PROCEDURES AND GUIDELINES FOR EVALUATION OF EDUCATIONAL SOFTWARE**

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OVERALL STANDARD: Does The Software Do What I Want It To Do And In A Way That I Want It Done?

PROCEDURES:

1. Obtaining Software to Evaluate: When software of interest comes to your attention, contact the publisher or their field representative to determine if samples are available for review. Frequently the field representative can make arrangements for samples to be sent to you or can bring a complete set of the software and demonstrate it or loan it to you for a short period of time. If such arrangements cannot be made, some software vendors will send materials "on approval", others require prepayment, but have generous return policies; while some require prepayment and allow returns only for defective disks. Inasmuch as the quality of software can only be determined effectively by reviewing it directly, the latter approach is risky.

2. Preparing to Review the Software: Read through the documentation first to make certain that you have the proper hardware to run the software and to learn of any instructions needed for using it. Doing this can save considerable time and frustration.

3. Reviewing the Software: It is wise to evaluate software from different perspectives. Such an approach should consider the wide range of student abilities. An intelligent student with a good background in chemistry and one very much at ease with computers may react differently from the student with limited abilities and background in chemistry who is totally unfamiliar with computer operation. Since chemistry software is generally designed to supplement regular courses, it is important that it be user friendly. One should make sure that any ancillary materials provided to the student are adequate. The review of software by students is very helpful in making an overall evaluation.

4. Performing the Evaluation: It is helpful to obtain a written evaluation especially if one is choosing from among competing software or if a time lapse will occur between evaluation and ordering of the software. A variety of checklists are available for this purpose. One such form specifically designed for use in chemistry is the one prepared under Project SERAPHIM to act as criteria for reviews of instructional software for the Journal of Chemical Education (see p. 12-14 of the December 1982 Newsletter). Some individuals, however, may find a form designed by themselves to meet specific local needs more valuable. Check lists of either type can not only aid in making a decision regarding quality of the software but can be helpful in convincing others of the desirability of acquiring it. Guidelines for formulating such an evaluation form are listed below.

GUIDELINES:

PROGRAM CONTENT

--Is the Content of the Material Suitable for Your Students?

--Does the Content of the Materials Fit with Your Curricular Goals?

--What Value Does the Content Convey?

--Is the Content Contained in the Materials Accurate?

--Is the Content Educationally Significant?

--Are the Goals and Objectives of the Materials Explicitly or Implicityly Clear?

PEDAGOGY

--What is the Nature of the Feedback the Program Provides to Students?

--What Assumptions About Learning and How Students Learn are Built into the Software?

--Does the Software Permit Modification to Meet Individual Student Needs?

--Is the Software Package Self Contained, or Does It Require Teacher Intervention?

--Can the Program be Used with Various Types of Class Arrangements (Individual, Small Group, Whole Class)?

--Does the Program Tap a Variety of Learning Modes (Visual, Aural, Numerical, Verbal)?

PROGRAM OPERATION

--Is the Program Free of Bugs and Breaks?

--How Does the Program Handle User Errors?

--How Much Control Does the User Have Over the Program Operation?

--Are Directions in the Program Itself Clear and Acceptable?

--Is There Good, Clear Documentation for the Teacher?

--Is There Good, Clear Documentation for the Students?

--How Well Does the Program Use Graphics, Sound, and Color Capabilities?

--Are Screen Displays Effective?

STUDENT OUTCOMES

--How Easy is the Program for Students to Use?

--Is the Program Interesting to Students?

--Does the Program Make Appropriate Use of Limited Computer Resources?

--Do Students Enjoy Using the Programs?

--How Well Do Students Learn What the Program Is Intended to Teach?

--What, If Any, Unintended Learning Results From Using the Program?

--How Effective is This Program Compared with Noncomputer Instruction in the Same Area?

Adapted from Peter Coburn, et al., "Practical Guide to Computers in Education", Addison-Wesley Publishing Co., Reading, MA, 1982, Chapter 5.

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