



Article

Creation of a Research Community in a K-12 School System Using Action Research and Evidence Based Practice

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Received: 15 January 2009

Accepted: 27 April 2009

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Abstract

Objective - The purpose of this study was to apply skills developed from an Action Research Training Model (Gordon) in the design of two action research projects to ensure that students are ethical users of ideas and information. It was deemed necessary to assess prior knowledge and attitudes of students and teachers in order to identify issues to be addressed.

Methods - Both projects employed the use of survey instruments, which presented students with scenarios involving aspects of information use, and asked

whether or not the actions in the scenarios were examples of ethical use. The high school survey was administered to 381 students in tenth grade English classes. The elementary survey was administered to 87 students in fifth grade.

A more comprehensive survey was administered at the high school level. For each student behavior addressed by the survey, there were two questions: one eliciting the teacher's perception of how often students engaged in that behavior, and the second how often the teacher had to confront a student about the same behavior. Participation was voluntary, and 36 teachers took the survey.

Results - Surveys administered at the high school level showed that most students have a good understanding of the ethical use of information regarding clear instances of plagiarism. Students' understanding was less clear in two major areas: creating a bibliography that accurately reflects the sources used to create the work, and the level of collaboration or assistance that is appropriate in completing a research assignment.

The teacher surveys showed some discrepancy between perception of the frequency of certain types of unethical student behavior and how often teachers challenged students on that behavior. The surveys showed that teachers found plagiarism to be the most prevalent behavior, while obtaining copies of exams and buying papers were the least frequently occurring behaviors.

At the elementary level, results indicated that understanding how to properly cite sources was a major area of concern. Students were also confused about whom to ask for help during the research process. Instructional intervention was developed and applied. The survey was re-administered with the addition of items that were based on the interventions. Responses showed a marked improvement in understanding by at least 20%. Some responses improved by as much as 60%.

Conclusion - The study validated the Action Research Training Model as the first dimension and conceptual framework that informs and guides instructional practices of school library media specialists and teachers in a K-12 school district. After using the model to examine student-teacher knowledge and understanding of ethical use of information (second dimension), there was recognition of the need to clarify the school's position on the ethical use of information for teachers and students and provide intentional instruction and interventions for students beginning at an earlier grade level. After being made aware of the results, teachers were anxious to work with library media specialists to address issues and to look for opportunities within research units to collaborate.

Introduction: Background of the Action Research Project

Why would an award-winning school district engage in a rigorous and challenging action research project? The school district

was already aware of evidence based practice as defined by Todd: "Evidence-based practice is where day-by-day professional work is directed toward demonstrating the tangible impact and outcomes of sound decisions making and

implementation of organizational goals and objectives" (7). The school district had embraced this concept of evidence based practice in their decision making and in their teaching. They had established a district data team representative of all schools, conducted a comprehensive data inventory as well as a gap analysis to determine what additional data were needed in order to improve teaching and learning. However, they were not convinced that they were seeing benefits through improved transactions between school librarians and teachers, school librarians and students, and teachers and students.

As Todd notes, evidence based practice offers six key benefits:

1. It provides local evidence at the school level that library initiatives make a visible contribution to learning, and that administrators, teachers and parents can see the real impacts...;
2. It convinces administrators and community funders that the money invested in the school library is worth it...;
3. It demonstrates the teacher-librarian's commitment to learning outcomes...;
4. It helps teacher-librarians plan more effective instructional interventions and information services...;
5. It contributes to job satisfaction...;
6. It moves beyond anecdotal, guess work, hunches, advocacy, and touting of research findings... (7).

The moment of realization came in October 2001 at the 10th annual AASL (American Association of School Librarians) Conference and Exhibition held in Indianapolis, Indiana. Dr. Carol Kuhlthau

and Dr. Ross Todd, both from Rutgers University, presented a transformational session entitled, "Research Process and Evidence based Practice". Two school library media professionals from Londonderry, New Hampshire were in attendance and afterward connected with Dr. Carol Gordon, then at Boston University, now at Rutgers. The two library media professionals began a conversation with Dr. Gordon about their recognition of what they described as a "missing ingredient" in the Londonderry program. Although recipients of the AASL School Library Media Program of the Year award in 2000, they had an intuitive sense that the program needed to make the next step. The vision generated by Dr. Kuhlthau and Dr. Todd of what "should be" was reinforced by the conversation with Dr. Gordon, who proposed the idea of action research because it was well-suited to improving teaching and learning. "Action research, as a tool of evidence based practice, structures reflective practice" (Gordon). Action research is problem-focused, context-specific, and future-oriented, and aims at improvement and involvement (Hart and Bond). Although well-conceived in its purpose and well-described in its intent, there is, however, a lack of consensus about its methodology. Boomer defined action research as a "deliberate, group or personally owned and conducted, solution-oriented investigation" (8). Anderson, Herr, and Nihlen defined it as "insider research done by practitioners using their own site as the focus of their study. ...it is oriented to some action or cycle of actions that practitioners wish to take to address a particular situation" (2). The components of action research are reflection, inquiry and action (Patterson and Shannon).

As a result, a plan of action, or action research, was developed to move the program to a dimension where it would be

both collaborative and authentic. The hope was that this effort would ensure enhanced student achievement and success as well as improving the professional practice of the school library media specialists through their reflective practice in the design, delivery, and assessment of instruction. The library media professionals' moment of realization was the connection they made between evidence based practice, as it was defined by Todd, and action research, which offered a structure for the gathering and analysis of evidence. The next step was for the Director of Library Media and Technology Services to marshal the resources (i.e. support from the superintendent) to sanction a proposal to work with a university-level research mentor, find a source of funding and gain the approval of the Londonderry School Board. Another critical component was to introduce the concept of action research to the other school library media specialists and convince them that because action research is problem-focused and provides solution-oriented investigation, it would serve the program and address ongoing concerns regarding improved student learning. There was definite resistance on the part of the already over-scheduled library media specialists to commit to something new, and that challenged them to grow professionally.

The university mentor came to the school to conduct an orientation on action research and methodologies for the team of eight school library media specialists, the director and the technology trainer/integrationist. She provided a basic understanding of action research as a tool for systematic, intentional inquiry into one particular aspect of their professional practice in order for them to better understand and improve their work. After that, as one library media specialist observed, the district traveled the "bumpy road of action research."

Working with their mentor, school library media specialists learned how to pose researchable questions and write proposals (Appendix 1). Using various sources such as diaries, surveys, questionnaires, interviews, and observations, data were collected and shared with participating teachers, administrators, parents and the school board. When the research projects concluded, participants completed an Action Research Summary (Appendix 2) which, in addition to addressing methods and results, provided an opportunity for reflective consideration of how the study had changed their practice and what they had learned. It was soon obvious that through sustained and guided efforts by their research mentor, support from one another and a keen interest from senior administrators, the library media specialists had engaged and found the work meaningful. The added value of the collaborative nature of the work and the empowerment of the school library media specialists to make decisions and take responsibility for their professional growth was meaningful.

As the library media specialists grew more comfortable using action research and shared what they had learned with the administration, it was determined that it was critical to provide ongoing professional development opportunities as well as support their work as mentors to other teachers in the use of evidence based action research methodologies. This strategy would help to address the school district's strategic goal to achieve and sustain a high level of professional competency of all staff members. It would assist district educators to better inform and improve their practice and most importantly, meet the research learning needs of students. This need was one that resonated with both the school library media specialists and their classroom colleagues. Despite their award-winning program and data sets that showed a high

level of student achievement, they felt that students continued to struggle with the research process and resulting projects appeared more “repackaged” than “reflective” of understanding the topic or issue. In particular, educators felt that in working on research assignments and projects, students did not clearly understand the concept of ethical use of information. Thus, in addition to other areas of investigation, action research was employed by high school and elementary school library media specialists, in collaboration with classroom teachers, to focus on the critical objective of ensuring that students are ethical users of ideas and information. As a result, the connection between action research and professional development became clear.

Action research incorporates many of the qualities of an ‘ideal’ staff development program. It is individualized and can be used by a teacher at any developmental level. It assumes teachers are knowledgeable and gives them power to make decisions. It can be carried out collaboratively. It is an on-going process and for that reason can be more effective than a typical one day in-service presentation. One of the more significant qualities of action research is that it puts the teacher in the position of accepting more responsibility for her (his) own professional growth (Wood 16-17).

Conceptual Framework for Two Action Research Studies on the Ethical Use of Information

What emerged from this project was a two-dimensional model (Gordon) for doing action research in the context of school library instruction (Figure 1). The subject of two of the action research studies was the

ethical use of information by children and teens. The first dimension of the model provided the conceptual framework through the establishment of the understanding and use of action research as a tool of evidence based and reflective practice (Gordon). In the second dimension, school library media specialists (with assistance from participating teachers) designed, administered and analyzed results of two action research studies related to student and teacher understanding of the ethical use of ideas and information in order to address immediate concerns and increase their understanding of why students struggle with this issue and what interventions are required. This model is based on a formal research study performed by the university researcher that was concurrent with the action research projects specific to each school library (Gordon).

Dimension One: Action Research as a Tool of Evidence Based Practice

The conceptual framework of the study rests on the use of action research as a tool of evidence based practice. Action research can engage educators in examining the effectiveness of their methods when they have identified an area of concern and use the research process to gather evidence for their theses (Gordon).

As previously noted, through their work with the university mentor, the school library media specialists had learned how to pose researchable questions. They recognized that not only did the research questions need to be measurable, but also meaningful to their work with students. It was also critical that the school library media specialists and teachers recognized the importance of selecting and developing the appropriate data collection instrument. Whether to utilize diaries or journals; pre- and post-surveys, questionnaires or tests; rubrics, interviews, or observations, was

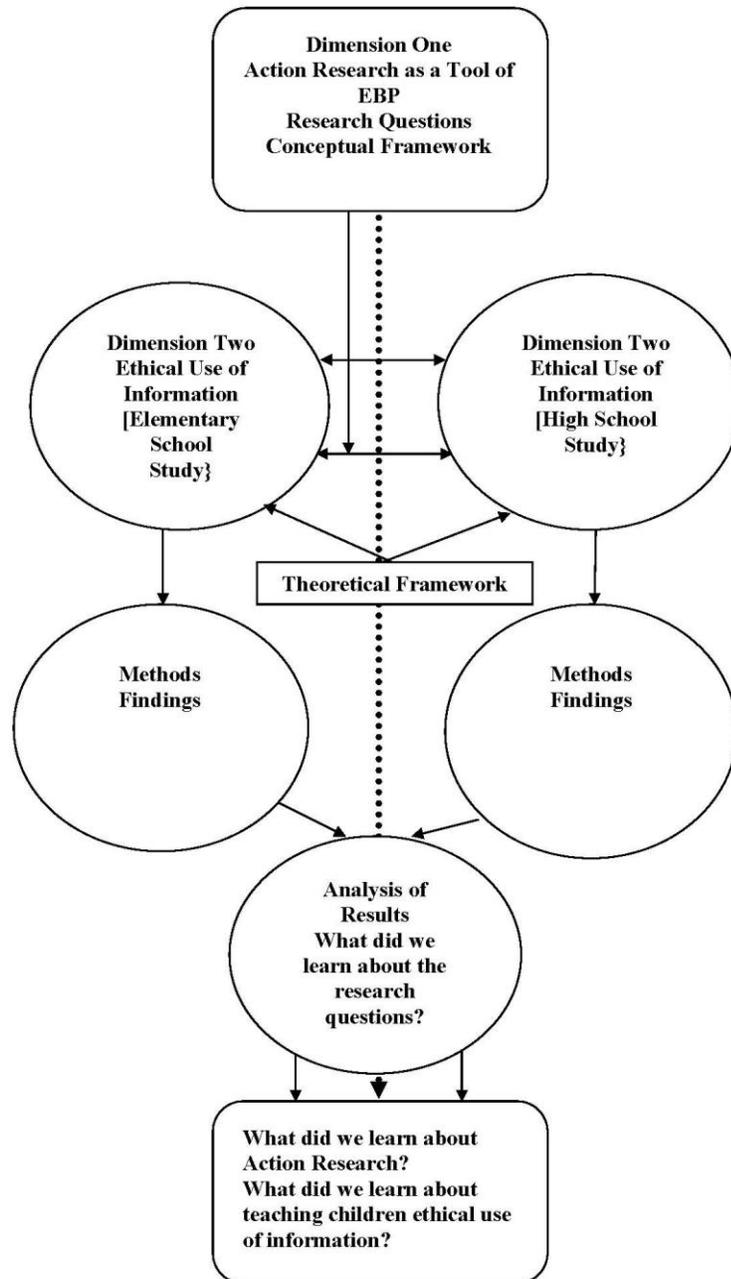


Fig. 1. Conceptual Framework for Two Studies on the Ethical Use of Information by Children and Teens

carefully considered because the instrument had bearing on the reporting of results (evidence) and what was learned. The school library media specialists had been trained by the university mentor to ground their projects in educational theory. As the action researchers considered their research questions, they not only had to think about data collection methods and timelines, but also determine with which educational theorist the approach best aligned. This was a transformational element that allowed for meaningful discussions and exchanges among all participants about how students learn and what interventions are most appropriate (and when) in order to ensure their success.

Research Questions and Theoretical Framework

The two studies presented here were conducted by one high school and two elementary library media specialists and addressed the question, "Do our students understand what is ethical or unethical in terms of the use of ideas and information?" Both studies are based on understanding students' prior knowledge as it relates to learning and the constructivist theories of Dewey, Piaget, and Vygotsky in order to apply appropriate interventions.

Research has shown that a learner's prior knowledge often confounds an educator's best efforts to deliver ideas accurately. A large body of findings shows that learning proceeds primarily from prior knowledge, and only secondarily from the presented materials. Prior knowledge can be at odds with the presented material, and consequently, learners will distort presented material. Neglect of prior knowledge can result in the audience learning something opposed to the educator's intentions, no matter how well those

intentions are executed in an exhibit, book, or lecture (Roschelle 37).

Additionally, in a review of the literature on academic dishonesty and plagiarism among students, Ercegovac and Richardson posited that the "seminal writings by John Dewey (1909), Jean Piaget (1997) and Lawrence Kohlberg (1976) could provide a solid theoretical framework in moral reasoning and a good starting point to build on. Their work should be considered by education and library communities in any efforts to design well-grounded academic honesty policies and programs for learners across the educational spectrum" (301-2).

This coupled with the authors' additional suggestion that "attention also is needed in the areas of mapping research results to pedagogical units and specific disciplinary lesson plans, diagnostic and assessment tools that librarians, media specialists, and instructors could customize for their curricular needs" (Ercegovac and Richardson 313) aligns well with the use of action research to investigate learning problems in order to determine and apply instructional interventions.

The high school library media specialist determined it was necessary to assess the attitudes of students and teachers to identify the issues that needed to be addressed. While anecdotal evidence surfaced in among the teachers, little concrete information existed to establish students' understanding of what was and was not ethical use of ideas and information. Additionally, teachers' perceptions of how effectively students could utilize information needed to be understood in order to establish learning expectations, develop effective instruction, and to plan for professional development activities.

At the elementary level, the two library media specialists and four fifth grade teachers also set out to assess students' understanding of the ethical use of information. Their research addressed the following questions: did fifth grade students know the difference between ethical and unethical use of information? And would the teaching of information literacy skills, such as note taking and bibliography, in conjunction with the fifth grade curriculum change student knowledge and practices with regard to ethical use of information?

Limitations of the Studies

It should be noted here that the findings of these two studies are limited in their generalizability to a wider population. Qualitative research is not concerned with effect size or generalizability to a population because it is local and context-specific. Instead, it is said to be transferable to similar populations. Criteria for transferability were met through triangulation, where multiple methods of data collection were used. The findings of these studies are transferable to similar tenth grade high school classes, in the case of the first study, and to similar Grade four level elementary classes, in the case of the second study, within the schools where the action research occurred. The replication of both studies in successive years renders the findings transferable to fourth and tenth grade students in the district over time.

Dimension Two: Study One - Ethical Use of Information at the High School Level

Methods

For the assessment of student understanding of ethical use of information at the high school level, members of the library media staff developed a survey for students (Appendix 3) and adapted a related survey for faculty. They were based

(with permission) to varying degrees on surveys developed by the Academic Integrity Project at Central Connecticut State University.

The teacher survey was more comprehensive than the student survey, with paired questions designed to determine teachers' perceptions of how often students engaged in unethical behavior related to academic integrity, and also the number of times the teachers had challenged students for those behaviors. The behaviors surveyed included copying or allowing others to copy during an exam, using unauthorized materials or devices during exams, submitting work that was not the student's own, fabricating research or laboratory data, plagiarism, buying or selling research papers, and reporting cheating by other students. Participation by faculty was voluntary, and 36 high school teachers took the survey.

It was determined that the student survey, while covering many of the topics in the teacher survey, needed to be presented in a more student-friendly manner. Therefore, the student survey presented twelve scenarios involving aspects of ethical use of information, and asked the students whether or not the actions taken by students in the scenarios were examples of ethical use of information. Two additional questions elicited responses about what students knew about the school's position on ethical use of information, and how they had received information (if any) about the school's position. The student survey was administered to 381 tenth grade students during their English classes. Staff also developed an answer key for use by English teachers who wished to take the opportunity to stimulate discussion with students.

Findings

The results of student surveys showed that most students have a good understanding of the ethical use of information regarding direct instances of plagiarism. For the scenario of a student who fabricates data and the corresponding citation, 87% of responding high school students identified the behavior as unethical. The scenario of a student who copies complete sentences from a source without attribution was identified as unethical by 90% of high school students. The scenario involving cutting and pasting a table from a web site and submitting it as original work was reported unethical by 87% of high school students. A similar percentage of students recognized turning in a paper written by someone else as unethical (84%).

Students' understanding of the ethical use of information was less clear in two major areas: creating a bibliography that accurately reflects the sources used to create the work, and the level of collaboration or assistance that is appropriate in completing a research assignment. At the high school level, 48% of the students felt it was ethical to include random citations to meet the minimum number required by the teacher, while an additional 18% reported they "didn't know". Only 56% of high school students thought it was unethical to "guess" which book was the source of a quote used in a research paper.

Student responses showed some confusion over what level of assistance is acceptable for an assignment. High school students overwhelmingly reported brainstorming ideas as a group to be ethical (92%), as well as asking a librarian for assistance in Internet searching (93%). However, thirty percent of high school students thought it was ethical to have a relative conduct the search for information for a project, while 10% reported they "didn't know". While

students overwhelmingly agreed it was ethical to have a parent make suggestions for improvements for a paper (95%), a surprising 56% of high school students thought it was acceptable to have a friend who was a better writer revise and make improvements to a paper.

Most students reported that they knew "some" or a "fair amount" about the school's policies on the ethical use of information (64%). However, 28% knew "little" or "nothing," and only 8% felt they knew "a lot". Most students said they received the information from their teacher (82%), but only 49% said they received the information in the class syllabus.

The teacher survey illustrated a variation in teachers' perceptions of student behavior and the student behaviors they had challenged. For the questions involving students copying or allowing others to copy during an exam, 53% of teachers reported the typical student had done it more than several times. Based on survey response structure, this would mean 3 to 5 times (in high school career). However, 24% of the teachers reported having never challenged a student for that behavior. While 56% of the teachers reported that the typical student turned in another student's work (or prepared work for another student to turn in) occasionally, often or very often, 32% of the teachers reported never having challenged a student on that behavior. The teachers' responses indicated that the most prevalent unethical student behaviors are failing to cite resources (quotes, phrases, figures or data), and in copying information from websites and presenting it as their own work. Eighty-three percent of the teachers reported that the typical student exhibits both of these behaviors. Fifty-nine percent of the teachers reported that they challenge students on these two behaviors often to very often.

Teachers agreed that the typical student did not practice two behaviors: obtaining or distributing an exam in advance (86% never or seldom) and buying papers (88% never or seldom). Similarly, teachers reported they had never challenged a student on this behavior (72% for obtaining a copy of an exam; 83% for student buying an exam). Additionally, teachers reported that the typical student seldom or never reported cheating or plagiarism to faculty (64%).

Student responses to the survey indicate they have a good understanding that it is unethical to copy the work of others, or to fabricate information or data. However, there is less clarity on the ethics of fabricating their sources. This indicates a lack of understanding of the purpose and value of a bibliography. Also, students are unclear in their understanding of how much assistance from others is appropriate. There is not a clear understanding of the difference between getting assistance with searching for information and having someone else search for you. Similarly, there is less clarity about whether having someone else revise and improve a paper is different from receiving suggestions for improvement. Teachers need to make their expectations clear for what level of assistance is appropriate.

While the student surveys indicated students are aware that failing to cite sources, submitting work that is not their own, and fabricating data are unethical, teachers report that it is the unethical behavior most likely to occur. Indications are that students understand the message that they need to use information in an ethical manner, but have difficulty putting that understanding into practice. Teachers need to look beyond one-time admonishments to avoid plagiarism, and to develop instruction and design projects that will build the skills that allow students to

confidently create work that reflects their knowledge.

Implications for Practice

Teachers did not always see the library media specialists as equal partners. While initially concerned that teachers might be inclined to consider follow-up and intervention solely the responsibility of the library media specialists, after the results of the study were shared and discussed, overall awareness of student confusion was raised and recognized as everyone's responsibility. Teachers were anxious to work with the library media specialists to address the issues and to look for opportunities within research units to collaborate.

There was also recognition that the school needed to clarify its position regarding the ethical use of information. A statement was developed and included in the student handbook, but it was further recommended to consider the development of a district-wide statement endorsed at the highest level (the school board and senior administration). The proposed statement would not emphasize punitive measures, but rather address the creation of a culture of academic honesty as a value and the norm. It was suggested that this statement be communicated to parents, because of their role in developing and influencing student attitudes.

Dimension Two: Study Two - Ethical Use of Information at the Elementary School Level

Methods

"Are the following examples fair or unfair ideas?" This was a question asked of fifth grade students on a survey that posed various scenarios regarding ethical use of information (Appendix 4). The survey was

adapted from the ethical use of information survey administered at the high school level. The wording and scenarios were changed to better suit an elementary student population. The survey was administered to 87 students in two fifth grade classrooms at each of two elementary schools (total of four classrooms) prior to a unit of study with a required research component.

Using the preliminary results of the survey, two library media specialists and four fifth grade teachers determined what areas of ethical use needed focus and attention. They developed lessons to address these areas of weakness as a part of the thematic unit of study in order to assess whether teaching information literacy skills in conjunction with the unit of study would change student knowledge and practices related to the ethical use of information.

After the students had completed their unit of study and submitted their research projects the survey was re-administered. Four additional questions were added to allow unstructured student responses and to better assess the success of the process.

1. What is plagiarism? (explain in your own words)
2. Why would someone be tempted to plagiarize?
3. Draw the copyright symbol.
4. Explain some things that you can do to make sure that you do not plagiarize and violated copyright laws.

The students' projects were also assessed for ethical use of information.

Table 1: Areas of Concern from Pre- and Post-Survey Responses (F=Fair; NF=Not Fair; NS=Not Sure)

Question	Pre-Survey Responses	Post-Survey Responses
Question #2: Okay to ask a librarian for help.	31%=NF or NS	10%=NF or NS
Question #5: Copies two complete sentences from web page without using quotation marks.	34%= F or NS	3%=F or NS
Question #6: Lists a source she didn't use to meet teacher's three-source requirement.	44%=F or NS	14%= F or NS
Question #9: Copy/paste a chart into your report without including the citation in your bibliography.	30%=F or NS	3%= F or NS
Question #10: Download copyrighted material.	32%=F or NS	16%=F or NS
Question #11: Make a video copy for two friends.	38%=F or NS	2%=F or NS
Question #12: Allow friend to install your new computer software.	80%=F or NS	12%=F or NS
Question #13: Burn a CD for a friend	81%=F or NS	20%=F or NS
Question #14: Allow friend to photocopy your music book.	47%=F or NS	26%=F or NS

The survey results were reviewed with the students and explanations were provided as to the fairness or unfairness of each scenario. Students had many legal questions and were truly interested in understanding copyright. A parent of a fifth grader who was an intellectual property lawyer volunteered to give a presentation to the students and answer any questions that pertained to copyright infringement.

Findings

The initial survey results indicated areas of misunderstanding amount the students that were of concern to the participating library media specialists and teachers. Of particular concern were questions 2, 5, 6, 9, 10, 11, 12, 13, and 14. The library media specialists were particularly surprised by question two which asks if it is fair or unfair to ask the librarian for help. Thirty-one percent of the students thought that this was unfair and the library media specialists felt strongly that they needed to rectify this misperception. Table 1 contains the combined results of the post-survey for both elementary schools.

Implications for Practice

After analyzing initial survey results and determining the areas of concern, the library media specialists decided to focus on developing lessons on note taking, using bibliography cards, developing a bibliography, and what it means to plagiarize. Lessons addressing these information literacy skills as well as a lesson on copyright (Appendix 5) were presented prior to the students beginning their thematic unit research project. The lesson on copyright (what does copyright mean, which materials are copyrighted, and what constitutes copyright infringement) was taught to address the four additional question items added to the survey; the

survey was then re-administered at the end of the unit.

The elementary library media specialists decided to teach the information literacy lessons that were implemented for this project to each fifth grade class and continually emphasize that it is ethical to use the library media specialist as a resource. Another action item was to revise the grade level expectations included in the document *Londonderry School District Information Literacy Benchmarks* to incorporate the idea of ethical use of information starting in first grade and to continually reinforce these benchmarks through the fifth grade.

Other intervention recommendations included:

1. Develop a district level policy on plagiarism.
2. Include a statement in each Student/Parent Handbook on plagiarism, possibly along with the homework statement.
3. Include a statement on plagiarism on each school web site.
4. Encourage teachers to design assignments that don't lend themselves to plagiarism.
5. Purchase resources for student research at the students' level or below so that students will be able to understand the material and therefore be better able to take notes in their own words.
6. Encourage reading teachers to emphasize how to read non-fiction.
7. Begin the process of taking notes and citing sources starting in second grade.

Conclusions about the Results of the Two Studies and About Action Research

Ethical use surveys at the high school level show that most students have a good understanding of the ethical use of information regarding clear instances of plagiarism. The scenario of a student who copies complete sentences from a source without attribution was identified as unethical by 90% of high school students.

Scenarios involving cutting and pasting a table from a web site and turning in a paper written by someone else were also correctly identified by the majority of the students. Students' understanding of the ethical use of information was less clear in two major areas: creating a bibliography that accurately reflects the sources used to create the work, and the level of collaboration or assistance that is appropriate in completing a research assignment.

The teacher surveys showed some discrepancy between their perception of the frequency of some types of students' unethical behavior and how often the teachers challenged students on that behavior. The surveys showed teachers felt plagiarism was the most prevalent student behavior, while obtaining copies of exams and buying papers were the least frequently occurring student behavior.

At the elementary level, post-survey responses related to the identified areas of concern showed a marked improvement by at least 20% after instructional intervention. Some responses improved by as much as 60%. Answers to the additional survey questions demonstrated that most students understood what plagiarism and copyright are and ways that they could make sure that they do not violate copyright law.

The use of action research as a means to provide a rich and meaningful professional development opportunity for school library media specialists and teachers has transformed instructional practice in the Londonderry School District.

Despite these traditional challenges of collaboration, there was a strengthening of bonds between the library media specialists and participating teachers. The change in dynamics was precipitated by the unique expertise of the library

media specialists in designing and implementing action research. This earned the respect of teachers and the enthusiasm of their students. (Gordon)

In fact, a collaborative research culture has been created in which all those responsible for student learning engage in meaningful reflection on instructional and program practices at the local level through an examination of evidence provided through the process.

Since the inception of the use of action research in the school year 2001-02, the school district has conducted 27 action research projects and there are two currently underway. Action research has become part of the way the district does business and when new initiatives are considered, there is a required action research component in order that the initiative be assessed and evaluated in terms of impact and sustainability.

Areas of investigation explored over the last seven years include:

- How can we get high schoolers off the Internet and into subscription databases?
- How do middle schoolers and high schoolers take notes and how can we teach this skill better?
- Can third graders reach higher order thinking skills through project work?
- Are our end-users satisfied with the current level of library service?

Additional representative action research projects are provided in Appendix 6.

The school library media specialists have emerged as leaders of evidence based

practice in the school district and have data and evidence on how students learn and achieve in an information environment. Data are regularly shared with decision-makers and stakeholders to inform practice and provide improved instruction and service to students.

Shared results of the various action research projects include a formal report and presentation to the school board. Senior administrators and board members have been impressed with the findings and have encouraged the continuation of efforts to the point where funding, initially provided by federal dollars, has been incorporated into the general operating budget. School library media specialists are viewed as experts in implementation and leaders in the improvement of instructional practices. Proposed new initiatives are often vetted through a required action research component and most recently, a new element was incorporated into the school district's strategic plan which calls for the implementation of an action research course for students at Londonderry High School. This course will enable students to conduct a semester-long research project, providing the opportunity for the student to be actively engaged in authentic inquiry on a topic of their own choosing, at a deeper level than might be possible in other projects.

Regarding the example of action research used to assess student understanding of the ethical use of information, high school students are getting the message that it is unethical to copy the work of others, or to fabricate information or data. However, the teacher surveys indicate that it is still difficult for students to put that understanding into practice. Teachers will need to move beyond one-time admonishments for plagiarism, and endeavor to build the skills and understanding that allow students to

confidently develop and support their own ideas and work.

As a result of our findings at the elementary schools, the library media specialists and teachers have reflected on how improve their own practice. It was decided to continue to teach lessons on information literacy to all fifth grade students, to begin to discuss copyright and plagiarism beginning in the early grades, and to revise district information literacy benchmarks.

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Appendix 1 - Londonderry School District Action Research Proposal

Submitted by:
Date:
Research Question or Hypothesis
Instructional Unit or Initiative a. Topic: b. Timelines: Start: Interim timelines (if applicable): Finish: b. Description of project or unit. Please include details that would help someone replicate your unit. Curriculum or other objectives? Student or other product? Assessments (formative and summative)? Lessons taught: Support materials?
Data Collection: Please include at least two methods (e.g. interviews, questionnaires, grades, observation journal entries, photographs, student products/projects, formative assessments, focus groups, case studies, and content analysis).



Appendix 2 – Londonderry School District Action Research Summary

Researcher:

School:

Date of Report:

Project Date:

RESEARCH QUESTION/HYPOTHESIS:

SUMMARY: (100 word abstract)

Why is this question important to your practice?

Describe the teaching unit:

Describe Data Collection Methods:

Major findings:

What I learned that surprised me:

How this will change my practice:

Appendix 3 - Londonderry School District Student Survey – High School

Part 1

In your opinion, are the following examples of fair (ethical) and appropriate use of ideas and information, or not?	Answer Key
1. Nicole, Kelly, Joe and Andy meet after school to discuss their assignment to write a paper on Global Warming. They brainstorm some ideas together, and then each individual begins to focus in on developing their own paper.	Yes, this is ethical and it is a good idea to review the assignment with others to get a sense of different ways to approach your individual paper.
2. Cassidy visits the school library and asks a member of the library staff for assistance in searching the Internet for information for the report on Global Warming.	Yes, this is ethical and Cassidy is wise to consult with an information specialist to get some assistance in beginning her research.
3. Jason has an uncle who works in a research laboratory. He emails his uncle to search the Internet for him to get the information for his Global Warming report.	This is a gray area. If the teacher has made it clear that students are expected to do their own research, then Jason is out of line because he is asking his uncle to do the searching. If the teacher was not clear on instructions, at the very least, Jason is shortchanging himself because he is not learning anything about the resources.
4. Mike decides that his paper will be better if he is able to cite lab data results on Global Warming, but he runs out of time to do the research, so he “makes up” the information, and also indicates in his bibliography a source for the data.	This is very unethical. Providing made up information is never right. Perhaps if Mike really feels that there has not been enough time to complete the assignment, he might request an extension.
5. Jen has located a very helpful paper on Global Warming posted at a high school web site in an Australia. She downloads the entire paper and uses some ideas and information to develop her own paper, and credits the source in her bibliography.	Yes, this is ethical. As long as Jen credits the ideas and information to the source she is OK, although there may be better sources of information than a high school Web site!
6. Brian finds a great article in an electronic data base that is perfect for his Global Warming paper. He copies two complete sentences from the resource and includes them verbatim (word for word) in his report without using quotation marks, footnotes or other means of attribution.	Brian is exhibiting unethical behavior. This is a clear case of plagiarism by using someone else’s work and not giving credit.
7. Cindy wrote down a great quote about the effects of Global Warming in her notes, but can't remember which book it came from. So, she makes her best guess, and lists that book in her bibliography.	Cindy needs to go back to the resources she utilized and find the correct source for her quote so she can give accurate citation in the bibliography, otherwise, this is unethical.
8. Jim found four great sources for his Global Warming research project, but his teacher required	Jim is wrong. A bibliography is not a list of resources that you found, but a list of

seven sources. So, before typing his bibliography, he found three more websites and included them on the list.	those that you actually <i>used</i> in completing a project or a paper.
9. Judy asks her dad to review a draft of her Global Warming Paper in order to spot errors, or make suggestions for changes or improvements, before she completes a final draft.	This is fine and it is often helpful to ask an independent reader to go over your work so that they can point out glaring errors or sections that may need clarification or refinement.
10. Mark connects with his best friend Nate to look over his Global Warming paper and asks Nate, a gifted writer, to go ahead and revise any errors and change anything that he feels will improve the paper.	Mark is also wise to ask a “gifted” friend to read his paper but he is wrong to give him a free hand to change anything as the paper is now at best a joint publication of Mark and Nate, and at worse, it is now Nate’s paper.
11. John finds results from a study on Global Warming at a University Web Site. It includes a very interesting table which he cuts and pastes into his report, and submits as his original work.	This is completely wrong and another example of an act of plagiarism – using someone else’s work and pretending it is your own.
12. Ingrid’s cousin in Florida had a similar assignment on Global Warming last year. Her cousin copies the paper and faxes it to Ingrid, who makes some minor changes, and turns the paper in as her original.	By making a few changes, Ingrid has done nothing to change the fact that this is another instance of plagiarism – even if her cousin was agreeable, Ingrid is submitting someone else’s work as her own and that is wrong.

Part 2

13. How much do you know about your school’s position on (fair) ethical use? (check the appropriate response): A) Nothing B) Very little C) Some D) A fair amount E) A lot

14. – 17. Have you received information on your school’s position from:

- | | Yes | No | |
|-----|-----|----|--|
| 14) | A | B | a course syllabus? |
| 15) | A | B | a teacher (i.e., discussed in class)? |
| 16) | A | B | other students? |
| 17) | A | B | other? (Indicate where and include in comments section on answer form) |

18) Your age: A) 12- 14 B) 15 - 17

19) Year of Graduation: A) 2010 B) 2007

20) Your gender: A) Male B) Female

Thank you for your participation

Part 2 used with permission, from the Academic Integrity Project, Central Connecticut State University, Antonia Moran, J.D. and James Conway, Ph.D., Project Directors

Appendix 4 - Londonderry School District Student Survey - Elementary Schools

Are the following examples FAIR or UNFAIR ideas?	FAIR	UNFAIR	NOT SURE
1. Joe, Mary and Bobby meet after school to discuss their explorer reports and help each other with ideas.			
2. John goes to the library and asks the librarian to help him search the Internet for information for his report on hurricanes.			
3. Mike needs 2 written pages for his report, but he only has enough information for 1 page. He decides to "make-up" information in order to complete his 2 pages.			
4. Jen found a very helpful book for her explorer report. She writes down some important information she found in the book in her own words, and she fills out a bibliography card to show where her information came from.			
5. Lindsey copies 2 complete sentences from a web site and includes them in her report without using quotation marks.			
6. Jane needs 3 sources of information for her New Hampshire report. She has only used 2. She lists a source she did not use in her bibliography so she will have the 3 she needs.			
7. Judy asks her Dad to look over her report and make suggestions for improvement.			
8. Josh asks his Mom to look over his report and she makes the changes for him.			
9. Will cuts and pastes a chart for his hurricane report from a web site and doesn't include the web site in his bibliography.			
10. Ben downloads copyrighted music from the Internet.			

11. Alex makes copies of a video he bought for 2 of his friends.			
12. Mary has new software for her computer. She lets her friend, Madison, install the software on her computer, too.			
13. Sean burns a CD for his friend with his favorite songs from his CD collection.			
14. Jillian lets her friend photocopy a guitar music book so her friend will not have to buy it.			

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Appendix 5 – Londonderry School District Lesson Plan

Unit: Ethical Use of Information

School: Matthew Thornton Elementary

Grade Level: 5

Library Media Specialist: Jean K. Sand

Classroom Teachers: Stella Skoropowski, Maureen McKay

Overview:

Students have taken a survey on the ethical use of information. After reviewing the survey questions with the students, a parent who is an intellectual property lawyer spoke to the children and answered their questions. The students are working on a report, which will be evaluated for ethical use, and following this, a post-survey will be administered. Before the post-survey and questionnaire, this lesson will be taught to reinforce the students' knowledge and understanding of plagiarism and copyright.

Objectives:

- The students will be able to:
 - Recognize the copyright symbol
 - Understand what copyright means
 - Understand what plagiarism is

Content/Activities:

- LMS asks what “stealing” means
- Explains what “property” is—things someone owns
- Discuss why stealing is wrong—(hurts others, against the law, wrong to take what is not yours)
- LMS reads a book about stealing
- Follow up discussion about stealing and the consequences
- Discussion of stealing “ideas”—things people create. Make a list of things (stories, poems, music, software) that are “intellectual property”.
- Wrong to steal ideas? Yes, just like physical things
- Show copyright symbol
- Define copyright
- Define plagiarism

Materials:

- Overhead and transparency sheet
- Vis a vis marker
- Story book

Appendix 6 - Representative Action Research Projects

Students' Ethical Use of Information

Author: HS Library Media Specialist

Abstract: Are current practices (school policy, instructional practices, library services) effective in ensuring that students are ethical users of information? Are we addressing the factors that lead to student plagiarism? For this project, a two-session workshop was held for teachers interested in the topic where staff development credit was offered. A survey was administered to determine participants' perceptions of plagiarism and cheating at the high school level but there were a very small number of teachers who participated and so these results are not representative of the entire teacher population. The recommendations of the participants show these teachers are aware that there are steps that could be taken. However, other issues such as the importance of and pressure for good grades, and the indifferent attitude of some students, will require a much larger effort to address.

Study Descriptors: Survey, Library Media, Technology, Assessment/Evaluation, Staff Development, Climate/Culture

Data Collection Methods: Survey, Focus Group, Discussion

Does the time given to quality research improve student knowledge and output?

Author: High School Social Studies

Abstract: This project looked at how to make the research process more concrete by providing a step-by-step program that will guide students independently down the path of researching a topic. The process is outlined in separate pages for each of the steps and before going to the next step, the work has to be approved by the teacher. This process was well-received by the sophomore U.S. History students, as many of them did not know the individual steps that went into research.

Study Descriptors: Social Studies, Library Media, Assessment/Evaluation, Inquiry/Research

Data Collection Methods: Questionnaire, Student Work, Teacher Journal

Technology in the ECE (Earth and its Changing Environment Classroom)

Authors: High School Library Media Specialists

Abstract: Does the use of technology in the science classroom help students understand the concepts better? The freshmen science classes at Londonderry High School are considered "technology rich" because there are classroom computers to be used by students. But how do the students actually use the computers? Do the students feel as though they learn better or differently with the computers? 295 students were surveyed in total, garnering useful information about students' interactions with technology.

Study Descriptors: Technology Integration, Survey, Library Media, Science, Technology, Assessment/Evaluation, Instructional Strategies

Data Collection Methods: Survey, Observation

Assessing an Online Learning Forum

Author: High School Reading

Abstract: Literacy is a primary goal of Londonderry High School for the school year. In response to this initiative, a website called Learning Theories was developed.

LearningTheories.org is a website designed to for the discussion of young adult literature for both pleasure and as an assessment tool. Teachers and students are given equal authority on the book club style forum and need only to log on once registered. This study looked at whether using an online forum was a practical means of assessment.

Study Descriptors: Reading, Technology Integration, Technology, Staff Development, Assessment/Evaluation, At-Risk Students, Learning Styles, Instructional Strategies, Communication, Literacy

Data Collection Methods: Case Study, Questionnaire, Interview

Will 9th grade students demonstrate improvement in evaluating, selecting and assembling information, as well as crediting sources, if provided with a choice of note-taking templates to assist in the research process?

Authors: High School Library Media Specialist with Social Studies Teacher

Abstract: Eighty-one ninth grade students in three World History classes participated in a research project titled “Taking a Closer Look at Renaissance Art.” Previous years’ projects revealed that students had difficulty putting ideas into their own words and crediting their sources of information. This problem of plagiarism, whether intentional or inadvertent, was the impetus for determining what interventions could improve students’ skills in the research process. Results from the study showed that more students completed the project compared to overall freshmen results from the previous year. Also, more students in this study met or exceeded the composite benchmarks compared overall to freshmen from the previous year. Younger high school students need structured guidance in the research process. Something as simple as a note-taking template can help students stay organized, and emphasis on the process can help students avoid taking shortcuts that defeat the purpose of the project.

Study Descriptors: Assessment/Evaluation, Inquiry/Research, Library Media, Social Studies, Instructional Strategies

Data Collection Methods: Survey

If the early research steps are emphasized, i.e. pre-reading and creating questions, will the students see the benefit in their completed project? Will I see a difference in their ability to support their topic as opposed to report writing?

Author: High School Social Studies

Abstract: A good summary is the famous Dickens quote, “it was the best of times, it was the worse of times.” This project has been done for a number of years, but each year the project has been changed slightly to reflect the different classes. This project was given to three heterogeneously grouped freshmen World History classes. Emphasis was placed on understanding the difference between “reporting” and “researching.” Moving from report to research can be difficult, but with planning and resources, it is possible.

Study Descriptors: Assessment/Evaluation, Inquiry/Research, Library Media, Social Studies, Instructional Strategies

Data Collection Methods: Questionnaire, survey.

Library Services Survey

Author: High School Library Media Specialist

Abstract: A first-year library media specialist developed and distributed a library services survey, which looked at how well the library media center was meeting the students' needs. The survey was distributed to 196 students in total, roughly 50% freshmen and 50% juniors. There were also a few short interviews done with students from each of the classes that asked more specified questions. The students were very candid with their remarks, and made some great suggestions for improvements to the library media center. More importantly, this survey and interview process allowed a person new to the school the opportunity to learn more about what the students would like and what they need from their library media center to be successful.

Study Descriptors: Assessment/Evaluation, Library Media, Survey, Instructional Strategies, Communication, Climate/Culture

Data Collection Methods: Survey, Interview

Research Skills in the High School Science Classroom

Author: High School Science

Abstract: It is so important for students to improve their research skills, to be able to separate fact from fiction, and to be able to defend their viewpoints using reputable supporting evidence. This is especially important in the science field when investigating through experimentation. This research project looked at how to engage students in the research process by both giving them a choice in their topic and by providing assistance and guidance throughout the research process. The overall topic to be studied was nanotechnology, but each student had a choice of what part to study and which direction they took their own research. The goal was for the students to become an "expert" on their topic.

Study Descriptors: Technology, Assessment/Evaluation, Collaboration/Teaming, Inquiry/Research, Library Media, Science, Instructional Strategies

Data Collection Methods: Survey

Does the IIM research method help students synthesize information from multiple resources and reduce plagiarism?

Author: High School Science

Abstract: Sixty-five tenth grade college preparatory biology students participated in a human disease research project. The tenth grade biology curriculum has been aligned with the newly adopted state frameworks and human disease is an addition to the curriculum. The project was designed to allow students to apply what they had learned throughout the school year and learn about how their bodies can fight disease. Students used the IIM research model to conduct their research, as well as to analyze and organize their information. Students had the option to work alone or in groups on a topic of their choice and each step of the research process was outlined for them with specific due dates. Students were given class time to use the resources in the school library. The final products varied from brochures to power point presentations and special consideration was paid to looking to see if the students had truly synthesized information rather than just reporting on the information.

Study Descriptors: Assessment/Evaluation, Collaboration/Teaming, Inquiry/Research, Library Media, Science, Instructional Strategies

Data Collection Methods: Survey

How can I improve my students' ability to read nonfiction and informational text in order to increase their ability to understand science concepts?

Author: Middle School Science

Abstract: Various types of information text were integrated into daily science lessons. In addition to textbook material, magazine and journal articles were utilized through a current events component. The instructor employed a methodology to provide students with strategies for reading comprehension: pre-reading activities (examples and demos) investigation of the organization of the text prior to reading; vocabulary review before reading; text clues to identify critical information; use of pictures, captions and graphics to enhance understanding.

Study Descriptors: Science, Reading, Instructional Strategies, informational text

Data Collection Methods: pre/post test, student survey, questionnaire and conferences

How is student writing in a practical level eleventh grade English class changed by the use of AlphaSmart technology?

Author: High School English

Abstract: In these days of high stakes writing, it is imperative students become more comfortable with writing in a classroom setting. Researchers from the Technology and Assessment Study Collaborative of the Lynch School of Education at Boston College analyzed test performance and computer use habits of 986 fourth grade students from 55 classrooms in nine Massachusetts school districts. They found the more students used computers to prepare PowerPoint presentations, surf the Web or play games, the worse they performed on the exam. The more students used computers to write school papers, the better they performed on the MCAS English/Language Arts exam (2004) which suggests that we need to provide our students access to technology specifically for word processing rather than simply unguided access to computers.

This project serves to answer the question of how is student writing in a practical level eleventh grade English class changed by the use of AlphaSmart technology. Specifically, this study sought to answer the following questions: Do students who have historically struggled with writing find the use of AlphaSmarts makes the writing process less tedious? Does the use of AlphaSmarts make students more willing to revise their work? A subordinate purpose for this study was to discover how students' perceptions of themselves as writers change through the use of AlphaSmart technology.

Study Descriptors: Library Media, Technology, Technology Integration, English, Writing, Assessment/Evaluation, Instructional Strategies

Data Collection: Interview, Observation

Analysis skills during the research process

Authors: Middle School Library Media Specialists with Social Studies Teachers

Abstract: As our students have developed their research skills using search engines, web portals, and databases, what analysis guides their selection? Do the recommendations of teachers, Library Media Specialists, or peers help them make a selection? Or, are they

using a less critical approach? How does selecting appropriate search tools aide or frustrate them in developing the final product?

Study Descriptors: Assessment/Evaluation, Collaboration/Teaming, Inquiry/Research, Instructional Strategies

Data Collection Methods: Questionnaire, student reflection, survey

Do Math Skills Books, in conjunction with Problems of the Day, increase students' grades in computation, specifically in the four basic operations on decimals and fractions on standardized tests?

Author: Middle School Math

Abstract: Targeted students weekly assignments from their math skills book as well as a problem-of-the-day, designed to cover the area in which they have historically scored lowest (i.e. four basic operations using decimals and fractions).

Study Descriptors: Technology, Assessment/Evaluation, Math, Instructional Strategies

Data Collection Methods: Pre and post-test, standardized test results, student conferences, survey

How Can We Improve Library Services?

Authors: Elementary Library Media Specialists

Abstract: A survey/interview was developed to gather data about student attitudes, perceptions, and needs of the elementary school library media center and its staff. Previously the library media specialist's had surveyed the professional staff regarding Library Media Services. At this time we felt the necessity to survey our important users – the students. After the data was entered and analyzed using Excel, the Library Media Specialist's noted their findings and planned to implement the appropriate changes to their practice and services so they can better serve our school community. The same survey was given at each of the three elementary schools, with separate reports for each school.

Study Descriptors: Survey, Library Media, Assessment/Evaluation, Instructional Strategies, Communication, Climate/Culture

Data Collection Methods: Survey, Interview

Is this ok, is this not ok? Do 5th grade students know the difference between ethical and unethical use of information?

Authors: Elementary Library Media Specialists with 5th Grade Teachers

Abstract: Can the teaching of information literacy skills (note-taking, bibliographies...) in conjunction with fifth grade thematic units of instruction change student knowledge and practices with regard to the use of information? Instructional units were designed to teach students note-taking skills, how to cite sources, and how to do a bibliography. By teaching these skills, the teachers and librarians hoped to have a positive affect on student behaviors with regard to the ethical use of information. Due to this intervention, there was a marked difference between the pre and post questionnaire results, which demonstrated the change in attitude and student understanding of the material presented.

Study Descriptors: Assessment/Evaluation, Instructional Strategies, Communication

Data Collection Methods: Pre/Post questionnaire, observation journals, student evaluation of the process.

Does the use of specific Math Software with Grade 4 students increase their math fact fluency?

Authors: Technology Integrationist and 4th Grade Teacher

Abstract: 4th grade students in a control class used specific math software on a daily basis. Schedules were posted to ensure that all students had at least 15 minutes/day to use the program. Utilization data was recorded automatically through the program and a variety of reports formats available related to student progress.

Level: Elementary

Study Descriptors: Math, Math software, Assessment/Evaluation

Data Collection Methods: Program data, Teacher journal, student questionnaire

After participating in a teacher induction process for a year, how do new teachers to Londonderry view their practice? In what Danielson domain(s) and component(s), can these ideas be categorized?

Author: Teacher Induction Team Member (5th grade teacher)

Abstract: In order to assess the effectiveness of the Londonderry teacher induction program in regard to participant understanding of the domain of professional responsibility, 34 teachers new to Londonderry (experience ranges from no experience to 14 years) participated in a study designed to determine if the program's activities were meaningful and constructive.

Level: Elementary

Study Descriptors: Induction programs, professional practice, teaching domains and components

Data Collection Methods: Questionnaire

How well do students apply skills taught in class for the reading of non-fiction to the gathering of information for an independent research project?

Author: Elementary Library Media Specialist

Level: Elementary

Study Descriptors: Assessment/Evaluation, Collaboration/Teaming, Inquiry/Research, Reading, Instructional Strategies

Data Collection Methods: Interview, Questionnaire

Abstract: This project looked at how well students apply skills taught for the reading of non-fiction to the gathering of information for an independent reading project. Three teachers worked in collaboration for the project: a reading specialist, a library media specialist, and a Grade 4 classroom teacher. For the assignment, students embarked on a shuttle flight to the international space station where each team of 6 students will have a specific job, such as a pilot, engineer, or scientist, as well as a special assignment like moon walkers, sun trippers, galaxy searchers, and satellite repair crew. All students will research general information on space flight and then gather information for their specific job assignment and outside activity.