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Chapter 1 : Curriculum Development: An Overview

*Curriculums and Practical Aspects of Implementation [John S. Wodarski, Lois Ann Wodarski] on racedaydvl.com *FREE* shipping on qualifying offers. This text is a collection of empirically tested curriculums pertaining to preventive health in adolescents.*

While standards typically outline the goals of learning, curricula set forth the more specific meansâ€"materials, tasks, discussions, representationsâ€"to be used to achieve those goals. A major question confronting each curriculum developer will be which of the practices and crosscutting concepts to feature in lessons or units around a particular disciplinary core idea so that, across the curriculum, they all receive sufficient attention [27]. Every science unit or engineering design project must have as one of its goals the development of student understanding of at least one disciplinary core idea. In addition, explicit reference to each crosscutting concept will recur frequently and in varied contexts across disciplines and grades. These concepts need to become part of the language of science that students use when framing questions or developing ways to observe, describe, and explain the world. Similarly, the science and engineering practices delineated in this framework should become familiar as well to students through increasingly sophisticated experiences with them across grades K-8 [28 , 29]. Although not every such practice will occur in every context, the curriculum should provide repeated opportunities across various contexts for students to develop their facility with these practices and use them as a support for developing deep understanding of the concepts in question and of the nature of science and of engineering. This will require substantial redesign of current and future curricula [30 , 31]. Important Aspects of Science Curriculum In addition to alignment with the framework, there are many other aspects for curriculum designers to consider that are not addressed in the framework. This section highlights some that the committee considers important but decided would Page Share Cite Suggested Citation: Curriculum, Instruction, Teacher Development, and Assessment. A Framework for K Science Education: Practices, Crosscutting Concepts, and Core Ideas. The National Academies Press. These values include respect for the importance of logical thinking, precision, open-mindedness, objectivity, skepticism, and a requirement for transparent research procedures and honest reporting of findings. Considerations of the historical, social, cultural, and ethical aspects of science and its applications, as well as of engineering and the technologies it develops, need a place in the natural science curriculum and classroom [32 , 33]. The framework is designed to help students develop an understanding not only that the various disciplines of science and engineering are interrelated but also that they are human endeavors. As such, they may raise issues that are not solved by scientific and engineering methods alone. For example, because decisions about the use of a particular technology raise issues of costs, risks, and benefits, the associated societal and environmental impacts require a broader discussion. Perspectives from history and the social and behavioral sciences can enlighten the consideration of such issues; indeed, many of them are addressable either in the context of a social studies course, a science course, or both. In either case, the importance of argument from evidence is critical. It is also important that curricula provide opportunities for discussions that help students recognize that some science- or engineering-related questions, such as ethical decisions or legal codes for what should or should not be done in a given situation, have moral and cultural underpinnings that vary across cultures. Similarly, through discussion and reflection, students can come to realize that scientific inquiry embodies a set of values. Students need opportunities, with increasing sophistication across the grade levels, to consider not only the applications and implications of science and engi-neering in society but also the nature of the human endeavor of science and engineering themselves. They likewise need to develop an awareness of the careers made possible through scientific and engineering capabilities. Page Share Cite Suggested Citation: For many students, these aspects are the pathways that capture their interest in these fields and build their identities as engaged and capable learners of science and engineering [34 , 35]. Teaching science and engineering without reference to their rich variety of human stories, to the puzzles of the past and how they were solved, and to the issues of today that science and engineering must help address would be a major omission. Finally, when considering how to integrate these aspects of learning into the science and engineering curriculum, curriculum developers, as well as classroom teachers, face many further important questions. For example, is a topic best addressed by invoking its historical development as a story of scientific discovery? Is it best addressed in the context of a current problem or issue? Or is it best conveyed through an investigation? What technology or simulation tools can aid student learning? In addition, how are diverse student backgrounds explicitly engaged as resources in structuring learning experiences [36 , 37]? And does the curriculum offer sufficiently varied examples and opportunities so that all students may identify with scientific knowledge-building practices and participate fully [38 , 39]? These choices occur both in the development of curriculum materials and, as we discuss in the following section, in decisions made by the teacher in planning instruction. Instruction encompasses the activities of both teachers and students. It can be carried out by a variety of pedagogical techniques, sequences of activities, and ordering of topics. Although the framework does not specify a particular pedagogy, integration of the three dimensions will require that students be actively involved in the kinds of learning opportunities that classroom research suggests are important for 1 their understanding of science concepts [5 ,], 2 their identities as learners of science [43 , 44], and 3 their appreciation of scientific practices and crosscutting concepts [45 , 46]. Several previous NRC committees working on topics related to science education have independently concluded that there is not sufficient evidence to make prescriptive recommendations about which approaches to science instruction are most effective for achieving particular learning goals [3 - 5]. Instruction throughout K education is likely to develop science proficiency if it provides students with opportunities for a range of scientific activities and scientific thinking, including, but not limited to: For example, researchers have studied classroom teaching interventions involving curriculum structures that support epistemic practices i. Others have investigated curricular approaches and instructional practices that are matched to national standards [52] or are focused on model-based inquiry [24]. Taken together, this work suggests teachers need to develop the capacity to use a variety of approaches in science education. That report defined the following four strands of proficiency, which it maintained are interwoven in successful science learning: Knowing, using, and interpreting scientific explanations of the natural world. Generating and evaluating scientific evidence and explanations. Understanding the nature and development of scientific knowledge. Participating productively in scientific practices and discourse. Strand 1 includes the acquisition of facts, laws, principles, theories, and models of science; the development of conceptual structures that incorporate them; and the productive use of these structures to understand the natural world. Students grow in their understanding of particular phenomena as well as in their appreciation of the ways in which the construction of models and refinement of arguments contribute to the improvement of explanations [29 , 55]. Strand 2 encompasses the knowledge and practices needed to build and refine models and to provide explanations conceptual, computational, and mechanistic based on scientific evidence. This strand includes designing empirical investigations and measures for data collection, selecting representations and ways of analyzing the resulting data or data available from other sources , and using empirical evidence to construct, critique, and defend scientific arguments [45 , 56]. Scientific knowledge is a particular kind of knowledge with its own sources, justifications, ways of dealing with uncertainties [40], and agreed-on levels of certainty. When students understand how scientific knowledge is developed over systematic observations across multiple investigations, how it is justified and critiqued on the basis of evidence, and how it is validated by the larger scientific community, the students then recognize that science entails the search for core explanatory constructs and the connections between them [57]. They come to appreciate that alternative interpretations of scientific evidence can occur, that such interpretations must be carefully scrutinized, and that the plausibility of the supporting evidence must be considered. Thus students ultimately understand, regarding both their own work and the historical record, that predictions or explanations can Page Share Cite Suggested Citation: For example, over time, students develop more sophisticated uses of scientific talkâ€”which includes making claims and using evidenceâ€”and of scientific representations, such as graphs [58], physical models [59], and written arguments [60 , 61]. They come to see themselves as members of a scientific community in which they test ideas, develop shared representations and models, and reach consensus. Students who see science as valuable and interesting and themselves as capable science learners also tend to be capable learners as well as more effective participants in science [8]. They believe that steady effort in understanding science pays offâ€”as opposed to erroneously thinking that some people understand science and other people never will. To engage productively in science, however, students need to understand how to participate in scientific discussions, how to adopt a critical stance while respecting the contributions of others, and how to ask questions and revise their own opinions [62]. The four strands imply that learning science involves learning a system of thought, discourse, and practiceâ€”all in an interconnected and social contextâ€”to accomplish the goal of working with and understanding scientific ideas. This perspective stresses how conceptual understanding is linked to the ability to develop explanations of phenomena and to carry out empirical investigations in order to develop or evaluate those knowledge claims. These strands are not independent or separable in the practice of science, nor in the teaching and learning of science. Furthermore, students use them together when engaging in scientific tasks. The first highlighted the importance of personal interests related to science, and the second noted the importance of helping learners come to identify with science as an endeavor they want to seek out, engage in, and perhaps contribute to. Although the strands are useful for thinking about proficiencies that students need to develop, as framed they do not describe in any detail what it is that students need to learn and practice. Thus they cannot guide standards, curricula, or assessment without further specification of the knowledge and practices that students must learn. The three dimensions that are developed in this frameworkâ€”practices, crosscutting concepts, and disciplinary core ideasâ€”make that specification and attempt to realize the commitments to the strands of scientific literacy in the four strands. There is not a simple one-to-one mapping of strands to the dimensions, because the strands are interrelated aspects of how learners engage with scientific ideas. Table summarizes how the strands of scientific literacy guided the design of the dimensions in the framework. Instruction may involve teacher talk and questioning, or teacher-led activities, or collaborative small-group investigations [63], or student-led activities. The extent of each alternative varies, depending on the initial ideas that students bring to learning and their consequent needs for scaffolding , the nature of the content involved, and the available curriculum support. This research focuses on particular aspects of teaching methods, such Page Share Cite Suggested Citation:

Chapter 2 : British Curriculum Forum | BERA

The curriculums are comprehensive, containing text, testing procedures, step-by-step learning exercises, and illustrations for use. Read More This text is a collection of empirically tested curriculums pertaining to preventive health in adolescents.

After reading this chapter, the pharmacy student, community practice resident, or pharmacist should be able to: Categorize potential payers of MTM services. Evaluate variables to include in the business plan for MTM services. Explain the difference between hard and soft dollar saving. Recognize important components to evaluating documentation software. This mission is exemplified through the practice of medication therapy management MTM services. There are a variety of services that pharmacists can offer to help patients better understand their medications and disease states. It is essential to realize that MTM services have different meanings in various health-care groups and can mean evaluation of patient-specific medications, disease-specific management, or a mixture of the two. Generally, reimbursement from insurance companies for MTM is only for face-to-face sessions and telephone consults. In the future, hopefully, reimbursement for telehealth services will emerge. To provide MTM services, one must be aware of the people involved, the barriers, and important financial considerations to grow a successful business. Through professional collaboration, everyone involved works together with the patient to achieve their personal health goals. Patients often are caught up in the traditional role of the pharmacist as a medication dispenser. MTM is a new concept to many patients and may initially require more education and persuasion to participate in the service. Patients are often overwhelmed with numerous medications, disease state, and dietary instructions. Patients must feel that you are a credible health-care professional qualified to review both medications and disease states with them. To begin, make sure that all information provided is individualized for that specific patient. Start the session with a few general open-ended questions to learn more about the patient and their current state of management. Then, use this information to customize your message specifically to the patient. Good has put you on simvastatin, which is a recommended drug for cholesterol in people with diabetes.

Chapter 3 : Curriculum Implementation by Deniece Moss on Prezi

This text is a collection of empirically tested curriculums pertaining to preventive health in adolescents. The curriculums are comprehensive, containing text, testing procedures, step-by-step learning exercises, and illustrations for use.

For example, perceptual training and motor co-ordination are essential modules in the subject of Perceptual Motor Training. The teacher might need to translate these modules into concrete learning targets for actual teaching in the classroom. It will be more beneficial to the children if these learning targets are defined in terms of different types of outcome such as skills, behaviour, knowledge, attitudes, values and interests. For example, when instructed, the children are to button up their shirts with six buttons for four times. Each learning target in its written form should contain the following elements: The conditions under which the instruction should be given may sometimes be included. It is logical to put learning targets requiring lower level skills before those requiring higher level skills, for example, teaching the children to draw lines before teaching them to write. In some cases, the targets themselves may form a definite sequence or hierarchy when the skills actually come in a continuous or chained sequence, for example, putting on a shirt and buttoning it up. Some higher level targets can be learnt more quickly after the pre-requisite skills have been mastered. For example, learning to write will become easier when eye-hand co-ordination skill has been acquired. It follows that unrelated targets can be learnt in any order. The assessment enables the teacher to know whether or not the children have acquired the pre-requisite skills required for learning the target. Refer to Sections 4. The learning materials should be designed in small steps and in order of difficulty. The teacher should choose the appropriate step for the children according to their pre-requisite skills, so as to bridge the gap between their pre-requisite skills and the target skills. Modelling therefore underlies most of the learning activities. The teacher can either demonstrate the behaviour to be learnt or point out the target behaviour performed by other children and encourage the children to imitate it. The teacher can then teach the steps in a planned sequence. Task analysis should be used with flexibility to help the children with further difficulties in learning the planned steps. The technique can also be applied to a blocking step to further break down the planned steps into even smaller steps for easier learning. Once the difficulty is overcome, the original teaching steps can be resumed until the target skill is achieved. The sequence can be written in a forward or backward order, depending on the nature of the target skill to be learnt. For example, most dressing and undressing skills can be taught by chaining. The more effective approach to teach dressing skills is backward chaining because this would ensure that the children will be able to complete the task. For example, a child is given several choices including some distractors from which to pick out the correct answer. In this approach, it is necessary to control both the characteristics and the number of the distractors used. At the initial stage, the difference between the distractors and the target choice should be as great as possible and the number of distractors used should be as small as possible. That means the strength of the distractors should be low e. As the child begins to master the initial step, the number of distractors used can be increased gradually. The teacher should teach them to gather relevant information from various sources, e. Activities, such as organizing a birthday party or a picnic, would help the children understand the procedures of information gathering and its importance. The children are thus trained to observe the various characteristics of things --their similarities, differences as well as relationships and then exercise induction. Through discussions, the children learn to look into problems and are thus motivated to think. The teacher needs to ensure that each child is given equal opportunity to participate in discussions. Thus, discussions can promote greater interaction among the children. The following are ways to teach target skills: There are various kinds of prompts: Prompts should only be used when required and should be faded out as soon as the children demonstrate certain degree of mastery. It involves successive approximation of the target behaviour. Another aspect of shaping which is not so obvious is the shaping of the target behaviour by manipulating the materials used. An example of this is teaching the children to thread a needle with a big eye using thick thread and then gradually increasing the precision by using an ordinary needle and sewing thread. At the initial stage, the teacher can use prompts with more help. Then at a later stage , he can use prompts with less help. One common example is the gradual removal of the strokes of a word when teaching the children to write. For example, when a child applies the table manners he has learnt at school to the environment of his home or a restaurant , generalization is achieved. The following are important considerations in formulating teaching approaches for MH children: He will have to teach them in groups or individually. The following are some suggested forms of grouping: This would help the children learn by imitating and helping each other and apply what they have learnt to other situations. Take the teaching of colour concept for instance. The children are taught through a matching game to put the cubes into boxes of corresponding colours. The children are asked to pass cubes of the same colour to the teacher and name the colour after him. The children are asked to pick up different things of the same colour and name the colour when the teacher picks up one thing. If the children can name the colour correctly, the teacher will ask them to pick out things of the same colour from the cupboard according to instructions. The teacher can focus his attention exclusively on individual children and likewise the children only need to attend to one teacher and one set of learning materials during this period. This will ensure that teaching procedures will be consistent and continuous. This consistency and continuity will in turn ensure that the planned programmes will match the actual progress of the children. All members of staff can contribute to curriculum development in terms of knowledge and experience. Through regular contacts with the children, the teacher can identify the range of knowledge, concepts, skills and attitudes which need to be developed in them. It is therefore essential to involve all teachers in curriculum development. Specialist staff such as.

Chapter 4 : Developing Curriculum Leadership and Design

Encuentra Curriculums and Practical Aspects of Implementation: Preventive Health Services for Adolescents: Preventative Health Services for Adolescents de John S. Wodarski, Lois Ann Wodarski (ISBN:) en Amazon.

An Overview Read the following curriculum development overview. This one is long. You might find that if you print it in draft mode on your printer it is less straining on the eyes. To some, curriculum has denoted a specific course, while to others it has meant the entire educational environment. Whereas perceptions of the term may vary, it must be recognized that curriculum encompasses more than a simple definition. Curriculum is a key element in the educational process; its scope is extremely broad, and it touches virtually everyone who is involved with teaching and learning. This volume focuses on curriculum within the context of career and technical education. In no other area has greater emphasis been placed upon the development of curricula that are relevant in terms of student and community needs and substantive outcomes. The career and technical and technical curriculum focuses not only on the educational process but also on the tangible results of that process. This is only one of many reasons why the career and technical and technical curriculum is distinctive in relation to other curricular areas and why career and technical education curriculum planners must have a sound understanding of the curriculum development process. Perhaps the foremost of these is historical influence. History has an important message to convey about antecedents of the contemporary career and technical and technical curriculum and provides a most meaningful perspective to the curriculum developer. Curriculum as we know it today has evolved over the years from a narrow set of disjointed offerings to a comprehensive array of relevant student learning experiences. Early Foundations of Curriculum Education for work has its beginnings almost four thousand years ago. This earliest type of career and technical education took the form of apprenticeship. Organized apprenticeship programs for scribes in Egypt are recorded as early as B. At about that time, schools were established that provided two stages of training: The first or primary stage consisted of learning to read and write ancient literature. The second was an apprenticeship stage during which the learner was placed as an apprentice scribe under an experienced scribe, usually a government worker Roberts, Thus, the earliest form of education for work was organized in such a way that basic knowledge could be developed in a classroom setting and applied skills could be developed "on the job. Apprenticeship programs initiated in ancient Palestine, Greece, and other countries followed a similar pattern with youngsters learning a craft or trade through close association with an artisan. Although apprenticeship programs expanded rapidly as various skilled areas became more specialized, reliance continued to be placed on training in the actual work setting-which, in most cases, consisted of conscious imitation. The apprenticeship form of instruction thus remained virtually unchanged until the nineteenth century. Alternatives to Apprenticeship By the sixteenth century, alternatives to apprenticeship were being strongly considered. The educational schemes of philosophers such as Comenius and Locke proposed inclusion of manual arts. Samuel Hartlib set forth a proposal to establish a college of agriculture in England. These and other events in the Realism Movement resulted in trade subjects and practical arts being introduced into formal education. The Age of Reason, likewise, became a catalyst for shifting away from the traditional apprenticeship system. The great demand for cheap, unskilled labor obviously could not be met through apprenticeship programs, and many newly established industrial firms did not desire persons with such extensive training as was provided through the traditional learner-artisan relationship. However, as the Industrial Revolution progressed, owners and managers soon began to realize that skilled workers would be a definite asset to an organization. This increased demand almost seemed to correspond with the rapid decline of formal apprenticeship programs in many skilled areas. Toward Systematic Curriculum Development Perhaps one of the earliest forms of systematic curriculum building in career and technical education may be attributed to Victor Della Vos, director of the imperial Technical School of Moscow. At the Philadelphia Centennial Exposition of , Della Vos demonstrated a new approach to teaching the mechanical arts that "became a catalyst for career and technical education in the United States" Lannie, Rather than leaning through conscious imitation, the Russian system utilized shops where formal instruction in the mechanical arts could be provided. Bennett, Using these basic principles, Della Vos set up separate shops in the areas of carpentry, joinery, blacksmithing, and metal turning where students completed graded exercises that were organized logically and according to difficulty Lannie, The Russian system, which was noted by many Americans, had a most substantial impact on Calvin Woodward and John Runlke. Woodward initiated a manual training school at Washington University in St. Louis that closely paralleled the system developed by Della Vos. These pioneer efforts served as important precursors of the contemporary career and technical and technical curriculum. The successes of Runkle and Woodward generated great interest in this form of instruction, and soon manual training began to spring up in a number of schools around the United States. Shopwork was even introduced into the elementary schools and, by the late s, it was a formal part of many grammar schools across the nation. However, this progress did not serve as the best substitute for apprenticeship. In response to this deficiency, schools began to organize so that students could be prepared to enter work in a variety of occupational areas. During the late s and early s, technical institutes, trade schools, commercial and business schools, and agricultural high schools began to flourish. However, the standards associated with these programs were quite tax or even nonexistent. Quality was at best a local matter and, more often than not, did not extend beyond the concern of the individual instructor. The result was a considerable amount of inconsistency in quality among programs across the nation. By , a rather strong public sentiment for career and technical education had developed. As the Industrial Revolution continued to expand, a need for skilled workers increased. This need was expressed by both business-people and labor leaders. Rural America began seriously to question the relevance of traditional education and sought to have agriculture play a more important role in the school program. These feelings were more formally presented to the federal government by way of national organizations. Groups such as the National Society for the Promotion of Industrial Education and the Association of Agricultural Colleges and Experiment Stations led the way in terms of securing federal aid for career and technical education. However, the movement to secure federal support for career and technical education was not without controversy. The pressure to institute career and technical education legislation opened a debate between those who believed public schools were places where only liberal studies should be taught and those who believed career and technical education should be incorporated into the school curriculum. In essence, the choice of that time was "whether schools are to become servants of technocratic efficiency needs, or whether they can act to help [persons] humanize life under technology" Wirth, , p. During this historic discussion period, two prominent figures presented different philosophical positions on the place of career and technical education in the public schools. Charles Prosser strongly supported the idea of social efficiency, which contends that schools should be reformed to meet the needs of a technocratic society. Dewey closely monitored the movement, examined the proposed legislation, and spoke out against certain of its aspects. For example, he opposed dualism in education, an idea that Prosser had firmly imbedded into the legislation. Among other things, this landmark legislation set the stage for career and technical education being separate and distinct from academic education. The Smith-Hughes Act and subsequent federal legislation have had profound effects on the public career and technical and technical curriculum. Not only has legislation provided funds for high-quality education, but state and local education agencies have been required to meet certain standards if they want to qualify for these funds. Since legislation has stipulated that career and technical education be under public supervision and control, the standards associated with federal funding have had great impact on curriculum development in career and technical education. Types of offerings, targeted groups of students, scheduling, facilities, equipment, and numerous other factors have been incorporated into federal legislation supporting career and technical education. These factors have, in turn, affected curriculum planning, development, and implementation, since they have required the local developer to be responsive to national-level concerns. The point should be made that the Smith-Hughes Act and more recent legislation have supported the concept of providing students with a broad experiential base in preparation for employment. This contrasts greatly with many of the early career and technical offerings, which were more or less separate entities, often consisting of single courses. A major impact of federal legislation on career and technical and technical curricula, then, has been in the area of quality control. The various career and technical education acts have assisted greatly in the establishment of minimum program standards. Beginning in the s, people began to recognize that the world was slowly shifting from separate and distinct country economies to a more holistic, global economy. Persons in the workplace were thus beginning to see their competition shift from regional and national bases to an international venue. Concurrently, a technological revolution was occurring. Demands placed on workers in the new workplace included greater facility in mathematics, science, English, and communication. Persons who were employed in the high performance workplace were expected to apply their academic skills as they continued their learning in continuously changing work environments, to serve as contributing members of self-directed work teams, and often to be leader-workers instead of the traditional follower-workers. Obviously, these shifts in the workplace called for a different sort of career and technical education legislation. Such legislation should encourage educators to prepare students who had academic skill levels that matched their technical expertise. Response to this need emerged as several important pieces of federal legislation. Perkins career and technical and Applied Technology Education Act of Perkins 11 is grounded in the notion that the United States is falling behind other nations in its ability to compete in the global marketplace. Among its various provisions, the Perkins II legislation offered the states financial incentives to create and operate educational programs that have as their goal producing workers who function more effectively and thus increase United States competitiveness in the current and future international workplace. The Perkins 11 legislation ushered in a new era of preparing students to enter and succeed in the workplace. For example, the law shifted emphasis from reactive and rigid career and technical education curriculum and instructional models to those emphasizing flexibility and cooperation. In contrast with previous legislation that contributed to a wide separation between academic and career and technical education, the Perkins II legislation supported the integration of academic and career and technical education studies. Also included were provisions for using Tech Prep to link high school and post-high school curricula in creative and beneficial ways. More recently enacted legislation, termed the School-to-Work Opportunities Act of , has expanded on the proactive elements of Perkins II. In order to receive school-to-work funding, programs are required to include three components: This Act has been seen by many as legislation that "brings it all together" to form a powerful curriculum and instructional delivery system. It encourages creative, collaborative development of curricula that link academic and applied studies in more meaningful ways. It is indeed unfortunate that he could not be present to see some of his views incorporated into national legislation Finch, Education itself is often viewed as an amorphous term that defies description and explanation. In actuality, education is a concept that each curriculum developer needs to define and refine before the curriculum development process is carried out. Education and Its Elements In contemporary society, education may be viewed as comprised of two basic elements: Formal education is that which occurs in a more structured educational setting. Representative of this element would be school and school-related activities such as taking a course, participating in a school athletic event, holding employment as part of a formal cooperative career and technical education program, or being involved in a student club or organization. Informal education often called non-formal education consists of education that typically takes place away from the school environment and is not a part of the planned educative process. Part-time volunteer work in a hospital, babysitting, taking a summer vacation in Europe, and waiting on tables might be considered as informal education activities. Central to this element is the fact that a person chooses to engage in a non-school activity, and this participation results in some form of education. Goals of Education Superimposed on the formal and informal elements of education are two categories that reflect the broad goals associated with it. These two types of education may be referred to as education for life and education for earning a living.

Chapter 5 : Chapter 4- IMPLEMENTATION OF THE CURRICULUM

Knowledge management: practical aspects of implementation â€¢ Charles H. Bixler, racedaydvl.com, of George Washington University By Charlie Bixler Development and access are only the beginningâ€"Use is the real challenge!

April 22, ; Accepted: August 13, ; Published: The rationale behind this fact is that learning is a system that consists of several components that cumulatively lead to the goal. Therefore, learning must be planned appropriately. Kunandar defines Learning Implementation Plan LIP as a plan that describes the procedures and organizational learning to achieve a basic competence specified in the learning standard and elaborated in the syllabus contents. Rohani suggested that for building teaching and learning design, teachers need to have knowledge and skills in organizing learning design. A learning design is a tool that can assist teachers in implementing effective and efficient learning. Practical chemical science preparation is the process of providing equipment, location or materials used before the implementation of the experiment. Preparation is also an activity to create a pre condition to learn, study the situation which arises interests and learning profit Mulyati, According to Leonard et al. Preparation for success and security related to practical work and preparation is one of the important processes to get the findings of the experiment. Practical chemical science implementation is a practical teaching activity which is implemented in classes and labs. Directing activities of teaching is the teacher of the student in conducting experiments, doing observation on students in experimentation and analysis of laboratory findings and outcome-evaluation practice. Good research consists of processes and products with scientific method including concepts, principles, theories and laws , both of which must be a component of science learned in school Van Heuvelen, Evaluation in education and teaching including practical teaching Chemistry that can use several approaches. An approach commonly used in the evaluation of cognitive, constructivist Dunham et al. The prominent characteristic of this study is to acquire more preferred strategy compared to how much knowledge students acquire and recall. This theory is very well applied in practical teaching Chemistry because these assessment characteristics match to the characteristics and purposes of practical Chemistry lessons Brooks, Building a practical design is a process of chemical science internship program restructuring the related components of other practical material components, learning completeness, organizing practical preparatory measures, the implementing practical, practical evaluation, determining the chemical science practical purposes, allocating the time, the organization of internships and other environments Marks and Eilks, Practical chemical science preparation is the process of providing equipment, place or materials used before the implementation of the experiment. Practical evaluation of chemical science includes practical observations of the overall process in the achievement of the purpose of learning as well as other practical assessments in experimentation, organization of systematic, practical work and practical results. Figure 1 illustrates the conceptual framework of the study. As it can be seen, the four aspects of design, preparation, evaluation and implementation are interrelated. The study also determines the relationship between and among these aspects. This has long been a belief in science education laboratory that has the potential to become a place in which the theory is tested in a practical truth. The bulk of the teaching and learning takes place in a science laboratory Mokhtar, In schools, science laboratory is the most appropriate place for students to learn how to research, organize, clarify and measure all the sciences. Most researchers agree that practical work is an important activity in school science but there are variations in the importance of the role and purpose of practical work done in the classroom. Effective science teaching requires that teachers have the knowledge, skills, attitudes and ability to apply science in the lab in better way. This view supports that teachers should have the scientific competence cognitive and manipulative skills associated with psychomotor Aktamis and Acar, Effective teaching happens if teachers have the knowledge and skill because the concept of proof in the form of laboratory Chemistry science is done through observation and performance analysis. Chemistry science teachers competencies are seen as scientific experimentation in the laboratory. To improve the quality and quantity of the adoption of practical Chemistry learning, Chemistry teachers are required to master in the skills of competency IPA process, the skills to use the equipment in the laboratory and laboratory management skills and the spirit of strong will and motivation to apply practical methods in learning Chemistry. The teachers have not been able to implement practical evaluation in an objective Chemistry science to the provision of the information which is necessary to make alternative decisions, not fully established Mehrens and Lehmann, In the process of implementation of practical evaluation, science teachers often experience different problems and constraints that need to be solved. Teaching issues, among others, form slight efficiency in performance and reporting the results of the practical evaluation of Chemistry science. The problem of practical implementation of a practical Chemistry science as part of the science of Chemistry is prevailing. This shows the importance of practical implementation of practical Chemistry which is the focus of the current study. Literature reports that very few studies on the practical implementation of practical Chemistry have been conducted in Indonesia Copriady, Therefore, the current study is undertaken to address the problem and the research gap. In conducting the litrature review, the aspects of design, preparation, implementation and evaluation were taken into consideration. Problem-Based Learning PBL refers to a teaching and learning method rooted in the medical sciences, first introduced in , is increasingly popularizing in other academic disciplines including education, psychology as well as business Coombs and Elden, Also, this method is becoming increasingly popular in science including Chemistry Belt et al. Here, the development of PBL approach concerning a traditional Chemistry laboratory module through examining the traditional laboratory format to explore the rationale for a change. Accordingly, PBL will, then, be elaborated on to see how this method can solve this problem. Generally, the students cannot be thinking and creative. Likewise, Johnstone et al. Hence, it is significant to emphasize the expense of running and administering laboratory sessions in school and university. First, it is costly to build, equip, maintain and uphold specialized laboratory space. Second, technical and academic staffing plus postgraduate demonstrators are required. However, the advantage of such laboratory sessions for students is questionable. Also, it is not clear if the usual and typical recipe lab format is justifiable concerning such expense. The design of recipe labs activities is prearranged, as technicians, demonstrators and staff, all obviously knowing what is the activity and resulting outcome. Therefore, the teaching staff can clearly identify and rectify the errors for the students before continuing with the laboratory work and consequently the students get little problem-solving experience in the laboratory. Furthermore, all the students are usually performing the same experiment which can cause students to be only concerned with obtaining the same findings as their laboratory neighbor. Nevertheless, recipe labs enjoy the great merits that let the inexperienced student to have the same attitude towards laboratory work like professional scientist. Contrariwise, the students do not care about matching their laboratory learning to previous experience. Another problem associated with recipe type labs is that the real practical aspect of any experiment shows only a small portion of the entire process of experimental science Garratt, , whereas in recipe labs only the practical aspect is covered. Garratt suggests that there are various steps that can take a research scientist prior to dealing with the practical phase of the experiment: These issues comprise practical problem aspects that students have no connection with, as the laboratory technician and instructor decide on these issues long before the students embark on the experiment. Obviously, the recipe labs have their own merits and with some modifications, can be much more efficient and effective in the process of teaching and learning science. Integrating student ownership, connecting experiments with previous experiences, as well as helping students using higher order cognitive skills, can provide authentic and genuine investigative processes Johnstone and Al-Shuaili, Laboratory sessions should provide the proper opportunity for students to hypothesize, criticize, analyze, explain and evaluate arguments and evidence. Likewise, Bailey emphasized the significance of transferable or broad-spectrum skill development in a UK context, recommending that a stress on transferable skills at the third level is greatly desirable. Problem-based learning a learner-centered approach: The purpose of PBL is developing reflective, self-directed and lifelong learners who are able to integrate knowledge, work collaboratively with other students and think critically MacKinnon, , hence enhancing the chances of students emerging with some of the skills, highly desirable and useful in the work place. Besides, by employing unstructured real-life problems instead of the content as the hub of attention, students are provided with opportunities to truly learn how to learn Tan, In this vein, White claimed that PBL could be perceived as an alternative to traditional method of education. Practical PBL, in which the problem is the focus of the learning, provokes lengthy collaboration among groups which leads to conceptual learning. Students automatically need to activate their prior knowledge to contemplate and start thinking, concerning the problem facing them and accordingly build new knowledge that is the main premise of constructivism. This has been demonstrated to augment learning which is in sharp contrast with traditional labs which make use of tasks with obvious procedures and true answers, related to limited exchange of information among students which leads to simple explanations plus routine learning Wilkerson, Correspondingly, Belt et al. Thus, the achievement of new knowledge is carried out through these contexts. Nevertheless, there are many implementation issues that need to be addressed. Similarly, Woods has listed the key issues with PBL implementation approach in relation to a traditional chemical lecture course as follows: The important factors useful for practical problem based learning include:

Chapter 6 : Pratical Implementation of Practical Chemistry among Secondary School Teachers

curriculum implementation decisions if we are to meet the needs of all learners. A complex issue for teachers is to understand the curriculum they are required to implement, along with the outcomes reflecting student learning.

Assessment of learning outcomes in specific content areas This module offers opportunities for curriculum professionals to develop their understanding of curriculum evaluation and student assessment by exploring: International and regional trends and rationales for curriculum evaluation and student learning assessment; Types and methods of curriculum evaluation and student assessment; Approaches to the restructuring of evaluation and assessment systems. This module is organized in three activities: The participant is guided through an analytical schema to plan the evaluation of curricula. Participants examine considerations about student assessment that are regularly included in curriculum materials. Assessment of learning outcomes in specific content areas. Strategies and special modalities for the assessment of learning outcomes are analyzed for content areas recently included in curricula. Conceptual framework Curriculum evaluation is a necessary and important aspect of any national education system. It provides the basis for curriculum policy decisions, for feedback on continuous curriculum adjustments and processes of curriculum implementation. The fundamental concerns of curriculum evaluation relate to: Effectiveness and efficiency of translating government education policy into educational practice; Status of curriculum contents and practices in the contexts of global, national and local concerns; The achievement of the goals and aims of educational programmes. Student assessment is an important aspect of curriculum evaluation which helps to facilitate the understanding of the impact and outcome of education programmes. A fundamental measure of the success of any curriculum is the quality of student learning. Knowing the extent to which students have achieved the outcomes specified in the curriculum is fundamental to both improving teaching and evaluating the curriculum. Curriculum evaluation aims to examine the impact of implemented curriculum on student learning achievement so that the official curriculum can be revised if necessary and to review teaching and learning processes in the classroom. Specific strengths and weaknesses of a curriculum and its implementation; Critical information for strategic changes and policy decisions; Inputs needed for improved learning and teaching; Indicators for monitoring. Curriculum evaluation may be an internal activity and process conducted by the various units within the education system for their own respective purposes. These units may include national Ministries of Education, regional education authorities, institutional supervision and reporting systems, departments of education, schools and communities. Curriculum evaluation may also be external or commissioned review processes. These may be undertaken regularly by special committees or task forces on the curriculum, or they may be research-based studies on the state and effectiveness of various aspects of the curriculum and its implementation. These processes might examine, for example, the effectiveness of curriculum content, existing pedagogies and instructional approaches, teacher training and textbooks and instructional materials. Student assessment The ultimate goal of curriculum evaluation is to ensure that the curriculum is effective in promoting improved quality of student learning. Student assessment therefore connotes assessment of student learning. Assessment of student learning has always been a powerful influence on how and what teachers teach and is thus an important source of feedback on the appropriateness implementation of curriculum content. Fulfilling the diverse objectives of diagnosis, certification and accountability requires different kinds of assessment instruments and strategies selected to achieve specific purposes. Assessment of student learning could be summative or formative, and there are various types of tests to address different needs such as standardized tests, performance-based tests, ability tests, aptitude tests and intelligence tests.

Chapter 7 : Executive Summary | Education Counts

This study is aimed at identifying differences in terms of the practical implementation of practical Chemistry teaching on the basis of teachers' perspectives based on gender and location. Implementation of practical Chemistry in the current study focuses on four major aspects such as the design.

Keq calculations are shown. The teacher demonstrates color changes in a reversible reaction. Student misconceptions about the nature of equilibrium remain uncovered and unchallenged. The teacher poses a question: The common student misconception that equilibrium means equal amounts in each container is challenged as students develop an understanding of the principle of equilibrium. Page Share Cite Suggested Citation: The National Academies Press. It is important to note, however, that assessment does not exist in isolation, but is closely linked to curriculum and instruction Graue, Thus as emphasized earlier, curriculum, assessment, and instruction should be aligned and integrated with each other, and directed toward the same goal Kulm, ; NCTM, ; Shepard, In advanced mathematics and science, that goal is learning with understanding. This section reviews design principles for two types of assessments: To guide instruction, teachers need assessments that provide specific BOX Reliability, Validity, and Fairness Reliability generally refers to the stability of results. For example, the term denotes the likelihood that a particular student or group of students would earn the same score if they took the same test again or took a different form of the same test. Reliability also encompasses the consistency with which students perform on different questions or sections of a test that measure the same underlying concept, for example, energy transfer. Validity addresses what a test is measuring and what meaning can be drawn from the test scores and the actions that follow Cronbach, It should be clear that what is being validated is not the test itself, but each inference drawn from the test score for each specific use to which the test results are put. Thus, for each purpose for which the scores are used, there must be evidence to support the appropriateness of inferences that are drawn. Fairness implies that a test supports the same inferences from person to person and group to group. Thus the test results neither overestimate nor underestimate the knowledge and skills of members of a particular group, for example, females. Fairness also implies that the test measures the same construct across groups. Based on a model of cognition and learning that is derived from the best available understanding of how students represent knowledge and develop competence in a domain. Designed in accordance with accepted practices that include a detailed consideration of the reliability, validity, and fairness of the inferences that will be drawn from the test results see Box This is especially important when the assessment carries high stakes for students, teachers, or schools. Aligned with curriculum and instruction that provide the factual content, concepts, processes, and skills the assessment is intended to measure so the three do not work at cross-purposes. Designed to include important content and process dimensions of performance in a discipline and to elicit the full range of desired complex cognition, including metacognitive strategies. Multifaceted and continuous when used to assist learning by providing multiple opportunities for students to practice their skills and receive feedback about their performance. Designed to assess understanding that is both qualitative and quantitative in nature and to provide multiple modalities with which a student can demonstrate learning. Of primary importance if a test is to support learning is that students be given timely and frequent feedback about the correctness of their understandings; in fact, providing such feedback is one of the most important roles for assessment. There is a large body of literature on how classroom assessment can be designed and used to improve learning and instruction see for example, Falk ; Shepard ; Wiggins, ; Niyogi, Concept maps, such as those discussed in Box in Chapter 6 , are one example of an assessment strategy that can be used to provide timely Page Share Cite Suggested Citation: End-of-course tests are too broad and too infrequently administered to provide information that can be used by teachers or students to inform decisions about teaching or learning on a day-to-day basis. Thus, the content of the tests should be matched to challenging learning goals and subject matter standards and serve to illustrate what it means to know and learn in each of the disciplines. Because advanced study programs in the United States are strongly influenced by high-stakes assessment, the committee is especially concerned with how this form of assessment can be structured to facilitate learning with understanding. It is well known that such assessments, even coming after the end of instruction, inevitably have strong anticipatory effects on instruction and learning. Thus if high-stakes assessments fail to elicit complex cognition and other important learning outcomes, such as conceptual understanding and problem solving, they may have negative effects on the teaching and learning that precede them. In designing such assessments, then, both psychometric qualities and learning outcomes should be considered. If end-of-course tests are to measure important aspects of domain proficiency, test makers need to have a sophisticated understanding of the target domain. They must understand the content and the process dimensions that are valued in the discipline and then design the test to sample among a broad range of these dimensions Millman and Greene, Doing so is complicated, however, by the fact that an assessment can only sample from a large universe of desirable learning outcomes and thus can tap but a partial range of desirable cognitions. Consequently, concerns will always arise that a particular assessment does not measure everything it should, and therefore the inferences drawn from it are not valid. Similarly, the selection of tasks for an assessment may be criticized for measuring more than is intended; an example is word problems on mathematics tests that require high levels of reading skill in addition to the mathematics ability that is the target of the assessment. To ensure the validity of inferences drawn from tests, a strong program of validity research must be conducted on all externally designed and administered tests. Assessments that invoke complex thinking should target both general forms of cognition, such as problem solving and inductive reasoning, and forms that are more domain-specific, such as deduction and proof in mathematics or the systematic manipulation of variables in science. Given that the goals of curriculum and assessment for advanced study are to promote deep understanding of the underlying concepts and unifying themes of a discipline, effective assessment should reveal whether students truly understand those principles and can apply their knowledge in new situations. The ability to apply a domain principle to an unfamiliar problem, to combine ideas that originally were learned separately, and to use knowledge to construct new products is evidence that robust understanding has been achieved Hoz, Bowman, and Chacham, ; Perkins, Meaningful assessment also includes evidence of understanding that is qualitative and quantitative in nature, and provides multiple modalities and contexts for demonstrating learning. Using multiple measures rather than relying on a single test score provides a richer picture of what students know and are able to do. The characteristics of assessments that support learning with understanding are presented in Table This observation is particularly true when one is implementing well-structured external programs that build on the regular curriculum already in place at a school. Such change cannot occur unless teachers are given ample opportunity and support for continual learning through sustained professional development, as Page Share Cite Suggested Citation:

Chapter 8 : Module 8 | Curriculum evaluation and student assesment

The shared aspects of curriculum and instructional development sometimes become unique to one area or the other based on the person or persons involved in the development process as well as those who will eventually benefit from this development.