

Deep Teaching and Action Research Can Inform Practice

By

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Abstract

The purpose of this on-going research project was to use action research, deep teaching, and a hybrid delivery systems approach to answer two research questions: *How can I set up the classroom experiences to mirror the real world? How can I lead students to be more responsible for their own learning and work?* The course selected in which to conduct the research was the senior-level Training in Business and Industry course, which used much of the content in the OEIS 4: Technical Training and Delivery Systems course. Ethnograph v.5.08™ was used to present quantitative findings; other qualitative findings came from students' and instructor's journals. The findings and conclusions hold promise to inform reflective classroom teaching and learning and best practices.

Keywords: Deep teaching, action research, OEIS 4: Technical Training and Delivery Systems, hybrid delivery system, best practices

Introduction

When individual teachers make a personal commitment to systematically collect data on their work, they are embarking on a process that will foster continuous growth and development. When each lesson is looked on as an empirical investigation into factors affecting teaching and learning and when reflections on the findings from each day's work inform the next day's instruction, teachers develop greater mastery of the art and science of teaching. In this way, individual teachers conducting action research are making continuous progress in developing their strengths as reflective practitioners.

Teaching that reaches below the surface of information or facts is referred to as *deep teaching*, with *deep* being defined as that which is most intense or profoundly involved (Campbell, 1998). Deep learning focuses on Bloom's higher order cognitive thinking skills, such as analysis and synthesis. Typically, deep teaching uses good teaching, openness, freedom to learn, clear goals and standards, vocational relevance, and good relations between students to promote deep learning. Instructional methods which

promote deep learning may include active faculty/student interaction, setting up planned projects, encouraging peer tutoring, linking previous knowledge to new information, giving students a say in the development of the course goals and methods, and linking the classroom to the workplace. Assessment will focus on alternative methods.

Action research and deep teaching together hold the promise of transforming the classroom for students and teachers. The purpose of this research is to put forward an example of using action research and deep teaching to create a bridge between theory and vocational relevance. Of especial interest in this research is the focus on the OEIS 4 Technical Training and Delivery Systems course to test both theories.

Related Research

Zuber-Skeritt defines action research as

...collaborative, critical enquiry by the academics themselves (rather than expert educational researcher) into their own teaching practice, into problems of student learning and into curriculum problems. It is professional development through academic course development, group reflection, action, evaluation and improved practice (1992, 1-2).

In Zuber-Skerritt's definition of action research a collaborative connection is made between the teacher and the students. An agreement is reached whereby an informed decision is made and both parties agree to use the classroom as the basis for research into student learning and instructor practices. The implications for continuing professional development for the instructor and heightened awareness by the students of effective practices are enormous. Both parties have to be open to change.

Kelly (1955) and Biggs (1996) both reached the conclusion that the learner is an active construer of her or his own knowledge. Even years apart, both researchers applied

a constructivist theory of knowledge whereby the world of the learner is critical.

Everything a learner receives is filtered through her or his own personal construct system and made sense of in terms of what is important to her or him. A constructive perspective means a model of learning that puts both teacher and student at the center of creating meaning. In this context, collaborative inquiry that informs teaching practice can be more effective in improving teaching practice—sooner.

Carr and Kemmis (1986) argued that the collaborative and inclusive nature of action research is fundamental because, as an action research project develops, it will affect the practice of a widening circle of colleagues who themselves then become involved in the research process. This is the essence of action research: to inform and enhance pedagogical practice.

Teachers who conduct action research bring certain skills to their classroom. They are observers (looking at what is happening and thinking about information they already have); they are questioners (everything that occurs in a classroom can be seen as data to be understood); they are learners (reflecting on what they learned rather than on what they taught); and they are more complete teachers because they bring together the concepts of knowing and doing (Sagor, 2003).

Designing an action research project involves related cycles of observation, implementation, modification, evaluation, reflection, and further modification, similar to Kolb's (1984) learning cycles and Lewin's (1946) spiral of process of planning, fact-finding, and execution.

The commonality in all of these descriptions of the action research process is its ongoing cyclical nature, as highlighted in this recent definition:

[Action research is]...a form of research carried out by practitioners into their own practice. It is a form of self-reflective enquiry undertaken in order to improve practice...Action research needs a focus and should then be based on a cyclical process of planning – acting – observing – evaluating – planning - etc. (Latham and Gilbert, 1995, 107).

According to Christopher Knapper (as cited by Campbell), a good teacher guides students in the process of learning so that they have an understanding of how to approach the subject and actually learn [a “deep” learning approach] instead of just memorizing [a “surface” approach]. Six factors specifically promote deep learning: faculty are well prepare, faculty are friendly, flexible, and helpful; students have choices in what they study; assessment standards and expectations are clearly defined; courses are seen as relevant to future careers; and good relations exist between students and teachers (Campbell, 1998).

The Action Research Process

Educational action research can be engaged in by a single teacher, by a group of colleagues who share an interest in a common problem, or by the entire faculty of a school. Whatever the scenario, action research always involves the same seven-step process, according to Sagor (2003). These seven steps, which become an endless cycle for the inquiring teacher, include selecting a focus, clarifying theories, identifying research questions, collecting data, analyzing data, reporting results, and taking informed action.

Norton, Horn and Thomas (1997) proffered an action research process that identified five areas as follows: identifying a problem in one's practice, thinking of ways to tackle the problem, doing it, evaluating it, and modifying practice.

For purposes of this paper, a combination of these two processes seemed appropriate. Therefore, the following five steps will be used to present the research project: selecting a focus and identifying the research questions, clarifying beliefs of the researcher, collecting data, presenting findings, and taking informed action.

Step 1: Selecting a Focus and Identifying the Research Questions

The action research process begins with serious reflection directed toward identifying a topic or topics worthy of a teacher's and her or his students' time. Thus, selecting a focus, the first step in the process, is vitally important. Selecting a focus begins with the teacher researcher asking various questions, such as: *What element(s) of my practice or what aspect of student learning do I wish to investigate? How can the experience of...be applied to...? How can I lead students to be more responsible for their own learning? How does integrating a work-based approach lead to more authentic learning for students?*

For this researcher, the research questions were focused on how to connect the classroom to the real world: *How can I set up the classroom experiences to mirror the real world? How can I lead students to be more responsible for their own learning and work?* This researcher has been driven during her educational career to bring the real world into the classroom.

The class chosen in which to carry out the research was the senior-level Training in Business and Industry class that used the content and intent of the Organizational and End-User Information Systems (OEIS 4) curriculum as the foundation of the course. The class is a required course for teacher preparation students and students majoring in Business Information Systems. It is also cross-listed with the management program as an elective. The core course in the OEIS curriculum has the following objectives:

- Students briefly overview change management, learning, and training theory in conjunction with technical training practices which are supportive of and conducive to organizational and end-user information systems implementation where OEIS tools are to be integrated into the work environment.
- Students focus on the design, development, and delivery of technical training.
- Students investigate and apply delivery methods including both traditional and state-of-the-art techniques.
- Planned change strategies (including addressing resistance to change) for technology implementation are also addressed, along with the application of relevant theories and evaluation of technical training effectiveness.

The content of the course and the timing of the placement of the course (usually taken during the last semester of the senior year) put students in the position of being a ‘step’ away from the real world. Could the class be designed so that students could make the real world connections and develop skills to help them be responsible for their own learning—both in this class and in their jobs?

Step 2: Clarifying Beliefs and Strategies of the Researcher

The second undertaking in this research was to identify the beliefs and strategies that the researcher held related to the focus. Action research bridges the gap between theory and practice, addressing the pressing problems of a quickly changing world (Greenwood & Levin, 1998; Maruyama, 1996; Moggridge & Reason, 1996; Torbert,

1999). Based on the literature related to changing technology, changing work patterns, and changing employee competencies, the researcher believed that an action research project could spotlight the issues that students would face in their very near future.

Advances in technology have created an environment for a learning revolution that will necessitate a highly skilled workforce—one that will remain flexible and creative, acquire new skills continuously in traditional and non-traditional modes, work in teams, and identify new ways of managing knowledge and information. Technology is driving the change and at the same time serving as a key tool for keeping pace with rapid change. These are the challenges the researcher faced: setting up the classroom to mirror the workplace and preparing students to meet continuous learning needs on a client-centered project.

To meet these challenges, the research strategy was carried out in several phases. Prior to the beginning of class and in the first phase of the study, four clients were obtained on campus who agreed to work with student teams to develop technical training in advanced MS Office skills and human resource interviewing skills.

The second phase was to set up the class as a hybrid course. By the definition of hybrid course on this small regional university campus, more than 50% of the instruction in a class must be offered online. By a vote of the class, the students agreed to this new course configuration. The course content was delivered 53% online and 47% in a face-to-face setting.

The third phase of this study was to develop the learning units for the face-to-face class meetings and the online team meetings. The face-to-face portion of the class was

conducted normally for the most part; that is, units of study pertaining to training in business and industry followed a textbook pattern. By having actual clients to work with, the in-class training activities related directly to the training guide and took on a deeper meaning and urgency.

However, the units of the online portion of the course were designed to ease students into the question: *Will students be able to take responsibility for their own learning?* To this end, the following online activities were conducted through regularly scheduled synchronous communications with each team: how to be a successful online student, virtual teaming, interviewing skills for consultants, progress of training guides on an ongoing basis, and any follow up concerns from the face to face class discussions. As the course progressed, the online communications served as the tool to keep the training guide on course.

The fourth phase of the study was to select an appropriate software package that would be used to develop the CD to support the training guide. The package selected was RoboDemo™ by Macromedia. The software was uploaded on one of the computer stations in the open lab; students were on their own to learn the package after an initial demonstration. This one phase alone tested the *Will students be able to take responsibility for their own learning?* question.

Finally, the ongoing nature of this project required the researcher to evaluate each phase as it unfolded and to step back as an impartial observer and recorder and learner.

Step 3: Collecting Data

Professional educators always want their instructional decisions to be based on the best possible data. Action (or other) researchers can accomplish this by making sure that the data used to justify their actions are *valid* and *reliable*. Lastly, before data are used to make teaching decisions, teachers must be confident that the lessons drawn from the data align with any unique characteristics of their classroom.

To ensure reasonable validity and reliability, action researchers should avoid relying on any single source of data. Using a process called *triangulation*, meaning to make use of multiple independent sources of data to answer one's questions, can help a single researcher compare and contrast what is being seen through a variety of lenses. The keys to managing triangulated data collection is, first, to be effective and efficient in collecting the material that is already swirling around the classroom, and, second, to identify other sources of data that might be effectively surfaced with tests, classroom discussions, journals, or questionnaires.

In this research project, four sources of data were used: instructor observation and team journals, in-class discussions, open-ended questionnaires, and the summative course evaluation (university requirement).

The journal was begun on the first day of class and ended on the last day of class. In-class discussions occurred frequently to cover the textbook material and when students had uneasiness about the course content, training guide, CD, or grades. Questionnaires were administered at the beginning, mid-term, and end of class. The summative course evaluation was administered toward the end of the class.

Step 4: Presenting Findings

Although data analysis often brings to mind the use of complex statistical calculations, this is rarely the case for the action researcher. In actuality the results from an action research study will rely on qualitative data to answer two generic questions:

- *What is the story told by these data?*
- *Why did the story play itself out this way?*

By answering these two questions, the teacher researcher can acquire a better understanding of the phenomenon under investigation and as a result can end up producing grounded theory regarding what might be done to improve the situation. The findings from this study are presented here using the four vehicles for data collection.

Instructor journal. Journal entries were evaluated using Ethnograph 5.08™, a qualitative research software package that is designed to enhance and facilitate the process of qualitative data analysis. Although varying perspectives exist on how researchers should conduct such activities, the essence of qualitative data analysis almost always involves the process of noticing, collecting, and thinking about things that the teacher finds interesting. The Ethnograph 5.08™ software helps the researcher compile, organize, and manipulate data that one finds interesting. Table 1 below shows the factors that were **noticed** from the analysis of the instructor journal entries.

Table 1

**Items Noticed from Qualitative Data Analysis of the
Instructor's Journal
n=32**

Item	Frequency of Occurrence
Apprehension	10%
Questions	5.8%
Unfocused	6%
Fatigue	15%
Unsolicited feedback	20.8%
Pride	10.5%
Teams	31.9%

The frequency analysis in Table 1 noticed two areas of concern on the part of the instructor: teams and unsolicited feedback. Teams were an integral part of completing the clients' projects; therefore, this concern would be appropriate. The unsolicited feedback from students is of greater concern as will be illustrated below in Table 2 (data from the open-ended questionnaires). Other areas that were noticed evolved during the course of the project—from apprehension at the beginning to fatigue in the mid-term to pride in the final projects.

In-Class Discussions. Class discussions were not recorded or written down by the instructor. However, the purpose was to illuminate corners of the class that might not have been in evidence or emphasized. These areas included grading, setting up team meetings, questions about course content that pertained specifically to the training guide and CD. Examples of training guides and CDs were available to the students—if they took the time to view them.

Open-ended questionnaires. The three open-ended questionnaires that were administered during the course included the same five questions, as follows:

- What are your concerns right now about the content of the course?
- What are your concerns right now about the course delivery system?
- Do you think that or has the course delivery system motivated you to take charge of your own learning?
- Has the feedback from the instructor increased your motivation as a student?
- What questions do you have right now for the instructor?

Table 2 below shows the areas that were **noticed** when the results were coded into the Ethnograph 5.08 software from the five open-ended questionnaires.

Table 2
Items Noticed from Qualitative Data Analysis of the
Student Responses from the Open-Ended Questionnaires
n=32

Item	1st Iteration	Item	2nd Iteration	Item	3rd Iteration
Grades	20%	Grades	5%	Grades	10%
Apprehension	15%	Tired	35%	Proud	60%
Excited	10%	Worry	30%	Teams	30%
Change	5%	Time	20%		
Teams	20%	Teams	5%		
Chat Room	15%	Client	5%		
Client	5%				

As noted in Table 2, more frequent concerns were expressed at the beginning of the class than at the end. This is to be expected. And some similarities exist between the concerns of the students and the concerns of the instructor. Both frequency sets mentioned apprehension, teams, fatigue, and pride. Pride was evidenced, also, by including the training guide and CD as part of some students' resumes.

Summative Course Evaluation. Results from the final course evaluation that is required by the university were available at the beginning of the following semester. The feedback showed that the overall outcome measures for the course fell into the Average (45-55%) satisfaction range. The teaching methods that received the highest ratings by the class were fostering student collaboration, stimulating student interest, establishing rapport, encouraging student involvement, and structuring classroom experiences. Interestingly, students did not rate this class as requiring more work than any of their other courses.

Step 5: Taking Informed Action: Conclusions and Modifications

Taking informed action, or "action planning," the last step in the action research process, is very familiar to most teachers. When teachers write lesson plans or develop academic programs, they are engaged in the action planning process. What makes action planning particularly satisfying for the teacher researcher is that with each piece of data uncovered (about teaching or student learning) the educator will feel greater confidence in the wisdom of the next steps. Although all teaching can be classified as trial and error, action researchers find that the research process liberates them from continuously repeating their past mistakes. More important, with each refinement of practice, action researchers gain valid and reliable data on their developing virtuosity (Sagor, 2003).

The results of this research did tell a story of how the real world can be connected to the classroom and how students can take responsibility for their own learning. The following conclusions can be drawn from the findings:

1. Connecting students with clients who expected a usable product and by setting up the class where students had to work in teams, had to develop online learning skills, use interviewing skills as consultants, and take responsibility for learning a new software package established the same kinds of expectations many employers have for their employees. In fact, an ancillary finding is that students could see the relevance of asking prospective employers about their ongoing professional training and development.
2. Students were able to assess their own frustrations with the learning environment and do so in a constructive manner through the use of an open-ended questionnaire.
3. The hybrid delivery system is an effective and viable teaching configuration for developing continuous learning skills. As one student reported: "I had to be prepared to contribute to the discussion or I felt I would let my team down."
4. In-class discussions proved to be an effective tool for eliciting questions or concerns on an ongoing basis. Waiting for the next open-ended questionnaire would have been too late to answer questions or make training guide modifications.
5. Finally, the summative course outcome measures evaluation rated the course in the Average range. However, the teaching methods used in the course received strong support.

What modifications will be made in this researcher's teaching practice?

1. A reflective journal will be used in all classes. Although ethnographic software may not be used to **notice** areas of concerns, having gone through this process one time heightened the awareness of "trouble" spots in this class and headed off potential trouble spots.
2. The open-ended questionnaire approach reveals areas of concern that will become part of the orientation to the class, as well as focus on areas of the online instruction that need to receive additional attention. Added to the next open-ended questionnaire will be a short survey, which asks for feedback on deep teaching and learning factors based on Bloom's analysis and synthesis factors.
3. Feedback from clients was not built into the original research design. Telephone interviews with the clients were conducted; however, they were only cursory and not in-depth. If the worth of the products is to be improved, then formal interviews should have been conducted.
4. Consideration should be given to follow-up with the students in the class to find out if or how the class design has assisted them in their workplace transition.

Why Action Research and Deep Teaching Now?

If ever there were a time and a strategy that were right for each other, the time is now and the strategy is action research. This is true for a host of reasons, with none more important than the need to accomplish the following: meet the needs of an increasingly diverse student population and achieve success with a workplace-based model.

Meet the Needs of a Diverse Student Population

Lately a surprising number of college teachers have been busy analyzing or speculating about what makes current students different from those just a few decades ago. Much of this effort seems motivated by the puzzlement and frustration faculty experience in today's college classrooms with the "netgen" learner.

Overall student demographics, preparedness, and attitudes toward college have shifted greatly over the last three decades, coupled with an increase in the number of college students. But probably more important are developments in our society that have created vastly different conditions for the maturation and development of today's traditional and nontraditional adults.

Despite often low levels of preparedness, students tend to be highly confident in their abilities. Whether due to years of grade inflation in high school (and college), misunderstood attempts to bolster children's "self-esteem," or society's overall disrespect for the immaterial value of education, many students tend to look at academic accomplishments as just another commodity to be purchased. It behooves today's instructor to provide the value-added share to the college degree.

In addition, information and communications technologies are having a profound effect on how teachers teach and learners learn. Today's teachers are being challenged to keep up with an ever-changing array of technologies; today's learners are growing up learning to sort through and manage vast amounts of information. Technology is a natural extension of their lives—for work, entertainment, and learning. Various instructional delivery systems must be employed to meet new learning styles (*Educating the Netgen*, 2004).

Achieving Success with a Workplace-Based Model

Work-based training links learning to the work role and it has three interrelated components, each of which provides an essential contribution to the learning process: structuring learning for the workplace, providing appropriate on-the-job training and learning opportunities in the classroom, and identifying and providing relevant out of class learning opportunities.

Through work-based learning in the classroom, students gain occupational and employability skills while applying and advancing their knowledge in both academic and technical areas. Work-based learning provides students with competency-based learning experiences that integrate classroom instruction with structured work experiences. It provides exposure, experience, and instructional training in a specific career chosen by the student. The university classroom becomes the laboratory for this work-based model.

So the time is right for action research and deep teaching. The college classroom instructor can seize this opportunity and begin investing in the power of inquiry and find that they are re-creating the professional practice of education as a meaningful and

rewarding pursuit. Just as important, classroom instructors who enter the 21st century willing to invest in the "wisdom of practice" will likely find it increasingly easy to prepare employees for an ever-changing workplace.

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