Int. J. Engng Ed. Vol. 22, No. 1, pp. 148–156, 2006
Printed in Great Britain.

0949-149X/91 $3.00+0.00

Opportunities and Challenges in Instructional Design for Teaching the Flexure Formula Using the Revised Bloom's Taxonomy*

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The purpose of this article is to show how the Revised Bloom's Taxonomy has been used in designing an instruction module in an analytical course in engineering for distance learning. Identification of the type of knowledge and cognitive process associated with each task is found to be useful in informing the selection of appropriate instructional strategies. Using bending stress calculation as a sample case study, potential opportunities and challenges facing the instructor are discussed. Problems associated with the original taxonomy and the enabling features in the revised taxonomy for more informed analyses are also described.

Keywords: instructional design; mechanics; Bloom's taxonomy; bending stress; flexure formula

BACKGROUND: SEARCH FOR A TEACHING STRATEGY

MECHANICS OF MATERIALS is a core course in many engineering disciplines. It is an analytical course requiring good mathematical skills and understanding of abstract concepts making it particularly unpalatable and difficult for those learning this at distance. Continued poor student performance in a first course in Mechanics of Materials has been a concern for those who teach this course at the Open University of Sri Lanka (OUSL). While the students follow this course in English, their medium of instruction at school is in the vernacular. They often find this transition in the medium of instruction challenging, and it is particularly so in the technical courses due to their lack of exposure to technical vocabulary. Inadequate preparation in English of students entering the first year of university studies in engineering is a concern of other non-English speaking countries as well [1].

The student performance in this course is comparatively low among the courses at the same level with a failure rate of more than 50% in the period between 1999 and 2002. This has motivated us to undertake research to formulate a suitable strategy for improving the learning of such analytical courses through distance.

GENERAL APPROACH

In order to understand the various steps taken in the course of this research, it is worth outlining the general procedures employed. A typical instructional design process includes five stages, namely, Analysis, Design, Development, Implementation and Evaluation, known as the ADDIE processes [2]. In general, each stage in the process provides outputs that serve as inputs for subsequent stages. However, there are situations where these five stages do not necessarily follow sequentially. During the analysis, instructional designers develop a clear understanding of the gaps between the desired and the actual learning outcomes. The design stage documents the content, exercises, and assessments including teaching and learning strategies. The development stage deals with the actual creation of the learning materials while the implementation stage is concerned with the students' actual learning experience. Finally, the evaluation stage looks into the effectiveness of the designed instruction.

According to Smith, there are three main components in this stage: learning context analysis, learner analysis, and learning task analysis [3]. The learning context analysis consists of two steps: identification of the gaps in the achievement of learning outcomes (needs assessment), and identification of the environment under which learning occurs (learning environment). The second component, the learner analysis, is concerned with the learner characteristics that may have implications on the design of instructions. The final part of analysis, which is the focus of this paper, is the learning task analysis. This deals with a detailed and hierarchical breakdown of the learning task to identify the underlying learning objectives and prerequisite knowledge. Combined results of the analysis of these three components provide a basis for designing instructional strategies. Although

* Accepted 26 February 2005.

this analytical approach is well-established, there has been a general concern that insufficient time is spent in the analysis of the learning task prior to the design stage [4]. Our study has now reached the end of the analysis stage. This paper focuses on the analysis of the learning task. The early stages of the analysis will be stated only briefly.

A needs assessment at the Open University of Sri Lanka (OUSL) was conducted through surveys and interviews of students and lecturers. As a result, priority was given to the topic of bending stress calculation. The major reasons are the importance of this type of stress calculation in engineering design and the complexity of the derivations.

Once the topic was selected, the gaps between the desired and actual outcomes were identified as suggested in the model by Smith and Ragan [3]. Several issues which are believed to have contributed to these gaps were also identified. These findings are currently being used in the selection and design of appropriate instructional strategies. From the identified gaps, a list of goals that the learners need to achieve, and are currently unable to do was developed.

However, the list of goals was not in a form that could be readily used for developing instruction modules. It is the Task Analysis that transforms goal statements into a form that may be used as a guide in designing instruction [3]. The outcome of such a task analysis is a hierarchy of sub-goals. These sub-goals describe what learners will be able to do or should know at the end of the instruction. The task analysis also identifies the prerequisite skills necessary to achieve such goals. For teaching the beam bending theory and the applications, two hierarchies of sub-goals in the form of flow charts were developed; one for the derivation of the engineers beam bending theory and another for its application. For the purpose of this paper only the flowchart on application of the beam bending theory has been used (Fig. 1).

TASK ANALYSIS TOOL: THE REVISED BLOOM'S TAXONOMY

Bloom's Taxonomy is one of the popular tools used for task analysis. It helps educators to assess how much and how well the students have learned [5]. The revised Bloom's Taxonomy (RBT) allows classification in a two-dimensional table form, based on the type of knowledge and the type of cognitive process involved in the learning task. Such classifications are likely to help the teachers in determining appropriate teaching techniques and in grouping the learning tasks into separate modules, courses, etc. based on the type of knowledge and cognitive processes (skills) [6]. The original Taxonomy of Educational Objectives (OBT) is a framework for classifying statements of what teachers expect or intend students to learn as a result of instruction [7]. An example of such a statement is, 'By the end of the lesson, students will be able to correctly answer multiplication questions using the times table for numbers up to 10, for at least 90% of the questions.' In the present research, we have decided to use the Revised Bloom's Taxonomy (RBT) developed by Anderson *et al.* [7]. Similar to the OBT, the RBT is a framework for classifying the learning objectives that describe what students are expected to achieve as a result of instruction [8].

The original taxonomy included six major categories. They are: *knowledge*, *comprehension*, *application*, *analysis*, *synthesis*, and *evaluation*. Table 1 shows the structure of the original taxonomy. The action verbs such as *recall*, *apply* and *calculate* are classified in to one of the six different categories. For example, a learning objective may specify that, after the instruction a student should be able to translate a word problem into a numerical one. Then the appropriate category for this action would be *comprehension* (Table 1). According to Krathwohl, one assumption of the original Bloom's taxonomy is that learning is hierarchical and is largely based on prerequisite skills and knowledge [8]. For example, if a learning outcome is pitched at the *comprehension* level, the teacher must first cover activities at the *knowledge* level before proceeding to the intended *comprehension* level.

Krathwohl also suggests that the uni-dimensionality is a limitation of the OBT [8]. That is, the learning objectives are generally classified using only one dimension, namely the action verb. The uni-dimensional taxonomy provides information sufficient only for a preliminary indication. For example, an objective that reads, 'The students should be able to *apply* Hooke's Law to simple one-dimensional axial straining problems' would be classified on the basis of the action verb (in this case, *apply*) only. The noun, 'Hooke's law', is not used for classification. In fact, the noun can also provide useful information. With this additional information, the instructional designers will have a broader basis for developing suitable instructional strategies.

In an attempt to address the above problems, Anderson and Krathwohl proposed a revision to the Bloom's taxonomy [8]. Table 2 shows the structure of the revised taxonomy. In revising the taxonomy all six cognitive process dimensions in the original taxonomy have been preserved, but three major changes have been made. Firstly, *knowledge* is classified as a second dimension and is divided into four categories. Secondly, the category *synthesis* in the original taxonomy has been renamed as *creat*e. Thirdly, the categories *evaluation* and *synthesis* (now renamed as *create*) have been swapped in their positions. This makes *create* the highest cognitive process in the revised taxonomy.

Since the revised Bloom's taxonomy allows identification of the type of knowledge and the cognitive process associated with a particular

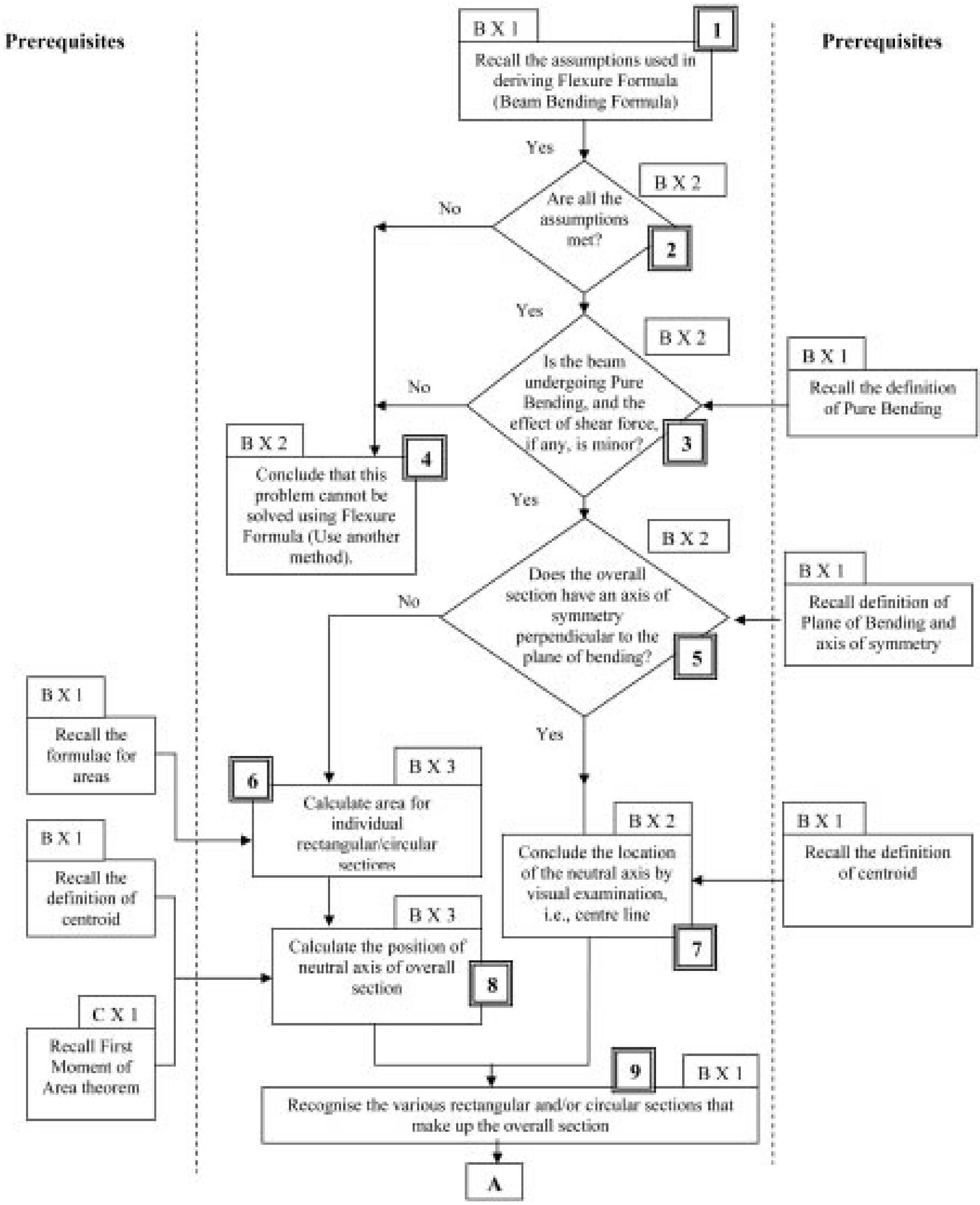

Fig. 1. Application of flexure formula.

learning objective, it provides a broader basis for finding suitable instructional strategies. For example, in teaching an application of Hooke's Law the cognitive process applicable is *apply* and the relevant knowledge category is *conceptual*.

Krathwohl, through the RBT, encourages a lenient approach for classifying objectives [8]. This gives flexibility in using the revised taxonomy in selecting action verbs and classifying objectives. The need to be flexible in determining learning objectives has been noted by others also. For example, Mager in his book entitled 'Preparing Instructional Objectives' states that one needs not be constrained by a strict hierarchy [9]. He suggests that objectives should be specified as the learning process naturally demands, without strict compliance to a hierarchy [9].

It should be noted that the RBT is not the only

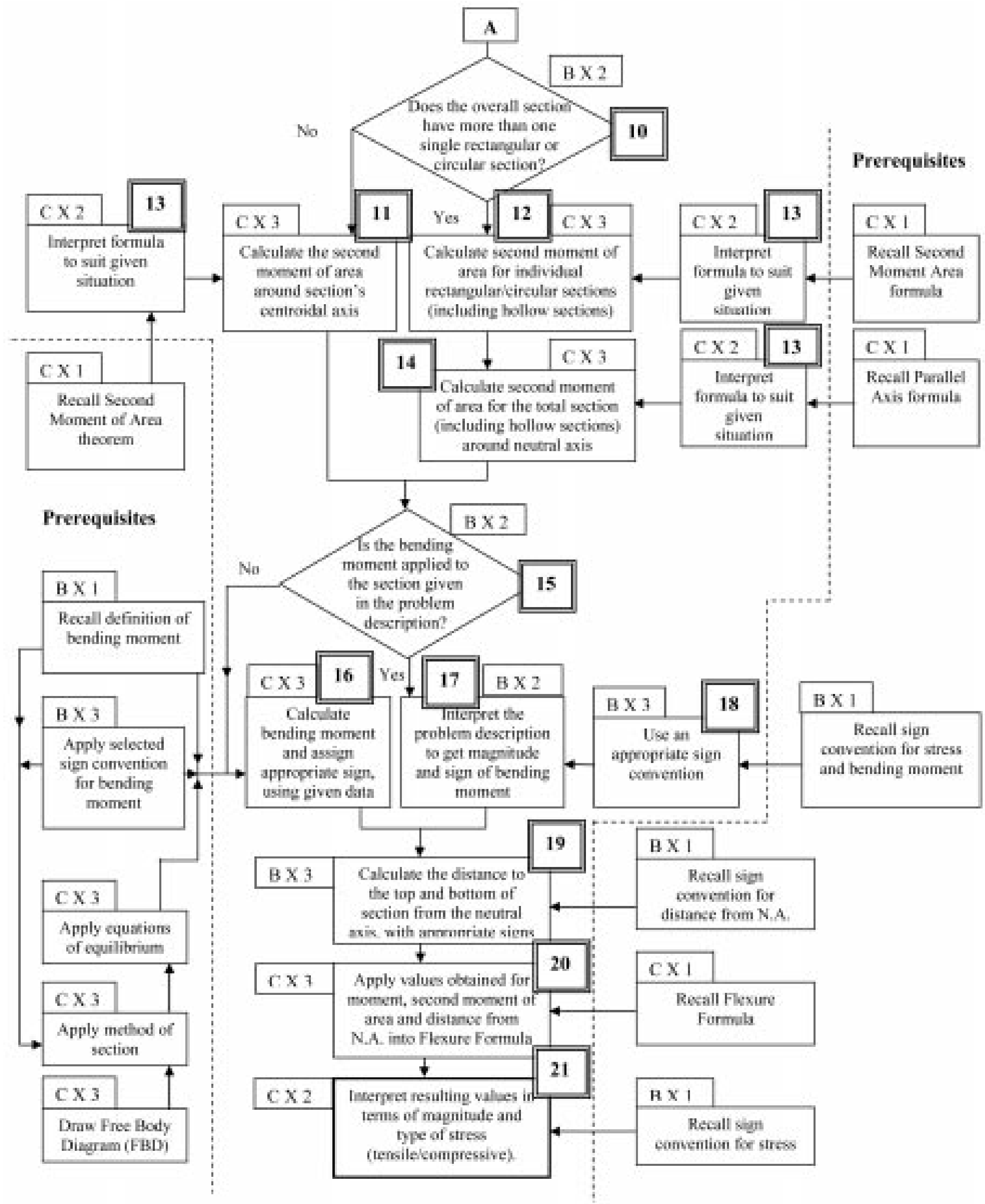

Fig. 1. Application of flexure formula, *continued.*

taxonomy used for classifying learning objectives. Gagne, for example, has also developed a taxonomy for classifying learning objectives consisting of five categories of 'human capabilities'; *intellectual skills*, *cognitive strategies*, *verbal information*, *motor skills* and *attitudes*. The *intellectual skills* have been further subdivided into four different levels based on their complexity; *discriminations*, *concrete concepts*, *rules* and *defined concepts*, and *higher order rules-problem solving* [10]. The clearly defined cognitive process and knowledge categories and action verbs that are available in the RBT were found to be more suitable for the purpose of this particular task analysis. Therefore the RBT was selected.

To our knowledge, existing literature has no information on any study that has applied the RBT to a task analysis. The question of whether

Table 1. Structure of the original taxonomy

1.0	Knowledge		
	1.10	Knowledge of specifics	
		1.11	Knowledge of terminology
		1.12	Knowledge of specific facts
	1.20	Knowledge of ways and means of dealing with specifics	
		1.21	Knowledge of conventions
		1.22	Knowledge of trends and sequences
		1.23	Knowledge of classifications and categories
		1.24	Knowledge of criteria
		1.25	Knowledge of methodology
	1.30	Knowledge of universals and abstractions in a field	
		1.31	Knowledge of principles and generalisation
		1.32	Knowledge of theories and structures
2.0	Comprehension		
	2.1	Translation	
	2.2	Interpretation	
	2.3	Extrapolation	
3.0	Application		
4.0	Analysis		
	4.1	Analysis of elements	
	4.2	Analysis of relationships	
	4.3	Analysis of organisational principles	
5.0	Synthesis		
	5.1	Production of a unique communication	
	5.2	Production of a plan, or proposed set of operations	
	5.3	Derivation of a set of abstract relations	
6.0	Evaluation		
	6.1	Evaluation in terms of internal evidence	
	6.2	Judgements in terms of external criteria	

the revised taxonomy will enhance the analysis of learning tasks in hand remains to be answered. It is hoped that some observations reported from the current study will help establish its appropriateness and suitability or otherwise.

TASK ANALYSIS FOR FLEXURE FORMULA

Two flowcharts of the learning tasks, one for the derivation of the elastic beam bending formula in equation (1) and another for its application to some common types of structural beam sections have been developed.

$$\sigma = -\frac{My}{I} \tag{1}$$

Here, σ is the normal stress at distance y from the neutral axis of the beam, M is the bending moment, I is the second moment of area about the neutral axis which is the centroidal axis of the transverse cross-section of the beam. At the time the students learn this formula, they are expected to be able to determine the bending moment in the beam for a given loading subject to any boundary conditions. They are also expected to know the meaning of the centroid and second moment of

Table 2. Structure of revised taxonomy

Knowledge dimension	Cognitive process dimension
A. **Factual Knowledge**—The basic elements that students must know to be acquainted with a discipline to solve problems in it.	**1.0 Remember**—Retrieving relevant knowledge from long-term memory
Aa. Knowledge of terminology	**1.1 Recognising**
Ab. Knowledge of specific details and elements	**1.2 Recalling**
B. Conceptual Knowledge—The interrelationships among the basic elements within a larger structure that enable them to function together.	**2.0 Understand—**Determining the meaning of instructional messages, including oral, written, and graphic communication.
Ba. Knowledge of classifications and categories	**2.1 Interpreting**
Bb. Knowledge of principles and generalisations	**2.2 Exemplifying**
Bc. Knowledge of theories, models, and structures	**2.3 Classifying**
C. Procedural Knowledge—how to do something; methods of inquiry, and criteria for using skills, algorithms, techniques, and methods.	**2.4 Summarising**
Ca. Knowledge of subject-specific skills and algorithms	**2.5 Inferring**
Cb. Knowledge of subject-specific techniques and methods	**2.6 Comparing**
Cc. Knowledge of criteria for determining when to use appropriate procedures	**2.7 Explaining**
D. Metacognitive Knowledge-Knowledge of cognition in general as well as awareness and knowledge of one's own cognition.	**3.0 Apply—**Carrying out or using a procedure in a given situation.
Da. Strategic knowledge	**3.1 Executing**
Db. Knowledge about cognitive tasks, including appropriate contextual and conditional knowledge	**3.2 Implementing**
Dc. Self-knowledge	**4.0 Analyse—**Breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose.
	4.1 Differentiating
	4.2 Organising
	4.3 Attributing
	5.0 Evaluate—Making judgements based on criteria and standards.
	5.1 Checking
	5.2 Critiquing
	6.0 Create - Putting elements together to form a novel, coherent whole or make an original product.
	6.1 Generating
	6.2 Planning
	6.3 Producing

Table 3. Taxonomy table for the application of flexure formula

	Remember	Understand	Apply	Analyse	Evaluate	Create
Factual Knowledge						
Conceptual Knowledge	Obj. 1 Obj. 9	Obj. 2 Obj. 3 Obj. 4 Obj. 5 Obj. 7 Obj. 10 Obj. 15 Obj. 17	Obj. 6 Obj. 8 Obj. 18 Obj. 19			
Procedural Knowledge		Obj. 13 Obj. 21	Obj. 11 Obj. 12 Obj. 14 Obj. 16 Obj. 20			
Metacognitive Knowledge						

area of a geometric shape and to be able to calculate these for some common shapes that are obtained by adding or subtracting rectangles and circles. Another expectation is that they know the meaning of stress, as intensity of induced force, but until this time they would have only learnt how to calculate the stress due to centric axial loading. These are the prerequisites. Learning the derivation of Equation (1) is the first learning task. Once they learn this, and understand the assumptions and limitations of the theory, they would be expected to apply this to some common beam sections and determine the maximum values of stress. Understanding the assumptions on which a particular formula is based and knowing their limitations are important in determining if a given situation is an example or a non-example for using a particular method of solution [5]. Several text books, lecture notes and computer programs that are currently available for teaching this course have been used in developing the flowcharts [11–13].

Once the flowcharts were drafted, each task was categorized according to the RBT. The charts were then verified by five other subject experts (validators), three from the University of Canterbury in New Zealand and two from the Open University of Sri Lanka. Four of the experts were academic staff and have taught this subject and one was a postgraduate teaching assistant at the time of validation. Classification of some of the tasks required several rounds of discussion between the researcher and a subject expert.

RESULTS

The final version of the validated chart for the application of the flexure formula is given in Fig. 1. In general the validators agreed with the classification and the order of tasks in the flowcharts. The issues that needed clarification were discussed and were resolved until a consensus was reached. Some changes proposed by the validators were implemented; others were considered but not implemented for reasons that were explained to the validators concerned. The changes suggested and implemented include, revision of objective descriptions to include hollow sections (Objectives 12 and 14, Fig. 1), rearrangement of connectors between objectives and revision of the dotted line which separates the main instruction from prerequisites (Objectives 15 and 16, Fig. 1). A suggestion to include a worked example in parallel to the steps in the flowchart was not adopted as such details are relevant in the design stage and not in this analysis stage. An interesting question on classification was raised. That is, why some tasks were classified as conceptual instead of factual in the knowledge dimension. This is elaborated later.

The application flowchart is now being used to prepare an instruction design. Since the needs analysis indicated that a computer-based teaching module is likely to be the most feasible way to teach this course at distance, research is currently in progress to select appropriate strategies for each type of task using an interactive multi-media program.

Table 4. Action verbs and taxonomy categories

Verb	Revised Taxonomy Category	Original Taxonomy Category
Identify	Remember	Knowledge and Analysis
Infer	Understand	Comprehension and Analysis
Generalise	Understand	Apply and Synthesis
Illustrate	Understand	Comprehension and Analysis
Select	Analyse	Apply, Analyse and Evaluate

It should be noted here that the flowchart and the categories assigned to the objectives represent only one way for teaching the application of the flexure formula. There may be many other different ways that are equally appropriate. For example, it is possible that some of the objectives may be expanded into smaller components. Conversely, it is also possible to merge some of the objectives to form some major objectives. In fact, the entire flow chart could be considered as application of the flexure formula which is an instance of procedural knowledge. We anticipate some revisions to the flow chart in Fig. 1 may be carried out during the design of a computer-based instruction module or after its implementation. It should also be noted that the flow chart presented in this study may or may not be appropriate for other contexts.

It is interesting to note that in the taxonomy table (Table 3), many of the cells are empty. This table sheds some light towards the design of the computer-based modules. Decisions on issues such as whether teaching a particular task is best done by one strategy or another may depend on the type of knowledge and the type of cognitive process associated with each task. This means, it may be possible to use the same type of activity for Objectives 2, 3, 4, 5, 7, 10, 15 and 17 as they are all in the same cell in Table 3.

DISCUSSION

We are of the opinion that the lessons learned from conducting the task analysis using the RBT will be of use to other researchers and engineering lecturers. Some of the challenges that were encountered in the process of developing the flowcharts and the opportunities the RBT offers are described in the following sections.

RBT versus OBT

There are numerous sources in the literature for action verbs relating to the OBT [14]. Some of these verbs are now classified under different categories in the RBT from what it was in the OBT. It is worth noting that some action verbs are classified under more than one category in the OBT. Table 4 shows some examples.

This situation can cause confusion in determining the appropriate cognitive process for a given learning objective, leading to confusions in the selection of appropriate strategies. In the task analysis for the application of the flexure formula (Fig. 1), there is an objective (#15) 'To be able to infer whether the bending moment to be used in the formula is explicitly given in a usable form'. This objective could initially point to an exercise to *identify* some data from a given description. However it should be more cognitively demanding. It involves 'drawing a logical conclusion from presented information', according to the RBT. In this task, the student, from the given problem description needs to determine whether all the necessary information regarding bending moment is available. This type of cognitive process is described as *inferring* in the RBT and is categorised under *understand* (Table 2). On the other hand, in the OBT, *inferring* is categorised under both *comprehension* and *analysis* (Table 4) requiring additional effort in classification to avoid confusion.

Table 5. Knowledge Vs. cognitive process dependency

Type of knowledge	**Cognitive processes**
Factual	Remember
Conceptual	Understand and Apply (e.g. principle learning)
Procedural	Understand and Apply
Metacognitive	Analyse, Evaluate, Create

The clear and concise descriptions of categories and cognitive processes and identification of typical action verbs under each subcategory in the RBT help categorise action verbs appropriately. This would reduce the chances of misclassification of action verbs. The descriptions in the RBT were found to be generally clear enough to make the identification of new action verbs easy. We suggest that a longer list of action verbs will be useful to avoid misclassification of action verbs due to subtle differences in their meaning.

In addition there is a need to be cautious in using verbs that are similar in their common usage. The descriptions for each cognitive process in the RBT were found to be useful to distinguish subtle differences between similar action verbs and place them in the correct cognitive process category. For example, in our daily usage *classify* and *distinguish* may be taken to mean more or less the same. However in the RBT, *classify* means the action of determining that something belongs to a certain category and is listed under *understand*, whereas *distinguish* means the action of discriminating relevant from irrelevant parts of presented material and is listed higher in the cognitive process hierarchy under *analysis*. These definitions lead to subsequent identification of suitable instructional strategies. In the same example above, an appropriate activity for *classify* would be for learners to look at a picture of an animal and indicate its respective animal family. On the other hand, requiring learners to read a passage describing the characteristics of different animals in order to recognise the characteristics of given animal families would be an example of the activity *distinguish* which comes under *analysis*.

During the early stages of the task analysis, it became clear that both the OBT and the RBT are useful in identifying some inappropriate classification. In initial attempts to assign a cognitive level to some objectives the indicated level appeared to be too high. For example, for some tasks that suggest checking or verification of certain conditions, the cognitive process was first thought to be *checking* which comes under the category of *evaluate*. This is the fifth in the six cognitive levels in the RBT. However the surrounding objectives in the hierarchy of objectives were all at a significantly lower level of *remember*. It was thought that in learning, it would be unusual for the student to skip several cognitive levels in one step, in this case from the 1st to the 5th. A closer look at the description of *checking* suggested that this action occurs when a student detects inconsistencies or fallacies within a process or product, determines whether a process or product has internal inconsistency, or detects the effectiveness of a procedure as it is being implemented [15]. Based on the above description, since the tasks on hand do not actually require such a high-level cognitive effort it was decided that they could not be described as *checking* for the classification purpose. Further analysis revealed an appropriate classification at the second level of the cognitive processes, *understand*. The cognitive process of *exemplifying* under the category of *understand* would closely represent the efforts of the tasks.

The minimisation of the difference between the cognitive levels of associated objectives will ensure that there will be no big jumps in cognitive effort between successive tasks. The descriptions of cognitive processes and representative action verbs provided in the RBT were found to be useful in achieving this. This is likely to facilitate a smoother transition in students' learning process.

Uni- versus two-dimensionality

As explained earlier, the two dimensions of the RBT, knowledge and cognitive process, provide a broader basis for designing teaching and learning activities. The objectives analysed using the RBT can be translated into instructional strategies that are suitable from either the knowledge perspective or the cognitive process perspective.

Further studies on instructional strategies show that existing literature commonly use knowledge categories such as concepts, procedures, etc. to describe different instructional strategies (e.g. concept learning, procedure learning, etc.). However, closer scrutiny of these strategies reveals that they are really intended for achieving different learning outcomes associated with specific cognitive processes. This suggests that in many situations it may be easier to determine the related cognitive process (learning outcome) by identifying the knowledge type first. The RBT is more user-friendly in that it helps identify the knowledge type which in turn can help determine the learning outcome and thereby the appropriate instructional strategy.

The learning objectives identified in the present study were found to be confined to three categories: *remember*, *understand* and *apply* cognitive processes (Table 3). In the knowledge dimension, they are confined to *conceptual* and *procedural* knowledge. This limits our ability to draw conclusions related to other cognitive processes or knowledge types. It would be worthwhile conducting a study in a topic involving the remaining categories in the knowledge and cognitive process dimensions.

Interestingly, the findings from this study seem to suggest that the two dimensions of the RBT may not be totally independent. Certain observations can be made here. For example, all *procedural knowledge* objectives are associated with *understand* and *apply*. In fact in this particular module, they are all associated with *calculations* of different properties. Further, most objectives of *factual knowledge* are associated with *remember*. In fact, without referring to the current study, it was challenging to think of examples for factual knowledge at a level other than remembering. These observations point to a possibility that the two dimensions of the RBT may not be totally independent. Based on these observations we developed a table showing apparent dependencies between types of knowledge and cognitive processes (see Table 5) which point to frequent association between the specific knowledge and cognitive categories. These dependencies could be limited to our study only. Future studies may show whether this is also the case in other subject areas.

The designer's versus the learner's point of view

Potential for misclassification is present in both knowledge and cognitive process dimensions. This can be particularly challenging in situations where an instructional designer's point of view on a particular knowledge may differ from that of the students. During the validation process, questions were raised about the knowledge and cognitive process category assigned to some of the objectives. Examples included questions on whether a task should be categorized as conceptual or factual in the knowledge dimension, and evaluate or analyse in the cognitive process dimension.

Furthermore, the fact that most of the knowledge categories assigned in the task analyses are either conceptual or procedural was noted by a validator. This led to the question whether some knowledge must be based on facts and whether *conceptual knowledge*, after having been used by someone for considerable time, could become *factual knowledge*. For example, can Hooke's Law be regarded as *factual knowledge* instead of *conceptual*? This led to some discussion on the interpretation of the term *factual knowledge*. After some debate, a decision was made that this knowledge would not be seen as factual from the students' point of view and we maintain that the knowledge type for this particular objective should remain as *conceptual*. The lesson learned from this process is that whenever there is a dilemma in choosing a particular type of knowledge or cognitive process, the decision should be based on the students' viewpoint.

CONCLUDING REMARKS

The Revised Bloom's Taxonomy has been used to carry out a task analysis for teaching bending stress calculations. Based on this a flowchart of the learning objectives for teaching the application of flexure formula has been developed. The chart shows the knowledge and cognitive process associated with each learning objective and the necessary prerequisites. This provides an overview of all the enabling objectives leading to the accomplishment of the main learning objective. Further work is in progress to identify the appropriate instructional strategies for achieving learning objectives based on the cognitive process and knowledge dimensions in the Revised Bloom's taxonomy.

Based on the experience in this study, the suitability of the RBT in contrast with the OBT was discussed. Both versions of the Taxonomy were found to be useful in identifying appropriate classifications. Compared to the OBT, the RBT was found to provide clearer descriptions of the cognitive process, permitting easier identification of new action verbs. In addition, identification of the knowledge dimension was found to facilitate the selection of appropriate instructional strategies. The results obtained from this particular task analysis point to a possibility that the two dimensions in the RBT may not be totally independent.

Some combinations of the cognitive process and knowledge categories are absent in the taxonomy table of this particular study. Future studies may focus on topics that are likely to result in objectives associated with higher cognitive process and metacognitive knowledge in order to examine the suitability of other aspects of the RBT for task analysis.

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