

REVIEW ARTICLE

Importance of Table of Specification in Validating the Summative Evaluation of Students.

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ABSTRACT

Objective: To assess the importance, benefits and utilization of the table of specification.

Methods: This review study was conducted in the Begum Bilques Sultana Institute of Nursing, Peoples University of Medical & Health Sciences Shaheed Benazir Abad from 25th December, 2015 to 5th February, 2016. A systematic search was carried out to identify the articles providing the understanding, importance, validity and utilization of table of specification. Two reviews were made for the assessment of data, while the third review was made for the settlement of the final consensus. A narrative approach was applied to synthesize the reviews.

Results: Total 215 potential articles were assessed. All the articles were scrutinized according to the pre-established inclusion and exclusion criteria. Out of which 24 articles were identified meeting the inclusion criteria. Two reviews were made for the assessment of data, while the third review was made for final consensus.

Conclusion: Authentic and valid evaluation score is possible with the proper construction of the table of specification. The core consideration to construct the table of specification includes the selection of proper content to be taught, time spent for the content, percent of class time on topic, number of test items, recognizing the levels of cognitive, psychomotor and affective domains for the construction of test items.

Key words: Importance, Table of Specification, Validation, Summative, Evaluation, Students.

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INTRODUCTION:

Giving and taking of examination is not an easy task, as it is an educational endeavor that begins from the entry into the program unto the exit.¹ Uncaring of the examination process would lead to dis-satisfaction of the examinees over their achievements and scores.^{1,2} To have done this process transparently examiner consider many tools helpful in constructing the test items, one of these is the table of specification. Authenticity of

content, Validity of content material that student used to read in pre-examination as well as the reliability of examiners play an equal role in the formulating of the score of students.³ used to read in pre-examination as well as the reliability of examiners play an equal role in the formulating of the score of students.³

Table of specification is similar to a two-way chart that specifies the subject matter to be covered in an exam and the number of items associated with the subject matter taught. Construction of the table of specification has been used as a strategy by the teachers in making instructional objectives parallel to summative evaluation.^{4,5}

The construction of table of specification has been the important technique that the teachers communicate throughout the program. However

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the construction of the TOS is time consuming process and needs careful attention.⁶

In the construction of TOS many queries comes into the mind as about the consideration of format, content, time duration, levels of learning domains in the planning of standard table of specification.^{4,6}

A standard TOS provides aid to a teacher in Making the evolutionary judgment about the progress of the student in the program of the study.⁷ This study reviews the reasons that the table of specification is to be constructed for the benefits that teachers would avail from its utilization^{6, 7}. This review also provides the understanding of the table of specification and procedure for measurement of the performance of the students.

METHODS:

Online resources were used to retrieve the required articles, 215 articles were extracted by using the online resources that includes CSA-Life Sciences, ERIC, Medline, Online education database (OECD), NCBI. The online data resources were accessed for this study form from 25thDecember, 2015 to 5thFebruary, 2016.

Out of 215 studies there were 25 studies were considered according to the pre-established Inclusion & Exclusion criteria prepared for this study. This criterion was established & followed as under.

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INCLUSION CRITERIA:

The studies that describes the importance of TOS. The studies having clues for the contents to be considered for the TOS.

The studies depicts the bloom bergs taxonomy into TOS.

The studies that portrait's the integration of evaluation process into the TOS.

EXCLUSION CRITERIA:

The studies that do not address the aim of this review study.

The studies that does not show the

Significance of TOS with the evaluation process.

The published studies enduring more than five (5) years.

RESULTS:

Flow Chart

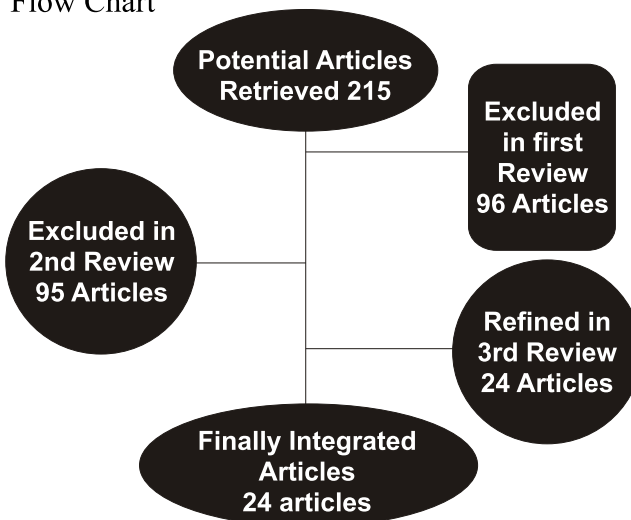


Table-I: Themes Identified for the Development of TOS

Item No:	Description	%age
1.	Blooms Taxonomy	23%
2.	Marking Weightage	22%
3.	Timing Weightage	20%
4.	Enunciation of Syllabus	15.5%
5.	Validity & Credibility of Test Item	14.5%

Out of 25 studies 23 (%) shows that every syllabus should include the blooms taxonomy in the TOS, it would instigate from the day one of the course starts to the last day of the course ends.

22 (%) of studies focus that proper weightage may be given to the contents, and this weightage would be considered after assessing the knowledge of the students on the topic.^{8,9}

20(%) of studies identifies that proper timing also have an importance that may be planned to spend in the teaching of specific content.

15.5(%) studies indicate that TOS may provide sufficient background of the course taught and may be considered in the final evaluation of the students.³

14.5(%) of studies suggests that every test item

Would contain marking scheme according to the level of learning domains.

DISCUSSION:

Integration of blooms taxonomy:

Students in learning process operate various approaches to rid over the content, it also depends prettymuch on the type of content, it is not necessary that student use same approach to master their contents. Bloomberg views that learners imply their learning techniques according to the structure of learning material. It depends on learning material in choosing the learning strategy to occupy the learners mind for best outcome. Bloomberg identified these techniques as the learning domains through which students' progress in bringing theirtolerances^{4,8}

The course syllabus must contain the learning objective through which student go through, it may be integrated with the level of learning.

The teachers must keep aware themselves for the level & type of learning required for each objective and it must have evidence in the TOS. The teaching faculty must know the hierarchy of learning (simple to complex) they desire to teach and the establishment of the criteria of evaluation. Complex test items would contain further marks Than the simple test items, as it involves utmost cognition expenditure^{2,3,9}. Nevertheless only the cognitive involvement cannot be considered as single criterion for the evaluation process still the psychomotor and affective sphere of intelligence are important players to be assessed for specific and general Practicum.¹⁰

Table No: II: Integration of Cognition Level into the Table of Specification

	COGNITION LEVEL	DESCRIPTIONS	TIME SPECIFICATION	WEIGHTAGE
LOWER LEVEL OF COGNITION TO HIGHER LEVEL OF COGNITION	REMEMBERING	Re-calling of learned information	LESS TO MORE	LOWER WEIGHTED MARKS TO HIGHERWEIGHTAGE MARKS
	UNDERSTANDING	Enabling learners to explain in their own word the information they were exposed to.		
	APPLYING	Student's expertise's in putting on the ideas they have learned in one scenario to the scenario of new situation.		
	ANALYZING	Students apply their knowledge in breaking up the complex theme into parts.		
	EVALUATING	Students use their learned experiences into relevant field.		
	CREATING	Students utilize different methods for creativity.		

Simpson in 1972 identified six (6) categories of psychomotor skills; these are based onrapidity, precision, technique, and accomplishment.¹¹

Table No: III: Integration of Psychomotor Skills into the Table of Specification

Psychomotor level	DESCRIPTIONS	TIME SPECIFICATION	WEIGHTAGE
Perception	Learners use their sense organs to coordinate motor activities.	LESS TO MORE	LOWER WEIGHTED MARKS TO HIGHERWEIGHTAGE MARKS
Mind Set	Learners show readiness to initiate the motor activity		
Guided response	Learners initiate motor activity with <i>some</i> confidence & Adeptness.		
Mechanism	Learner performs skill and accustomed to repeat.		
Complex overt response	Learner performs skills without hesitation, accurately with the minimum effort.		
Adaptation	Learners apply different Approaches to perform same skill accurately.		
Origination	Learners show new creativity in performing the skills		

The review of relevant studies show that integration and assessment of affective domain is difficult than the cognitive and psychomotor domains .This may bring a challenge to teachers for developing the values of specific content in students so that students able themselves decisive in valuing the course /syllabus. Infact it is not the teaching institutes nor the subject content that matters the failure of learners to adopt the instructional objectives , it is the lack of interest and eagerness of learners behavior instead ,same should be assessed in the affective domain. Many relevant studies in this review has revealed that affective domain must be incorporated in the curriculum and it may have

merged in the teaching strategies by they ways through which learners interest be kept sustained throughout the course plan.¹² Neglecting of affective domain may lead to failure of Cognitive and psychomotor domains too. Re known educationists indicates attention, Relevance, confidence, and satisfaction are the key performers in the affective domain, such indicators may be assessed throughout the course program for the successful learning outcome. Once teachers develops the learners mind adducted into the learning habits it may turn into “once marine always marine” however irrelevant or heavy doses of instructional objective may lead to defy affective domain.^{10,11,13}

Table No: IV: Integration of Affective Domain into the Table of Specification

Level of affective domain	Description	TIME SPECIFICATION	WEIGHTAGE
Attention	Learners display curiosity to instructional objectives.	LESS TO MORE	LOWER WEIGHTED MARKS TO HIGHERWEIGHTAGE MARKS
Relevance	Learner <u>corporates</u> instructional goal with personal worth.		
Confidence	Learners make judgment about their competency & experiences in successful completion of educational tasks.		
Satisfaction	Learners' achievement & gratification prevail.		

MARKING WEIGHTAGE:

There has been seen a common practice in developing the marking scheme for a course evaluation, for example in allocating the marks for BCQS, it contains general instruction as “Attempt any four questions all question carries equal marks”¹⁴

20% of review articles criticize this pattern of marking allocations, reason is that's it looks like that examiner is assenting or concentrating just one level of the blooms taxonomy, it may have considered, either any of cognitive, psychomotor ,or affective domains. This practice doesn't justify the standard evaluation of content matter, because content in question should not be of same

importance and of same level. 30% of review studies indicates that majority of paper setter do not consider table of specification and levels of learning domains the question paper. In every learning domain level of cognition, skill and affectless extends from simple to Complex, the teaching faculty may have know how about the particular content of ach domain that required to be assessed .There for the division of marks must be justified according to the levels of learning domains under assessment.¹⁵ Furthermost renowned educationist emphasis on the award of marks according to the complexity of test items.^{14,15}

Table No: V: Justification of marking weightage according to the expenditures of mental involvement (Test item congaing Five question for Fifty Marks).

CATEGORYLEARNING OF DOMAIN	Test Item No:	MARKING DIVISION	CUMULATIVE MARKS
Cognitive-1 (1)	01	04	04
Psychomotor (2)	02	07	11
Cognitive-(4) a	03(a)	07	18
Cognitive (4) b	03(b)	07	25
Psychomotor (4) a	04(a)	08	33
Psychomotor (4) b	04(b)	08	41
Affective-5	05	09	50
<i>Total No: of test items</i>		<i>Five (5)</i>	
<i>Total No: of Marks</i>		<i>Fifty (50)</i>	

Table No: VI: TIMING WEIGHTAGE

CATEGORYLEARNING OF DOMAIN	Test Item No:	TIME ALLOCATION (In-Minutes)	CUMULATIVE Time allocation (IN-Minutes)
Cognitive-1 (1)	01	10	15
Psychomotor (2)	02	15	25
Cognitive-(4) a	03(a)	20	45
Cognitive (4) b	03(b)	20	65
Psychomotor (4) a	04(a)	25	90
Psychomotor (4) b	04(b)	25	115
Affective-5	05	30	150
<i>Total No: of test items</i>		<i>Five (5)</i>	
<i>Maximum time allocation</i>		<i>2.5 Hrs(Hours)</i>	

20% of review articles justified that timing scheme of a test item in both BCQs & SEQs may be considered in the selection of total test items. In the planning of total test items for 2.5 hours or more the distribution of time may be allocated according to the complexity of the testing material and the expenditures of mind. However 25% review findings suggest that in viewing the intellectual level of learner to solve the test item of different domains the total time tolerable for solving the test item may be stated cumulatively.¹⁶

VALIDITY & CREDIBILITY OF TEST ITEM:

14.5% of retrieved literature embarks that each test item needs to be tested for its proper application.

Constructed test items may be presented to the relevant panel of experts for review and consultation.

It is measureable and conclusion may be drawn about the level of understanding the learner have for test item at the time of summative evaluation.

The outlying test item may be replaced with the relevant one, such drawback in making the actual score may be addressed well before the administration of test item.¹⁸

Mostly relevant studies has shown that there has been deficits in validating the test item that may put learner into misunderstanding and would contribute in making the wrong response to the addressed test item in the summative evaluation.^{5,6,7,10}

The appropriate strategy may be applied in the construction of table of specification so that the theme from which the test item is being driven may be integrated with the judgment of learners .Such judgment is made to understand how the theme has been taken by the learners as complex or otherwise.^{19,20}

CONCLUSION:

Proper follow up and construction of table of specification have an important role in the summative evaluation of learners.

The assessment of learners may be based on the learning domains that depend on the level of syllabus recommended.

In constructing short essay questions may be given the weightage of marks and time according to the involvement of the learning domains.

It became in appropriate if the learners are allowed to choice among the constructed test items of different domains, because the learners may skip from any of three domains and would select the overall test items from one or two domains.

Such type of summative evaluation would not reflect the actual score of learner.

For the accomplishment of this task the learner may be exposed to all three learning domains leaving no choice behind in summative evaluation.

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