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Parent Attitudes Toward Computer Use By Young Children[1]

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Parents of young children were asked about their attitudes towards computers in general and about computer use by young children in particular. Overall attitudes towards computers and computer use by young children were positive and optimistic. Moreover, parents whose children used computers in schools had more positive attitudes about computer use by young children than parents whose children were not using computers in school. Neither sex of respondent nor presence of a computer in the respondents' homes differentiated attitudes towards computers. However, a significant negative correlation was found between the educational level of the parents and their attitudes toward computer use with young children. Family income was correlated positively with both general attitudes about computers and attitudes toward computer use by young children.

Currently, advertisers and the media go to great lengths to promote the use of computers in the home and school. Computer literacy is imperative, they argue, in order to keep pace in a new highly technical society. Television advertisements for Commodore computers illustrate the need for a family to have a computer by showing parents sending their son off to college, only to face disappointment when he returns home a failure because he did not have the computer which is needed to become successful today. In the past, Texas Instruments and Commodore both produced advertisements which deal specifically with the use of computers by young children. In one scene, a very young child is sitting on his father's lap and together the father and son worked the computer key board. In another ad, viewers saw a child's birthday party. As a young girl blew out the candles on her cake, an adult placed a Commodore computer in front of her as the announcer urged viewers to invest in their child's education now, by purchasing a Commodore computer today.

This media push for computer use and the research supporting the need for computers in the home and school are not congruent. In fact, there appears to be little empirical evidence supporting the notion that a person needs a computer to become successful. Instead, research studies involving young children have focused primarily on the child's computer abilities. Using a variety of different instruments and evaluation techniques, Pierstrup [10], Vaidya [13; 14], Swigger and Campbell [12], Perlman [9], Martin [8], Bender [2], and Israel [6] arrived at similar conclusions: young children are very capable of utilizing computers and are receptive to computer instruction.

Where do parental attitudes fit in concerning computer use by young children? An accepted view point of many researchers is that parental attitudes have a significant effect on a child's attitudes toward learning and school performance. This suggests that parental attitudes regarding computers also might be related to how well their children use computers. Relationships have been found between parents' attitudes and children's academic performance [3], parents' expectations and children's academic performance [11] and parents' attitudes toward mathematics and children's self-concept in mathematics [16]. In addition, Finlayson [5] concluded that family income and social status is related to how much parents value education. These parental attitudes then are related to the academic achievements of their children.

To date there is no research which examines parental attitudes toward computers and computer use by their children. In fact, Ahl [1] has one of the few attitude scales published which measures general attitudes toward computers and computer use. Using variations of Ahl's questionnaire, Lichtman [7] found that teachers and school administrators have less positive attitudes toward computers than the sample of the general population first studied by Ahl. Vensel [15] demonstrated, however, that exposure to a microcomputer demonstration had a positive effect on attitudes of special educators toward computers.

Given the relationship between parents' attitudes about education and their children's academic performance, it is not unreasonable to hypothesize a similar relationship between parental attitudes about computers and their children's performance on computer tasks. The first step in addressing this issue is to determine what are the attitudes of parents. The research questions of this study were: (1) What are parents' attitudes toward computers and computer use by preschool and kindergarten chil-

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TABLE 1A

Percentage Scores for Items on Ahl Scale

Item	Strongly Agree or Agree	Neither Agree Nor Disagree	Disagree or Strongly Disagree	No Reply
Computers will improve education	78.0	14.0	7.0	1.2
Computers will improve law en forcement	79.1	15.1	4.6	1.2
Computers will improve healthcare	89.5	5.8	3.5	1.2
Credit rating data banks are a worthwhile use of computers	64.0	24.4	10.5	1.2
A person today cannot escape the influence of computers	91.8	5.8	2.3	0.0
Computer polls and predictions influence the outcomes of elections	76.7	17.4	5.8	0.0
Computers dehumanize society by treating everyone as a number	24.4	34.9	39.6	1.2
Computers isolate people by preventing normal social interactions among users	31.4	27.9	39.5	1.2
Computers are best suited for doing repetitive, monotonous tasks	40.7	15.1	44.2	0.0
Computers are a tool, just like a hammer or a lathe	87.2	3.5	9.3	0.0
Computers slow down and complicate simple business operations	15.2	12.8	71.0	1.2
Computers will replace low-skill jobs and create jobs needing specialized training	60.5	18.6	20.9	0.0
Computers will create as many jobs as they eliminate	37.2	35.6	36.1	1.2
Computers are beyond the understanding of the typical person	12.8	4.7	80.2	2.3
Programmers and operators make mistakes, but computers are for the most part, error free	73.3	12.8	12.8	1.2
Computers make mistakes at least 10% of the time	5.8	41.9	51.1	1.2
It is possible to design computer systems which protect the privacy of data	38.4	36.0	24.4	1.2

dren? (2) Are those attitudes related to selected parental variables such as income, education, sex, and parents' own experiences with computers?

METHOD

Subjects were 86 parents (39 males, 47 females) of preschool and kindergarten children under six years of age. The subjects were recruited from a university community and an adjacent mill town in central Maine (combined population = 18,500). Racial composition was primarily Caucasion. The mean age of the parents was 34.1 years and their mean education level was 15.9 years. There was a bimodal distribution of reported income levels with 44% of the parents earning over $30,000 yearly and 27% earning $20,000-$24,999 yearly.

TABLE 1B

Percentage Scores for Items on PATCYC Scale

Item	Strongly Agree or Agree	Neither Agree Nor Disagree	Disagree or Strongly Disagree	No Reply
Computers will enchance a young child's (6 yrs & under) overall development	44.2	37.2	18.6	0.0
Preschool and kindergarten children need to become computer literate now, to become successful in the future	25.6	24.4	50.0	0.0
Computer literacy should begin before the age of six	32.5	26.7	39.6	1.2
Preschool and kindergarten teachers will be able to teach better with a computer in the classroom	27.9	33.7	38.4	0.0
Every home should have a computer	17.5	31.4	50.0	1.2
Computers should be used by the whole family	46.5	33.7	18.7	1.2
Computers interfere with teacher/ child interactions in a preschool or kindergarten classroom	11.7	27.9	60.5	0.0
Preschool and kindergarten children are capable of using computers	95.3	3.5	1.2	0.0
Computer use will enhance creativity in a young child (6 yrs & under)	37.2	39.5	22.1	1.2
Boys perform computer tasks better than girls	3.5	33.7	62.8	0.0
It is more important for boys to become computer literate than girls	.0	15.1	84.9	0.0
Most teachers are not currently qualified to teach with computers	73.2	17.4	8.2	1.2
Parents often do not know what their children are learning about computers	80.3	17.4	2.3	0.0
Formal preschool and kindergarten experiences should focus only on physical and social development	8.1	10.5	81.4	0.0
Computer use will help preschool and kindergarten children to think more clearly	33.7	43.0	22.4	0.0
Computers do not belong in a preschool or kindergarten program	10.5	23.3	66.2	0.0

Data were collected by means of mailed questionnaires. In addition to providing information on demographic variables, computer use, perception of computer literacy, and computer use in school by other siblings, parents were asked to fill out the Ahl Scale of general public attitudes toward computers and computer use as well as a scale measuring Parental Attitudes Toward Computers with Young Children (PATCYC). Both scales consisted of a

series of items to which the parents responded by rating them on a scale of 1 to 5 where 1 = Strongly Agree, 3 = Neither Agree Nor Disagree, and 5 = Strongly Disagree. The questionnaires were assembled into a packet containing a cover letter, an explanation of the study, the questionnaires, an informed consent form, and a preaddressed stamped envelope. The packets were addressed individually to each parent. Spouses were instructed to complete the questionaires independently. Of the original 181 questionnaires sent out, 86 were returned for a response rate of 48%.

RESULTS

An analysis of reliability was done on the Ahl's scale and PATCYC Scale. The Cronbach's alpha reliability coefficient was 0.63 for the Ahl Scale and 0.84 for the PATCYC Scale.

To describe the parent's general attitudes about computers, Ahl's example of collapsing the categories of Strongly Agree and Agree into a single category of Agreement and the categories of Strongly Disagree and Disagree into a single category of Disagreement was used. Overall, parents held positive attitudes about computers. Over three quarters agreed that computers will improve education (78.0%), law enforcement (79.1%), and health care (89.5%). Sixty-four percent agreed that credit rating data banks are a worthwhile use of computers. Parents largely held that a person today cannot escape the influence of computers (91.8%), and that computers influence the outcomes of elections (76.7%). Still, only 24.4% felt that computers dehumanize society and 31.4% agreed that computers isolate people by preventing normal social interaction among users.

Most parents view computers as useful tools (87.2% agreed), and disagreed with the notion that computers slow and complicate business (71.0%). However, there was less uniform agreement concerning computers and the job market. The results indicated that 60.5% of the parents saw computers replacing low-skill jobs with jobs needing specialized training. Yet, only 37.2% of the parents see as many jobs being created as are eliminated by computers.

Parents expressed positive attitudes by disagreeing that computers are beyond the understanding of the typical person (80.2%), and agreeing that computers are mostly error-free (73.3%). They displayed mixed feelings about the possibility of designing computer systems which protect the privacy of data; 38.4% agreed, 24.4% disagreed, and 36.0% had no opinion.

On the Parental Attitudes Toward Computers with Young Children (PATCYC) Scale, 95.3% agreed that young children are capable of using computers, and 66.2% disagreed with a statement that computers do not belong in a preschool or kindergarten, indicating very positive parental attitudes. Yet, 50.0% of the parents feel that young children need not become computer literate now as a prerequisite to success in the future, and only 39.6% agreed that computer literacy should begin before age six. No clear opinions were evident regarding the effect of computers on young children's overall development, creativity, or ability to think clearly.

Parents possessed very positive attitudes concerning gender equality and computer use. For example, 62.8% did not agree that boys perform computer tasks better than girls. Also, 84.9% disagreed with the statement that it is more important for boys to become computer literate than for girls.

Results indicated ambivalence regarding the issue of early childhood educators as computer instructors. Over half of the parents (60.5%) did not feel that computers interfere with teacher/child interactions. Yet 73.2% said that most teachers currently are not qualified to teach with computers.

Fifty percent of the parents disagreed that every home should have a computer. Conversely, 46.5% agreed that computers should be used by the whole family. This suggests that many parents feel that a home computer is not a necessity, but if a family owns a computer, it should be used by everyone. Finally, 80.3% agreed that parents often do not know what their children are learning about computers when computers are available in schools.

To analyze the parental attitudes in terms of the various demographic variables, all items on the Ahl Scale and the PATCYC Scale were coded such that a five indicated the most positive response. Correlational analyses showed a low, yet significant relationship between family income and the Ahl Scale ($r = .38$, $p < .01$) and the PATCYC Scale ($r = .21$, $p < .05$). Thus, the higher the family income, the more positive the parental attitudes toward computers and toward computer use by young children.

A low, yet significant negative correlation held between the educational level of the parent and the PATCYC Scale ($r = -.22$, $p < .05$). Thus, the higher the education level of the parent, the less positive their attitudes toward computer use with young children. No significant relationships existed between educational levels of the parents and the Ahl Scale. Parents perception of their knowledge of computers was not related to either the Ahl Scale or the PATCYC Scale.

TABLE 2

Pearson Product Moment Correlations between Ahls Scale and the PATCYC Scale and the Variables of Family Income, Parents' Educational Level, and Parents' Level of Computer Knowledge

Variable	N	Ahl's Scale	PATCYC Scale
Family Income	79	.38**	.21*
Parents' Educational Level	86	.06	−.22*
Parents' Level of Computer Knowledge	86	.09	−.04

*$p < .05$; **$p < .01$

TABLE 3

Mean Ahl and PATCYC Scores as a Function of Sex of Parent, School Use of Computers by Any Child, and Parental Ownership of a Home Computer

		Mean Ahl's Score		Mean PATCYC Score	
		M	*t*	*M*	*t*
Sex of Parent	Male ($N=39$)	3.67	0.71	3.33	−0.20
	Female ($N=47$)	3.61		3.35	
School use of computers by any child	Yes ($N=40$)	3.69	1.16	3.47	2.39*
	No ($N=44$)	3.59		3.21	
Parental ownership of a home computer	Yes ($N=16$)	3.58	−0.69	3.20	−1.27
	No (N = 70)	3.65		3.38	

*$p<.05$

T-tests comparing mean scores of male versus female respondents resulted in no significant differences on either scale, indicating no sex differences in attitudes toward computers in general or toward the use of computers with young children.

There was a significant difference in the mean scores on the PATCYC Scale between those parents who currently had children (not necessarily a preschool or kindergarten child) using computers in school and those who did not have any children using computers in school ($t=2.39$, $p<.05$). Parents whose children were using computers in school had more positive attitudes toward computer use with young children than parents whose children were not using computers in schools. This difference did not obtain on the general attitudes Ahl Scale.

T-test scores of parents who owned a home computer were not significantly different from those who did not own a home computer. This was true for both the Ahl Scale and the PATCYC Scale.

DISCUSSION

Favaro [4] warns against expecting too much regarding computer use by young children, contending that young children are quite capable of performing computer tasks, but only those tasks that are developmentally appropriate. Parents in the present study appear to concur. For example, 95.3% agreed that young children are capable of using computers, but only 27.9% agreed that computer literacy should begin before the age of six. Parents may view computer exposure as being useful, but not necessarily vital to a young child's development. One possible explanation for why more educated parents had less positive attitudes toward computer use by young children could be related to this issue. Perhaps well educated people respect young children's computer capabilities but feel that children still can be successful even if they become computer literate when they are older.

With regard to sex issues and computer use by young children, both mothers and fathers possessed similar attitudes. This agreement extended to issues relating to the gender of the child and computer use. Of those surveyed, 84.9% disagreed that it is more important for boys to become computer literate than for girls, with 15.1% having no opinion. Similarly, 62.8% of the parents disagreed that boys perform computer tasks better than girls, with 33.7% having no opinion. While responses to both of these statements reflect positive attitudes, it is important to note that more parents offered no opinion on the second statement. Perhaps parents feel very strongly about what *should* be the norm (boys and girls should be able to perform equally well), but were less certain concerning what *is* the norm (boys and girls may not actually perform equally well on computer tasks). Parents displayed mixed opinions concerning teacher-related issues. About 60% said that computers do not interfere with teacher/child interactions in a preschool or kindergarten class. However, 83.2% agreed with the statement that most teachers are not currently qualified to teach with computers. Computers in the classroom apparently are not inherently harmful; nevertheless, teachers may not be ready yet to utilize them as teaching instruments. Parents also were ambivalent about an enhancing effect of computers on teaching. Only 27.9% agreed with this notion, 38.4% disagreed, and 33.7% had no opinion. Parents may feel that it is too early to judge the use of computers in the classroom.

The fact that parents who currently have at least one child (not necessarily a preschool or kindergarten-aged child) using computers in school possess more positive attitudes about computers with young children than parents who do not have children using computers in school is noteworthy. One explanation for this may be that parents who see their children enjoying computer instruction feel positively about the use of computers by children of any age. On the other hand, parents who have

not been exposed to computer use in schools may be more hesitant to recommend computer use in an early childhood environment.

The lack of a significant correlation between parental ratings of their computer knowledge and their attitudes toward computers with young children actually may represent a positive outcome. If parental attitudes are related to children's school performance, then children of parents who perceive themselves as not knowledgeable about computers may perform as well as children whose parents perceive themselves as being computer literate.

This study represents a first step in describing the attitudes of parents regarding the use of computers with young children. If replications with samples representative of other segments of the general population show similar results, the conclusion would be that parents generally have positive attitudes. The next step will be to determine whether these attitudes are related to children's actual performance with computers at these early ages.

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