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Educational Measurement to Evaluate the Programme.

***(Judgement & 3d Model In Educational Measurement & Evaluation*.)**

Dr. V.S. Rathore, Professor,
Institute of Education & Research
Mangalayatan University, Aligarh (U.P.) India.

Introduction The higher education requires establishing of a strong feedback loop with evaluation being a continuous process and not just left until the end of the program of study. This work presents an educational measurement model to evaluate a program of study as part of continuous improvement. Here, one of the main principles of Total Quality Management, namely, continuous improvement is considered since its underlying effects reach the core business process of education such as teaching and student learning. Graphic artists use special programs to create images based on information about objects' shape in terms of height, width, and depth--the three dimensions of "3D." This article describes the fundamental concepts of developing 3D graphic imagination.
Key Word: Educational Evaluation, Naturalistic approach, 3-D Space, Models of Evaluation.

Model 3D objects for student understanding in Educational Evaluation.

To be an effective project manager, some understanding of the tools and skills involved in 3D image creation is invaluable in order to more effectively direct and manage the conception, design, and development of sophisticated projects. Use of 3D modelling in education has primarily been driven by research needs, with the resulting models sometimes being used as a teaching tool. Faculty may create models as part of their research on their own computer or outsourcing the project to a commercial company using departmental resources or university and outside grant funding sources.

Models of Educational Evaluation Methodology

Alexander and Hedberg (1994) summarise the representative approaches used in educational research over the past 50 year and give the following four key paradigms with their perceived advantages and disadvantages:

Objective-based*:* Evaluation as a process of determining the degree to which educational objectives are being achieved. This follows the scientific tradition.

Decision-based*:* Focuses on the decisions made during development and improvements that could be made. It is useful for programs with a large scope or multiple levels.

Value-based*:* Evaluation is not only concerned with goals, but also whether the goals are worth achieving. Formative and summative evaluation is used, and the evaluator considers major effects, achievements and consequences of the program.

Naturalistic approach*:* organises evaluations around the participants' key concerns and issues. Uses qualitative data collection such as journals, observations and interview.

Model 3D Works as follows-

Making basic shapes: - Most 3D graphics and animations start with basic solid objects (also known as primitives) such as cubes, spheres, cylinders, pyramids and cones.

Building complex objects: - After establishing primitives, extrude, sweep, and lathe simple 2-D spines and shapes into solid shapes.

Making it Real: - Then add colours, textures (often in the form of image and bump maps), and light sources to objects.

Operating in 3-D Space: - Position objects, cameras, lights, the ground plane, and backgrounds in simulated 3-D space.

Purpose of Models of Evaluation in Education.

Multiple evaluation schemes exist because they have been developed to serve different purposes and satisfy different goals (i.e. to evaluate with regard to: cost savings, study-time savings, pedagogic improvements, usability, efficacy, etc.). Therefore, methods are chosen which are capable of yielding the type of information required. Depending on the purpose of evaluation, there are many over-arching

frameworks available. Cohen and Mannion (1985) provide a comprehensive overview of research methods in education and the nature of the pedagogical enquiry as a whole. Jones *et al.* (1998 and 1996) presents a framework for evaluating educational software in general, drawing on an HCI approach and using the three dimensions of context, interactions, and attitudes and outcomes.

4.1. Issues with Object-based Evaluation.

Objective positivist evaluation has validity by its historical credentials within traditional science, but it has many critics within the world of educational research, where there is much uncertainty about cognitive models, appropriate teaching methods, and learning
in general. When so many factors cannot be readily measured, quantified, controlled, or regulated, there can be a tendency to de-contextualise the investigation. Objective evaluation often requires large control groups.

4.2. Issues with Subject-based Evaluation.

Parlett and Dearden were early advocates of naturalistic evaluation in what they call *illuminative evaluation*. This is characteristically done in three stages: '*investigators observe, inquire further, and seek to explain'*. Data is collected through observation, interviews, questionnaires, and documentary background information.

Use of 3D model in educational measurement and Evaluation.

As much as students vary in terms of individual differences, so do the subjects they study. It is obviously not possible to investigate how a learning support tool impacts on every topic in every subject, and so it is common to observe outcomes for any one subject with the hope that the findings will generalise to other subject domains. For this reason, it has been common to find out the learning out comes with the SOI Model of Guilford. "**Structure of Intellect**" model organized these various abilities along three dimensions: **content**, **product**, and **process**.

(a)**Visual** information directly from the senses or from imaging

(b) **Auditory** information directly from the senses or from images

(c) **Symbolic** items such as words and symbols which generally convey some meaning

(d) Semantic meanings often, but not always, **associated with words**

(e) **Behavioural** information about the mental states and behaviour of observed individuals.

The **products** dimension relates to the kinds of information we process from the content types: **Units** refers to the ability to perceive units in a content area. **Classes** refer to the ability to organize units into meaningful groups. **Relations** pertain to the ability to sense the relationships between pairs of units. **Systems** consist of the relationships among more than two units. **Transformations** is the ability to understand changes in information, such as rotation of visual figures, or jokes and puns in the semantic area. **Implications** refer to expectation.

The **operations** dimension describes what the brain does with and to these types of information:

Cognition has to do with the ability to perceive the various items. For example, the cognition of semantic units has to do with one's ability to recognize words, i.e. one's Vocabulary. Cognition of Behavioural Transformations would be the ability to perceive changes in the expressions of an individual.

Memory has to do with the ability to store and retrieve various kinds of information.

Divergent production has to do with the ability to access memory. It refers to the ability to find large numbers of things which fit certain simple criteria

Convergent Production is the search of memory for the single answer to a question or situation.

Evaluation is the ability to make judgments about the various kinds of information, judgments such as which items are identical in some way, which items are better, and what qualities are shared by various items.

Judgement model in Educational Measurement and Evaluation

Educational measurement deals with the process of obtaining a quantitative degree of achievement of objectives set for an educational setting and evaluation adds to it the value judgement. Gronlund and Linn (1990) view measurement as answering the question "**How much**?" and evaluation as answering the question **"How good?".**

The Educational Measurement Judgement Model

In this paper, a ***Criterion-Referenced Measurement*** has been adopted. **The model is described as a sequence of steps given below:**

Step 1:	Prepare a target ***Graduate Profile*** for the stu A target Graduate Profile is a list of desira students / participants to have achieved at program. Examples of such desirable characte in oral and written communication; Produces discipline, etc.
Step 2:	For the program under study, determine an ***expected level of attainment*** for each of those desirable characteristics in the target Graduate Profile.
Step 3:	For each subject taught under the program, estimate a weight (***percentage of influence***) associated with each characteristic of the target Graduate Profile.
Step 4:	Prepare a ***survey questionnaire*** for each subject. After prioritising the criteria with justified judgements, survey questionnaires are prepared for the teaching team as well as the students. For each characteristic in the target graduate profile, prepare survey questionnaires.
Step 5:	Assign a weight (***percentage of influence***) for each question associated with a characteristic.
Step 6:	Demonstrate the questionnaire on a sufficiently large sample and prepare the statistical output for each question, such as the percentage of positive responses to the question or the rating of achievement given by students or the teaching staff.
Step 7:	For each characteristic, find the result as follows: • multiply the weight with the statistical output for each question associated with the characteristic • The result for each characteristic is the sum of the values calculated in (a).
Step 8:	To obtain the final result, multiply the result for each characteristic with the weight associated with the subject and take a sum across all subjects for the course.
Step 9:	The final result thus obtained for each characteristic in the target Graduate Profile could be compared with the initial expected level of attainment.

To arrive at weights (percentage of influence) for the questions or for the subjects, follow the steps given below:

Prioritise (generate a comparison matrix)

For each characteristic given in the target Graduate Profile, both tangible and intangible criteria are involved.

Synthesise the judgements

Once the pair-wise comparison matrix has been formed for the subjects (or questions for each subject), the normalised priority of each characteristic is synthesised.

This is done as follows:

- Sum the values in each column of the pair-wise comparison matrix.
- Divide each element in the column by its column total, which results in a normalised pair-wise comparison matrix.
- Compute the average of the elements in each row of the normalised comparison matrix.
- **Results of the Model**

In this study, a higher education program was considered and the model was applied. Nevertheless, for any educational situation, one should focus attention on the following:

- Raw Data (percentage of positive responses from Step 6) for each question which indicates the level of learning taking place in the specific context.
- Intermediate Results (from Step 7) which indicates the level of achievement of each characteristic through the subject under consideration.
- Final Results (from Step 9) which indicates the overall achievement of each characteristic through the entire program of study.

The quality of result output from this model much depends on the above judgements made while assigning the weights (percentage of influence) for the criteria for each subject.

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