

## 8.10 DUFFY CONTINUED

category survey was constructed and tested in a manner to increase the validity and reliability and decrease the residual errors. Multiple sources that contained policies relevant to the field of science education including National Science Teachers Association (NSTA), American Association for the Advancement of Science (AAAS), among others, were utilized in the construction of the goals survey. The population chosen for study were science teachers and supervisors who belong to ASCD and represented a diverse geographic and demographic cross-section. Frequencies, weighted means and discriminant analysis were employed to ascertain the strength of conviction to goals and how other variables (e.g. experience, professional development) may be related to perceptions of goals.

### 8.10

#### EXEMPLARY TEACHING PRACTICES AND SCIENCE SUBJECTS CURRICULUM REFORM

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From August 1993 basic education will be implemented in lower secondary education (age 12 through 15/16) in The Netherlands. This means a.o. the implementation of a core curriculum of 15 subjects, among which physics/chemistry and biology. The most important aim of basic education is a curriculum reform. As far as physics/chemistry and biology education are concerned a shift in emphasis to context- and activity-based learning is strongly advocated. This paper describes the objectives, design and results of explorative case studies of the teaching practices of 4 exemplary physics and 4 exemplary biology teachers in lower secondary education in The Netherlands. The study of exemplary teaching performances of experts could provide support to the improvement of the science subjects teaching practices in the direction of the curriculum reform in view. An important objective of the study is the formulation of specifications for designing context- and activity-based curriculum-materials for physics/chemistry and biology in basic education. The case studies have been conducted between October 1989 and June 1990. Data have been collected by means of direct observation of lessons, interviews, textbook analysis,

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achievement tests analysis and by administering a student questionnaire.

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#### THE COLLABORATIVE DECISION MAKING PROCESS IN ACTION: A NATURALISTIC STUDY OF TEACHERS CAUSING CHANGE IN ONE MIDWESTERN MIDDLE SCHOOL

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While educators agree that reform efforts must be taken in our nation's public schools, the word **reform** carries a different meaning to each person in the reform movement. How do teachers interpret this need for reform? What decisions do they make which influence curriculum and its implementation? How does collaboration with one another impact these decisions? This naturalistic study of six middle school teachers attempted to answer these questions. These teachers knew changes must occur in their curriculum as it was not meeting the needs of their students. The teachers began the change process using grant funding from a large pharmaceutical corporation. In order to observe their collaborative decision making process, I became a participant observer with these teachers. Using (a) field notes, (b) transcripts of meetings and (c) curricular documents, I generated assertions and tested their validity through triangulation. Implications focus on how we can facilitate the reform process in schools.

### 12.01

#### ABILITY GROUPING IN SECONDARY SCIENCE: THE RESEARCH BASE VERSUS POLICY TRENDS

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This paper reviews both current policy trends and research concerning the practice of ability grouping in secondary science education. This paper will: a) Briefly review relevant policy statements of key individuals and institutions in order to provide a sense of the breadth and nature of this issue. b) Review (briefly) the findings on science achievement trends of high ability students in international comparisons. c) Examine the research related to ability grouping in