Effects of Technology on Parental Involvement

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Abstract: A study that included forty-eight participants from a small rural middle school was conducted to determine the effects of technology on parent and guardian attitudes about their involvement in school. Interventions included a school web page and weekly school newsletters. Pretest/Posttest research design was implemented and both interventions were evaluated. Three profiles -importance, productivity and comfort were studied. Posttest participants who utilized a school web page had more positive attitudes for all three profiles than either pretest participants or newsletter recipients. Changes in types of technology use as well as frequency of technology use were reported. Newsletter recipients reported improved attitudes about the productivity of their involvement but attitudes regarding comfort and importance declined.

The Setting

The middle school is located in a small rural town in southeast Georgia. The county is predominantly agrarian with only a few industries. The middle school is accredited by the Georgia Accrediting Commission (GAC) and has a well-trained faculty consisting of two administrators, two support personnel, and forty-four teachers (10 male, 34 female). More than 56% of the faculty have a Master's degree or higher and the average teaching experience is fourteen years.

Consolidation in 1993 united the county's educators and students. The student body now consists of approximately 745 students from the local town as well as three outlying cities and a few other communities. Minorities make up less than 18% of the school's population and more than 53% of the students qualify for free or reduced lunch prices. Additionally, less than 6% meet the criteria for Gifted Education services, less than 2% are in alternative programs, and slightly more than 10% receive special education services. The dropout rate is higher (.2 %) than the state average. According to the scores taken from the Iowa Test of Basic Skills (ITBS) (1999-2000), eighth-grade students performed below the state average in all subjects with the exception of reading vocabulary (Georgia Dept. of Ed., 2000).

Recent efforts to improve student success have resulted in the development of a school improvement team (SIT). During the 2000-2001 school year the school improvement team conducted assessments to identify areas in need of improvement. Out of more than thirty items, only parental involvement was identified as being in need of improvement. The other twenty-nine items were satisfactory.

The Challenge

I have always believed that student success is significantly dependent on partnerships between teachers and parents in addition to communication between school and home. On occasions when I have had the opportunity to speak or meet with parents, the results have, for the most part, been positive. Unfortunately, I do not have the opportunity to meet with all parents. I have tried various types of communication to get parents involved, but with similar results. Parents' response to messages written or stapled in students' agendas and messages left on answering machines have been minimal. Parents' lack of participation and apparent lack of concern has been both frustrating and, many times, unproductive. My frustration with previous attempts and my determination to find a way to get parents involved led to a strong desire to improve the situation.

Review of the Literature

A review of the literature gave me both insight and direction. The review included research reviews, case studies, and numerous research studies. These sources addressed a broad range of topics relating to parental involvement.

Academic achievement and parental involvement was of particular interest to me. I was not surprised to learn there was a positive correlation between parental involvement and student achievement (Ascher, 1988; Caplan et al., 1997; Collins et al., 1995; Catsambis, 1998; Epstein & Connors, 1992; Maynard & Howley, 1997; Samaras & Wilson, 1999; U.S. Dept. of Ed., 1998; Wirt & Snyder, 2000). Parental involvement was not only positively correlated to academic achievement, but also took precedence over household income. For example, results from Herbert Walberg's study identified parental involvement as having a greater impact on student achievement than socioeconomic status (as cited in Chavkin & Gonzalez, 1995).

According to the research several obstacles prevent parents' involvement in school. Barriers included the school's location, parents' job responsibilities, parents' feelings of intimidation by school personnel, parents' lack of transportation, lack of encouragement from school officials, time, and feelings of inadequacy in parents' ability to effectively communicate in order to advocate for their children. Moreover, barriers to parental involvement at the junior high and high school level were attributed to students' attitudes and their failure to relay messages to parents (Collins et al., 1995; Johnston & Williamson, 1998). I was not surprised to learn that parental involvement decreased as students entered middle school (Caplan et al., 1997; Collins et al., 1995; Shartrand et al., 1997; Wirt, J. & Snyder, 2000). However, the good news was that most parents, at least ninety percent with children in middle school and eighty percent with children in high school, wanted to provide assistance but were confused about what they should do (Epstein & Connors, 1992).

So what factors increase parental involvement? According to the research, communication was a leading influence on parental involvement (Caplan, et al., 1997; Collins et al., 1995; Shields, 1994). Consideration of parents' needs and regular communication between school officials and parents contributed to increased parental involvement (Collins et al., 1995). Additionally, Chavin & Gonzalez (1995) asserted that ongoing communication is essential to sustaining parental involvement. Based on these findings, I concluded that whatever communication I decided to implement needed to be on a large scale and have the capabilities of meeting the diverse needs of parents. The effort needed be ongoing and the content readily accessible.

Curious as to whether technology could play a role I changed directions in my search. According to the research, technology had the potential to break communication barriers and bridge the gaps between socioeconomic differences, disabilities, and ethnic differences (Follansbee, Gilsdorf, Stahl, Dunfey, Cohen, Pisha, & Hughes, 1996; Otterbourg, 1998). In particular, online communication promoted positive parent interactions and at the same time encouraged communication without face to face confrontation. Follansbee et al. (1996) asserted that online communication was the most likely tool for breaking the previously mentioned barriers to communication. Online communication not only increased parental involvement but also promoted student learning. Researchers discovered that teachers who had access to online communication also had a larger number of positive parent interactions than teachers who did not have online access (Follansbee et al., 1996). According to these findings, and the previously mentioned barriers to parental involvement, technology as a means for communicating with parents seemed a potential solution.

Findings identified in the literature persuaded me that parents might become more involved in their child's education if they felt more comfortable with the school setting. I concluded that online communication which provided parents with access to information about the daily school events and upcoming activities may serve to familiarize parents and guardians with our school. This may, in turn, lead to higher comfort levels, increased participation, and increased technology use. Therefore, the purpose of the study was to examine the effects of online communication on parent and guardian attitudes toward home-school communication as well as their use of technology.

Research Questions and Interventions

To test my hypothesis, I implemented three informational links on a school web page and also included the same information in a weekly school newsletter for those not having ready access to computers and the Internet.

Interventions

Online communication, which consisted of weekly school announcements including school news, weekly cafeteria menus, and regularly updated school calendars were provided on the school web page. For parents who did not have access to a computer and the Internet, weekly newsletters would be distributed upon parents' or guardians' weekly requests in student agendas. Agendas are a regular part of the curriculum and they are issued to every student at the beginning of each school year. Teachers use the agendas to communicate with parents and students use the agendas to record class assignments and school activities.

Guiding Questions

Three questions guided my research. First, what is the effect of online communication on parents and guardians attitude toward home-school communication? I utilized the three previously mentioned school web page links to determine the effects of online communication on parent and guardian attitudes toward home-school communication. Second, what is the effect of weekly newsletters on parent and guardian attitudes toward home-school communication? For participants who did not have access to the Internet, I created and distributed weekly newsletters in order to determine the effect of newsletters on parents and guardians attitudes toward home-school communication. The same information presented on the school web page was also included in the school newsletter. A final question, what is the effect of online communication on parents and guardians use of technology? I sought to determine whether or not the online communication links had any effect on parents and guardians use of technology.

Methods

The action research team was organized at the end of the 2000-2001 school term. Two academic teachers, the computer teacher, the principal and I formed the action research team. The two classroom teachers and I agreed to distribute and collect research instruments. The computer teacher agreed to respond to incoming messages and to keep a daily count of hits on the school web page.

Three classes, one sixth grade class and two eighth grade classes, were invited to take part in the research. Teachers in the three classrooms distributed information to eighty-seven potential participants, fifty-six eighth grade students and thirty-one sixth grade students. The only forms that were used to identify participants were the consent/assent forms and the web page receipt forms. All other surveys and questionnaires were anonymous and did not require identification of the participants.

Measurement

Pretest/Posttest attitude surveys were used to measure attitudes about home-school communication. The pretest/posttest attitude survey consisted of fifteen Likert-type items pertaining to the importance, productivity, and comfort level of parental involvement. Participants were asked to circle the number, between one and seven, that best reflected their opinion pertaining to each adjective pair. The posttest survey was identical to the pretest with one exception, an open-ended question (#16) that asked parents and guardians to identify whether they utilized the school web page or the school newsletter.

A questionnaire was used to measure the effectiveness of the communication links. Participants who utilized the school web page were asked to complete the first nine items of the questionnaire and those who utilized the school newsletters were asked to complete the last seven items. Items two and three were used to identify any changes in the frequency or type of technology use that resulted from using the school web page. Item five was used to determine the number of times parents and guardians accessed the school web page each week. Items one, four, ten, and eleven were used to determine the merit of using the school web page/newsletter as a form of communication between school and home. Items eight and twelve were used to determine which communication links were most helpful, and items nine and thirteen were used to determine which communication links were least helpful. Items six, seven, fourteen, fifteen, and sixteen were open-ended questions that provided participants with opportunities to submit comments and suggestions for improving the school web page or newsletter as well as communication between home and school (see Appendix E).

Procedures

At the preliminary meeting of the action research team I shared my findings from the review of literature. I then provided a brief overview of the research procedures and requested each member's support and approval of their respective roles. Since the research was not scheduled to begin until the following school year, we agreed to reconvene at the beginning of the 2001-2002 school year.

Following the approval of my action research proposal I met with the school superintendent and explained the purpose as well as interventions to be used in the research. I answered any questions he had and then asked for his approval. Once I gained the superintendent's signature of approval, I asked for my principal's and assistant principal's approval. With the proper approvals, I began to make preparations for beginning the research.

The week prior to beginning the study, I called a second meeting of the action research team. Each member was provided with a copy of the research proposal and copies of the research instruments. I reminded each member of her responsibility and explained the procedures. Once I answered questions pertaining to the research procedure we unanimously decided that I would distribute surveys and questionnaires with instructions just prior to their distribution and I would collect all surveys and questionnaires as they were returned to the other two classroom teachers.

Prior to distributing research instruments, each homeroom teacher announced the upcoming research and explained to their students that only three classes were invited to participate in the study. The same day two letters were sent home with all students in the three homerooms. The first letter explained our school's goal to improve communication between school and home and also introduced the research. The second letter briefly explained the purpose of the research and included consent forms for parents and guardians and assent forms for students. A separate section, on the consent/assent form, was used to identify whether or not participants had Internet access. Those who did not have Internet access were promised a weekly newsletter upon their request each week in the student agenda. All parents or guardians of students who returned the consent/assent forms were considered participants in the study.

Once the consent/assent forms were collected, the pretest attitude surveys were sent home. When pretests were collected, notification of the school web page and the URL was distributed. Participants who did not have Internet access were given the first weekly newsletter the same day. Subsequent newsletters were distributed each Monday to each homeroom teacher and teachers, in turn, distributed newsletter to each student whose parent or guardian requested one in the student agenda.   Requests for the weekly newsletter was used to validate the value and distribution of the newsletter.

The duration of the study was four weeks. During that time the three links on the school web page were updated on a weekly basis. Announcements presented in the daily school bulletin, information from teachers and students, monthly cafeteria menus, school thoughts for the day, and district calendars and announcements were used to update the three links. The same information was used to create the weekly school newsletters.

When four weeks of access to the three communication links on the school web page and school newsletter ended, two final instruments were stapled into each participating student's agenda. The two instruments included the posttest attitude survey and the web page/newsletter questionnaire. The collection period for the final instrument was five days.

Results of the Study

Of the eighty-seven potential participants, forty-eight students and their parents or guardians consented/assented to participate, twenty-five from eighth grade and twenty-three from sixth grade. The proportion of participants from sixth and eighth grade supported findings noted in the literature, that parental involvement decreases as students progressed from grade to grade. Also, more than half of the forty-eight participants, twenty-seven, had a computer and Internet access.

Surveys were used to determine the effect of online communication of parents or guardians attitude. Participants completed the pretest attitude survey before the web page/newsletter was introduced. Posttest attitude surveys were completed four weeks after the web page/newsletter was introduced. Changes in attitudes were evaluated.

Results of Pretests – Parent / Guardian Attitude Survey

Thirty-eight surveys were completed and returned, nineteen from sixth grade and nineteen eighth grade. However, only thirty-four pretest surveys were used to analyze parent and guardian attitudes about their

involvement in school, seventeen representing sixth grade and seventeen representing eighth grade. Four surveys, two from sixth grade and two from eighth grade, were omitted from the study because participants circled the same response for all fifteen items.

Data analysis for the attitude survey was complex and required several steps. I first coded each instrument as either sixth or eighth grade. Then, I created a table using *Microsoft Excel* to record each participant's response to individual items (see Appendix A). Responses for individual items were omitted if the item was either unanswered or if the participant chose two responses instead of one. Once all pretests were recorded, I applied formulas to calculate the mean (M), or average response, and the standard deviation (s) for each item.

The standard deviation is used to measure the degree to which scores vary from the mean score. The smaller the standard deviation the smaller the spread of scores, and vice versa. Item 15, of the pretest survey, had a standard deviation of two and the other fourteen items had standard deviations of less than two (see Appendix A).

I used the information from the first table to create another table to use for evaluating the three profiles. Items 4, 10, 11, 13, and 14 were used to measure attitudes about the productivity of parents or guardians involvement. Items 1, 3, 5, 7, and 12 were used to measure attitudes about the importance of their involvement. Items 2, 6, 8, 9, and 15 were used to measure attitudes about the comfort of their involvement.

Each adjective pair was organized so that on a scale of one to seven, one would represent the most negative response and seven would represent the most positive response. For example, the adjective pair for item one on a scale of one to seven with one being the most essential and seven being the most nonessential, the mean response (or average of responses) was 2.26. However, before I recorded the mean for item one, I flipped the adjective pairs and subtracted 2.26 from seven so on a scale of one to seven, one would represent the most nonessential and seven would represent the most essential. Therefore, on a scale of one to seven, with one representing the most nonessential and seven representing the most essential, the mean response for item one was 4.74. The mean for each adjective pair was recorded in this same manner for the pretests as well as the posttests (see Appendix B).

Pretest productivity levels, importance levels, and comfort levels were as follows: the average productivity level was 5.58, the average importance level was 5.07, and the average comfort level was 4.75.

Results of Posttests – Parent/Guardian Attitude Survey

Slightly more than half of the participants, twenty-three, completed and returned the posttests. However, two surveys were omitted because participants circled response number four for all 15 items. Of the remaining twenty-one surveys, twelve participants utilized the school web page and nine received the school newsletter. The posttest attitude survey was identical to the pretest survey with only one exception, item sixteen. The same procedures that were used for analyzing pretests were also used for analyzing posttests. Comparisons between pretests and posttests were made. The standard deviations for items 3 and 4 were two and standard deviations for the other thirteen items were less than two (see Appendix C).

Comparison of Pretests and Posttests

Findings from comparisons of pretests and posttests supported the use of the school web page and school newsletter as a positive means for communicating with parents. Posttest attitudes were more positive for all three profiles than their pretest attitudes (see Appendix D). Comparisons were as follows: productivity (5.58 versus 5.76), importance (5.07 versus 5.17), comfort (4.75 versus 4.9) (see Figure 1).

Figure 2: Productivity Profile

Response Range 1 To 7

	Worthless Worthwhile	Ineffective Effective	Unproductive Productive	Unprofitable Rewarding	Damaging Helpful	Overall Average
■ Pretest	6	5.62	5.44	4.94	5.9	5.58
□ Posttest	6	5.76	5.7	5.25	6.1	5.76
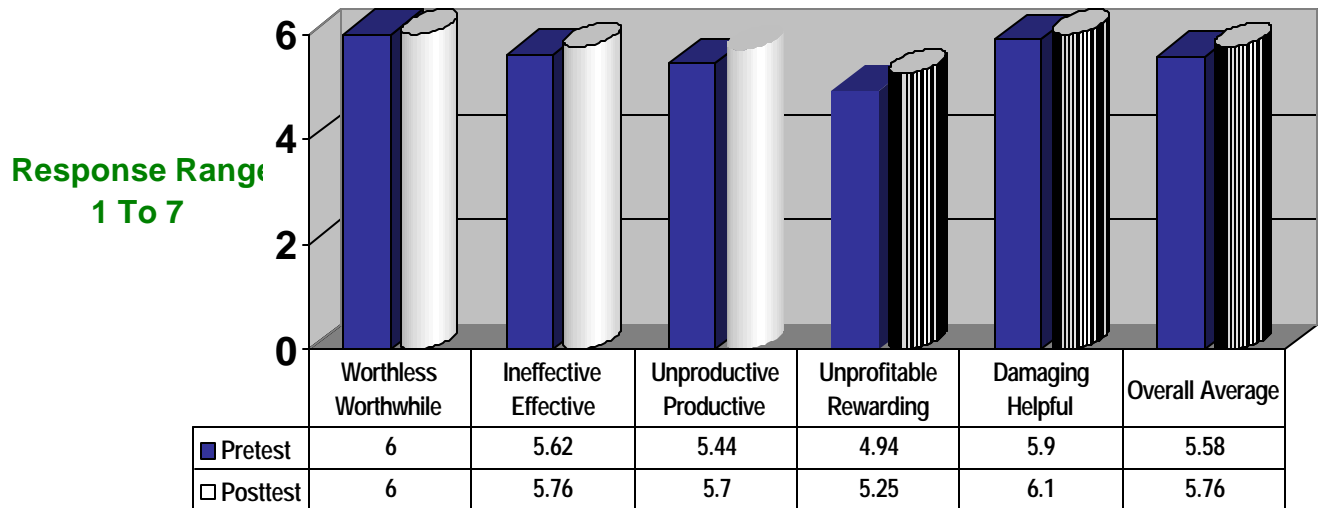
Comparisons were also made between pretests and posttests on all three profiles. Results of posttest attitudes were more favorable for all three profiles than those reported on pretests (see Figures 2, 3, and 4).

Figure 3: Comfort Profile

	Uncomfortable	Discouraging	Unfamiliar Familiar	Disturbing Delightful	Unpleasant Pleasant	Overall Average
Pretest	4.26	5.1	3.9	4.8	5.7	4.75
Posttest	4.8	4.5	5	4.6	5.6	4.9

Response Range 1 To 7

Figure 4: Importance Profile

	Unimportant Important	Useless Valuable	Unnecessary Necessary	Nonessential Essential	Insignificant Significant	Overall Average
Pretest	5	5.44	5.2	4.74	5	5.07
Posttest	5	6.1	5.1	4.65	5	5.17

Response Range 1 To 7

Comparison between results of pretests and posttests were made for each item (see Figure5).

Figure 5: Item Analysis of Pretests and Posttest

Response Range 1 To 7

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q14
■ Pretest	4.74	3.9	5	6	5.2	4.8	5	5.7	5.1	5.62	5.32	5.44	4.94	5.9	4.26
□ Posttest	4.65	4.2	5	6	5.1	4.6	5	5.6	4.5	5.76	5.7	6.1	5.25	6.1	4.8

Comparison of Web Page Participants and Newsletter Participants

Item sixteen on the posttest attitude survey was used to evaluate the attitudes of parents and guardians who used the web page and those who received the newsletter, and to note any similarities or differences between the two. Differences were identified. Parents and guardians who accessed the school web page displayed more positive attitudes about the productivity (5.87 versus 5.7), comfort (4.9 versus 4.48), and importance (5.46 versus 4.98) of their involvement than parents or guardians who received the newsletter (see Figure 6).

Figure 6: Web Page/Newsletter and the Three Profiles

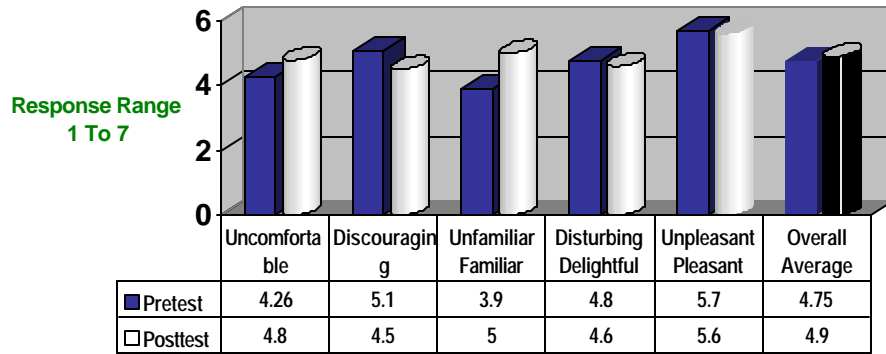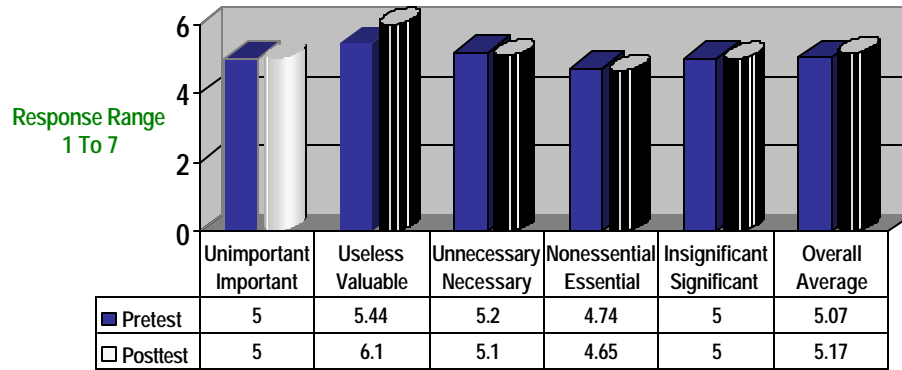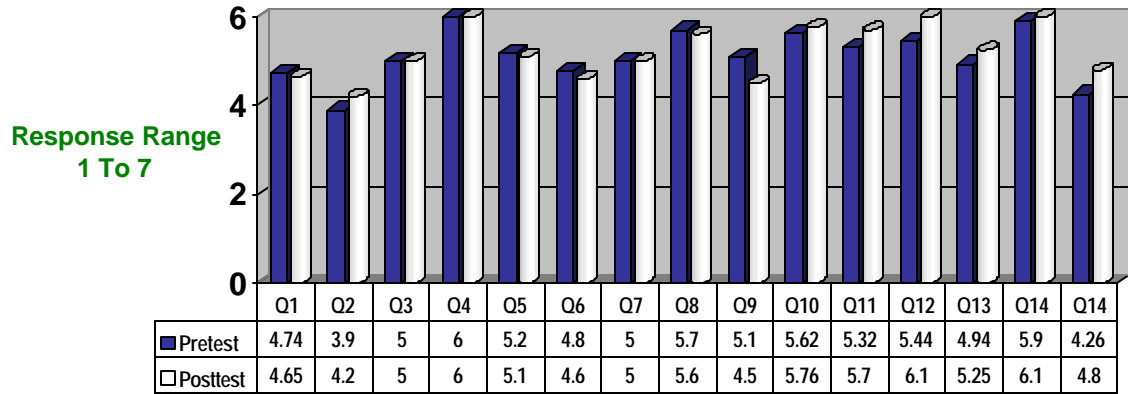**Response Range 1 To 7**

	Productivity	Importance	Comfort	Overall Comparison
■ Web Page	5.87	5.46	4.86	5.39
□ Newsletter	5.7	4.98	4.52	5.06
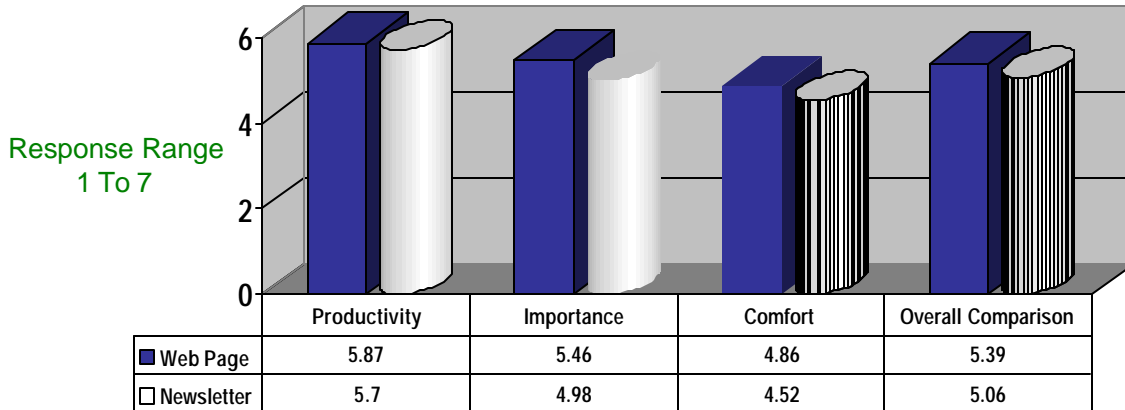
Comparisons were also made between pretests, web page participants, and newsletter participants. Participants who accessed the school web page reported more positive attitudes for all three profiles than both the participants who received the school newsletter and those who completed the pretest survey. On the other hand, overall pretest attitudes were more positive than the attitudes reported by parents or guardians who received the school newsletter (see Figure 7).

Figure 7: Analysis of Web Page / Newsletters / Pretests

Response Range 1 To 7

	Productivity	Importance	Comfort	Overall Comparison
Web Page	5.87	5.46	4.86	5.39
Newsletter	5.7	4.98	4.52	5.05
Pretest	5.55	5.07	4.75	5.12
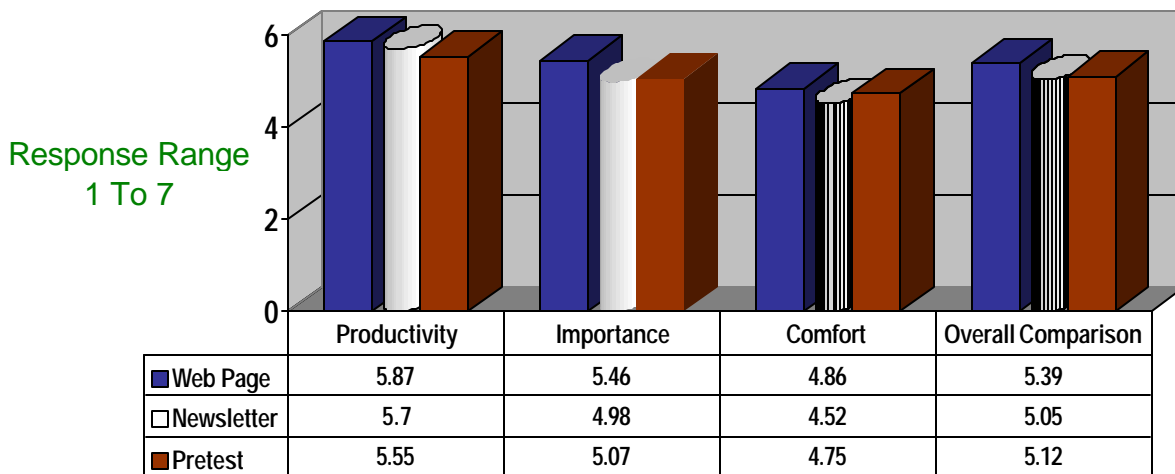
Questionnaires

Questionnaires distributed at the same time as posttest attitude surveys, were used to determine the effect(s) of online communication on parents and guardians use of technology and to determine the usefulness of the school web page and school newsletters as tools for communicating with parents and guardians. Less than half (twenty-one) of the forty-eight participants returned the questionnaires, eleven representing sixth grade and ten representing eighth grade. Questionable responses, such as those that contained two responses to questions that required only one response, were omitted. Fourteen participants, six representing sixth grade and eight representing eighth grade, completed items pertaining to the school web page. Seven participants, five representing sixth grade and two representing eighth grade, completed items pertaining to the school newsletter.

All twenty-one participants agreed that the web page/newsletter kept them better informed about school activities. Of the fourteen participants who used the school web page eleven reported that they used the Internet more after they began using the school web page. One participant reported using the Internet less than before the web page was introduced, and two reported no changes. Participants did not provide any explanations for why their Internet use was less or unchanged since the school web page was introduced.

Item three asked whether using the school web page changed the way participants used their home computers. Six participants reported changes and seven no reported changes. One participant stated that he/she was more involved, used it (the computer) more often, and was able to find more information. Another participant stated that he/she used the computer more often and was able to view the school web page with his/her child.

When asked if the school web page improved communication between home and school, eleven agreed the web page improved home-school communication. Three did not believe that the web page improved home-school communication. However, parents and guardians reported they were better informed about school events and current information.

When asked about their frequency of use, five participants reported that they used the web page 0-1 times a week and seven reported that they used the web page 2-3 times a week. Participants commented they would like to see daily/weekly class assignments and pictures of the campus and school events. Item eight asked which link(s) was/were most helpful (the cafeteria menu, the monthly calendar, or the daily news and information link) and item nine asked which of the same three links was least helpful. More than one option could be selected for both items. For most helpful links, three participants chose the cafeteria menu, six chose the daily news and information link, and ten chose the monthly calendar. For least helpful links, six participants chose the cafeteria menu and one chose the daily news and information link.

Item eleven asked whether or not the school newsletter improved communication between home and school. Six participants said yes and one said no. Parents and guardians commented that the school newsletter kept them better informed because students often forget to tell parents about upcoming events. Another participant commented that the school newsletter kept parents and students informed about school activities. A third participant stated that the newsletter was helpful because everyone could not afford the Internet. When asked which of the three links were most helpful, eight participants chose the cafeteria menu, eight chose the monthly calendar, and five chose the daily news and information link. When asked which information link(s) were least helpful, one participant chose the cafeteria menu and two chose the daily news and information link.

Overall, eighteen participants found the monthly calendar to be the most helpful link. The cafeteria menu and the daily news and information link received the same amount of support. However, of the three links the cafeteria menu was found to be the least helpful (see Figure 8).

Figure 8: Value of Communication Efforts

	Monthly Calendar	Daily News and Information	Cafeteria Menu
Most Helpful	18	11	11
Least Helpful	0	3	6
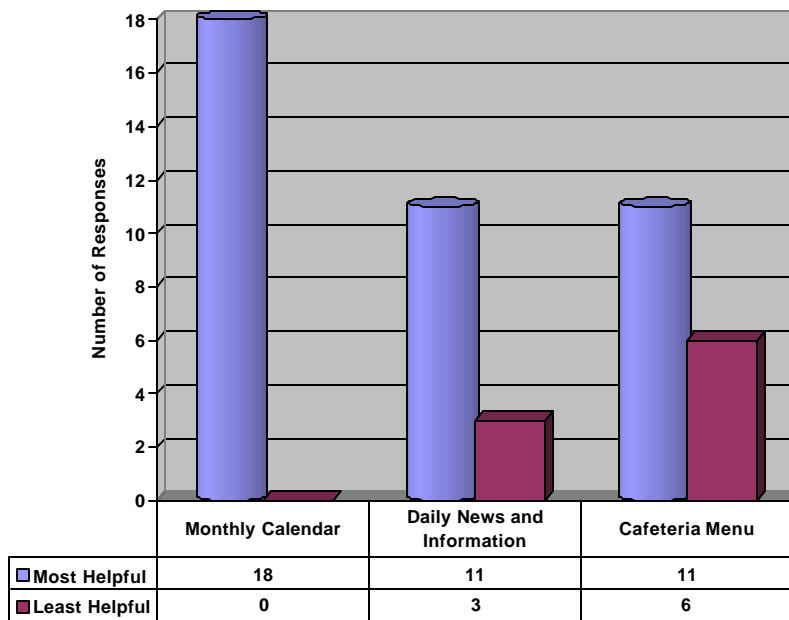
When given the opportunity to provide suggestions for improving communication between home and school, one parent suggested the web page continue. Another stated that every teacher should take the time to put students' test scores in the agenda, and a third parent stated that parents should be informed of cafeteria bills, not students.

Discussion and Implications

The purpose of this study was to determine the effect of online communication on parental involvement. According to the results of the study, online communication may be a reasonable option for improving communication between home and school. More than half, twenty-seven of the forty-eight participants, had a computer and access to the Internet. Furthermore, of the two communication interventions the school web page appeared to be a more viable source of communication than the school newsletter for improving parental involvement. Overall, attitudes about the productivity, importance, and comfort of their involvement in school were more positive after utilizing the school web page than before utilizing the school web page and participants who used the school web page had more positive attitudes than those who received the school newsletter.

A second objective was to determine the effect of school newsletters on parents and guardians attitudes about their involvement in school. Both interventions appeared to have positive effects on attitudes about the productivity of parents or guardians participation. Yet, posttest attitudes about comfort and importance levels for participants who received the school newsletter were slightly less than the pretest attitudes. However, it is important to use

caution when considering the comparison between pretest attitudes and posttest attitude surveys of those completed by participants who received the school newsletter. The two participants who commented that all teachers should write students' test grades in the agendas and the cafeteria should notify parents of lunch fines instead of notifying students completed the newsletter questionnaire. Also, posttest feedback for newsletter recipients (nine participants) was considerably smaller than pretest feedback (thirty-four participants). However, all participants who completed the questionnaire believed that the school web page and school newsletter kept them better informed about school events and most parents felt that the interventions improved communication between home and school.

Several uncontrollable variables may have had some influence on posttest attitudes. Changes in attitudes may have been influenced by individual experiences that have taken place since the research began. Since the research began, at the beginning of the school year, several other communication transactions have taken place. Teachers have sent report cards home and written notes in student agendas, parent-teacher conferences have been held, and some students have been reprimanded for misconduct or notified of overdue cafeteria fines. This may explain why one parent commented that all teachers should write test grades in students' agendas and another parent commented that parents should be notified of cafeteria fines instead of notifying students.

Additionally, as stated earlier in the review of literature parental involvement has a tendency to decrease as students enter middle school. Some students who transferred from the elementary school this year may have demonstrated or expressed a need for more independence. Parents may, in turn, feel their involvement is not as necessary as it had been in the past.

A final objective was to determine whether or not online communication had any effect on the way parents and guardians used technology. Eleven of the fourteen participants who utilized the school web page reported that they used the Internet more often since they began accessing the school web page and six participants reported changes in the way they used their home computers. These finding support the allegation that online communication has an impact on technology use, as communicated by the frequency of use and changes in the way participants used their home computers.

Small discrepancies in feedback on the questionnaire were noted. All posttest participants reported (items 1 and 10) that the school web page/newsletter kept them better informed about school events. However, only seventeen of the twenty-one participants felt (items 4 and 11) the interventions improved communication between school and home. Yet, if all participants believed the interventions kept them better informed about school events and most participants believed the interventions improved communication between school and home, then the assertion that technology can play a role in improving home-school communication has merit.

Three types of information were evaluated; the school calendar, the school lunch menu, and the daily school news. Of the three types of information, parents were much more favorable toward the school calendar, while the school lunch menu was viewed as being the least helpful of the three types of information. These findings suggest that parents want to know about upcoming events and they are interested in daily school news. Such information may facilitate parents by aiding with planning for participation. The school calendar may provide them with an advance organizer, and perhaps time to schedule other engagements around school activities.

Findings indicate the school web page and the school newsletter may be worthwhile tools for communication. Parents agreed that both interventions kept them better informed. However, emphasis should be on finding other ways for improving home-school communication in order to improve parental involvement. The action research team will use the information obtained from the questionnaires to improve the school web page before introducing it to the entire school. The action research team should reconvene and discuss other possibilities for improving parental involvement. Future research may include a study of the effectiveness of school-home communication through student agendas.

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Appendix A

F1A - Parent Attitude Survey - Items 1 – 15

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
P1	4	4	5	5	4	4	4	5	5	5	5	5	3	5	4
P2	2	3	5	7	1	2	1	6	1	6	6	7	2	7	1
P3	1	1	6	6	1	2	1	7	1	7	7	7	1	6	1
P4	6	7	7	7	1	1	1	7	1	7	7	7	1	7	1
P5	3	2	6	7	1	3	2	5	1	6	1	1	2	6	3
P6	2	2	6	7	1	1	1	7	1	7	7	7	1	7	7
P7	3	3	1	1	4	3	1	2	1	4	2	1	1	3	1
P8	2	1	1	7	3	1	1	7	1	7	7	7	1	7	1
P9	2	4	5	5	3	3	3	5	5	5	5	5	3		3
P10															
P11	1	7	6	5	1	3	1	3	3	7	7	7	3	5	7
P12	1	1	7	7	1	1	1	7	1	7	7	7	1	7	1
P13	1	1	5	5	1	1	1	5	5	5	5	5	1	5	1
P14	1	5	7	7	1	1	1	7	1	7	7	7	1	7	1
P15	4	6	5	6	2	4	1	6	2	5	5	4	1	6	4
P16	2	3	7	7	1	1	2	5	1	6	5	7	3	6	2
P17	1	6	7	4	1	1	1	5	3	2	2	4	5	5	4
P18	1	2	7	7	1	1	1	7	1	7	7	7	1	7	1
P19															
P20	4	4	4	6	1	1	1	4	1	7	6	6	1	7	4
P21	5	5	2	4	4	2	5	5	3	4	5	4	3	5	5
P22	2	1	4	4	1	3	1	4	3	1	1	4	4	4	4
P23	1	2	7	5	1	1	1	7	1	7	6	7	1	7	1
P24	4	4	6	6	2	4	1	6	1	6	6	7	1	7	1
P25	4	3	4	5	5	4	5	5	1	4	5	4	4	5	6
P26	4	4	4	4	4	4		7	1	2	1	1	3	5	5
P27	2	4	6	7	1	2	1	6	3	7	5	6	1	6	2
P28	1	1	7	6	1	1	1	7	1	6	7	6	1	7	1
P29	3	4	4	6	3	3	2	6	1	4	4	4	4	6	6
P30	1	1	7	7	1	3	1	7	1	7	7	7	1	7	1
P31	2	1	6	5	2	2	3	5	3	7	6	5	3	5	3
P32	1	6	4	7	1	1	1	7	6	6	7	6	2	4	1
P33	1	2	7	7	1	2	1	6	2	7	7	7	1	7	2
P34	1	1	7	7	1	1	1	7	1	7	7	7	1	7	1
P35	3	4	2	2	2	5	6	3	2	2	2	3	6	4	6
P36															
P37	1	1	6	7	1	2	1	7	1	7	7	6	2	7	1

P38														
n (6th)	17	17	17	17	17	17	17	17	17	17	17	17	16	17
n (8th)	17	17	17	17	17	16	17	17	17	17	17	17	17	17
n	34	34	34	34	34	33	34	34	34	34	34	34	33	34
M (6th)	2.18	3.41	5.5	5.9	1.6	1.9	1.4	5.6	2.0	5.88	5.41	5.59	1.82	6.00	2.53
M (8th)	2.35	2.82	5.1	5.6	1.9	2.4	2.0	5.8	1.9	5.35	5.24	5.29	2.29	5.88	2.94
M	2.26	3.11	5	5.7	1.7	2.17	1.6	5.7	1.9	5.617	5.323	5.441	2.058	5.93	2.73
s	1.38	1.87	1.7	1.5	1.1	1.19	1.3	1.3	1.4	1.749	1.981	1.850	1.349	1.15	2.00

Appendix B

Pretest: Parent Attitude Survey		
Productivity		
n	*M*	*s*
Damaging / Helpful (14)		
34	**5.9**	**1.15**
Worthless / Worthwhile (4)		
34	**6**	**1.50**
Unprofitable / Rewarding (13)		
34	**4.94**	**1.35**
Ineffective / Effective (10)		
34	**5.62**	**1.75**
Unproductive / Productive (11)		
34	**5.32**	**1.98**
Importance Profile		
n	*M*	*s*
Unimportant / Important (7)		
33	**5**	**1.3**
Useless / Valuable (12)		
34	**5.44**	**1.85**
Unnecessary / Necessary (5)		
34	**5.2**	**1.1**
Nonessential / Essential (1)		
34	**4.74**	**1.38**
Insignificant / Significant (3)		
34	**5**	**1.7**
Comfort Profile		
n	*M*	*s*
Uncomfortable / Comfortable (15)		
34	**4.26**	**2**
Discouraging / Encouraging (9)		
34	**5.1**	**1.4**
Unfamiliar / Familiar (2)		
34	**3.9**	**1.87**
Disturbing / Delightful (6)		
34	**4.8**	**1.19**
Unpleasant / Pleasant (8)		

34	**5.7**	**1.3**

Appendix C

Posttest: Parent Attitude Survey - Web Page/Newsletter

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
W1	3	1	4	4	2	3	2	5	3	5		6	3	7	3
W2	2	4	6	7	3	2	1	6	3	6	6	6	1	7	1
W3	1	1	7	6	3	2	1	6	2	5	6	6	2	6	2
W4	1	3	1	7	1	1	1	7	1	7	7	7	1	7	1
W5	3	4	5	7	1	2	3	6	2	6	7	6	1	7	1
W6		1	5	6	1	2	3	7	1	5	4	6	2	7	1
W7	1	2	7	7	1	2	1	6	2	7	7	7	2	7	2
W8	1	1	7	7	1	3	1	6	1	7	7	7	1	7	1
W9															
W10	6	6	2	3	4	4	4	4	4	4	4	3	4	4	5
W11	2	3	6	7	1	3	1	4	3	5	5	7	1	6	4
W12	1	4		7	1	2	2	6	3	6	4	6	2	6	2
W13															
W14	1	1	7	7	1	1	1	7	2	6	6	6	2	6	2
N1	3	4	7	6	1	1	2	6	2	6	6	7	1	6	2
N2	4	4	5	5	5	4	4	5	4	4	5	5	4	5	3
N3	1	1	1	7	1	1	1	7	1	7	7	7	1	7	1
N4	7	4	7	7		5	7	7	7	6	6	7		7	
N5	3	6	4	6	3	4	2	5	3	5	2	5	2	6	3
N6	2	1	6	7	1	3	1	4	3	7	7	7	2	6	6
N7	3	2		1	5	4	4	1	3	3	4	3	1	1	2
N8	1	1	7	7	1	1	1	7	1	7	7	7	1	7	1
N9	1	4	7	7	1	1	1	6	1	7	7	7	1	7	1
n Web Page	11	12	12	12	12	12	12	12	12	12	11	12	12	12	12
n Newsletter	9	9	9	9	8	9	9	9	9	9	9	9	8	9	8
n	20	21	21	21	20	21	21	21	21	21	20	21	20	21	20
M (Web Page)	2.00	2.58	5.2	6.3	1.7	2.3	1.8	5.8	2.3	5.75	5.73	6.08	1.83	6.42	2.08
M (Newsletter)	2.78	3.00	5.5	5.9	2.3	2.7	2.6	5.3	2.8	5.78	5.67	6.11	1.63	5.78	2.38
M	2.35	2.761	5.315	6.095	1.9	2.428	2.095	5.619	2.476	5.761	5.7	6.095	1.75	6.142	2.2
s	1.68	1.66	2.001	1.570	1.374	1.217	1.540	1.430	1.401	1.150	1.417	1.191	0.942	1.389	1.4

Appendix D

Posttest: Parent Attitude Survey		
Productivity Profile		
n / M / s **(all)**	*n /M* **(Web Page)**	*n /M* **(Newsletter)**
Damaging / Helpful (14)		
21 / 6.1 / 1.39	**12 / 6.42**	**9 / 5.78**
Worthless / Worthwhile (4)		
21 / 6 / 1.57	**12 / 6.3**	**9 / 5.9**
Unprofitable / Rewarding (13)		
20 / 5.25 / 0.94	**12 / 5.17**	**8 / 5.37**
Ineffective / Effective (10)		
21 / 5.76 / 1.15	**12 / 5.75**	**9 / 5.78**
Unproductive / Productive (11)		
20 / 5.7 / 1.42	**11 / 5.73**	**9 / 5.67**
Importance Profile		
n / M / s **(all)**	*n / M* **(Web Page)**	*n / M* **(Newsletter)**
Important / Unimportant (7)		
21 / 5 / 1.54	**12 / 5.2**	**9 / 4.4**
Useless / Valuable (12)		
21 / 6.1 / 1.19	**12 / 6.08**	**9 / 6.11**
Unnecessary / Necessary (5)		
20 / 5.1 / 1.37	**12 / 5.3**	**8 / 4.7**
Nonessential / Essential (1)		
20 / 4.65 / 1.68	**11 / 5.52**	**9 / 4.22**
Insignificant / Significant (3)		
21 / 5 / 2	**12 / 5.2**	**9 / 5.5**
Comfort Profile		
n / M / s **(all)**	*n / M* **(Web Page)**	*n/ M* **(Newsletter)**
Uncomfortable / Comfortable (15)		
20 / 4.8 / 1.4	**12 / 4.92**	**8 / 4.62**
Discouraging / Encouraging (9)		
21 / 4.5 / 1.4	**12 / 4.7**	**9 / 4.2**
Unfamiliar / Familiar (2)		
21 / 4.2 / 1.66	**12 / 4.2**	**9 / 4.2**
Disturbing / Delightful (6)		
21 / 4.6 / 1.22	**12 / 4.7**	**9 / 4.3**
Pleasant / Unpleasant (8)		
21 / 5.6 / 1.43	**12 / 5.8**	**9 / 5.3**

Appendix E

Parent/Guardian Questionnaire: School Web Page/Newsletter

Directions: *Please answer the following questions about the middle school's web page, newsletter, and information links.* If you used the ***school web page*** to access school information answer items
1-9. If you received a school ***newsletter*** answer items ***10-16***.

1.   Do you believe that using the school ***web page*** kept you better informed about what goes on at school?
           _____ Yes   _____ No

2.   Do you use the *Internet* more or less often since you began accessing the school ***web page***?
                 _____ More   _____ Less

3.   Has the way you use your home computer changed as a result of using the school ***web page***?
          ____ Yes   ____ No
     How? (Please explain)
     _____

4.   Do you believe that the school ***web page*** improved the communication between home and school?   ____
     Yes   ____ No
     Please explain:_____
     _____

5.   How many times a week did you access the school ***web page***?
     ____0 - 1   ____2 - 3   ____4 – 5   ____ 6 or more

6.   What other types of information would you like to see included on the school web
     page?_____
     _____

7.   Please use the following space to provide suggestions for improving the school ***web page***.
     _____
     _____

8.   Of the following, which information link(s) did you find most helpful? (You may choose more than one)
      _____ Cafeteria Menu   _____Monthly Calendar   _____Daily News/Info.

9.   Of the following, which information link(s) did you find least helpful? (You may choose more than one)
      ____ Cafeteria Menu   _____Monthly Calendar   _____Daily News/Info.

---

10. Do you believe that using the school ***newsletter*** kept you better informed about what goes on at school?
      _____ Yes   _____ No

11. Do you believe that the school ***newsletter*** improved the communication between home and school?   ____
     Yes   ____ No
     Please explain: _____
     _____

12. Of the following, which information link(s) did you find most helpful? (You may choose more than one)_____
     Cafeteria Menu   _____Monthly Calendar   _____Daily News/Info.

13. Of the following, which information link(s) did you find least helpful? (You may choose more than one)____
     Cafeteria Menu   _____Monthly Calendar   _____Daily News/Info.

14. Please use the following space to provide suggestions for improving communication between home and school.
     _____
     _____

15. Please use the following space to provide suggestions for improving the school ***newsletter***.
     _____
     _____

16. What other types of information would you like to see included in the school ***newsletter***

Appendix F

F1 - Parent Attitude Survey

Instructions: Indicate your feelings about your involvement in your child's education. Circle the number between each pair of adjectives that best reflects your present opinion.

1.	essential	1…2…3…4…5…6…7	non-essential
2.	familiar	1…2…3…4…5…6…7	unfamiliar
3.	insignificant	1…2…3…4…5…6…7	significant
4.	worthless	1…2…3…4…5…6…7	worthwhile
5.	necessary	1…2…3…4…5…6…7	unnecessary
6.	delightful	1…2…3…4…5…6…7	disturbing
7.	important	1…2…3…4…5…6…7	unimportant
8.	unpleasant	1…2…3…4…5…6…7	pleasant
9.	encouraging	1…2…3…4…5…6…7	discouraging
10.	ineffective	1…2…3…4…5…6…7	effective
11.	unproductive	1…2…3…4…5…6…7	productive
12.	useless	1…2…3…4…5…6…7	valuable
13.	rewarding	1…2…3…4…5…6…7	unprofitable
14.	damaging	1…2…3…4…5…6…7	helpful
15.	comfortable	1…2…3…4…5…6…7	uncomfortable

Appendix G

Adjective Pairs for Three Profiles Measured in the Parent Attitude Survey

Productivity Profile		
14	Damaging	Helpful
4	Worthless	Worthwhile
13	Unprofitable	Rewarding
10	Ineffective	Effective
11	Unproductive	Productive

Importance Profile		
7	Unimportant	important
12	Useless	Valuable
5	Unnecessary	Necessary
1	Nonessential	Essential
3	Insignificant	Significant

Comfort Profile		
1	Comfortable	Uncomfortable
9	Encouraging	Discouraging
2	Familiar	Unfamiliar
6	Disturbing	Delightful
8	Unpleasant	Pleasant