

Children's Feelings Toward Computers: A Phenomenological View of Some Developmental Aspects

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Developmental differences in children's feelings toward computers were explored through a clinical interview and children's drawings. Participants were 120 3- to 6-year-olds. Based on the results, the youngest subjects (3 to 3 1/2 years) were confused and anxious about computers and showed a significant drop in the level of organization and quality of their drawings when required to deal with a computer. Past experience with computers did not seem to have an effect on this group. For the 4- to 5-year-olds, previous experiences with computers had a positive effect on the feelings and attitudes toward computers. The feelings of the 5- to 6-year-olds toward computers were not related to experience per se but to the amount of success experiences they have had with computers.

Les différences développementales dans les sentiments des enfants à l'égard des ordinateurs ont été explorées à travers des entrevues cliniques et des dessins d'enfants. Les participants étaient 120 enfants entre 3 et 6 ans. Les résultats indiquent que les sujets plus jeunes (3 et 3 1/2 ans) étaient confus et anxieux en rapport aux ordinateurs et ont démontré une chute significative dans le niveau d'organisation et de qualité de leurs dessins, lorsqu'on leur demande de s'adresser à l'ordinateur. Les expériences antérieures avec les ordinateurs n'ont pas semblé avoir un effet chez ce groupe. Par ailleurs, chez les enfants

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entre 4 et 5 ans, les expériences précédentes avec des ordinateurs avaient un effet positif par rapport aux sentiments et aux attitudes à l'égard des ordinateurs. Les sentiments des enfants de 5 et 6 ans envers les ordinateurs n'étaient pas reliés à l'expérience en soi, mais au degré de réussite des expériences qu'ils ont eues avec les ordinateurs.

Las diferencias de desarrollo frente a los sentimientos de los niños hacia los computadores fueron exploradas a través de entrevistas clínicas y de dibujos de niños. Los participantes eran 120 niños de 3 y 6 años. Los resultados indican que cuando se les pedía, a los sujetos más jóvenes (3 a 3.5 años), comunicarse con el computador éstos parecían confundidos y ansiosos frente a los computadores y mostraban una baja significativa al nivel de la organización y de la calidad de sus dibujos. La experiencia anterior con computadores no pareció tener un efecto en este grupo. Sin embargo, para los niños de 4 a 5 años, las experiencias anteriores tuvieron efectos positivos en los sentimientos y actitudes hacia los computadores. Los sentimientos de los niños de 5 y 6 años hacia los computadores no fueron asociados a la experiencia en sí misma, sino a la cantidad de experiencias exitosas que habían tenido con computadores.

One of the most basic determinants of a quality interaction between young children and their primary caregivers is the match between the child's special needs, capacities and interests and the "how" and "what" the adult mediates to him or her. In order to achieve the best match, adults must know how children feel, or what they think about those environmental components which are presented to them in the course of their development and education. Thus, it follows that in order to gain maximum benefits from technology in early childhood education, one has to explore the child's view of this technology and how he or she feels about it. There is an abundance of research to date on the effects of television and computers on young children, but scarcely any phenomenological research exploring

how and what children feel and think about them.

The current presentation describes an attempt to highlight some developmental aspects related to the question of how young children feel about computers.

The study designed to answer this question was triggered by an observation that young kindergarten children draw themselves as little, almost insect-like, figures near the big and monstrous-appearing computers.

The basic question was whether this is a general phenomenon found among all young children, or an age-related phenomenon which is also affected by other variables such as experience with computers.

Participants in this study were 120 children including 40 in each of the following age groups: 3 - 3.6, 4 - 5 and 5 - 6

years. The children in each group were asked to draw themselves seated near a computer. In order to isolate the findings which are based on artistic and graphic abilities from those based on actual expression of the child's feeling toward the computer, children were asked to draw on a separate page a child near a table and a child near a computer. These instructions were given in a balanced manner, i.e., half of the children were asked to draw first a child near a computer, and then a child near a table, and for the other half of the group these instructions were reversed in order. The children were also required to tell about their drawings.

The variables considered in analyzing the drawings included the following criteria: general size of the drawing, relative size of the child vs. the computer, the distance and relationship between the child and computer.

When the youngest group, 3 - 3.6-year-olds, was required to draw a child near a computer they showed a sharp decline in organization of their drawings in terms of location on the page, quality of lines and shapes, and in the frequency of presenting a good gestalt, as compared to their drawing of a child and a table. Their behaviour while drawing the child-computer picture as well as their verbal reports suggested that they were uneasy and confused in relation to computers. This confusion can be seen clearly in Figure 1, representing drawings of four 3-year-old children who participated in this study.

It should be noted that the group of children which participated in this study included 8 children who had access to computers in their homes. These children, however, did not differ in their expressed feelings or attitudes toward computers from the 3-year-olds who did not have a computer in their homes.

These findings suggest that 3-year-old children feel confused and overwhelmed by computers regardless of their exposure to them.

For the 4- to 5-year-olds, unlike for the younger group in the study, no significant or consistent trend was found regarding feelings or attitudes toward the computer.

However, an interaction for age and experience was noted. The older children in this group, the 4.6 to 5-year-olds with exposure to computers and some experience (e.g., having been allowed or encouraged to play with a computer) expressed a more relaxed, less confused and more positive attitude toward computers. In this age group there was no difference in ratings of the child near a computer or the child near a table drawings.

For the older group, the 5-6-year-olds, no interaction effect of age and experience was found with regard to their feelings toward computers. However, for the older children in this group, success experiences with the computer and not merely experience per se appeared to emerge as a major factor determining a child's feelings toward computers.

Seventy-two percent of all children, both boys and girls, in this study indicated that the child they drew near the computer was a boy. Close to 75% of the children said that boys are better than girls "in computers." This finding held true for all age groups studied, suggesting that there is a clearly perceived sex-related preference associated with computers in our culture.

If the findings reported here could be replicated in other countries it might be possible to conclude that most 3-year-old children are overwhelmed by computers, and should not be pushed or rushed to play with them. By the age of 4.6 to 5 years, the initial anxiety appears to decrease significantly, children express

curiosity and interest in the computers and enjoy experiencing their effect on them. At the age of 5.6 to 6 years the accumulation of success or failure experiences seems to determine the child's feelings and attitudes toward the computer. In view of the significant role played by computers in many aspects of our lives and in view of the prospective future development in this field, it becomes extremely important to deal effectively with the first encounter between the child and the computer, and attempt a best match between the two. This study points to the variables of age, sex, experience and success experience with the computer as significant variables to be considered in the educational attempts to match children and computers.

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The following illustrations are reproductions of three-year-olds' drawings of themselves near a computer and near a table. Every pair of pictures was drawn by one child. The pictures in the right column represent children and computers; those on the left represent children and tables.



