



ORIGINAL RESEARCH PAPER

Education

CONSTRUCTION AND VALIDATION OF A TOOL FOR MEASURING VIRTUAL LEARNING ENVIRONMENT (VLE)

KEY WORDS: Virtual Learning environment – teachers – development of tool .

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ABSTRACT

The present Study is an attempt to construct and validate a tool for assessing the virtual learning environment of teachers in different dimensions which include effectiveness of internet usage, availability of online education resources, interest of learning through online technology, interaction through online media and accessibility of internet. A pilot study among 100 teachers including 50 male and 50 female teachers from various schools was conducted in Namakkal District to establish reliability and validity of the tool. The Mean, Median and S.D value of the tool are 236.43, 239.39 and 6.68 respectively. The distribution seems to be slightly positively skewed. Content validity was established by getting opinions of the experts and scholars in the field of education. Percentile norms of the tool was also planned well to appraise the Scores of Virtual Learning Environment Scale. The tool contains 50 items including 35 positive items and 15 negative items. The minimum score of the scale is 50 and maximum score is 250.

INTRODUCTION

A Virtual Learning Environment (VLE) in educational technology is a Web-based platform for the digital aspects of courses of study, usually within educational institutions. VLE is normally not designed for a specific course or subject, but is capable of supporting multiple courses over the full range of the academic program, giving a consistent interface within the institution and—to some degree—with other institutions using the system. The virtual learning environment supports an exchange of information between a user and the learning institute he or she is currently enrolled in through digital media like e-mail, chat rooms, web 2.0 sites or a forum thereby helping to convey information to any part of the world with just a single click (Davis, Bagozzi, & Warshaw, 2001). The Virtual Learning Environment (VLE) includes effectiveness of Internet usage, teaching through online resources, and interest of learning through online media, interaction through online media and accessibility of internet (Eastmond & Ziegahn, 2001).

In principle it is a learning platform under a safe and secure environment. It is reliable, available online and accessible to a wide user base. A user should be able to move between learning platforms throughout their life with no loss of access to their personal data. The concept of a learning platform accommodates a continuously evolving description of functionality changing to meet the changing needs of the user (Van Raaij & Jeraen JL Shepers 2006). In order to provide the effective learning process through Virtual Learning, a conducive virtual learning Environment is indispensable. Hence, it is the need of the hour to develop a tool to assess Virtual Learning Environment. Based on the review of related literature it has been found that only very few tools are available to measure the Virtual Learning Environment (VLE) and most of the tools are prepared by the overseas authors. Hence, an attempt has been made to Construct and validate an indigenous scale to measure Virtual Learning Environment.

Selection of Items

The items of Virtual Environment Assessment Scale (VLES) have been selected on the basis of the different dimensions that include effectiveness of internet usage, availability of online education resources, interest of learning through online technology, interaction through online media, and accessibility of internet. For the selection of items, a number of standard inventories, questionnaires and books have been referred. The opinion of the experts was also sought out for the selection of items. Finally, items were modified and framed which were found suitable for assessing the virtual learning environment.

The following points have been considered while selecting the items:

- 1) It was found desirable to include more items in preliminary form of test.

- 2) Repetition or overlapping of items was avoided.
- 3) Items were framed in a simple and explicit language to avoid any misunderstanding.
- 4) Statements were set against 5-point scale namely strongly disagree, disagree, undecided, agree, and strongly agree.

Preliminary Form

The present tool is constructed by the investigators based on the tool developed by Govindaraju & Jebakumar (2009). The tool consisted of 72 items. Investigators based on experts opinion omitted and modified some of the items and brought out tool with 50 items which were felt very much essential for the study. The items were developed in a simple language so that the samples can understand and grasp the meaning easily. As the instructions to the samples were to be general, detailed and explicit, they were provided in a clear manner.

Tryout of VLES

The preliminary study of the Virtual Learning Environment Scale (VLES) was conducted to a randomly selected 100 teachers including 50 digital natives (Teachers who use digital technology in the class room) and 50 digital immigrant (Teachers who were born before the wide spread adoption of digital technology) of ten high / higher secondary schools of Namakkal District in the state of Tamilnadu.

Administration of VLE Scale

The tools were distributed to one hundred teachers. They were asked to fill up the details of gender, locality, age, educational qualification, professional qualification, designation, major subject, teaching experience and marital status printed on the front page. The samples were requested to read the instructions carefully before giving their responses, realizing its importance in academic arena. After the samples read out instructions, their suggestions and doubts were discussed and certain statements were rephrased for more clarity in understanding. The samples were then requested to turn the page and to begin answering the items. No time limit was imposed, ordinarily not more than fifteen to twenty minutes were required for all samples to complete the tool.

Scoring Procedure

The statements in the scale were set against a 5 point scale viz., strongly disagree, disagree, undecided, agree, and strongly agree. The scale consists of positive 35 items and negative 15 items. The scores for positive statements were 1, 2, 3, 4, and 5 respectively and for negative statements vice versa. The sum of scores shows the degree of Virtual Learning Environment assessment. The maximum score of the scale was 250 and the minimum was 50.

RESULTS

The Mean, Median and S.D. for the sample area given in Table No - 1

TableNo: 1 The Mean, Median and S.D.

Mean	Median	S.D
236.43	239.39	6.68

From the table No-1 it has been found that the distribution seems to be slightly positively skewed.

The calculated value of the Skewness , Kurtosis and S.E are presented in the Table No- 2

TableNo: 2: Showing Skewness, Kurtosis and S.E (N=100)

	Value	S.E	Remarks
Skewness	0.73	0.162	NS
Kurtosis	0.204	0.057	NS

Since the S. E. of skewness and kurtosis are less than ± 1.96 , at 5 % level of Confidence, it is interpreted that the sample does not differ from normality.

Reliability of the VLES

Reliability refers to the consistency with which a test measures. The concept of reliability suggests both stability and consistency of measurement. For estimating reliability of the Virtual Learning Environment Scale (VLES), the test was administered on the 50 subjects in each category, twice with interval of twenty five days and the coefficient of correlation was computed between the first

set of scores and second set of scores.The Reliability values calculated based on test-retest method are presented in the table No-3.

Table-3: Reliability values for Virtual Learning Environment scale.

S.No	Dimension	Reliability Value
1	Effectiveness of Internet usage	0.789
2	Availability of online resources	0.823
3	Interest of learning through online media	0.906
4	Interaction through online media	0.870
5	Accessibility of internet	0.792

Validity of the VLES

Content validity of Virtual Learning Environment Scale was ascertained by the selection of items and the agreement of the judge's opinion on the content of items as true measure of Virtual Learning Environment. Content validity is non-statistical. The content validity ensures that its content covers a representative sample of the dimension of phenomenon under consideration. The opinion of the experts was taken into consideration in acceptance of which statements increased its content validity.

Percentile Norm for the Virtual Learning Environment Scale (VLES)

The investigators of the present study framed the percentile norm in respect of the entire sample and the sub-samples for Virtual Learning Environment Scale (VLES).

Table -3: Percentile norm for Virtual Learning Environment scale (VLES)

S.No	Dimension	Score	Percentile	Norm
1	Effectiveness of Internet usage	Upto 26	Upto 50%	Unfavorable Virtual learning environment
	Effectiveness of Internet usage	Above 26	Above 50%	Favorable Virtual learning environment
2	Availability of online resources	Upto 26	Upto 50%	UnfavorableVirtual learning environment
	Availability of online resources	Above 26	Above 50%	Favorable Virtual learning environment
3	Interest of learning through online media	Upto 26	Upto 50%	Unfavorable Virtual learning environment
	Interest of learning through online media	Above 26	Above 50%	FavorableVirtual learning Environment
4	Interaction through online media	Upto 26	Upto 50%	Unfavorable Virtual learning Environment
	Interaction through online media	Above 26	Above 50%	Favorable Virtual learning environment
5	Accessibility of internet	Up to 26	Upto 50%	Unfavorable Virtual learning environment
	Accessibility of internet	Above 26	Above 50%	Favorable Virtual learning environment

CONCLUSION

Thus, the present tool viz., Virtual Learning Environment Scale (VLES) has different dimensions which include effectiveness of internet usage, availability of online education resources, interest of learning through online technology, interaction through online media and accessibility of internet. The present tool is constructed by the investigators based on the tool developed by Govindaraju & Jebakumar (2009). Investigators based on experts' opinion omitted and modified some of the items and brought out tool with 50 items which were felt very much essential.The validity and reliability are also established and the percentile norms in respect of the entire sample and the sub-samples are furnished.

VIRTUAL LEARNING ENVIRONMENT SCALE (VLE) FOR TEACHERS

Please read the following statements and tick the box which you think that suits your opinion best in the scale

1. Effectiveness of Internet usage

Sl.No	STATEMENTS	SA	A	U	DA	SDA
1.	Internet could be used as an effective tool for higher education of the students.					
2.	After using internet for my teaching, I am able to teach well					
3.	Internet use has helped me in completing my academic assignments.					
4.	Internet Usage has made my teaching difficult.					
5.	Internet enhances my interest in teaching.					

6.	I organize myself while teaching from Internet.					
7.	I make use of Internet resources very effectively for teaching.					
8.	My students can get better result in exams if I teach using educational resources available in the Internet					
9.	Both, my students and myself find it difficult to access the internet facility due to poor connectivity from any source.					
10.	Internet provides me lots of options to use.					

2. Availability of online resources

11	Interactive learning through the use of online technology will benefit the learning process					
12	Online technology cannot replace face to face Interaction. So it is unfavorable					
13	It is easier and interesting to teach the study materials through online technology.					
14	Online teaching facilitates Interactivity with the students.					
15	Though online teaching facilitates interactivity with the students, it does not provide intensive mental reachability of the students.					
16	I intend to use Internet educational resources frequently while making academic assignments.					

17	Mostly I use Internet's online education resources as a reference tool only.						
18	Teaching-Learning process through Online education is convenient.						
19	One can access the education resources available in internet very easily.						
20	Internet will enable one to take a more active role in teaching learning process						

3. Interest of learning through online media

21	I intend to use E-Books, E-journals in Digital library for my teaching purpose.						
22	It is difficult to learn through online and one can trouble shoot the hardware and software problems with difficulty only.						
23	Teaching – Learning process through interactive online animation media is easy.						
24	Through Net communication, the exchange of study material, clarifications of doubts, message transformation between the Teacher and Students is made easy						
25	Online media mostly facilitates group interactive Learning.						
26	I intend to use internet for my teaching the subjects.						
27	Without other's help anyone can access online facilities, from any plan, at any time.						
28	It is difficult for everyone to access online resources, due to net availability (or) lack of e-knowledge.						
29	Mostly I store my notes and references in Web - log online journal.						
30	Without a determined will power, the usage of internet may be dangerous as all the unwanted matters are also available.						

4. Interaction through online media

31	My interaction with online Internet resources is clear and understandable						
32	Teaching through the online is Mostly Interactive and interesting						
33	Mostly I like to use the online media for sharing and comparing academic information with my students.						
34	Interactivity through online sometimes distracts the teaching and the purpose of teaching will not be realized.						
35	Group Interactive learning, through the use of online technology is meaningless, for an individual learning.						
36	Interactive learning through the use of online technology will expedite the teaching- learning process						
37	Teaching-Learning process through Interactive Online Media is a difficult process in the present educational scenario of TN.						
38	Using internet interaction for academic purpose is harmful to students						
39	Using Internet resources for interaction purpose seems to be a foolish idea.						
40	I have found positive developments in my academic performance after using Internet resources.						

5. Accessibility of internet

41	Mostly I teach through Open Education Resources available in the Internet.						
42	My academic performance has decreased after accessing Internet resources.						
43	Most of the time I access internet at home.						
44	I learn or discuss about my academic interest through blogs, e-groups, virtual spaces.						
45	Most of the time I access internet at school library.						
46	I mostly access Internet resources at a Browsing centre.						
47	Mostly my students use Internet when they make assignments.						
48	Always I instruct my students to use internet resources while studying.						
49	Mostly I surf Internet resources for downloading texts, graphics & moving images.						
50	Using internet for academic purpose is an extremely wise idea.						

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