

# EVALUATING COURSE EQUIVALENT VIRTUAL LEARNING ENVIRONMENTS <sup>1</sup>

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## Adaptation of the “Sussex Scheme” for the Analysis of Curriculum Materials

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<sup>1</sup>Adapted from “The Sussex Scheme”: Eraut, M., Goad, L., Smith, G. (1975). *The analysis of curriculum materials*. Brighton, Sussex: University of Sussex.



## PART 1. INTRODUCTION

### **1.1. Basic Facts**

- 1.1.1. State briefly the author(s) or developers, title(s), date(s), publisher, and price(s). If the materials reviewed consist of more than one course equivalent, e-learning product(s) within a common “curriculum package” or “product bundle” (e.g., multiple online courses suitable for award of 1 or ½ semester of high school credit), list each one separately and indicate its relationship with the approved state curriculum. Also state whether the course equivalent, e-learning product(s) is primarily intended for pupil use or teacher use (i.e., as educator professional development).
- 1.1.2. What does the *online product*, in its own terms, state to be its curricular purpose and its stated instructional objective(s)?
- 1.1.3. State briefly the intended audience and disposition in the approved secondary curriculum.
  - (i) Student's age or grade
  - (ii) Curriculum orientation (college prep, vocational, etc.)
  - (iii) Rural or urban population
  - (iv) Socioeconomic status
  - (v) L.E.P status or mother tongue (as appropriate)
- 1.1.4. Estimate the number of contact hours and/or graduation credits for which this online product may substitute.
- 1.1.5. What provisions, if any, are made for previewing the online product(s) in school communities? Can the course equivalent, e-learning product(s) be accessed easily (online or by special arrangement with the owners) by staff members, students and/or community members, for review purposes?
- 1.1.6. If appropriate, prepare an appendix describing the author(s) or publisher(s) credentials and background. Include information on the history of current version(s) and relationships to prior contributing computer-based or online learning products. Include available evidence supporting claims of state or local public school adoptions of related online products.

### **1.2. Developer's Rationale**

Summarize available explanations, descriptive publicity materials or externally refereed reviews of the online materials; as provided by the author(s) or developers(s) or, if particularly relevant, in related professional and other independent publications and/or review sources.

### **1.3. Issues and Perspectives**

Indicate the most significant *issues* raised by the analysis.

## PART 2. DESCRIPTION AND ANALYSIS OF MATERIALS

### **2.1. Pupil Materials**

2.1.1. Describe the content of the material(s), using any of the sample items below that seem appropriate.

- (i) Discipline-based subject? (Reading/listening, writing/speaking, mathematics, natural sciences, social sciences, world languages, business and commerce, technical and vocational education, fine and performing arts, and health and fitness)
- (ii) Grade Level? (Primary/K-3, Intermediate/4-5, Mid Level/6-8, High School/9-12, Community College/13-14, Undergraduate/13-16, Post Graduate/17+)
- (iii) Correlated to Appropriate State content standards? (Yes or No)
- (iv) Content coverage? (Complete/Inclusive or Incomplete)
- (v) (If incomplete) Approximate percentage of content standards covered?
- (vi) Correlation to Textbooks or Other Approved Content Sources? (Cite Sources)
- (vii) Online Product Adequately Covers Content Objectives? (Agree/Disagree)

2.1.2. Characterize the accuracy and veracity of the curricular content.

- (i) Is the subject matter content accurate?
- (ii) Is the content up to date?
- (iii) Are the content's sources documented and authoritative?

2.1.3. Describe the presentation form and design characteristics of the e-learning materials under review. Relate the form and design to the unique characteristics of the content.

2.1.4. Indicate all types of interactions that apply and the relative frequency for each type. (Recognition, recall, comprehension, complex discriminations or pattern matching, knowledge application, and knowledge construction<sup>2</sup>)

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<sup>2</sup> Kemmis, S., Atkin, R., and Wright, E. (1977) How students learn (Occasional publications #5). The Center for Applied Research in Education. University of East Anglia, Norwich.

- 2.1.5. Note any explicit statements on student assessment techniques or learner management and give examples of specific strategies and overall management schemes. Indicate both the nature of tasks or assignments on which student accountability is based and the structure of course instructional management overall.
- 2.1.6. List, summarize, or describe any statements of purpose, aim, or objectives included with the pupil materials(s), using any of the items below that seem appropriate<sup>3</sup>.
- (i) Are there objectives stated?
    - i. General objectives?
    - ii. Instructional objectives?
      - a. Cognitive objectives?
      - b. Affective objectives?
    - iii. Creative or higher order objectives?
    - iv. If no objectives are stated, are they implicit or obvious?
  - (ii) What is the apparent source of the objective(s) (stated and implicit)?
    - i. Instructional standards or other content frameworks?
    - ii. Subject-specific skill(s)?
    - iii. Performance-oriented task(s)?
    - iv. Complex skill(s) learned over time?
  - (iii) Cultural/societal influences on objectives?
    - i. An approach to learning or distinctive methodology or pedagogy?
    - ii. Societal needs (citizenship)?
    - iii. Traditional disciplinary norms?
    - iv. Developmental needs of the student?
  - (iv) Do the objectives in the e-learning product align with curriculum standards? Do they fit together in a logical and consistent way?
- 2.1.7. Characterize the organization (scope and sequence) of content material in the e-learning product(s) under review.<sup>4</sup>
- (i) Does the organization of the curriculum materials in this e-learning product follow a consistent and rational approach?
    - i. Parallelism with instructional standards or other content frameworks?
    - ii. Traditional subject-specific curriculum sequence?
    - iii. Psychological assumptions based on motor skill development?

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<sup>3</sup> Adapted from: Eash, M. (1972) Developing an instrument for assessing instructional materials. In *Curriculum theory network*, Vols. 8-9. Reproduced in Eraut, et. al. (1975). *The analysis of curriculum materials*. Brighton, Sussex: University of Sussex, Falmer.

<sup>4</sup> Adapted from: Eash, M. (1972) *Ibid*.

- iv. Psychological assumptions based on developmental theories?
- v. Psychological assumptions based on motivational theory or affective response?
- (ii) Is there a recommended or required sequence for content materials and learning activities? Indicate those that apply.
  - i. Concept hierarchy related to subject matter content (epistemology)?
  - ii. Instructional objectives based on behavioral analysis (e.g. Bloom's taxonomy)?
  - iii. Advanced organizers or linkages between previously existing and new ideas or concepts? (e.g., Ausabel)
  - iv. Open-ended construction of knowledge based on experiential learning (progressivism or constructivism)?

2.1.8. Characterize the instructional methodology(s) used in the e-learning product under review.<sup>5</sup>

- (i) Do the developers or the e-learning materials themselves suggest any clearly distinguishable methodological approach?
- (ii) Is the methodological approach, if suggested, specific to a particular transactional mode between the student(s) and/or the learning environment? Indicate all that apply.
  - i. Teacher or instructor centered?
  - ii. Student-centered or self-directed?
  - iii. Passive participation by students?
  - iv. Active participation by students?
  - v. Collaborative participation by students in group-centered activities or projects?
  - vi. Student's attention directed toward reflection, i.e., attention to process as well as product?
  - vii. Combinations or eclectic mixtures of the above choices?
- (iii) Does the apparent methodology require extensive preparation or staff development activities directed toward the teachers?
  - i. Are the online materials adaptable to a variety of different methods?
  - ii. Does use or administration of the online learning environment require special methodological or technical skills that can only be obtained through specific professional development activities?
  - iii. Is there any evidence that the recommended methodology or techniques have been field-tested? Is there any evidence of their effectiveness?
  - iv. Do you *personally* feel competent to use and comfortable with the methods and techniques required to use this e-learning product?

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<sup>5</sup> Adapted from: Eash, M. (1972) Ibid.

2.1.9. Are there recommended accountability or instructional management procedures enabling the systematic and ongoing assessment of student work products?

- (i) What activities or outcomes do the accountability procedures emphasize?
- (ii) Are the accountability procedures compatible and consistent with the stated and implicit objectives?
- (iii) Are the accountability procedures appropriate for a variety of uses within the online curriculum?
  - i. Immediate student feedback?
  - ii. Cumulative/longitudinal student assessment?
  - iii. Diagnostic feedback for teacher?
  - iv. Norm referenced or criterion referenced assessment or evaluation?
  - v. Mastery learning?

2.1.10. Describe online support or help features and estimate their adequacy for student's predictable support issues.

2.1.11. Would available online support provide answers to most routine support questions?

2.1.12. How often might students need to refer questions to the teachers or support personnel as e-mail?

2.1.13. How often might students need to call in for phone support?

2.1.14. How often might students need to make arrangements to schedule the use of supplemental software or hardware resources (peripheral devices, etc.)?

2.1.15. Note: Special needs students may require supplementary direction and/or support, especially when using adaptive devices.

2.1.16. If there are offline materials (hardware, software, library resources, etc.) needed for completion of online work, indicate the probable availability and/or specificity of required materials.

## **2.2. Teacher Support Materials**

2.2.1. Are teacher support materials available? If available, indicate where and what form the materials take.

- (i) Available as printed manuals or books?
- (ii) Available online as Web pages?
- (iii) Available as downloadable documents?
- (iv) Provided for teachers without cost?
- (v) Available to teachers as supplementary purchase?

2.2.2. Characterize the content of the teacher's materials.

- (i) Comprehensive support: Including teacher’s guides and overviews of content materials for all lessons, recommended procedures and plans supporting their use, and a complete “user’s guide” containing technical tutorials and support materials covering all relevant aspects of routine software and hardware operations.
  - (ii) Curriculum support: Teacher’s guides and curriculum support materials, equivalent to a “teacher’s edition” of a textbook.
  - (iii) Technical support: User’s guides or technical help manuals.
  - (iv) Minimal support: Reproductions of crucial *command screens* with minimal written instructions, and/or other terse “job aides.”
  - (v) No apparent teacher support materials.
- 2.2.3. Describe the content approach used with any available curricular support materials. (Use categories suggested in 2.1.1 above.)
- 2.2.4. Describe any supplementary or offline student assignments and characterize the nature of the interactivity or engagement supported (2.1.3), their purpose (2.1.5) , their scope and sequence (2.1.6), and the recommended instructional methodology (2.1.7).
- 2.2.5. Note any explicit statements in teacher materials regarding assessment techniques or learner management, and give examples of specific strategies and overall management schemes. (Note overall consistency with student materials, i.e., 2.1.8.)
- 2.2.6. Describe the teacher tasks and roles that are stated in the materials; *indicate probable demands on the teacher's time outside of class.*
- (i) First year?
  - (ii) Subsequent years?
- 2.2.7. Describe online directions or help facilities and estimate the adequacy of online support. In particular, note teacher materials supporting accommodations necessary for special needs students. (See 2.1.9 above.)
- 2.2.8. If special hardware, software, or other materials are required for completion of student work (hardware, software, library resources, etc.), indicate the relative scarcity or availability of required materials and indicate whether they are optional or required for the successful completion of students’ work.

### **2.3. Structure and Fit of Materials**

- 2.3.1. Characterize the fit between the student’s and teacher’s online materials. Are there any obvious points of obvious disagreement or conflict?

- 2.3.2. Characterize treatment of the subject matter in terms of higher-order skills, knowledge application, and/or problem solving. To what extent are the content and learning strategies explicitly concerned with the development of higher-order skills?
- 2.3.3. Indicate the generality and the level of abstraction of the subject matter.
- (i) Does it mainly consist of factual material or does it try to communicate specific concepts, general concepts, or principles?
  - (ii) What are the roles of illustrations, applications, and examples?
  - (iii) What kinds of arguments are used, and how much supporting evidence is given?
  - (iv) What kinds of examples are included and do they support understanding and applying the ideas and concepts?
  - (v) Does the online environment encourage learning the “right answers” or does it encourage knowledge acquisition and application skills that can be applied in a variety of different contexts and situations?
- 2.3.4. What pre-requisite knowledge and/or skills are critical for student success?
- (i) Prior subject knowledge?
  - (ii) Course pre-requisites?
  - (iii) Technology competency or technical skills?
  - (iv) Prior experience or technical instruction enabling use of a high-speed modem and dial-up Internet connection?
  - (v) *(Note: High priority if student plans to access online materials from home or residence without high-speed network access.)*
- 2.3.5. Characterize the subject matter according to formal or editorial consistency.
- (i) Is the presentation and design of the materials consistent?
    - i. Does the design of the online materials exhibit appropriate unity?
    - ii. Is the design or visual presentation excessively redundant?
  - (ii) Are editorial and stylistic features of the layout or visual design consistent within all parts of the online materials?
  - (iii) Characterize the consistency of pupil tasks and interactive response formats throughout the course presentation.
    - i. Do student online responses, interactions, and/or work products demonstrate enough variation to maintain student interest?
    - ii. Do the tasks and response formats have a good stylistic balance between unity (redundancy) and novelty (variation)?
- 2.3.6. What *image* of the subject matter is most likely to be communicated? What are its explicit boundaries and chief concerns? What implicit values can be detected in the selection or interpretation of information?
- 2.3.7. How do pupil tasks and teacher activities relate to each other and how do they vary with the subject matter?

- 2.3.8. How is assessment related to pupil tasks (congruency) and also to the disciplinary nature of the subject matter (uniformity of emphasis)?
- 2.3.9. Where (and *if*) there are stated objectives, how do these relate to pupil tasks and to the assessment pattern?

### PART 3. MATERIALS IN USE

#### **3.1. Critical Features**

Summarize the main features of the course equivalent e-learning materials and the recommended pattern of use. Indicate which traditional “curriculum decisions” would be pre-empted by a decision to adopt the materials and which would remain the responsibility of the teacher. (Textbook, testing or assessment strategies, use of labs or other existing in-school facilities, etc.)

##### 3.1.1. Characteristics of E-Learning Environments

Summarize the sources of curriculum content (2.1.1 through 2.1.8, as above).

#### **3.2. Content Modifications and Optional Features**

Describe ways in which the materials or the recommended patterns of use may be modified or supplemented according to local variations in curriculum content or learning standards.

- 3.2.1. Is there provision made within the design of the learning environment for the addition of support documents?
- 3.2.2. Is there provision made for teacher-made tests or assessments?
- 3.2.3. Is there provision for attaching or appending group mailing lists?
- 3.2.4. Is there provision made for student forums or threaded discussion groups? (i.e., support for teacher/student or student/student interaction.)

#### **3.3. Patterns of Use**

Describe some possible patterns of use in the context of the overall school curriculum.

- 3.3.1. Which pupils are involved and when?
- 3.3.2. How does this course relate to areas of the approved curriculum that come before it and/or after it?

- 3.3.3. What, if any, modifications and additions are to be incorporated?
- 3.3.4. What, if any, form of assessment is intended?
- 3.3.5. Describe how this learning environment can best be integrated into high school curriculum (e.g., special-needs students, homebound, curricular enrichment, etc.).
- 3.3.6. Could the e-learning product be used as the sole source for a class in the approved curriculum?
- 3.3.7. Does the e-learning product serve as an online equivalent course for a required or high demand elective in the approved curriculum?
- 3.3.8. What curricular, technical, policy, or financing changes would need to be implemented before this e-learning environment could be used locally?
- 3.3.9. What pre-requisite courses or technology competency requirements (for students or for teachers) would need to be met before the e-learning environment could be used locally?

#### **3.4. Implications for Implementation**

- 3.4.1. How much teacher time is needed prior to initial use for activities such as gaining familiarity with features of the learning environment and management system (as appropriate), planning, and selecting or developing supplementary materials?
- 3.4.2. How much of time and energy is likely to be committed a) in the first year b) subsequently?
- 3.4.3. What technical knowledge, special skills, attitudes, and/or dispositions are required of the teacher?
- 3.4.4. What are the implications for the school in terms of teacher provision, in-service training, special facilities, and finance?
- 3.4.5. What are implications for the students with reference to curricular diversity, academic or vocational preparation, and future possibilities employment?
- 3.4.6. Discuss the implications for the school in terms of school aims and the articulation of this curriculum area with those preceding, accompanying, or following it.
- 3.4.7. Discuss the implications for school districts and the communities (your district or community) in terms of existing attitudes, probable needs for professional development, development of local technology infrastructure, and finance.

- 3.4.8. What major problems (curricular, technical, and/or policy related) are likely to result from implementation in probable non-ideal situations?
- 3.4.9. What special considerations are required to enable the use of this e-learning product with students at a distance? (e.g., broadband access, Microsoft or Macintosh O/S, minimal hardware specifications, special installed Java programs, other special hardware or software configuration)

## PART 4. PROGRAM EVALUATION

### **4.1. Sources of Evidence**

#### 4.1.1. Development of e-learning resources

- (i) What evidence is available showing that the software was tested and learning outcomes were assessed with a population comparable to students in our school?
- (ii) Is there evidence of modifications ever resulting from “beta testing” and/or subsequent use in the field?

#### 4.1.2. Content Validity

- (i) What reports are available from the author, publisher, or independent evaluator?
- (ii) Was the evaluation qualitative or quantitative?
- (iii) What was the evidence of final validation?

#### 4.1.3. What information about other users of the resource and their experience is available? Are there schools using this e-learning product that I can contact for independent testimonials?

#### 4.1.4. Where has the product been reviewed and what were the major evaluative comments?

### **4.2. Reported Outcomes**

#### 4.2.1. What unintended outcomes or side effects have been reported?

#### 4.2.2. Is there any evaluative evidence on comparable and e-learning products?

#### 4.2.3. The analyst is invited to comment on evaluation foreshadowing outcomes and possible impacts on learning.

### **4.3. Arguments Pro and Con**

Compare and examine decision to use the e-learning product as a substitute for a conventionally taught, face-to-face course.

- 4.3.1. Consider the impact of competing program objectives.
- 4.3.2. Consider the impact of competition for financial resources.
- 4.3.3. Consider the impact of use patterns as outlined in Part 3.
- 4.3.4. Consider the impact of cultural norms favoring traditional teaching practices.

**4.4. Comparing Learning Strategies**

Compare and contrast use of the online learning environment with traditional strategies and modes of delivery as outlined in Part 3.

**4.5. Meeting State Standards**

Examine e-learning environment and its adequacy or inadequacy for supporting the approved curriculum and approved learning standards.

**4.6. Educator Readiness to Manage E-Learning**

- 4.6.1. Level of readiness to overcome implementation problems.
- 4.6.2. Feasibility of using the materials with students having different levels of technology competency.
- 4.6.3. Inequities in local technology infrastructure.
- 4.6.4. Levels of technology support or expertise required working around inequities and local infrastructure variation.