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ABSTRACT

This paper introduces and compares three types of college level teaching: discussion, lecture, and personalized systems. The discussion method is described and identified as one that allows the learner to question and probe, giving increased internalization, greater acceptance of conclusions than other teaching methods, and other benefits. The lecture method is described as one of the oldest and most widely used forms of instruction, with certain limitations but with the advantage of ease of preparation. The development and use of personalized systems of instruction (PSI) are described, with special attention given to proper implementation. Research has found that most PSI systems are extremely effective and fall into either a behavior-referenced structure or an experience-referenced structure. A comparison of the three methods finds that the PSI approach is consistently effective and highly rated by students and that PSI and discussion techniques increase student feelings of ownership and enhance learning. However, the paper notes that teaching is both a personal and professional matter and that contextual issues such as teacher motivation, time requirements and demands, student enrollment, and accountability cannot be ignored in the selection of techniques. Included are 16 references. (JB)

Understanding Basic Teaching Methods: Profile of Discussion, Lecture, and Personalized Systems of Instruction

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College teaching has faced, and often overcome, a number of challenges. Curriculum movements, teaching and learning theories, administrative concerns, and public outcries for accountability have all had some effect on the ability and success of the college teacher to 'perform.' The issue of teacher performance has also received a great deal of public attention, especially in light of the myriad of techniques and technologies available to teachers, instructors, and learning facilitators.

College teachers have been able to ward off much criticism through their professionalism, and in many cases, teachers have silenced public criticism by concentrating on known, successful teaching techniques. Among many often used, three of the most common teaching techniques identified and implemented include: lecture, discussion, and personalized systems of instruction (PSI). Each of these areas have received acclamations and have been noted for particular strengths. The purpose for this discussion, therefore, was to provide a basic understanding and profile and comparison of the techniques.

Prior to an examination of the techniques, a cursory introduction to learning is necessary. Basic interpretations have included the alteration of behavior in light of new material or knowledge acquired. Much current thought, however, describes what constitutes learning:

> ...in reference to the alteration of thought processes, transforming existing perceptions, attitudes, values, and beliefs, against a background or encounter with stimuli which prompts the evaluation, to different degrees, of current thought (Miller & Mahler, 1991, p. 8).

Amidst the apparent scholarly discourse and lack of consensus on teaching and learning, the techniques described here have been offered as a guide to better understand the role of teachers and scholars in the process of improving the established education practice.

Discussion

The majority of knowledge relating to what is known as the discussion technique is held privately by skilled teachers as intuitive, implicit, knowledge in action. To understand discussion, it must be defined and contrasted with other forms of classroom instruction. Discussion describes group interaction in which teachers and students verbally interact concerning what is known, and often, feelings toward this knowledge. Characteristics of the discussion method include exchanges among students, as well as between students and teachers, questioning student opinions and thoughts, and describing and articulating thoughts. Dillion (1984) described a discussion as taking place only when the teacher and students considered the interaction to be a discussion, and if the students accounted for at least 40% of the total "talk."

Similarly, Bridges (1979) contended that three basic assumptions must be met before recognizing that people have engaged in discussion: the learner and instructor must put forth more than one point of view on a subject; the actors are at least disposed to examine and be responsive to the different points of view put forward; and the intention of the interaction should be to develop a knowledge and understanding of the topic.

Additionally, assumptions that the participants share by committing themselves to group discussion include reasonableness, peaceableness, truthfulness, freedom--no constraint on offering sincerely held opinions, equality, respect, and openness.

Working within these constraints, several types of interaction could be defined as a discussion. Perhaps one of the most widely recognized categorizations, however, has been Davis, Fry, and Alexander's (1977) scheme of three models of discussion: issue centered discussions, structured discussion of a shared experience, and problem solving. Discussion strategies have also been described as quiz shows, bull sessions, and informational discussions.

Flynn and LaFaso (1972) examined the discussion method as an alternative to more traditional methods of teaching, such as the lecture, and they noted that there has been a tendency by many educators to view classroom discussion as merely a "reward" if students perform satisfactorily on a given task. The instructor views discussion as play or recreation.

As a valuable tool for accommodating learning, many specific advantages of the discussion technique have been identified: discussion allows the learner to question and probe until the fact is seen in a meaningful and understandable context; increased internalization through improvisation (material became more meaningful because the student had to continually rephrase what was said in the student's own terms); greater acceptance of conclusions; resolution of dissonance and imbalance; increased rate of learning; better retention; satisfaction with what was learned and the quality of that material; motivation and reinforcement; and lessened the fear of failure.

Lecture

One of the oldest and most widely used forms of instruction identified is the lecture teaching method. Both Aristotle and Socrates turned to this method (in concert with other techniques) to reach broad audiences, deliver key ideas and information in as their own order and structure, and to use the power and passion of public speaking as a means to education. For these same reasons, the lecture technique has survived and continues to play a vital role in instructional delivery.

Russell, Hendricson, and Herberts (1984) found a growing concern, especially in the medical education community, about the effectiveness of the lecture as a teaching method. The medical education community has given this special concern to the lecture

technique for many reasons, but most notably, due to the findings of Anderson and Graham (1980) who found that medical students are expected to learn 48,000 facts and 30,000 concepts in their first two years of training, and 53,000 facts and concepts in the clinical phase of education. With such a substantial amount of factual data to disseminate and learn, the lecture has been commonly used due to dissemination efficiency.

Russell, Henderson, and Herberts found that medium-density lecture subjects exhibited less loss of recall than low- or high-density lecture students.

Giles, Johnson, Knight, Zammett, and Weinman (1982) also studied the effectiveness of the lecture method, but specifically addressed three areas: a comparison of visual and verbal presentation of information, the time period in the lecture that information was presented and how accurately that information was recalled, and student seating in the lecture hall, that is, do the students who sit closer to the front do better than other students in the class.

The researchers found that visually presented material was recalled significantly better than the verbally presented material, but visually presented material declined in recall far more than verbally presented information. There was little difference found between students who attempted to write down most of what the lecturer said and students who attempted to only write down the lecturer's main points. Students who sat in the

front of the lecture hall were most likely to score higher on the exam than students who sat in the back of the lecture hall.

One of the difficulties of the lecture method is the relatively short life span of lecture material (Smith and Rockett 1986). Smith and Rockett concluded that the amount of new material in a lecture may be related to teaching load non-teaching duties, and the technical information flow to the lecturer. As such, they alluded to the lecture technique as more simplistic in preparation and easier to control the flow and direction of the class.

Personalized Systems of Instruction

Many of the studies on Personalized System of Instruction (PSI) have consistently shown findings on the effectiveness of the "Keller Plan," (named after its founder, who developed the unconventional method in 1968; also known as personalized system of instruction). Students have rated PSI as a desirable teaching technique by controlling procrastination and higher withdrawal rates; final examination performances have been at least equal to, and have usually exceeded performance in lecture sessions; students have reported more learning from PSI formats; and students have believed that more time and energy is involved with PSI learning formats (Keller, 1986).

Despite positive feedback PSI has reportedly been diluted by a number factors, and that there needs to be serious attention

given to these factors for more rigorous testing. Foremost in these questionable practices is the process of grading. Grades in PSI courses can reflect differences in the amount of content learned and/or differences in methods of grading. Second, self-selection and instructor selection confound equivalence of comparison groups in most PSI evaluations. Third, the conventional examination practice of not "giving away" course content is an alternate explanation for differential test taking scores since typical PSI formats have clearly stressed specified testing objectives and repeated testing for mastery.

Charles (1980) acknowledge that individualized instruction can be an extremely effective method of teaching, however, most individualized learning has fallen into one of two categories: behavior referenced and experience referenced.

BEHAVIOR REFERENCED: Behavior referenced strategies have emphasized the attainment of specific behavioral objectives. These objectives must be established before any instruction is presented, and must specify in observable terms exactly what each student must be able to accomplish as a result of the instruction. Instruction is developed around three central themes: the desired behaviors of each student should be specified; appropriate instruction should be provided to enable students to perform the specified behaviors; and criterion measures, such as examinations, specified acts, or work product, should be analyzed to see whether the student has reached the

objectives.

EXPERIENCE REFERENCED: Experience referenced strategies place the teaching emphasis on providing learning opportunities related to the experiences of the students. Charles emphasized minimum standards for each individualized instruction program. For example, were the goals stated for everyone, or were the goals in class clearly individualistic. Individual needs dictate that each student reaches different learning points at different times, and as such, standards and check points must be unique for each learner. Individually planned programs facilitate student progress toward overall goals and have the ability to furnish graphic evidence of progress. Individual diagnosis of needs and prescription of activities intensify the potential success of the method.

Yang (1987) maintained that individualized systems of teaching must also require the learner to demonstrate mastery of lower level skills before moving on to the higher order skills. Mathematics has been considered to be an ideal subject for individualized instruction as it is a hierarchically ordered field in which concepts generally build on the foundation provided by prior concepts. Individualized instruction can emphasize individual work, self-pacing, and the achievement of skill mastery, but, it's use for longer instructional units, often called learning activity packages or modules, gives learners freedom to choose among different means of achieving

specified educational objectives.

Comparing Teaching Methods

The concepts of teaching and learning have been, at times, difficult to comprehend. The result of these actions, however, has been clearly articulated time and again; to enable or empower the learner through new information. While semantical debates may continue, efforts persist to understand how educators can most effectively 'teach' prospective learners. Many of these efforts aimed at understanding accurate and effective teaching have concentrated on highly visible techniques, such as the discussion, lecture, and personalized instruction.

Atherton (1972) found no differences between the instructional techniques' effectiveness, but did suggest that quality teaching, whatever form it takes, has an impact on effective learning. Apparently, teacher-student contact provides the basis for more favorable climates for learning, and hence, Atherton claimed that the amount of teacher contact per student was directly related to student learning, and the form of that contact may not be as critical as originally perceived.

A similar study comparing the three techniques was undertaken by Smith (1987) at the University of Missouri at St. Louis. Using multiple testing techniques, he suggested that personalized instruction, that is the Keller Plan, was invariably rated more favorable by students and produced better performance

than traditional lecture efforts. Consistent findings have been reported by Surprenant (1982) in Michigan.

Each of the methods described here play varying roles in education, some more than others. The lecture method, despite obvious deficiencies such as reduced student interaction, remains a premiere technique for sharing data with large groups of students. The discussion and personalized instruction have similar difficulties, ranging from class control to simple efficiency.

The literature, with only a minor sampling of that available to those concerned with college teaching, was indicative of the questions to be raised in selecting an instructional delivery method for use. What the literature often neglects, however, is the discussion of appropriateness for specific contexts. In academic writings and experimentation, the context of the instructional techniques is taken for granted regardless of the social and political environment surrounding course offerings; certain teaching techniques are claimed more effective, at times, even deemed "better" and "worse."

Teaching is both a personal and professional matter. Contextual issues such as teacher motivation, time requirements and demands, student enrollment, and accountability cannot be ignored in the selection of teaching techniques. There is little academic disagreement that personalized systems of instruction and discussion strategies increase student feelings of ownership

and hence enhance learning, however, until research methodologies embrace the entire learning environment, generalizations and model development will fail to accurately portray education from both the student and teacher perspective.

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