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Is Fish a VEGETABLE? A Qualitative Study of a Ninth-Grade Research Project

Carol A. Gordon

THE PROBLEM

Is Ethiopia a developed or developing nation? Gather evidence from the geography, political history, and economic indicators to support your point of view.

Ms. Rotegruze felt she had prepared her seventh-grade social studies class well for the research assignment. She had collaborated with the library media specialist, using a process approach to teach relevant research skills. She had prepared an extensive vocabulary list that would help her students do intelligent searches for library materials and take "shopping-list" notes on their carefully labeled note-taking sheets, and she had emphasized that students paraphrase, using their own words, and avoid copying "word for word" from library sources. Armed with several weeks of preparation, students entered the library media center, paragons of good behavior, in single file and in silence.

Seated in a remote corner they listened carefully to instructions, their furrowed brows conveying deep concentration. They approached the books that had been placed on reserve with caution as the library media specialist extolled the virtues of cumulative indexes and cross-references. The sheer size and number of the volumes inspired awe. Released from this instructional spell, they poked through the collection as if looking for a friendly face in a hostile crowd. Returning to their seats, they began to read, carefully placing their shopping-list notes on the appropriate note-taking sheets in their packets.

As they moved from the first resource book to others, each trip to the library shelves became more circuitous, as if the effort of weaving a tortuous path would ensure a just reward. Movements became increasingly quick and awkward as the first encyclopedic volume hit the floor with a resounding thud. It was as though the shot had been fired and the race had begun. Traffic patterns became more direct as students scurried from desks to library shelves and back again, leaving books in chaos with no regard for Melvil Dewey and his decimal points. The scene had swung into a fast-forward mode. Gestures grew more expansive: voices escalated in volume and pitch. Neat, legible notes degener-

ated to chicken scratch. Hansel, who had been making frequent trips to the dictionary, looked exhausted as he posed his question, "Ms. Rotegruze, Ms. Rotegruze, what's another word for *for*?" "Why," quizzed Ms. Rotegruze, "do you need a synonym for a preposition?" "Well, you told us not to copy word for word and to use our own words."

With horror she realized that Hansel had been translating the *World Book Encyclopedia* one painful word at a time. Meanwhile, Gretel was frantically gathering geographic evidence of Ethiopia's status. She had conscientiously gone through her alphabetized glossary of words, finally reaching *vegetation*.

"Mrs. Gordon, Mrs. Gordon," she screamed above the din that now filled the room, "Is fish a vegetable?"

What was happening here? What caused this Hansel and Gretel Syndrome that left students lost for words despite the carefully marked trail that had been littered with vocabulary terms and note-taking sheets?

PURPOSE OF THE STUDY

The purpose of this study was to find out how students and their teacher perceived library research and to identify the underlying assumptions of the library research paradigm as it is formalized in the process approach to student research in the school library media center. The questions that guided the study were:

1. How do students and their teacher define *research*?
2. How do students and their teacher interpret the purpose and requirements of the research assignment?
3. How do students regard the instruments used to implement the process approach to library research (i.e., student-compiled glossaries, note-taking sheets, or graphic organizers that focus the research question, and bibliography charts that help students collect references)? (See table 1.)

RESEARCH DESIGN

Framework

The framework for this study was Ausubel's theory of meaningful learning that relates a cognitive view of educational psychology to classroom instruction with the premise that

Carol Gordon is Head Librarian, Frankfurt International School, Oberursel, Germany. This study was the pilot test for her dissertation.¹

Table 1**Student Reactions to the Support Materials in the Research Assignment**

Support	Student Comments	Teacher Comments
Glossary	Even with the words I still didn't find thing. Very helpful; most of my notes were from the glossary.	They didn't like it.
Note-Taking Sheets	Should be able to do it however you want. I copied my notes into the packet from my notes.	No one wanted them.
Bibliography Charts	Excellent.	A necessary evil.
Entire Packet	Helpful because everything is compact. Pretty good because you can go step-by-step. Don't like having it graded but I like it. Let them [students] do it their own way. Liked it but it shouldn't be collected.	They think it's helpful.

the most important variable that affects learning is prior knowledge.² He noted a distinction between two types of learning: receptive and discovery. Classroom learning has been dominated by receptive, or rote, learning. What is learned is presented to, rather than discovered by, the learner. In order for meaningful learning to occur, new information must be linked to preexisting knowledge. While both receptive and discovery learning can be meaningful, Ausubel notes the dominance of receptive learning in the classroom. The library media center offers the opportunity for discovery learning as each student confronts the research assignment outside the paradigm of the teacher-directed classroom.

Sample

The sample consisted of an ability-grouped math class of 15 "average" ninth-grade students aged thirteen and fourteen from an independent school in Europe, hereafter called the ABC International School of Europe (ABC). The school has 1,400 students in preprimary through twelfth grades from forty-three countries, and the language of instruction is English. The three dominant cultural groups are American, British, and Japanese, and there are several German, Korean, and Indian students. The faculty is about 40 percent American, 40 percent British, and 20 percent German and other. The Middle/High School Library is fully automated, with twenty thousand volumes, an audiovisual collection of one thousand materials, and a growing CD-ROM collection and local area network system. It is considered state of the art in its technology.

Methodology

The research was conducted in the context of an actual assignment that required students to write a paper showing how math was used in the real world. The teacher and library media specialist planned the unit using a process approach structured by a packet that contained the following components: a student-made glossary of words and definitions that served as keywords for searching and note taking; note-taking sheets, or graphic organizers, which outlined the main points of the research paper; and bibliography charts, which were completed by the students to identify resources used and their bibliographic citations.

The library media specialist supplied bibliographic instruction that included a review of relevant reference sources. A reserve shelf was designated for a core collection of books that supported the assignment. Students were invited to place books that they wished to have restricted from circulation on the reserve shelf. The research spanned four weeks, during which time the class came to the library media center six times. Participant observation was conducted during these library sessions.

Three student collaborators were interviewed at different stages of the project. Joringel was interviewed twice; Joringa three times. They chose their research topics from the list generated by the teacher. The third student, Zachiel, was interviewed once for forty minutes. He was the only student in this class who exercised the option of choosing his own topic, subject to teacher approval. The other students chose topics from a list prepared by the teacher. Focus group interviews were held with the student collaborators. They also kept journals in which they recorded their thoughts and feelings regarding the project. The teacher's reactions were also collected from interviews. A content analysis of the finished reports was done. Students' editorial comments, structured by student-generated criteria, were developed in a group process of peer editing. Students assigned themselves a grade after a self-evaluation process, although grades were finalized by the math teacher, who adjusted them at her discretion.

Limitations

The small size of the sample limits the generalizability of its results, and further research is needed to apply the results to other private schools that resemble ABC's profile. That is not to say that results could not be generalized to American schools that are equipped with school library media centers that meet the guidelines of the American Association of School Librarians.

DATA ANALYSIS

How did students and their teacher define *research*? Library behavior offered several clues to students' perceptions of research. When they chose a book, it was often returned to the shelf within a minute or two.

- "This book doesn't have anything."
- "I can't find anything."

These became refrains as the discard process became more careless. By the end of the period every third or fourth book was misshelved, many upside down and backward or perched precariously on the edge of the shelf. It was as

though the chaos of the shelves demonstrated the state of mental confusion. When a book was judged to be relevant, students displayed a sense of ownership, even when other books would suffice. Did this behavior indicate that students perceive research to be finding the ready-made answer? Was the trick to find the right door behind which lurks the prize? The evidence indicated that the students had a linear perception of research.

"You should be able to answer questions when you do research." "Research is 'finding information.'" It was "getting the main idea and putting it all together." The purpose of doing research is to "collect information." It was seen as a progression from question to answer, and the answer was believed to be on a bookshelf.

Students were not able to generate search terms, or words that connected the information needed to the information or information source, even when using an encyclopedia or a book index. They were, in fact, in an anomalous state of knowledge, looking for meaning, but lacking the knowledge base to articulate a search.³ Intensive vocabulary preparation did not seem to help. They seemed to lack a conceptual network that would help them to recognize information and relate it to what they already knew despite the collaboration between teacher and library media specialist.⁴

Their teacher defined *research* very differently. She described it as discovering information that becomes new knowledge and supports problem solving and discovery learning, envisioning the ideal math classroom as a laboratory that afforded students the opportunities for hands-on experiences and access to a physics lab. She often used inquiry methods and critical thinking in her classroom and wanted students to see the relevance of mathematical principles to other disciplines. She saw research as a way to achieve independent thinking and learning but was skeptical of taking time from the curriculum to do research in the library media center. "It's not just the library time, but the homework time" that slowed her progress through the curriculum. "Taking time to do this means doubling up to finish the syllabus." There seemed to be a dichotomy in her thinking about research when it took place in the library media center rather than in the classroom activities. Library research was not considered a priority or even part of the curriculum.

Her students agreed. All students interviewed found research frustrating and agreed that it took a lot of time. A student collaborator stated, "I still have my English project, and I've got a German essay due on Friday and now we're supposed to improve our essay. . . . On top of research you've got other schoolwork and sports and swimming and choir." Another admitted to having "negative connotations" with the word *research*. "You have to do research whether you like it or not." It was described as "one of the trials and tribulations of going to school" and as "something you have to do, not something you want to do."

Research was seen as an addition to schoolwork, not a part of it. It was viewed as another hoop through which students must jump to get to the finish line. It was clearly not perceived as an integral part of schoolwork and certainly not a priority. One student said, "We could actually be learning other things in math. We could be learning real things. . . . I learned one thing when we could have learned several things." Value was placed on breadth, rather than depth, of learning. The library media center component of

the project was seen as an isolated experience that was not viewed as part of classroom learning or as important as what happened in the classroom. Attitudes toward research seemed to be influenced by the authoritarian, top-down model of learning: Students valued most highly what came from the teacher and had less regard for what they discovered.

In the middle of the project, Joringa articulated: "It would have been better if Ms. Rotegruze had taught us about infinity. It would have been better if I had a guide because you have questions. You don't have all the answers, and I did have some questions about infinity." Toward the end of the project she reported in her journal that she found "it was very frustrating and I think I learned a lot from doing my topic but it was hard to get into." She wrote, "As I got engrossed in taking notes, the easier it became. I'm beginning to feel differently about the project. You have to make an effort to get into it." She also noted in her interview that she didn't think the students understood the "broadening experience" they were getting. "Kids don't realize they are learning something. It took me a while to understand what I had learned and that I had actually learned something until my mom started asking me questions."

For Joringel a turning point came when he performed an experiment to demonstrate graphing speed, acceleration, and distance. He and his friend applied the time/distance formula by tracking their progress around the school at various rates of speed. This experiment was assigned by Ms. Rotegruze. Joringel thought it "was better that way if they [students] do it themselves. It was more fun on our own. It made it easier for me."

Zachiel thought that "a lot of interests that they [students] have don't involve math, or if it does, they don't know about it. Like sports. It involves math but it isn't something you really think about when you are playing. If they picked their favorite song there is definitely [*sic*] a lot of math, but they don't know where to find it." He also felt that "kids who are good at math are not good at writing and English and grammar. For them to write out a problem is frustrating—it's hard for them to write it out rather than in an equation." Joringel's comment that this was "more like an English project" indicates that students believe that research revolves around writing and "doing a report."

Ms. Rotegruze's perception of students' feelings about the research assignment was that they were initially excited about it. "It gave them a chance to do something they chose. When they realized what they had to do, a lot of them backed off and wished they didn't have to do it." At the end of the project she noted that some were quite comfortable with what they were doing, and a small number were panicked and "didn't know what they're going to hand in on Thursday."

Student and Teacher Interpretations

How do students and their teachers interpret the purpose and requirements of the research assignment? Did students share a common understanding of the assignment with their teacher? The expectation of Ms. Rotegruze was that "I wanted them to find a real life use of mathematics and how we could use it every day, and I wanted them to explain it in a very logical way. . . . There is a big difference between writing a creative story and actually explaining something to someone. I wanted the more technical writing skills."

Many students revealed a literal interpretation of their research topic. A student journal entry revealed: "I found it hard to get started. I had to find the definition of each word in the title separately since *Graphing Distance, Speed and Acceleration* is not found in an encyclopedia, for example." The student expected to find information by looking up the topic verbatim rather than pulling from a repertoire of words and terms that formed a network of relationships. Instead of seeing the research as based in physics and laws of motion, he was translating each term of his topic out of context. A student asked for help in "looking up latitude and longitude and how it is used in math." She restricted the search to mathematics books; the connection with geography was not obvious. The teacher and library media specialist had placed books on reserve that were about both math and subjects with which math could be connected to find its application in the "real world." Not until they were directed to them later in the unit did students use nonmath books. Students did not seem to be able to articulate what "real world" meant, as the following examples of "how math will help me when I have a job or am looking for one" illustrate.

- "We have to write about a topic of mathematics, a section of mathematics, like calculus."
- "Trying to find out the mathematical meaning of the topic and try to get as much math in it as you can, because a lot has to do with physics."
- "We have to research our topic and do it step-by-step then write about it afterwards."
- "Try to see if it has anything to do with math."
- "The history of pi."
- "How mathematics is used in music to write a song."

When asked to describe the purpose of the assignment, four students saw the assignment as finding a connection between math and the real world. Two students did not understand the question, and it had to be rephrased a few times. One student saw it as a process; four stated the topic itself as a response. Thirteen papers were completed and graded: Eight of these reflected an understanding of the teacher's expectations; five papers did not reflect an understanding of the assignment according to the teacher.

What were these students' perceptions of what their teacher wanted?

- "She wanted us to have this assignment so we could learn something new: That we could learn how math was used in the real world rather than just have it in a math class."
- "I think she's looking for examples—examples and how you would use it in the real world."

Students thought they would be evaluated on whether they understood the topic and took an interest in the topic. Joringel thought that "correct information and maybe how well you wrote it" would be important. Joringa disagreed: "I think she's looking for what the Germans call *inhalt*, what's in the paper. She's not looking for grammar." Joringel thought one of the purposes was that "they want to see how you can do it on your own. How you get your research."

Student Reactions to the Process

How did students judge the research process? Students' reactions to the components of the packet that was used to structure the research were examined to answer the following questions:

1. How do students feel about topic choice?

2. How do students and their teacher feel about the research process as it was structured by the components of the research packet, i.e., glossary, note-taking sheets, bibliography charts?
3. How do students feel about using the library and library resources?
4. What about grades?
5. How do students feel about freedom of choice?

Students' ideas about improving the design of the assignment or doing well in the assignment pivoted around the word *interesting*, which implied ownership of the topic. They felt that understanding the topic was also a key factor in success. Did students want freedom of choice? Only one student in the class took the option of researching a topic of his own choice; the others chose from the teacher-made list. Zachiel, who was granted special permission to do role-playing games, exhibited much greater fluency in his interview patterns than Joringel and Joringa. His average response was 60 words, compared with Joringel's average of 12.6 words and Joringa's of 26 words. Zachiel's discourse was animated and sustained; the other student collaborators seemed more conscious of a question-and-answer format. Zachiel said of his free choice, "At first Ms. Rotegruze didn't really seem to mind. She wasn't at first sure if it was going to be a good idea. If I was really going to use math or if it was something I was doing just to get out of doing more work . . . but she let it go." He explained that it was his idea to suggest the topic to Ms. Rotegruze because "I find if I don't find a subject interesting I can't really concentrate on it and can't work on it well. And also it improves my grade if I know about it." According to Zachiel, "I think that's a big thing that teachers could do better. If the work was interesting it would make them get a better grade. If they leaned toward more interesting things they [students] would have a more positive attitude toward learning. If they tell you to write a story on something specific that they have chosen it's not interesting so you don't care. You can't put any of you into it."

In class students raised the same point. It was hard to write about topics that they really were not interested in and did not know much about. An example of an interesting topic was "the mathematical aspects of whatever you enjoy like writing a song or something. There is a lot of math involved in writing a song . . . you know how music applies to your life."

Joringel felt that he did not like all the topics on the list, but he liked the one he chose, and there were others in which he was interested. If he would have chosen a topic, he said it would probably have been statistics because "that's what my mom's doing and she had things I could use." Joringa reminded him that "we didn't have to choose one of those, we could do it on anything we wanted to. I thought that was good." Joringa felt she should choose a topic from the list because "most of the time you know the teacher would like it because they're just sort of teacher things." She also felt that "with math there is always a right answer. It's either/or . . . it's an obstacle . . . something mathematical you really have trouble coming up with your own topic and it's hard to think of one." One student said he "chose this topic because I like sports and this topic is related to sports."

While students wanted more freedom of choice, their teacher felt they needed structure and direction. At the end of the project, when asked if she would change anything, she replied, "I think instead of a few topics for them to choose

from I would have set out some questions. I might try a little bit harder to steer particular kids toward particular questions."

Student Reactions to Support Materials

How do students like the research process? How did students feel about the way research was structured for them in the research packet? There was a shift in attitude from the beginning, when the students liked the structure of the research packet, to the end, when they expressed dislike for some of the components. The comments in table 2 were made by students at the end of the project.

Students' Feelings about Using the School Library Media Center

How did students feel about using the school library media center? Students expressed a strong preference for using resources they had at home and for working at home. There were references to parents during five of the six interviews with student collaborators, and one parent reference in a finished paper.

The student who seemed to find the library most useful was Zachiel, who had chosen his own topic:

Researcher: Have you found anything to help you with the math part of this?

Zachiel: Not with the math part.

Researcher: You haven't found anything to help you at all.

Zachiel: In my games, yeah, a lot.

Researcher: What have you found?

Zachiel: Mythical things, like spell books, Tolkien's works, Greek mythology, creatures. . . .

The expectation that there would be information on the "math part" reflects the linear expectations that a book would be found that would explain the connection between Zachiel's games and mathematics. The aspects of the research topic that were most interesting to Zachiel seemed to yield the most information.

Other students were not this positive about the library media center. In fact, Zachiel also had trouble finding information on the "math part" of the project. In many cases

books were recommended that were known to have good information but were returned within a short period of time because students did not recognize relevant information when they saw it (see table 2).

Student Feelings about Grades

What about grades? Ms. Rotegruze's prediction that students would tend to grade themselves lower than she would proved to be the case, except for Zachiel, who was the exception to the rule. Despite his enthusiasm about his topic, his grade was the lowest in the class. Ms. Rotegruze said of grades, "I think they're pretty easy going about it. I think they're more concerned about getting it done than they are about getting an A." Students seemed to be more concerned about grades than was perceived by the teacher (see table 3).

Student Grading

How did students grade each other? Students evaluated each other's papers through a peer-editing process. The procedure established by the teacher allowed students to generate a set of criteria and a critique form that they used to comment on each other's papers. The results of the peer editing are displayed in table 4. A total of seven papers were critiqued.

There were several comments on the appearance of the papers, but very few on the criterion "Mathematical"; yet the criteria of "Mathematical" and "Complete" were given positive ratings in every case, even though it was clear some papers did not achieve these criteria. These ratings could indicate that students considered these two categories critical for a high grade.

In interviews students revealed that the most important criterion was that the student reader/evaluator was able to understand the paper. The paper rated highest by the students was "Geometric Series: Zeno's Paradox" because it was well presented, "gave good examples," "was very thorough and it was well written," "it was typed," and it had "computer graphics." One student commented, "The writer gave good examples, even though it was confusing." Ms. Rotegruze rated this paper a B+, which was the second-highest grade given. The paper rated lowest by the students was

Table 2

Students' Perceptions of School and Home Resources

	Student Comments	Teacher Comments
Use of Library Resources	The library didn't have the stuff I needed. I liked the books on a separate shelf—it made it a lot easier. I go to the library and take a book for a night so I can work on it whenever I want. For me, it is a positive because I need quiet to work. The thing with a school library is that all your friends are there . . . it's hard to get your work done.	Teachers don't like books on reserve. They would rather have them available at all times. I think the library collection is a great start. I hope you can continue building it.
Home Resources	I normally rely on resources at home. My mom has . . . The obstacles, such as not understanding not very clear text, have become easier thanks to my <i>OED</i> and <i>Britannica</i> .	Use of library versus home resources is about half and half.
Working at Home	I work more efficiently at home. I can concentrate better. I can work on my computer at home.	No data.

Table 3**How Do Students Feel about Grades?**

Name	Anticipated Grade	Actual Grade	Comments
Joringel	A	A-	I wasn't concerned about grades because I knew what I could get with this teacher.
Joringa	C	B	A lot of kids are worried about grades. I'm not very confident about my grades.
Zachiel	B	C-	Mine is different from other people's, but I thought I would get a better grade this way [selecting my own topic].

Table 4**How Students Grade Each Other**

Criteria	Comments	Yes	No	No Comment	Typical
Challenging		6	1	0	It was amazing. Kind of a challenge to read. Very challenging.
Understandable		4	3	0	I didn't understand this at all. I don't play an instrument. I didn't understand everything.
Clear		6	0	1	I like the way you express yourself on paper.
Neat		4	3	0	Sloppy handwriting. Well presented. I think a paper with margins on both sides would be neater.
Graphs		3	3	1	Computer graphs. He used graphs good. Two small ones but nice. Awesome.
Diagrams		4	2	1	Very nice, clear diagrams. Diagrams and tables weren't that clear.
Difficult		3	4	0	Too technical. Sounded like a textbook. A bit too difficult. Good information.
Mathematical		7	0	0	Definitely. Good.
Complete		7	0	0	A lot of good examples. Very complete. Nice concluding sentence. I told him his introduction needed some work. You have to capitalize "I." Copied from a book.

"Pythagoras" because it was "too technical. It sounded like a textbook," "the handwriting was very sloppy," and "no time was taken." Ms. Rotegruze rated this paper a B.

Although it was not mentioned as one of the best papers, the one discussed most in the group interview and the one that generated the most interest in class during peer editing was "Math in Music," which received a grade of B+. The teacher gave the highest grades to "Graphing Distance, Speed, and Acceleration" (Joringel's paper) and the lowest grade to "Role-Playing Games" (Zachiel's paper).

DISCUSSION OF RESULTS

The student perception of doing research was writing a grammatically correct report that was well presented and provided other people's answers to someone else's question.

It is not surprising that the students' perceptions of how they should perform in the library media center evolved from their well-practiced classroom roles as passive receptors of knowledge. Lack of appreciation for a "less-is-more" approach can be traced to the imposition of overly ambitious curriculum documents that stress quantity rather than quality and reflect the essentialist philosophy of learning: Students are empty vessels, and learning is the process of filling them with information. In spite of this content-heavy approach, informational and conceptual gaps made it difficult for students to generate search terms. The literal interpretation of the assignment and linear approach to searching for information made it difficult for them to recognize relevant information. The research process was not internalized in the library media center but rather was perceived as an extension of classroom practice: It was interpreted as a test experience;

creativity and inquiry were not perceived as part of the process, and grades were the most important measure of success. There seemed to be no distinction made by students between information and knowledge, between reading and reasoning, between reporting and researching. The research process, although integrated with classroom learning based on a process approach to learning and applying library information skills, was based on the following assumptions, which the results of this study suggest are false:

1. Students have an adequate vocabulary to conduct research on a given curricular topic based on classroom experiences that precede the library research unit.
2. A vocabulary test can assess a student's ability to apply vocabulary.
3. Given a topic, students will know what information they need to research that topic and will recognize that information when they see it.
4. If students are taught how to search for information, they can apply those skills and modify them to accommodate any database or index, whether it is a printed index, an online library catalog, or a full-text CD-ROM program.
5. Students will be able to transform information culled from several sources into an original presentation.
6. Research is a step-by-step process that is predictable.
7. Reporting is synonymous with researching.
8. Information is synonymous with knowledge.
9. Students care about an assigned research topic and understand its relevance to their class work.
10. Teachers perceive library research as an alternative teaching method to cover curricular topics.

The findings of this study suggest that the paradigms, and consequently the practices and their underlying assumptions, surrounding student research in the school library media center setting are set in the context of rote, or receptive, learning.

Students come to the research assignment with little preparation for the style of learning they will encounter. The use of resources outside the classroom will not be an effective teaching strategy unless this paradigm is modeled for students in the classroom. The classroom model needs to be reevaluated in light of the following questions:

1. Do students make a successful transition from classroom learning to the status of independent learner in the library media center?
2. Do students give self-discovered information and knowledge the same status as that acquired in the classroom?
3. Can students understand the teacher's expectations for a research assignment without a rubric or model?
4. Do students understand the relevance of a research assignment to their class work?
5. Do students have a vocabulary adequate enough to research a given curricular topic based on the primary concepts of the discipline through classroom experiences that precede the library research unit?
6. Are concepts taught in class transferred to library research? After studying a curricular topic, can students

relate information they find in the library media center to prior knowledge?

7. Do students know what information they need to search for a topic, and will they recognize that information when they see it?
8. Do students know the difference between reporting and researching?
9. Do students and teachers share a common definition of research?
10. Do students and teachers think it is worth the time it takes to research a topic in order to learn about it?
11. Do teachers perceive library research as an alternative teaching method to cover curricular topics?
12. Do students perceive the school library media center as the primary source of information for research assignments?
13. Is research a step-by-step process that is predictable?
14. Is there is one research process to which all students can relate and apply to a research assignment?
15. Does the integrated approach to teaching library skills, whereby skills are taught in the context of an actual research assignment through collaboration between the teacher and library media specialist, bridge the gap between classroom learning and independent learning?
16. Is it the responsibility of the library media specialist to teach "library skills" and the domain of the classroom teacher to teach content?

Prior to entering the classroom, the student finds comfort in the walled fortress of the classroom where the teacher stands guard, fending off a deluge of information by monitoring the flow of conversation. The model of learning is prescriptive, specific to group rather than individual needs, and the student is clearly not in charge. When the scene shifts to the library media center, the learners, confronted by countless choices, are expected to direct their own learning. This change of scene dramatically shifts the expectations of both students and teachers. In the minds of students and teachers, research is not integrated, although library media specialists use an "integrated approach." There is a dichotomy between classroom learning and library research that parallels the divergence of receptive and discovery learning. This classroom-library media center gap seems to result in a learning gap when students are asked to do a research assignment. A research agenda that reevaluates the paradigms, and consequently the practices, that have surrounded not only the teaching of library research skills but classroom teaching as well lies ahead. ▼

REFERENCES AND NOTES

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