiro Sadoto, Shoji | JST, Kyoto University National Institute for Natural Sciences |

4.2. Child Caring Design (Yoshitsugu Ono, NPO Kids Design Association)

This presentation introduced the social activities of the “Kids Design Association” which evaluated safety information about commercial products and public architecture for children. The interesting thing was the promotion of safety as beautiful.

| No | Title | Authors | Affiliation |
|----|---|---|---|
| 21 | Individual difference and genetic effect on cerebral dominance to auditory stimulus in infancy | Kunitake Suzuki & Juko Ando | Tokyo Metropolitan University |
| 22 | Influence of maternal child care stress to cognitive development and emotional regulation of children | Keiko Fujisawa & Juko Ando | Keio University |
| 23 | Prediction of birth head circumference difference in monozygotic twin siblings to their temperament in 24 months of age: test of “pure” environmental effect by means of behavioral genetic method. | Shiriji Yamagata, Yusuke Takahashi, Koichi Nonaka | Japan Society for the Promotion of Sciences, University of Tokyo, Wako University, Keio University |
| 24 | Comprehensive support program for learning disability children | Yo Sugawara & Junichi Yamamoto | Keio University |
| 25 | Support and treatment to mild developmental disability in nursery schools: cooperation with elementary schools | Chie Fujimaki, Kiyomi Shimodori, & Kei Miura | Ohisama Nursery |
| 26 | The first basic investigation on pregnancy, delivery, and parental care QOL related factors | Masumi Sugawara, Noriko Goto, Noboru Kobayashi, et al. | Ochanomizu University Benesse Institute for the Child Sciences, Parenting, & Aging |
| 27 | The first basic investigation on pregnancy, delivery, and parental care: residential factors related to child rearing conditions. | Satoko Matsumoto, Masumi Sugawara, Noriko Kobayashi, et al. | Ochanomizu University Benesse Institute for the Child Sciences, Parenting, & Aging |
| 28 | The first basic investigation on pregnancy, delivery, and parental care: interpersonal support network related to child rearing conditions. | Atsushi Sakai, Masumi Sugawara, Noriko Kobayashi, et al. | Yamanashi University, Ochanomizu University Benesse Institute for the Child Sciences, Parenting, & Aging |
| 29 | The first basic investigation on pregnancy, delivery, and parental care: mutual support of parents. | Junko Takaoka, Masumi Sugawara, Noriko Kobayashi, et al. | Benesse Institute for the Child Sciences, Parenting, & Aging Ochanomizu University |
| 30 | The first basic investigation on pregnancy, delivery, and parental care: first pregnancy, delivery and preparation to be parent. | Seiko Mochida, Masumi Sugawara, Noriko Kobayashi, et al. | Benesse Institute for the Child Sciences, Parenting, & Aging Ochanomizu University |
| 31 | Healthy upbringing support for conscience of child | Yoshiko Iiyama | Sendai Shirayuri Women's University |
| 32 | Report of educational experience practice in a community: “child shopping avenue” and “Minu Tamayuri; child city” | Fumiko Uchida | “Kodomo Shotenga” Project |
| 33 | Development of software for tablet PCs supporting infant's activity to tell stories. | Tomomi Sato | the University of Tokyo |
| 34 | Interactive picture book “Picke's house” | Tamie Asakura | CG Designer |

4.3. Children in prehistory (Keizo Kutsuna, Meiji University)

Archeological materials of children shed light on how people in prehistory thought about and lived with children. The statues of children changing from age to age were highlighted.

IV. Poster Session

Thirty four posters were presented (Table 1).

Acknowledgements

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