Pedagogical Decision Making in a Computerized School Environment

Discussion chaired by:

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1 INTRODUCTION

1.1 Pedagogy

A focus on pedagogical decision making requires, initially, an understanding of what is meant by the term, "pedagogy". Pedagogy might mean, differentially, three different views of the teaching process: first, pedagogy as the process of transferring information or knowledge to another person or entity; second, pedagogy as the art, or science, of teaching; and third, pedagogy as the structure in teaching, or information transfer, which facilitates learning effectiveness and efficiency.

1.2 Decision Making

Given our view(s) of the teaching process as simultaneously input (structure), process (transfer), and output (effectiveness and efficiency), decision making in pedagogy identifies three distinct, though interrelated, ends: first, decision making which supports pedagogy needs (viz., to help teachers to teach and to manage the teaching process); second, decision making which promotes awareness of the decision making process (viz. to explain or illustrate the elements and procedures of decision making; and, thereby validate the decisions reached); and third, decision making which assists the decision maker to perform improved decision making in the future (viz., to learn how to make better (more valid and reliable) decisions based upon one's experience of the past).

1.3 Decision making by Teachers

Given our examination, thus far, of the notion of pedagogical decision making, we fully recognize that decision making by teachers is largely intuitive at the time such decisions are reached during the conduct of the teaching-learning process; therefore, such intuitiveness is temporal to the classroom environment. Intuitiveness is defined in this context the conscious selection from among multiple alternatives of a single decision, taking into account elements of authority, experience, inductive reasoning, and deductive reasoning. At the same time, we do not discount that pedagogical decision making on the part of teachers is also reflective; e.g., the rethinking of a decision *ex post facto* in order to refine (improve) decision making as a process, or decisions which may be necessary in similar circumstances, in the future.

1.4 The computerized School Environment

As may be evident from the preceding commentary, we choose consciously to include any uses, both actual or potential, of computer technology in the educational setting as foundation for our discussion. Thus, any use of computer technology, whether for direct teaching, supporting indirectly the teaching process, resource management of the instructional environment from a campus wide perspective, or communication is acceptable in our characterization of a computerized school environment.

2 NEEDS

2.1 Scope

There exist (at least) five global needs which influence any discussion of pedagogical decision making in computerized school environment. Since needs are directly linked to recognized problems in a pre-decision setting, these five needs may be accepted as "problem statements" or goals, to be satisfied. First, highest-level centralized access to computer-resident information (management information system (MIS)) must exist (e.g., to facilitate student record availability and transfer). Second, decentralized access of relevant information to the level of the classroom teacher must exist, as well, (e.g. to assist in decision support system (DSS) usage to support instruction). Third, there must exist high value in, and therefore visible priority for, improvement and innovation at all levels of the educational enterprise (e.g., by teachers, administrators, support services staff, governing boards, and parents). Fourth, there must exist, as well, high value for initiative in decision making at the level of the classroom teacher (e.g., to promote comprehensive decision making by the teacher in meeting the special needs of individual students). Lastly, computerized-based information for decision making must exist in a framework which promotes both predictive and projective inquiry (e.g., to support strategic planning as well as tactical control of the instructional process).

2.2 Considerations in Pedagogical Decision Making System Development

Several elements must be considered as a system for pedagogical decision making is conceptualized, developed, implemented, and (then) validated in a computerized school environment. Not necessarily stages or phases, these elements must be recognized and continually reviewed throughout system development. A total of 11 elements are considered essential:

- * Gather root data about all symptom problems observed.
- * Define specific targets for computerized information intervention as a decision making tool.
- * Develop a model which conceptualizes the decision making process.
- * Decide what a computer can not do (practical) as well as should not do (ethical).
- * Recognize the value of personal experience (inductive reasoning) for guiding system development.
- * Assess the validity and reliability of "hand " data before computer entry.
- * Standardize the developed system and its associated processes in routine practice.
- * Link this decision making system, as a decision support system (DSS), to existing statistical exception system which only alert the user to a probable problem.
- * Retain the human element in the use of the system for decision making.
- * View the computer as a tool which assists the mechanical provision of information.
- * Assess and evaluate continually the progress of system development, from conceptualization (needs assessment) through incorporation (standardization of practice).

3 SUMMARY

3.1 Responsibilities of schooling

Pedagogical decision making, envisioned in the computerized school environment, must attend to the ultimate aims and responsibilities (viz. mission) of schooling: (1) to teach children; (2) to manage the process of learning; (3) to assess progress; (4) to define new strategies; (5) to satisfy clients; and (6) to provide (for) shared decision making.

3.2 Pedagogical Decision Making

Therefore, pedagogical decision making mirrors decision that are required in the areas of curricula, instructional process, individual v. group learning, performance-based results in assessment, and the allocation and distribution of resources to support the needs of instruction. In this vein, we must go beyond the notion of computerized informational access, from preparing exception reports ("Where are we?"), to directing our efforts for problem resolution ("where might we go?"). Only then will education enjoy the true benefits of a computerized data access for decision making.

4 RECOMMENDATIONS

The following recommendations were reached through the discussion regarding pedagogical decision making in a computerized school environment.

4.1 Recommendation 1

Accept pedagogical decision making as incorporating three facets: supporting pedagogy needs; promoting awareness of the decision process; and, assisting the improvement of decision making in the future.

4.2 Recommendation 2

View the classroom teacher as the root of a solution, not the source of the problem.

4.3 Recommendation 3

Value inductive reasoning in the formulation of the structure and process of the decision making model.

4.4 Recommendation 4

Assure intensive and continuous training throughout the theoretical phases of employee tenure in the educational enterprise: beginning preparation; induction; in service.

4.5 Recommendation 5

Facilitate consensus at all levels in the development of decision making system.

4.6 Recommendation 6

Insure that the decision making system extends beyond the more traditional management information system or statistical exception system, embracing the true benefits of a decision support system.

4.7 Recommendation 7

Institute high-level, centralized integration of all academic and administrative computing decision systems, coupled with high-level, decentralized access and utilization.

4.8 Recommendation 8

Monitor the formulation, execution, and utilization of the decision system for continuous reflection, refinement, and improvement.

4.9 Recommendation 9

Maintain a philosophy that effective schooling is a shared responsibility, required shared decision making as well as shared values.

4.10 Recommendation 10

Remember that the preceding nine recommendations reflect our responsibilities to children and their learning; not our need for image or to innovate.