



DELPHI RESEARCH OF NEVADA, INC.

REPORT OF FINDINGS

AUDIO ENHANCEMENT RESEARCH PROJECT

For

The Research and Evaluation Department

Clark County School District

April 2005

EXECUTIVE SUMMARY

AUDIO ENHANCEMENT RESEARCH PROJECT

The Clark County School District (CCSD, District) is currently using audio enhancement technology from two different vendors in a small set of classrooms within the District. In the winter of 2004-05, the District began considering adding audio enhancement technology to more classrooms. However, prior to making a commitment to do so, the District's leadership requested that the Department of Research and Evaluation conduct a study to estimate how and to what extent teachers are currently using the technology as well as any benefits to students within the Clark County School District. The Department engaged Delphi Research of Nevada, Inc. to perform the study for the Department.

Two questions were developed to guide the study:

1. In what ways and to what degree do teachers employ the audio enhancement technology in their classroom instructional programs?
2. What do teachers believe to be the benefits and limitations for students of audio enhancement technology?

A mixed-method design, with multiple groups and multiple measures was employed by the evaluator in conducting the study. Teachers of two elementary and one middle school where audio technologies were installed were observed and completed surveys of their perceptions of the benefits and limitations of the technology. The Principals of each school completed surveys of their perceptions of benefits and limitations.

The evaluator found, in relation to the first question that:

- Teachers employ the audio technology across the range of instructional activities. They do not appear to find the technology to be a limitation.
- Teachers use the audio technology extensively throughout a school day.
- Teachers are discovering in what instructional activities it is more or less beneficial to employ the audio technology.

The evaluator found, in relation the second question that:

- Teachers and Principals believe the audio technology is beneficial to teaching and learning.
- Teachers and Principals believe, specifically, that the audio technology:
 - Is beneficial to the general student population as well as specific groups within that population (ELL, hearing loss, easily distracted);
 - Is not a limitation for any group of students within the student population;
 - Is a limitation for certain students within individual classrooms;
 - Facilitates communication within classrooms by facilitating greater understanding of what is transmitted orally;
 - Increases the attentiveness of students; and
 - Provides assistance to teachers by reducing stress and fatigue associated with extensive talking throughout a day.
- Teachers and Principals can identify instructional and technical/maintenance issues associated with the use of audio technology that can benefit others who might employ the technology or guide further research.

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1.0 BACKGROUND/PROBLEM:

The Clark County School District (CCSD, District) is currently using audio enhancement technology from two different vendors in a small set of classrooms within the District. Those involved with its implementation sense that the technology is valuable to teachers and students. Since the District has an interest in this technology, the Department of Research and Evaluation (Department) of the District conducted a literature review of studies that addressed the uses and benefits of the technology. This review found that “At this point, it is not possible to say with any degree of certainty...that the use of audio enhancement technology in classrooms results either in increased student achievement or in improved student behavior” (Mattson, 2004). The Department found reports of research that were sponsored and distributed by the vendors in their marketing materials in which their customers reported positive effects upon student achievement and upon student on-task behavior. However, these reports did not meet rigorous methodological standards. The problem remained: *there is no empirical evidence either describing the uses of the technology or the benefits to students in classrooms equipped with audio enhancement technology.*

2.0 PURPOSES OF THE STUDY:

In the winter of 2004-05, the District began considering adding audio enhancement technology to more classrooms. However, prior to making a commitment to do so, the District’s leadership requested that the Department conduct a study to estimate how and to what extent teachers are currently using the technology as well as any benefits to students within the Clark County School District. The Department requested a proposal from Delphi Research of Nevada, Inc. (Contractor) to perform the study for the Department. The purposes of the study were to:

- Determine the range and level of use by a sample of CCSD teachers who have audio enhancement technology in their classrooms, and
- Determine the benefits of the audio enhancement technology to students as perceived by teachers.

3.0 STUDY QUESTIONS:

Two questions were developed to guide the study:

1. In what ways and to what degree do teachers employ the audio enhancement technology in their classroom instructional programs?
2. What do teachers believe to be the benefits and limitations for students of audio enhancement technology?

4.0 STUDY DESIGN:

The design selected for this evaluation was a mixed-methods design. The unit of analysis was the program-as-implemented in a sample of classrooms equipped with audio enhancement technology in the Clark County School District.

4.1 Method:

The study was descriptive, with conclusions and recommendations being formed from analyses of the data generated through the measurement process. Multiple measures were employed with multiple groups.

4.1.1 Sample

Two samples of subjects were used in the study. The first sample consisted of teachers recognized by their Principals as deliberate users of the technology. The Department identified three (3) schools in which the technology was being employed. Two were elementary schools, and one was a middle school. The Office of the Deputy Superintendent for Instruction asked the Principal for the names of teachers who he/she believed were deliberate users of the technology. These teachers were contacted by the Principal and asked if they would consent to participate. Those who gave consent became the subjects of the study.

The sample was intended to include 16 teachers from the three schools. Table 1 depicts the sample as planned and as actually constituted. The sample was composed of teachers that have audio enhancement technologies installed and in use. The numbers in the cells of Table 1 indicate how many teachers were targeted from each level or subject area at each site. The numbers in parentheses indicate the actual number of teachers in the category that participated. The two teachers in the “Other” category in MS-1 taught Computer and French. The middle school substituted the teachers in the “Other” categories since they did not have the target number in each of the subject areas.

Table 1
Planned and Actual Teacher Sample by Level and Subject

Level/ School	Math	Social Studies	Language Arts	Science	Primary	Intermediate	Other
ES-1					2 (2)	2 (2)	
ES-2					2 (2)	2 (2)	
MS-1	2 (1)	2 (2)	2 (1)	2			(2)
N 16 (N) 14							

The second planned sample was the set of three (3) Principals of the schools selected for the study. All three (3) participated in the study.

4.1.2 Measures

Three measures were employed in the study. The first measure was the classroom observation. The plan was for the observer to conduct three (3) separate observations at different times in each classroom for a total of 48 observations. The first observation was to be conducted during the first hour of the school day. The second was to occur in the late morning, prior to lunch. The number of observations actually conducted was 37, with differences being due to changes in teacher plans (i.e., beginning testing, attending assemblies, having open periods with no students, etc.). The final observation was to be conducted in the late afternoon, prior to dismissal. Table 2, like Table 1, depicts the planned and actual numbers of observations by level and subject area.

Table 2
Number of Observations by Level and Subject

Level/ School	Math	Social Studies	Language Arts	Science	Primary	Intermediate	Other
ES-1					6 (6)	6 (6)	
ES-2					6 (4)	6 (5)	
MS-1	6 (3)	6 (5)	6 (3)	6 (0)			(5)
Total Observations Planned (Actual)							48 (37)

The observation instrument was constructed to focus the observations upon the set of classroom “events” identified by Gagne (1983). In his work, he found that the major instructional activities led by teachers fall into one of nine (9) event categories. He labeled those categories as follows:

1. Gaining attention
2. Informing learners of objectives
3. Stimulating recall or prior learning
4. Presenting stimulus
5. Providing learning guidance
6. Eliciting performance
7. Providing feedback
8. Assessing performance
9. Enhancing retention and transfer

During the observations, the observer looked at teacher behavior, student behavior and artifacts of activities that were located in the classroom environment and documented the classroom setting, instructional arrangements and the nature of the activity. In addition, the observer noted whether the technology was being used and, if so, how many students were being addressed through the technology. This measure was designed to collect data for Questions 1 and 2.

The second measure was the Teacher Survey. Based upon their professional observations, teachers were asked to complete a questionnaire that solicited their estimates of the benefits and limitations to students. The teachers were also asked to cite an example of a particular child who has benefited from the use of the audio technology. This measure was designed to collect data to answer Question 2.

The third measure was the Principal Survey. This instrument was similar to the one for the teachers in that it asked for their estimates of the benefits and limitations for students. In addition, it sought their perceptions of whether any groups benefited more or less than others. This measure was designed to collect data for Questions 1 and 2.

4.1.3 Data Analysis

Quantitative and qualitative data were derived from the measures. Descriptive statistical techniques were employed in the analysis of the quantitative (frequency) data collected during the observations. The small sample of observations yielded small frequencies in each

of Gagne's event categories. Thus, it was necessary to combine them to provide a more meaningful picture of what teachers did while using the audio technologies. The new categories were formed by placing Gagne's "events" into broader categories of instructional activity. Table 3 depicts the new categories and the events making up each. Frequencies for each event were then merged and new frequencies for the larger categories were calculated.

Table 3
Make-up of Broadened Event Categories

Gagne Event	Broadened Event Category
1. Gaining attention	Gaining attention
1. Informing learners of objectives 2. Stimulating recall of prior learning 3. Presenting the stimulus 4. Providing learning guidance 7. Providing feedback	Guiding learning
5. Eliciting performance 8. Assessing performance	Monitoring learning
9. Enhancing retention and transfer.	Promoting retention/transfer

Qualitative techniques were employed in the analysis of the questionnaire data. Teacher and Principal responses were coded, categorized, marked and then described. Frequencies were also calculated as a method of determining the relative strength of categories.

5.0 FINDINGS

The data collection and analysis activities yielded a set of findings relative to the two evaluation questions. The findings are reported in relation to each question.

5.1 Question 1:

In what ways and to what degree did teachers employ the audio enhancement technology in their classroom instructional programs?

Data from the classroom observations that were conducted at different times of the day were combined and analyzed to determine what teachers did while using the technologies in their classrooms. The analyses yielded the following findings:

- Teachers employed the typical instructional grouping arrangements, including large group, small group and independent activities while using the audio technologies. Table 4 depicts the relative frequencies for each of the three grouping categories. The percentages for the combined sample were calculated by merging the actual frequencies for elementary and secondary levels and then calculating the percent.

Table 4
Observed Frequency (%)
Of Grouping Practices
Using Audio Technology

Grouping Pattern	Elementary Classrooms	Middle School Classrooms	Combined
Total group	58%	84%	70%
Small group	29%	5%	19%
Independent/individual	13%	11%	12%

The direction of the differences between the elementary and middle school grouping patterns is typical of comparisons between the two levels in education literature. The magnitudes of difference may be unique to this study and should be examined more fully in additional studies.

- Teachers used the audio technologies across the range of instructional events. The relative magnitudes of frequencies in each of the broadened categories is consistent with those that would be predicted for a lesson in any classroom, regardless of the presence of audio enhancement technology or not.
- Table 5 depicts the percent distribution of observed events by broadened category. Again, the percentages for the combined sample were calculated by merging the actual frequencies for elementary and secondary levels and then calculating the percent. The distributions are almost identical for both elementary and middle school levels.

Table 5
Distribution of Observed Events
By Level and Category

Category	Elementary	Middle School	Combined
Getting attention	14%	14%	14%
Guiding learning	54%	54%	54%
Monitoring learning	24%	23%	23%
Promoting retention/translation	8%	9%	9%
Totals:	100%	100%	100%

- Teachers were using the equipment during more than 90% of the observations. The exceptions were when a teacher was conducting a test or students were working independently.

The observer noted that students were on-task during the observations. This was consistent with the published findings of the vendor sponsored studies.

5.2 Question 2:

What do teachers believe to be the benefits and limitations for students of audio enhancement technology?

The data from the teacher and Principal surveys were analyzed relative to this question. The findings are organized below by survey question.

Teacher Survey:

Question 1: “Overall, do you feel that the audio technology is beneficial to students?”

Thirteen of the 14 teachers in the sample responded to this question. All (100%) of the respondents marked the “Yes” choice on the questionnaire. Thus, there was unanimity among the respondents in their belief that the technology was beneficial to students.

Question 2: “Are there groups of students for whom you feel the technology is more beneficial than others? Please specify and explain for each.”

The responses for this question fell into four (4) categories with a fifth containing single-instance responses. Table 6 depicts the categories with the response frequency for each (N and %). Of the reasons cited in response to the second portion of the question, (“Please specify and explain”) the most common explanation was marked “All Can Hear.” The second category was marked “More Beneficial in Large Classrooms.” This second category is related to the first, thus lending emphasis to the belief that the technology is beneficial because it helps to ensure the necessary pre-condition for successful instruction – the ability for students to hear the instructor.

Table 6
Categories and Frequencies of Teacher Perceptions of
Who Benefits from Audio Technology

Category Marker	Frequency (N)	Frequency (%) (Total Sample)
Beneficial to All	5	29
Easily Distracted Students	4	24
Students With Hearing Loss	2	12
ELL Students	2	12
(Miscellaneous – single instance responses)	4	23

Question 3: “Please cite one example of a student who has benefited and describe that benefit.”

The responses to this question formed three (3) categories. Two of the categories of responses for question 3 related to the major benefit identified by the teachers in their responses to question 2– the enhancement of the ability for students to hear and attend. The first category for question 3 was marked “Students Hear/Listen.” Two examples of teacher response in this category were:

- “I had one student that was always off-task during spelling or oral reading and discussions. When we would use the mic., he would listen and participate in discussion. He was waiting on his turn.”
- “A lot of times multiple students are not able to hear and the system helps students to hear more accurately.”

The second of the response categories for question 3 related to enhancement of the ability for students to hear was marked “Teacher Repeats Less.” In this category, the responses had to do with a benefit of enhanced hearing/communication. A sample response in this category was:

- “I have noticed that I don’t have to give the same instructions 5 times. Students can hear me above other students whispering.”

The third and final category of responses to Teacher Questionnaire question 3 in which the respondents were asked to cite examples of students who benefited from the audio technology was marked “Special students.” An example of the responses in this category was:

- “I have one student with a mild hearing loss. She seems to hear just fine when I use the microphone.”

Table 7 depicts the categories and frequencies of responses for question 3 of the Teacher Questionnaire.

Table 7
Categories and Frequencies of Benefits to Students
From Use of Audio Technology

Category Marker	Frequency (N)	Frequency (%) (Total Sample)
Students Hear/Listen	5	38
Teacher Repeats Less	3	23
Special Students	4	31
(Miscellaneous – single instance responses)	1	8

Question 4: “Are there groups of students for whom you feel the technology is not beneficial? Please specify and explain for each.”

The respondents failed to identify any group of students who would not benefit from the use of the technology. Their responses fell into two categories. (Two responses were not related to the question and were not used). The first category was labeled “No,” with 64% of the relevant responses falling into this category. The second category was simply another way of saying “no,” and was labeled “Benefits All.” The remaining 36% of the relevant responses fell into this category.

Question 5: “Please cite one example of a student who has not benefited and describe what the problem was.”

One of 14 respondents to the Teacher Questionnaire (7%) cited a problem with a specific student.

- “The only student that I feel has not benefited from the technology is a student that speaks no English. He is able to hear me clearly. However, he does not know what I am saying until I have another student translate.”

Two responses to this question cited observations of problems exhibited by multiple students.

- “I have seen children cover their ears when this technology is on.”
- “I have had children become agitated when I used the technology.”

Question 6: Are there benefits for you as a teacher? Please specify and explain for each.”

Two (2) categories of responses emerged from the analysis of responses to this question. The first was marked “Saves Voice.” All of the teachers (100%) indicated that they believed the technology helped them preserve their voices. Typical responses were:

- “The greatest advantage the system does for me other than help students is to help save my voice.”
- “I can tell immediately when I forget to put it on or turn it on because I have to talk louder.”
- “My voice gets much less stress and I’m not tired at the end of the day. This year I had pneumonia and have had a difficult time with my voice and coughing. The enhancement system was a life saver!”

The second category of response to the sixth question of the Teacher Questionnaire was marked “Helps Get Attention.” Three (3) responses from the 14 respondents (21%) fell into this category. A typical response is:

- “Using the audio enhancement makes getting the students’ attention easier.”

Three additional single-instance responses were germane to the question. They were:

- “I feel I do not have to repeat or re-teach as much as I have in the past.”
- “I feel this tool enhances the quality of my lessons.”
- “Enables me to have better management without having to raise my voice.”

Table 8 depicts the categories and frequencies of responses for question 6 of the Teacher Survey.

Table 8
Categories and Frequencies of
Benefits To Teachers of Using Audio Technology

Category Marker	Frequency (N)	Frequency (%) (Total Sample)
Saves Voice	14	70
Helps Get Attention	3	15
(Miscellaneous – single instance responses)	3	15

Question 7: “Are you aware of any limitations to the technology?” Please specify and explain for each.”

Twelve (12) of the teachers responded to this item. However, four (4) of them (33%) responded that they did not know of limitations. The responses of the 66% or two-thirds of the teachers who felt that there were limitations fell into two broad categories. The first was marked “Specific Instructional Situations.” The second was marked “Technical Problems/Maintenance Issues.” This second category was sub-divided into three sub-categories. Table 9 depicts the categories and frequencies of responses identifying limitations to the technology.

Table 9
Categories and Frequencies of
Limitations to the Use of Audio Technology

Category Marker	Frequency (N)	Frequency (%) (Limitations Only)
Specific Instructional Situations	3	27
Technical Problems/Maintenance Issues		
Battery Life	2	
Heard in Other Classrooms	2	
Miscellaneous - single instance responses	4	73

The responses in the “Specific Instructional Situations” category were:

- “This technology is useful in large groups, but is not useful when working with small groups of students or with...individuals.”
- “I do not like it when the children gather around the easel for our reading group because the sound comes from behind them instead of from where I am sitting.”
- “The children can’t read from something & use the microphone because these young children need their hands free to touch each word to read correctly.”

The responses in the “Technical Problems/Maintenance Issues” category were:

- Batteries-
 - “Batteries and microphones need to last longer.”
 - “Batteries must be replaced.”
- Heard in Other Rooms-
 - “Sometimes I can hear the class next door through the walls.”
 - “The teacher next door to me comments that I may have it up too loud-so learning to adjust the volume and remembering to close the door helps.”
- Miscellaneous-
 - “There are situations when the system goes out completely.”
 - “The only limitation to the technology is the feedback that the microphone produced when I am standing directly under the speaker.
 - “Sometimes the technology will squeak & buzz and be annoying.”
 - “It is awkward around my neck. When I bend over to help a child at the table, it can get in the way.”

It is important to note that the frequencies for the limitations cited in the responses to question 7 are very low. These do not reflect general problems, but may identify topics for future study or for teachers to consider in their planning to use the technology.

Principal Survey

The responses of the three Principals on the Principal Questionnaire are organized by survey question number.

Question 1: “Overall, do you feel that the audio technology is beneficial to students?”

Each of the Principals chose the “Yes” response choice to this question. Thus, they were unanimous in their belief that the technology is beneficial to students.

Question 2: “Are there groups of students for whom you feel the technology is more beneficial than others?” Please specify and explain for each.”

Two (2) of the Principals were in agreement with teachers in that they identified LEP students as benefiting more from the technology. One (1) Principal identified the students in Kindergarten and P.E. classes as having more benefit due to the fact that those classes are larger than others. This was not cited by teachers.

Question 3: “Are there program areas that you believe benefit more from the use of the technology?” Please explain with an example, if possible.”

This item asked Principals to take a broader look at their schools and to focus upon program areas. The Principals provided single-instance responses. It is interesting to note that some of the responses for both question 2 and 3 address the value to large special classes. In

addition, they also relate to the communication of instructions. The Principal perceptions, again, are similar to teacher perceptions of the value of the technology for improving communications.

- “All programs benefit including P.E., music, art, library and resources room.”
- “Reading of literature”
- “P.E. instructions”
- “Music instructions”

Question 4: “Are there groups of students for whom you feel the technology is not beneficial?” Please specify and explain for each.”

The Principals did not identify any group they believed the technology did not benefit.

Question 5: “What do you perceive as benefits for teachers? Please specify and explain for each.”

Like the teachers, the Principals were unanimous in identifying saving and protecting the voices of teachers as a benefit for teachers.

Question 6: “Are you aware of any limitations to the technology?” Please specify and explain for each.”

Only one Principal identified a problem and that was a technical problem. This was similar to an issue identified by the teachers:

- Hand microphones seem to stop working more often than the neck mic.

6.0 CONCLUSIONS

The following conclusions are based upon the conclusions cited above. The conclusions are organized according to the study questions.

Study Question 1: *In what ways and to what degree did teachers employ the audio enhancement technology in their classroom instructional programs?*

1. Teachers employ the audio technology across the range of instructional activities. They do not appear to find the technology to be a limitation.
2. Teachers use the audio technology extensively throughout a school day.
3. Teachers are discovering in what specific instructional situations it is more or less beneficial to employ the audio technology.

Study Question 2: *What do teachers believe to be the benefits and limitations for students of audio enhancement technology?*

1. Teachers and Principals believe the audio technology is beneficial to teaching and learning.
2. Teachers and Principals believe, specifically, that the audio technology:
 - Is beneficial to the general student population as well as specific groups within that population (ELL, hearing loss, easily distracted);
 - Is not a limitation for any group of students within the student population;
 - Is a limitation for certain students within individual classrooms;
 - Facilitates communication within classrooms by facilitating greater understanding of what is transmitted orally;
 - Increases the attentiveness of students; and
 - Provides assistance to teachers by reducing stress and fatigue associated with extensive talking throughout a day.
3. Teachers and Principals can identify instructional and technical/maintenance issues associated with the use of audio technology that can benefit others who might employ the technology or guide further research.

Thus, this study has found that teachers at the elementary and middle school levels use audio technology extensively across the range of instructional activities. Not surprisingly, given this fact, the study has also found that teachers and Principals believe audio technology is beneficial to teaching and learning. They are also open and honest about what they perceive to be shortcomings or problems. These shortcomings do not deter use, but rather, tend to serve as guides for future use or are simply accepted as being in the nature of the technology. This openness is an asset to any who would seek to improve performance of the technology or to better define when it is of most benefit and to whom.

7.0 RECOMMENDATIONS

The following recommendations are offered based upon the findings and conclusions above:

- Continue to study the audio technology in order to develop more specific guidance for educators regarding when, where and how audio technologies may be most beneficially employed. Research that seeks to identify specific applications will yield findings that best guide future practice.
- Conduct expanded studies to identify technical/maintenance issues that are commonly experienced by users. Findings can facilitate the development of strategies to alleviate problems or to manage those things that are inherent in the technology that may pose problems for users.

8.0 APPENDIX: INSTRUMENTS

Observation Guide

Teacher Survey:

Instructions:

To complete this survey, there are a few very simple steps.

1. Read the following statement about the purpose of this study and our guarantee to protect your rights and privacy.
2. Indicate your agreement or disagreement to complete the survey by marking the appropriate space with a checkmark.
3. Sign the consent sheet.
4. If you agree, complete the survey and mail in the envelope provided.
5. If you do not agree, please return the survey and the signed consent sheet in the envelope provided.

Dear Teacher,

I am Dr. Don Anderson of Delphi Research of Nevada, Inc., Evaluator for this project. I am seeking your agreement to participate in this evaluation. Specifically, I am asking you to take a few minutes to complete the attached survey. Our purpose is not to evaluate your teaching. We are seeking information about teacher perceptions of the benefits and limitations of audio technologies installed in their classrooms. This will have no bearing upon any evaluation of your performance.

Potential risks or discomforts: There are no physical risks to you as a participant. The risk of having your responses connected to your identity is extremely remote. The information we collect from you will be kept completely confidential and your anonymity will be protected through the combining of your responses with all of the others who complete the survey. Your time commitment should be no more than one-half hour.

Benefits: Your participation may benefit the quality of education in the Clark County School District (District). You will be assisting the District in its effort to improve instructional delivery systems. Personally, you will have earned the right to a sense of satisfaction in the knowledge that you are participating in decisions about where, when and to what extent audio technologies should be deployed.

Once completed, the records of the study will be maintained in the offices of Delphi Research of Nevada, Inc. and in the Research and Evaluation Department of the District. If you have any questions regarding any of these efforts, please contact Dr. Donald Anderson of Delphi Research of Nevada, Inc., 293-2241 or Dr. Robert P. Parker of the CCSD Research and Evaluation Department at 799-5195.

I agree _____ do not agree _____ to participate in this survey.

Signature: _____

School: _____

If you agree to participate, please proceed to the questions that follow.

Thank you,

Donald G. Anderson, Ed.D.
Delphi Research of Nevada, Inc.

Directions for Completing the Survey:

Write your responses into the spaces provided after each question. If you need additional room, please feel free to add pages.

1. Overall, do you feel that the audio technology is beneficial to students?

_____ Yes _____ No

2. Are there groups of students for whom you feel the technology is more beneficial than others? Please specify and explain for each.

3. Please cite on example of a student who has benefited and describe that benefit.

4. Are there groups of students for whom you feel the technology is not beneficial?
Please specify and explain for each.

5. Please cite on example of a student who has not benefited and describe what the problem was.

6. Are there benefits for you as a teacher? Please specify and explain for each.

7. Are you aware of any limitations to the technology? Please specify and explain for each.

Principal Survey:

Principal Survey:

Instructions:

To complete this survey, there are a few very simple steps.

1. Read the following statement about the purpose of this study and our guarantee to protect your rights and privacy.
2. Indicate your agreement or disagreement to complete the survey by marking the appropriate space with a checkmark.
3. Sign the consent sheet.
4. If you agree, complete the survey and mail in the envelope provided.
5. If you do not agree, please return the survey and the signed consent sheet in the envelope provided.

Dear Principal,

I am Dr. Don Anderson of Delphi Research of Nevada, Inc., Evaluator for this project. I am seeking your agreement to participate in this evaluation. Specifically, I am asking you to take a few minutes to complete the attached survey. Our purpose is not to evaluate your school. We are seeking information about Principal perceptions of the benefits and limitations of audio technologies installed in classrooms in their schools.

Potential risks or discomforts: There are no physical risks to you as a participant. You will not be cited specifically. However, since there are so few schools in the project, your identity might be deduced by another administrator who reads the final report of the study. Your time commitment should be no more than one-half hour.

Benefits: Your participation may benefit the quality of education in the Clark County School District (District). You will be assisting the District in its effort to improve instructional delivery systems. Personally, you will have earned the right to a sense of satisfaction in the knowledge that you are participating in decisions about where, when and to what extent audio technologies should be deployed.

Once completed, the records of the study will be maintained in the offices of Delphi Research of Nevada, Inc. and in the Research and Evaluation Department of the District. If you have any questions regarding any of these efforts, please contact Dr. Donald Anderson of Delphi Research of Nevada, Inc., 293-2241 or Dr. Robert P. Parker of the CCSD Research and Evaluation Department at 799-5195.

I agree _____ do not agree _____ to participate in this survey.

Signature: _____

School: _____

If you agree to participate, please proceed to the questions that follow.

Thank you,

Donald G. Anderson, Ed.D.
Delphi Research of Nevada, Inc.

Directions for Completing the Survey:

Write your responses into the spaces provided after each question. If you need additional room, please feel free to add pages.

1. Overall, do you feel that the audio technology is beneficial to students?

_____ Yes _____ No

2. Are there groups of students for whom you feel the technology is more beneficial than others? Please specify and explain for each.

3. Are there program areas that you believe benefit more from the use of the technology? Please explain with an example, if possible.

4. Are there groups of students for whom you feel the technology is not beneficial?
Please specify and explain for each.

5. What do you perceive as benefits for teachers? Please specify and explain for each.

6. Are you aware of any limitations to the technology? Please specify and explain for each.

9.0 REFERENCES

- Gagne, R.M., Briggs, L.J., Wager, W.W. (1992). *Principles of Instructional Design*. (4th ed.). Florida: Harcourt Brace & Company.
- Mattson, Robert. (2005) *Classroom Audio Enhancement: A Review of the Literature*. Unpublished Report, Clark County School District Department of Research and Accountability.