

Design and Development of a Curriculum for Better Education and Learning Outcomes

صياغة وتصميم المناهج بين تحديات الواقع وطموح المستقبل

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أستاذ علوم التسويق – الكلية الأسترالية بالتعاون مع جامعة فيكتوريا وسنترال كوينزلاند في أستراليا

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Abstract

This paper is a summary of the main steps, principles and tenets needed to design and develop educational curriculums that are efficient enough to drive the learning process of students in order to achieve the learning objectives intended by the education process.

The development of suitable curriculums for a group of students must consider the demographic, psychographic, environmental, cultural and personal variables of the students in order to achieve the learning objectives in the most efficient manner.

تناقش ورقة البحث هذه الأسس الأكاديمية لتصميم المناهج التعليمية بأسلوب فعال يضمن استيعاب الدارسين وفهم المتدربين بأسلوب يتدرج مع مراحل اكتساب القدرات العلمية والمهارات المرجوة؛ حتى يصل الدارس إلى المستوى العلمي المطلوب وإلى كفاءة تطبيق المادة المتعلمة.

وتتطرق ورقة البحث إلى تحديات تصميم المناهج العلمية في الوقت الحالي وتطرح حلولاً لتطوير خبرات صياغة وتصميم المناهج التعليمية من جهة، وتجاوز الصعوبات الحالية لإنتاج مناهج سليمة قادرة على إكساب الدارسين القدرات العلمية المطلوبة.

ملاحظة: نعتذر عن عدم ترجمة كامل الورقة العلمية للعربية لارتباطها بمراجع أسترالية وغربية وسوف يتم مناقشة ورقة البحث والتعليق عليها باللغة العربية خلال المؤتمر وبالإنجليزية كذلك إن تطلب الأمر ذلك.

Keywords: Course design, learning objectives, compliance and fulfillment, accreditation

INTRODUCTION

The curriculum is an “academic plan,” which should include: the purpose of the curriculum (i.e., goals for student learning), content, sequence (the order of the learning experience), instructional methods, instructional resources, evaluation approaches, and how adjustments to the plan will be made based on experience or assessment data. The intended curriculum is the documented, official plan or what faculty hope students will learn. The achieved curriculum includes knowledge, skills and attitudes that are truly learned and remembered. Assessment can be helpful in better understanding alignment between an intended and achieved curriculum. It is an ongoing process aimed at understanding and improving student learning. It involves making expectations explicit and public; setting appropriate and high standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. (Angelo, 1995).

Goals and objectives are the general *intended* purposes and desired achievements of a particular educational environment. Crucially, they provide a framework for assessing the effectiveness of a curriculum. Goals and objectives generally characterize three types of learning: knowledge, skills, and attitudes. Learning outcomes and competencies describe specific measurable skills, knowledge or attitudes that learners will have achieved through the education program. The term "outcome" is usually used to describe the level of proficiency that a graduate should be expected to demonstrate, while "competencies" is typically used to describe a level of proficiency needed by a beginning professional in the field.

DISCUSSION

When developing or revising a curriculum, curriculum maps or matrices can help educators concretely describe the sequence of courses/content and more easily conceptualize how different pieces of the curriculum work together as a whole. They can also identify gaps in a curriculum or a need to re-think course sequencing. Benchmarking involves making comparisons of educational experiences at peer institutions or programs. It can be useful to identify key courses or educational experiences that peer programs are offering.

Faisal et al (2005) accorded the highest priority to the principle of flexible curriculum which enables students to pursue different minors within their specialization. There are many elements that contribute to quality outcomes in education programs. The design characteristics that support the curriculum development and ongoing evolution have resulted in high satisfaction and quality outcomes.

The American education service provider "Connections Education" indicated that formative, summative, qualitative, and quantitative measures to determine the value and effectiveness of the curriculum offerings are needed. This multi-level evaluation system incorporates regular reviews of student performance, user feedback, assessment performance analysis, and district, state, and national content standards and assessments. Curriculum development also needs to emphasize innovation and effective implementation. Decisions about improvements and updates to curriculum are also guided by feedback from a variety of critical stakeholders: teachers and administrators, students and parents, school boards, and outside evaluators such as accrediting organizations and sponsors.

They adopted a research-based development framework designed to support not only quality course development but a feedback loop that ensures continuous improvement. This systematic instructional design process incorporating the elements of analysis, design, development, implementation, and evaluation often referred to as ADDIE:

1. Analysis: Prior to course development, a thorough analysis of state graduation requirements, school or board requests, and competitive positioning is completed. Feedback on current courses from student academic performance, user feedback, usability reviews, and national and state standards alignments are incorporated into the analysis.



2. Design: Within the design phase, the curriculum team attends to the set of standards around which the course is written, instructional strategies, content, and visual and technical design of the course. Attention is focused on the course's purpose and audience, as well as the course's organization, instructional approach, and instructional resources. Consideration is also given to the role of technology, the level of student engagement, and student learning styles.

3. Development: Beginning with a course map which focuses on standards alignment and the identification of the enduring knowledge present in the course, the development lifecycle incorporates unit-by-unit course development and revision, content analysis and review, editorial review and revision, and a detailed quality assurance appraisal. Procedures for ensuring internal consistency, bias-free content and assessments, instructional effectiveness, and the appropriate use of intellectual property are implemented throughout the development phase.

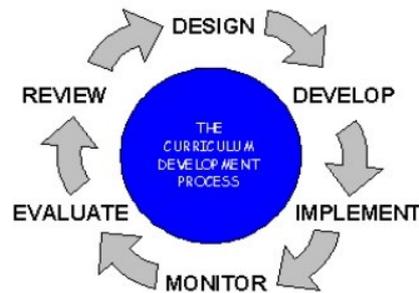
4. Implementation: Each school year brings the implementation of newly developed courses. Before full release, demo courses are created, evaluated by teachers, and suggestions are implemented. When courses are completed, they are presented to students, teachers, and Learning and effective implementation is supported by updated and ongoing training for all.

5. Evaluation: The intent of the evaluation phase is to determine the level of student success, and the impact of the course design on student performance. Evaluation occurs throughout the delivery of the course and includes student performance, internal lesson and assessment analysis, and feedback from students, Learning Coaches, and teachers. Essential user feedback is gained through Web Mail messages, the Star Track system, the Connexus® feedback tool, and our annual Parent Satisfaction survey.



Process of curriculum development

- In a broad sense, the curriculum development process includes the design, development, implementation and evaluation of curricula.



Designing a curriculum for a specific course is similar to designing a training course. There are learning objectives that must be achieved out of any educational course. Designing and producing a training session can be a difficult task. Not only do you have to make sure the knowledge/skill you are training is factually correct but you also have to present it in a form which is easily digested by your learners.

To start with, analysis of the training need must be conducted to understand the current audience knowledge and skills. Accordingly, the gap between desired performance and existing level of performance is identified. Based on the results obtained in the analysis phase, the training course outline can be designed. You'll also determine how the course will be delivered, such as by an instructor in a classroom, online, or a blended approach. In the design phase, you may also create storyboards to aid in the development of the training program.

In the development phase, use the objectives and other materials you created during the design phase to flesh out your outline and develop the training program. The materials may include an online training component and manuals for the instructor and students. In this phase, you will develop a strategy for testing the students' change in knowledge, skills, or attitudes based on the training.

The implementation phase is sometimes called the delivery phase. In this phase, you actually teach the training program to the students, whether the instruction takes place online, in the classroom, or through another method. If the delivery method is classroom instruction and you have a large audience, you may conduct a "train-the-trainer" program, where the facilitators sit through the class as students and then practice teaching various parts of the material back to each other to ensure consistency and full understanding. The first time the instruction is offered is called a "pilot" and there should be an opportunity to debrief and make changes based upon feedback from observers and the pilot audience.

In the evaluation phase, you determine if the students obtained the knowledge, skills, or attitudes you identified as the goal during the analysis phase. You can use the information you obtain during the evaluation phase to make additional changes to the design, development, and delivery of the training



program the next time you offer it to students. Depending on your needs, you will have decided in an earlier phase what level of evaluation you will use.

Level 1 measures how the learners felt about the training, i.e., did they like it? Did they believe they learned something? This evaluation can be accomplished with a simple questionnaire. Level 2 measures whether the learners mastered the material delivered; this usually involves a test, or having each learner successfully perform a task that was taught. Level 3 requires following up with learners later, to determine if they are actually applying the new skills on the job. Some corporations actually strive to take evaluation to Level 4, where they determine whether there was an actual return on investment for putting the workers through the training program.

Table 1: main topics to be considered when designing a training course

| training goal | learning objectives | learning activities | evidence of learning | Evaluation of training |
|---|---|---|--|---|
| overall results or capabilities you hope to attain by implementing your training plan, e.g., 1. pass supervisor qualification test | what you will be able to do as a result of the learning activities in this plan, e.g., 1. exhibit required skills in problem solving and decision making 2. exhibit required skills in delegation | what you will do in order to achieve the learning objectives, e.g., 1. complete a course in basic supervision 2. address a major problem that includes making major decisions 3. delegate to a certain employee for one month 4. etc. | evidence produced during your learning activities -- these are results that someone can see, hear, feel, read, smell, e.g., 1. course grade 2. your written evaluation of your problem solving and decision making approaches 3. etc. | assessment and judgment on quality of evidence in order to conclude whether you achieved the learning objectives or not |



Designing a training curriculum

There eight steps that ensure you include everything you need to in your training design and the learning can be evaluated back against your session objectives.

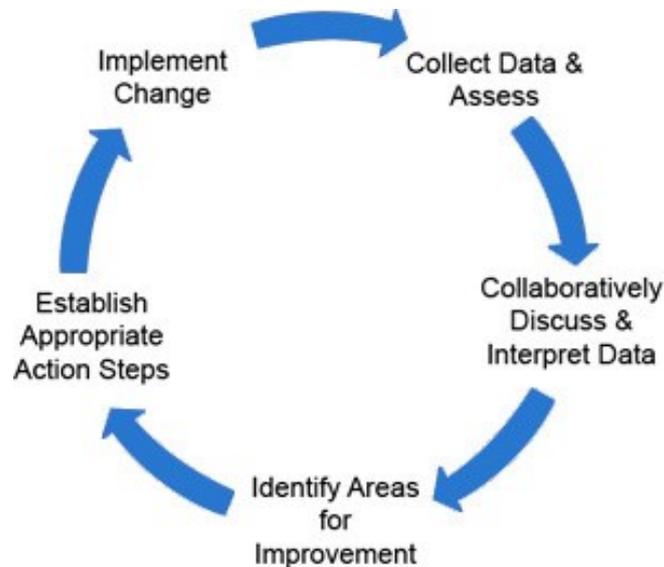
Table 2: Steps for designing a training course

| | |
|---------------|---|
| Step 1 | What is the need for this training? Talk to the learners and their bosses and find out what they need to be doing differently as a result of the training. Is the need knowledge, skill or attitudinal based? |
| Step 2 | Write the objectives that you can realistically achieve given the number of learners you will be training and the time you have to train them in. The objectives should be written in behavioral terms (what they will be able to do at the end of the training) and reflect the knowledge, skill and attitude requirements identified in Step 1. |
| Step 3 | Now write the evaluation material which you will use to test that the learners have achieved the session objectives. Make sure that the evaluation proves that the learning has been taken on board. |
| Step 4 | Look at the evaluation exercise and ask yourself, "What do the learners need to learn in order to pass my evaluation exercise?". The answer to this question is a list of subject matter and this list becomes the outline of the training session. |
| Step 5 | You are now ready to write the actual training material. Make sure your training design includes variations of approach to suit all learning styles. Include exercises, activities, discussions, role plays, syndicate work; case studies etc. to break the learning up into bite sized chunks. |
| Step 6 | Write the first thing you are going to do or say at the start of the session. Whatever you choose to do to start the whole thing off, bear in mind that a good dynamic start is more likely to lead to higher levels of concentration and motivation from the learners. It is a good idea for the start to make a valid point about the need which has been identified for this training. |
| Step 7 | You may need to include an activity to enable delegates to get to know each other before the main part of the training starts. Use a process which is relevant to the objectives of the event and not just about each person introducing themselves. For example on a recruitment interviewing skills course I ask each learner to say three things about themselves – one of which must be a lie. Then the learners try to guess each other's lie. The point here being that it is easy for job candidates to lie if the wrong types of questions are put to them. |
| Step 8 | Finally practise running the session with some colleagues and then ask them to give you feedback. This "walk-through" will help iron out any potential problems before you run it live. |



Writing curriculum manuals

- Use simple language and provide extensive system or product background information for groups new to the content. New users not only need to learn what the product or system is, but how to use it.
- Write an outline. An outline helps organize the information. It also helps you make sure that all the points of the system or product are covered within the training manual.
- Begin each chapter with an overview of the information presented in the following pages. Use headers to organize the information into smaller sections within each chapter.
- Include screen shots, or diagrams as applicable. Visual aid complements the text instructions.
- Write a brief overview of the main point of the information contained in each section.
- Use quick reference tables for any information that users might need to reference regularly, such as keystroke combinations or field definitions.
- Insert the lesson summary sections after the end of each chapter. Create an appendix or reference section at the end of the manual and include all the lesson summaries there.
- Send the manual to an in-house editing group or a co-worker. Have them proofread the training manual for grammar and punctuation.
- Perform test training. Select a group of participants that resembles the group that will be using the end-product training manual. Have the group use the training manual and provide you with feedback on readability, areas for improvement and sections that need more or less detail.



CONCLUSION

The development of suitable curriculums for a group of students must consider the demographic, psychographic, environmental, cultural and personal variables of the students in order to achieve the learning objectives in the most efficient manner. This is a summary of the guidelines used by the American education service provider “Connections Education” for efficient curriculum development.

Curriculum fosters breadth and depth of understanding in subject area.

Content is aligned to national and state standards.

Curriculum is supported by quality, reputable, recently published textbooks and/or proven instructional resources and materials.

Content and assessments are aligned, accurate, and unbiased.

Content is current, relevant, and provides real-world applications.

Content is appropriate for the learner (age, ability, background, reading level, learning style, etc.).

Instructional design is adaptable and flexible in order to best meet individual needs of Learning Coaches and students.

Instructional design provides students opportunities to improve learning skills using technological tools (e.g., virtual labs, interactive tools, Teachlet® tutorials, business software, online calculator).

Navigation is intuitive and age-appropriate.

Lesson structure is consistent and supports learning sequence of motivation, instructional content, application activities, review of key concepts and assessment.

Scope of course is appropriate with regard to amount of content, length of course and lessons, and course requirements.

Lesson introduction effectively presents lesson objectives, assesses prior knowledge, sets expectations, and motivates.

Background information prepares students to access new content, skills, and strategies.

Curriculum includes opportunities for developing problem-solving and critical thinking skills and real-world applications.

Curriculum includes opportunities for collaboration and independent study.

Curriculum includes opportunities to develop oral and written communication skills.

Curriculum incorporates timely and appropriate feedback to students.

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