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ABSTRACT

Essay questions and the effects of their use on student scores are examined by a teacher through collaborative action research. Collaboration with the teacher's graduate school faculty resulted in refinements to the research question and development of a practical study methodology. During the two years of the study, the teacher taught four science classes of college-bound high school students of average and above average ability and four classes of science for vocational students of average and below average academic ability. In any one term, he would use essay questions in two classes and not use them in the other two. A total of 77 college-bound students and 97 vocational students completed the study. In general, essay questions, when used, accounted for about 25% of the overall test score. Time of day the class was held had no effect on student achievement, and, as expected, the classes that took the same textbook-supplied objective tests had similar average scores and attitudes about testing. When essay tests were used, the college-bound students' test scores went up almost 10% overall, with increased interest in studying for tests and increased motivation for learning the material. In the vocational group, the overall average test scores decreased by over 10%, with 5 students decreasing their scores for every one that increased his or her score. Students expressed dislike for the essay questions and tended to leave them unanswered. Additional research is necessary regarding the use of essay questions with below-average students. (Contains 51 references.) (SLD)

Essay Questions: Another Look

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Running head: ESSAY QUESTIONS

Essay Questions: Another Look

Teacher inquiries provide valuable information for all teachers, but middle grades teachers especially benefit from them (Stevenson, 1988). Middle school students are undergoing such complex development that our teaching techniques are rarely able to keep up with their rapidly changing educational requirements, no less their emotional needs. The need to evaluate student learning is surpassed only by a need to evaluate how we, as teachers, are providing that learning. Our impressions of this process are normally limited by the more or less indifferent observations we make in our daily teaching activities. Teacher inquiry allows us to go beyond superficial impressions to gain a better understanding of what we are currently accomplishing and to evaluate the effectiveness of new ideas and strategies we might use to improve as teachers. The purpose of this paper is to discuss one form of teacher inquiry termed "collaborative action research" and a teacher inquiry project in which this teacher took another look at essay questions through collaborative action research.

Background

For many of us interested in the continued improvement of education, the strategies involved in what is often referred to as "action research" hold much promise for improving the relationships between theory, research, and practice. There are a variety of definitions for action research, but for the purposes of this discussion it refers to research conducted in a classroom setting and involving the teacher and students native to that setting. The addition of the word "collaborative" implies that the teacher is provided assistance from outside sources to work with

those involved in the research in the solution of problems of practice. In its simplest form, the research involves the identification of an issue to be researched by the participants, the formation of a plan of "action" in which to resolve the issue, the collection of data in various forms to substantiate the affects of the action, and reflection upon the results of the action. The cycle may be repeated, using the information gained to alter the issue to be researched.

Many different models of action research have been tried and are discussed in the literature (Whitford, Schlechty, & Shelor, 1989; Hollingsworth, 1992). While differences in approaches exist, two themes tend to unify the various forms of collaborative action research. One theme concerns the relationship between reflection and action as an ongoing model of participant development. The second theme emphasizes collaboration as a "means" of linking reflection and action. In most instances, the collaborating partners are teachers, representing the practical world of action and practice, and university researchers, representing the reflective world of theory and inquiry. Collaborative action research represents a renaissance within educational research (Oja & Pine, 1987).

Literature Review

The use of action-oriented teacher research as a strategy for increasing teachers' motivation toward reflective teaching practice and self improvement is not new. John Dewey (1933) published works promoting teachers as a valuable resource in the research environment. Kurt Lewin (1947) is most often cited as the founder of action research since he referenced the "actions" resulting from group dynamics. His research models were applied to the field of education by mid-

century and experienced teachers throughout the country were being encouraged to participate in various kinds of action research (Cory, 1953; Shumsky, 1958). The idea of a "collaborative" effort was demonstrated by Corey and expanded upon by Schaefer (1967).

About the same time, a British project, which ran from 1967 to 1972, was initiated by the Humanities Curriculum Project under the direction of Lawrence Stenhouse. Stenhouse (1979, 1985) extended the base of collaborative knowledge and established an interpretive framework from which action research theories could evolve. By the 1970's, interest in collaborative action research was increasing (Cooper, Barrett, Hayhoe, Hobrough, Rowe, & Rumsby, 1975; Elliott, 1977) and the late seventies saw the development of collaborative action research models and their application by Oja (1979, 1980), Pine (1979a, 1979b, 1980), Hord (1981), Ward & Tikunoff (1982), Smulyan (1984) , and others. Additionally, reports and articles emphasized the importance of involving teachers in research as a way to link theory to practice (Huling, Trang, & Correll, 1981; Sykes, 1984). If teachers develop research skills, it was argued, then university researchers would be more willing to work collaboratively with public school people and as university researchers spend more time in public classrooms, both will be better able to create theory out of practice as well as put theory into practice. The most current work in collaborative action research has been a development of the work done with preservice teacher education programs (Beckman, 1957; Perrodin, 1959) and inservice teachers through projects initiated by Zeichner (1993), Gore & Zeichner (1991), Sagor (1991), McTaggart (1991),

Noffke (1990), Oberg (1990), Schon (1990), Lucas (1988), Kemmis (1984), and other interesting projects in various stages of progress.

Rationale for the Study

The need for teachers to become researchers seems easy to affirm and it appears to make good sense, but educators are often concerned about just what is meant by the dictum that teachers should be researchers in their own classroom (Anning, 1986). Many experienced teachers have never learned research techniques or developed questions through reflection on their own teaching practices, nor have they any experience collecting, analyzing, or presenting data. Specific activities that increase teachers' reflections on their teaching and their participation in inquiry have been the focus of teacher research in recent years (Kelly, 1985; Schon, 1990). Collaboration has been consistently used as a means of bridging the gap between the autonomous environments of public education and university research to provide both groups with needed information.

In a changing, complicated society, inter-relationships among once independent subgroups grow as organizations find themselves ecologically bound to each other (Pine & Keane, 1986). Collaborative research is essentially joint endeavors of autonomous units to achieve outcomes desired by all. These outcomes, however, are often beyond the grasp of either single group acting alone. Collaboration is a theoretical partnership, but one in which the collaborators can be informally organized and quickly modified or dissolved as circumstances change. In collaborative action research, each educational camp shares energy, expertise, time, and other resources to plan programs of preservice and inservice education,

personal and group research, curriculum development, and school improvement. Action research in these specific forms exhibits a wide range of variation because there are many possible "discourses" of action and therefore many ways in which action research can be theorized and practiced (Kosmidou & Usher, 1991). It is the existence of these inter-related theorizations and practices that has led to the increased activity in the field during the last two decades. As more and more research has been centered in the classroom, it is only natural to incorporate the resources available. The increased stress on "applied" questions, on "relevance," and on the "servicing" function of inquiry have been a welcomed change in the research literature (Nixon, 1986).

Methodological Implications

The increased interest in collaborative action research has also been due, in part, to the concurrent growth in the use of qualitative, field-based methods in educational research (Hovda & Kyle, 1989). These methods seek participants' understanding of classroom interactions and depend upon description and interpretation through long-term associations in specific settings. Aimed at developing an understanding of constructed realities, these techniques lend themselves well to the philosophies and goals of action research (Bassey, 1986). Collaborative action research does not require sophisticated methods, nor expert technical researchers. "Contamination " of the data is not a concern. If the involvement of the collaborators "affects" the outcome in the direction desired, then the research has been successful. The purpose is not to measure and predict, but rather to effect change. Although intentional, systematic, and as thorough as any

research, the process is more emergent than prescribed, with the direction of the research often "emerging" from the process itself. As with the following study, the researchers are often practitioners inquiring into their own classrooms with the help and support of collaboration with higher education personnel. The research grew out of my questions, as a classroom teacher, about my own practice. I wanted to solve problems I was experiencing as a new teacher and sought help from university professors during graduate studies. Although the research is both practitioner and practice centered (Hustler, Cassidy, & Cuff, 1986), the questions and resulting descriptions and interpretations may be relevant to contexts other than the particular one investigated and may create new questions in the process (Cochran-Smith & Lytle, 1990). It is through this process of questioning, planning, activating, reflecting, and re-questioning that we as researchers develop collaboratively, broaden our understanding of what is being transferred to the student, and create an environment which facilitates this transfer.

Developing the Question

As a new teacher I found myself facing about a hundred bright-eyed science students each day complete with my lesson plans, roll book, discipline charts, "hands on" laboratory activities, specimens, lab equipment, textbooks, overhead transparencies, tardy slips, hall passes, and the growing pile of "classwork" papers on which to give "feedback." When it came time to evaluate the students with the first chapter test, I cannot express the joy with which I discovered the exams provided by the textbook company that could be machine scored. They were complete with a great variety of multiple-choice, true-false, and matching questions

that thoroughly covered the material in the chapter. They even provided review sheets that could be used in my review lesson. All I had to do was to use the "bubble in" cards, patrol the isles to prevent cooperative test-taking, and run the cards through the machine. The answers were corrected and grades provided that could be easily transferred to my grade book. I could even go over the test with the students and review the areas in which they had problems. What a great system, who said teachers should "reinvent the wheel" and make up their own tests anyway?

It was about the end of the second chapter that I noticed a few flaws in the system. Several of the better students, who knew the material very well, did not score well on the test. Also, several of the poor students, who did not know the material at all, did considerably better on the test than I expected. Finally, I wanted to add some enrichment lessons to the next chapter and I didn't know how I was going to incorporate the material on the next test. I took my problems to a graduate education class I was taking and was directed to journal articles on alternative and multiple assessment which gave me several new ideas, but little practical application. I was fortunate, then, to be directed to a series of professors who worked with me for several years in the application and study of these ideas as collaborative action research. The solution of my chapter test problem through the use of essay questions is the basis of this study.

Advantages and Limitations of Essay Questions

Essay questions permit teachers to evaluate learning not measurable by objective tests (Gronlund, 1985). True-false and matching items measure only the simplest levels of expected learning outcomes, multiple choice items can measure

comprehension and problem solving, but essay items can evaluate more complex skills (Wiersma & Jurs, 1985). Essay questions challenge students to use their critical thinking skills, requiring them to compare, justify, contrast, compile, interpret, or formulate valid conclusions - all higher-order skills (Coker, Kolstad, & Sosa, 1988). Responding adequately to essay questions is more difficult than displaying passive knowledge on machine-scored items (Gronlund, 1985), but allows the student the opportunity to display the broadest range of cognitive skills. The use of essay questions enables the teacher to better differentiate students who have studied the material and prepared for the test, from those who have not. They also allow teachers to evaluate organizing skills, reasoning abilities, individual motivation, and language arts abilities of students. Finally, essay items can be used to evaluate the effectiveness of enrichment material created by the teacher that is not covered by other parts of the exam. Some problems with essay questions include the difficulty of evaluating answers in a fair, equitable, consistent manner and the fact that they are more time consuming to prepare and grade. Limitations should be considered, but most teachers can easily overcome these difficulties and there are plenty of helpful suggestions in the literature (Gaffney, 1992; Tuckman, 1991; Bizzell & Singleton, 1988; Blackey, 1988; Coker, Kolstad, & Sosa, 1988).

Development of the Study

Armed with my new knowledge of assessment, I discussed the application of essay questions to my chapter test problem and a study of the affects of the application with the university professors. We came up with the research question: How does the addition of essay questions to objective tests affect student scores?

We felt that this question would give us some direction toward our larger goal of improving the effectiveness of my chapter tests and hoped that continued direction would emerge from the data.

During the two years of the study I taught four classes of "college-bound" science students (average and above average) and four classes of "vocational" science students (average and below average). During any one term, I would have two classes in which I used essay questions and two classes in which I did not. Additionally, I would have one class before lunch and one class after lunch participate so that I could check for time of day variations. Data collection consisted of test scores, student interviews, teacher observations, and my personal log. Test changes began in the second grading period each year so that baseline data could be established. A total of seventy-seven college bound students and ninety-seven vocational students completed the study.

The essay questions used were teacher made and were topic specific, but open to allowing students flexibility in expressing what they had learned about the topic: "Tell me about the steps involved in ... " or "Discuss what you have learned in our lab activity with ... " or "Explain what you know about the process of ..." Prior to grading the questions, I outlined the areas of acceptable response and gave each section a point value. The students were prepared for the essay items through samples explained in lecture, practice performed as classwork, and discussion of a variety of student responses. The number of essay questions used per test varied from three to five, accounting for about twenty-five percent of the overall test score. I found that keeping the number of questions low helped keep the grading time

reasonable. On the tests which included essay questions, I reduced the number of objective items, especially in the areas covered by the essays, so that the overall time needed to complete the test was not appreciably increased.

By adding essay questions to the textbook supplied tests in this way, I was able to maintain the advantages of a machine-scored objective test, include enrichment lessons, allow students to express what they had learned, and compare these results to evaluations without essay questions covering the same topics. In addition, by starting the year with objective only tests, I was able to better determine the overall effect of adding essay questions. The main disadvantage was the increased time in preparing and scoring the essay items and I felt the time was well spent in return for the benefits and knowledge gained.

Results

I could detect no time of day variations and, as expected, the classes which took the same textbook supplied objective tests throughout the year did not change much in their average scores or in their attitudes about testing. They did increase slightly as the year progressed and probably because, as one student said in an interview, "I got used to the kinds of questions asked on the test and figured out what to study."

The surprise came in the difference between the college-bound groups and the vocational groups. In the college-bound group, the average test scores went up almost ten percent overall, with nine students increasing for every one that decreased. Teacher observations by myself and others indicated an increased interest in studying for tests and increased motivation for learning the material

during class time. My log was full of comments like, "Sue asked me to review the process in full so she could get it right in her notes" and "Bob and Brian were drilling each other about the steps in photosynthesis before the test." Student interviews included many positive responses as well, "I like being able to write about what I know" and "I can tell you what I studied " or "studying for those [essay questions] helped me on the other questions."

The vocational group, however, was another story. The overall average test scores for this group decreased by over ten percent, with five students decreasing for every one that increased. To add to the problem, the number of students in the "failing" category increased by almost twenty percent. Teacher observations showed very few positive entries and a number of negative ones like, "Stacey isn't studying for tests at all anymore" and "Paul's interest in science is decreasing." Student interviews shed a little light on the problem with responses like, "I just don't write well" and "I can't explain this stuff in writing" or "I don't know where to begin" or "I never can remember all the steps." Even giving partial credit for partial answers did not seem to encourage these students to try to answer questions with which they were not familiar. As a result, many questions were left completely unanswered.

Discussion and Implications for Future Research

Naturally, the negative results from the vocational group led to new questions concerning how to maintain the advantages of using essay questions and avoid the detrimental affect on the grades of average and below average students. Special study strategies and alternate assessment techniques were tried with these

students during the second year of the study and will be discussed in future papers, but the overall effect of the addition of essay questions was not altered. Therefore, as we took another look at essay questions, what we discovered in this case was that for teachers, above average students, and some average students (especially those seeking higher education) essay questions had a variety of positive effects. Teachers could evaluate material they taught not covered in the textbook, better determine what and how students were studying in preparation for the tests, learn more about individual motivations and attitudes, and spend a reasonable amount of time preparing and grading tests. Students could better express what they had been studying, learn material as cohesive units, and maintain a positive attitude about the coursework and testing.

For below average and some average students (especially those not seeking higher education), some adjustments or compensations might be needed to counteract negative affects on their grades. The problem will be magnified when these students are found in heterogeneous classes where no distinction is made between vocational and college-bound students, which is the current trend in education. Therefore, more research is recommended in the use of essay questions with below average students.

As a teacher, I was impressed with how much I learned through the process of collaborative action research and challenge other teachers to devote some time to this enlightening form of development. The justification of educational research is the extent to which it helps transform educational practice in schools (Kemmis, 1984). Collaborative action research per se is of little use if it does not improve

our ability, as teachers, to transfer knowledge with understanding to our students. However, if we, as a result of our involvement in collaborative action research, begin to reflect critically on our own professional actions and beliefs, then teacher research becomes teacher development (Carr & Kemmis, 1983). Through this process of self-conscious scrutiny, we can theorize our practice, revise our theories in light of reflective experience, and transform our practice into informed changes in our behavior. Isn't it great that the ones who benefit the most will be our students?

References

Anning, A. (1986). Curriculum in action. In D. Hustler, A. Cassidy, & E. C. Cuff (Eds.), Action research in classrooms and schools (pp. 56-66). Boston, MA: Allen & Unwin.

Bassey, M. (1986). Does action research require sophisticated research methods? In D. Hustler, A. Cassidy, & E. C. Cuff (Eds.), Action research in classrooms and schools (pp. 18-24). Boston, MA: Allen & Unwin.

Beckman, D. (1957). Student teachers learn by doing action research. Journal of Teacher Education, 8(4), 369-375.

Bizzell, P., & Singleton, R., Jr. (1988). What can we do about essay exams? Teaching Sociology, 16(2), 177-179.

Blackey, R. (1988). Bull's-eye: A teachers' guide for developing student skill in responding to essay questions. Social Education, 52(6), 464-466.

Carr, W., & Kemmis, S. (1983). Becoming critical: Knowing through action research. Geelong, Australia: Deakin University Press.

Cochran-Smith, M., & Lytle, S. (1990). Research on teaching and teacher research: The issues that divide. Educational researcher, 19(2), 2-11.

Coker, D. R., Kolstad, R. K., & Sosa, A. H. (1988). Improving essay tests. The Clearing House, 61(6), 253-255.

Cooper, D., Barrett, D., Hayhoe, M., Hobrough, R., Rowe, M., & Rumsby, A. (1975). Support for research-based inquiry/discovery teaching. Cambridge, MA: Cambridge Institute of Education.

Cory, S. (1953). Action research to improve school practices. New York: Teachers College Press.

Dewey, J. (1933). How we think. Chicago, IL: Henry Regnery.

Elliott, J. (1976-1977). Developing hypotheses about classrooms from teachers' practical constructs: An account of the work of the Ford teaching project. Interchange, 7(2), 2-22.

Gaffney, K. E. (1992). Multiple assessment for multiple learning styles. Science Scope, 15(6), 54-55.

Gore, J. M., & Zeichner, K. M. (1991). Action research and reflective teaching in preservice teacher education: A case study from the United States. Teaching and Teacher Education, 7(2), 119-136.

Gronlund, N. E. (1985). Measurements and evaluation in testing. New York: Macmillan.

Hollingsworth, S. (1992). Teachers as researchers: A review of the literature. In T. Husen & T. N. Poslethwaite (Eds.), International Encyclopedia of Education (pp. 3-15). Oxford, England: Pergamon Press.

Hord, S. M. (1981). Working together: Cooperation or collaboration. Austin, TX: Research and Development center for Teacher Education.

Hovda, R., & Kyle, D. (1989, April). Action research by teachers: What's the current state-of-the-art? Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Huling, L., Trang, M., & Correll, L. (1981). Interactive research and development: A promising strategy for teacher educators. Journal of Teacher Education, 32(6), 13-14.

Hustler, P., Cassidy, A., & Cuff, E. (Eds.). (1986). Action research in classrooms and schools. Boston, MA: Allen & Unwin.

Kemmis, S. (1984). Educational research is research *for* education. Australian Educational Researcher, 11(1), 28-38.

Kelly, A. (1985). Action research: What is it and what can it do? In R. Burgess (Ed.), Issues in educational research: Qualitative methods (pp. 129-151). Philadelphia, PA: Falmer Press.

Kosmidou, C., & Usher, R. (1991). Facilitation in action research. Interchange, 22(4), 21-40.

Lewin, K. (1947). Frontiers in group dynamics. Human Relations, 1, 5-41; 143-153.

Lucas, P. (1988). An approach to research-based teacher education through collaborative inquiry. Journal of Education for Teaching, 14(1), 55-73.

McTaggart, R. (1991). Principles for participatory action research. Adult Education Quarterly, 41(3), 168-187.

Nixon, J. (1986). The teacher as researcher: Contradictions and continuities. Peabody Journal of Education, 64(2), 20-32.

Noffke, S. E. (1990). Action research and the work of teachers. In R. B. Stevenson & S. E. Noffke (Eds.), Action research and teacher education: International perspectives (pp. 1-50). Buffalo, NY: State University of New York at Buffalo.

Oberg, A. (1990). Methods and meaning in action research: The action research journal. Theory Into Practice, 29(3), 214-221.

Oja, S. N. (1979). Adapting research findings in psychological education: A case study. In L. Morris (Ed.), Adapting educational research: Staff development approaches (pp. 97-112). Norman, OK: University of Oklahoma Teacher Corps Research Cluster, USOE Publication.

Oja, S. N. (1980). Adult development is implicit in staff development. The Journal of Staff Development, 1(2), 7-56.

Oja, S. N., & Pine, G. J. (1987, Winter, published in 1989). Collaborative action research: Teachers' stages of development and school contexts. Peabody Journal of Education, 64(2), 96-115.

Perrodin, A. (1959). Student teachers try action research. Journal of Teacher Education, 10(4), 471-474.

Pine, G. J. (1979a). Collaborative action research: Teacher emancipation. New England teacher Corps Exchange, 2, 7-8.

Pine, G. J. (1979b). Collaborative action research and summative evaluation: Case studies. Introspect, 3, 3-4.

Pine, G. J. (1980). Collaborative action research: The integration of research and service. In L. Morris (Ed.), Research, adaptation, and change. Norman, OK: USOE Publication.

Pine, G. J., & Keane, W. G. (1986). Tearing down the wall: Collaboration among educational institutions. ERS Spectrum, 4(1), 27-32.

Sagor, R. (1991). What project LEARN reveals about collaborative action research. Educational Research, 48(6), 6-10.

Schaefer, R. J. (1967). The school as the center of inquiry. New York: Harper and Row.

Schon, D. A. (1990). Educating the reflective practitioner. San Francisco, CA: Jossey-Bass.

Shumsky, A. (1958). The action research way of learning. New York: Teachers College Bureau of Publications.

Smulyan, L. (1984). The collaborative process of action research: A case study. Doctoral dissertation, Harvard University.

Stenhouse, L. (1979). The problem of standards to illuminate research. Scottish Educational Review, 11(1), 5-10.

Stenhouse, L. (1985). Research as a basis for teaching. Portsmouth, New Hampshire: Heinemann.

Stevenson, C. (1986). Teachers as inquirers: Strategies for learning with and about early adolescents. Columbus, OH: National Middle School Association.

Sykes, G. (1984). Teacher education and the predicament of reform. In C. E. Finn, D. Ravitch, & R. Fancher (Eds.), Against Mediocrity (pp. 172-194). New York: Holmans & Meier.

Tuckman, B. W. (1991). Evaluating the alternative to multiple-choice testing for teachers. Contemporary Education, 62(4), 299-300.

Ward, B. A., & Tikunoff, W. J. (1982). Collaborative research. Washington, DC: National Institute of Education.

Whitford, B. L., Schlechty, P. C., & Shelor, L. G. (1986). Sustaining action research through collaboration: Inquiries for invention. Peabody Journal of Education, 64(2), 151-169.

Wiersma, W., & Jurs, S. G. (1985). Educational measurement and testing. Boston, MA: Allyn and Bacon.

Zeichner, K. M. (1993). Traditions of practice in U.S. preservice education programs. Teaching and Teacher Education, 9(1), 1-13.

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