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Construction and validation of e-learning resources access scale (ELRAS)

S Raja kumar, P Pachaiyappan

Assistant Professor, GRT College of Education, Tiruttani, Thiruvallur District, Tamilnadu, India

Abstract
The purpose of the present study is to develop and validate a Scale to measures student E-Learning Resources Access. The author undertook the following steps to build the scale: Developing a preliminary draft, Tryout, reliability and validity, Item analysis and Final draft of the scale. The Scale was administered to 110 Arts and Science College students enrolled in Under Graduate courses from Thiruvallur and Vellore Districts of Tamilnadu. The results of the study revealed that the E-Learning Resources Access Scale (ELRAS) has high level of reliability and validity.

Keywords: E-learning resources access Scale, Under Graduate students, Arts and Science students, Item analysis, reliability, validity.

Introduction

As the utilize of e-learning is becoming more and more widespread in higher education it has become increasingly important to examine the impact that this learning style has on student's performance. An e-resource is any information supply that the access to in an electronic arrangement. Many of the peoples subscribe to countless electronic information resources in classify to make available with access to at no cost or charge. E-resources include lots of things: full-text journals, newspapers, company information, dictionaries, e-books, trade and industry data, encyclopedias, industry profiles, digital images, career information, market research, etc.

Advances in technology are becoming most significant part of the learning and teaching all over the universal. It is across the world thought that new technologies can make a big difference in education. In particular, students can interact with new media, and improve their skills, knowledge, and perception of the world, under their teachers' monitoring, of course. E-learning for the instance, is the computer and network-enabled transfer of skills and knowledge. E-learning applications and processes include Web-based learning, computer-based learning, virtual education opportunities and digital collaboration. Content is delivered via the Internet, intranet/extranet, audio or video tape, satellite TV, Android / ios mobile phone, tablet, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio. Many supporters of e-learning believe that everyone must be equipped with basic knowledge in technology, as well as use it as a medium to reach a particular goal (Jayant Deshpande, 2015) [6].

In the context of the wider education community, the use of the term e-learning has historically had wider connotations that embrace a diverse range of practices, technologies, and theoretical positions. It is not only focused on online contexts and includes the full range of computer – based learning plot forms and delivery methods, games, formats, and media such as multimedia, educational programming, simulations, games and the use of new media on fixed and mobile plat forms across all discipline areas. It is often characterized by active learner-centered pedagogies (Hard, 1991; McDougall & Betts, 1997).

Review of Related Literature

Anisur Rahman (2011) studied Challenges for International Students in Using Electronic Resources in the Learning Centre it is found that students from countries closely culturally related to Norway are more familiar or apt with library environment and teaching style than students from countries culturally distant from Norway. It is significant that library anxiety or barriers with staff, judging from the results of the interviews, were absent. The students overwhelmingly confirmed that they were happy with the assistance of library staff and that they were comfortable with using the 24/7 computer availability, printing and drop box facilities for return the borrowed items.

Nu'man M. Al-Musawi (2014) [9] Developed and Validated of a Scale to Measure Student Attitudes Towards E-learning The Scale was administered to 200 students enrolled in e-learning courses at the Universities of Bahrain and Kuwait. The results of the study demonstrated high levels of validity and reliability of the developed measure.

Signe Schack Noesgaard and Rikke Orngreen (2015) studied the Effectiveness of E-Learning: An Explorative and Integrative Review of the Definitions, Methodologies and Factors that Promote e-Learning Effectiveness. E-Learning and traditional face-to face learning should be measured according to the same definitions of and approaches to effectiveness, ending with a call for learning designers and researchers to target their measurement efforts to counting what counts for them and their stakeholders.

D. H. Kisanga and G. Ireson (2016) [7] develop and validated the study Test of e-Learning Related Attitudes (TeLRA) scale: Development, reliability and validity study. The results reveals that the development and validation of a scale of teachers' attitude to e-learning. Whilst being initially developed to assess the attitude of teachers in HLIs the authors belief, having piloted with pre-service trainee teachers in England that the scale transfers across national boundaries. The final instrument contains 37 items with a Cronbach alpha score of 0.857. Although the developed attitude scale was intended for use in HLIs, it can also be of interest to researchers investigating attitudes on other sectors.

Statement of the Problem

A number of e-learning initiatives have been put in place to assist in the development training and use of electronic resources. Hence the Present study stated as *Construction and Validation of E-Learning Resources Access Scale (ELRAS).*

Need and Significance of the Study

In the 21st century is regarded as technological century all information's are stored in the clouds. So that access an electronic resource for collecting the information is necessary for every learner. The students how much they are access the e-learning resources for their academic purposes and it may be facilitate to their learning and academic performance.

Technology is a mediator of change and major technological innovations can result in entire paradigm shifts. The technological revolution poses terrific challenges to the educators to change their basic system of belief, to apply technology in creative way to redesign learning in education. After affecting extensive changes in the way people communicate and do business, the Internet is poised to bring about a paradigm shift in the way people learn. Now-a day's anywhere, anytime education is possible. The practice of providing education with the help of modern technologies is termed as e-Learning. It is dynamic, operates in real time, empowering, individual and comprehensive, effective and quick. E-learning resources is a combination of content and instructional methods delivered by media elements such as words and graphics on a computer intended to build job-transferable knowledge and skills linked to individual learning goals or organizational performance. The Major benefit of e-Learning resources is that it is eco-friendly because it takes place in a virtual environment and thus avoids travelling and reduces the usage of papers. The learners are well aware of the E-Learning Resources Access ways then only the learners like students, teachers and others will be enormously benefited in the future. Developing the positive attitude E-Learning Resources Access of students and teachers is the need of the technological era.

Objective

To construct and to validate a new Scale namely, the E-Learning Resources Access Scale (ELRAS)

Sample

The data of the sample as many as 110 college students studying in the Arts and science colleges in Thiruvallur and Vellore district of Tamilnadu, India. Random sampling technique has been used in the process of data collection from the sample.

Method of the Study

Normative survey method has been used in the present study.

Tools Description

The pilot study was conducted 110 college students studying in the Arts and science colleges in Thiruvallur and Vellore district of Tamilnadu, India. Random sampling technique has been used in the process of data collection. Before conducting pilot study the researcher got the permission to the principles of the various arts and science colleges. This tool available to measure the E-Learning Resources Access constructed and validated by the investigators. The tool ELRAS in the construction of the four point rating scale is the collection of a data from undergraduate arts and science college students. Initially the scale consists of 41 statements revealing the E-Learning Resources Access. The research tool was given to the experts in the field of Educational technology and ICT. According to the expert opinion and pilot study some of the items were modified and re structured final draft of the scale.

The next step in the construction and validation of E-Learning Resources Access Scale after pilot study is to find out Item-Total Statistics value of each statement which forms the basis for item selection in order to buildup the final Scale. The pilot study item analysis, 37 items were selected for the final draft of the scale and 4 items were subject to rejected.

The Scale scored the response to each statement on a ranging from "Always" "often" "sometime" "Never". The different points on the Scale are allotted subjective weights.

For example

4, 3, 2 and 1 scored as "Always" response to "Never" for the positive statements respectively.

Construction of E-Learning Resources Access Scale

Table 1: Item-Total Statistics

Question Numbers	Mean if Item Deleted	Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Remarks
Q1	89.69	379.390	0.597	0.905	Selected
Q2	90.10	377.210	0.642	0.904	Selected
Q3	89.75	375.880	0.671	0.904	Selected
Q4	89.91	374.817	0.635	0.904	Selected
Q5	89.85	378.829	0.599	0.905	Selected
Q6	89.40	378.389	0.548	0.905	Selected
Q7	89.08	388.920	0.252	0.909	Selected
Q8	89.71	376.227	0.556	0.905	Selected
Q9	89.95	380.172	0.515	0.905	Selected
Q10	89.69	384.216	0.380	0.907	Selected
Q11	90.08	382.369	0.426	0.907	Selected
Q12	89.33	388.057	0.275	0.908	Selected
Q13	89.95	379.989	0.537	0.905	Selected
Q14	89.73	383.136	0.417	0.907	Selected
Q15	88.71	406.025	**0.153**	**0.913**	**Rejected**
Q16	89.45	396.305	**0.060**	**0.912**	**Rejected**
Q17	90.15	389.104	0.253	0.909	Selected
Q18	89.72	382.039	0.444	0.906	Selected
Q19	89.60	380.591	0.425	0.907	Selected
Q20	89.96	378.494	0.583	0.905	Selected
Q21	89.79	382.699	0.386	0.907	Selected
Q22	89.72	374.645	0.586	0.904	Selected
Q23	89.82	378.389	0.516	0.905	Selected
Q24	89.91	378.946	0.438	0.906	Selected
Q25	89.76	374.953	0.556	0.905	Selected
Q26	89.62	381.669	0.470	0.906	Selected
Q27	89.72	371.727	0.637	0.904	Selected
Q28	89.60	377.380	0.508	0.905	Selected
Q29	89.66	376.574	0.540	0.905	Selected
Q30	89.40	375.123	0.589	0.904	Selected
Q31	89.49	375.977	0.588	0.904	Selected
Q32	89.54	379.499	0.438	0.906	Selected
Q33	89.76	379.595	0.501	0.906	Selected
Q34	89.68	388.164	0.283	0.908	Selected
Q35	88.82	405.398	**0.131**	**0.914**	**Rejected**
Q36	89.45	380.617	0.443	0.906	Selected
Q37	89.76	385.100	0.316	0.908	Selected
Q38	89.31	379.812	0.469	0.906	Selected
Q39	89.51	378.601	0.483	0.906	Selected
Q40	89.45	382.690	0.424	0.907	Selected
Q41	88.59	406.281	**0.170**	**0.913**	**Rejected**

By investigating the item-total correlation, the results reveals that the correlations of items 15, 16, 35 and 41 with the overall exam are 0.153, 0.060, 0.131 and 0.170, while all other items correlate at 0.25 or better. By investigating the inter item correlations, the results exert that again items 15, 16, 35, and 41 are significantly lower than the rest of the items. Finally, by exploring the alpha if deleted, we can see that the reliability of the scale (alpha) would increase to 0.909 if any of these four items were to be deleted. Thus, we would probably delete these four items from this Scale.

There is a spurious positive contribution to the correlation between an item and the total Scale score which arises because the total score contains the particular item score, although there are usually sufficient items in most tests to make this effect quite small. The E-Learning Resources Access Scale in the item analysis give correlation coefficients corrected for this effect. This is the correlation between scores on each item and the total scores on the other items.

Interpreting the scores

- above 0.3 is considered 'good';
- 0.2 to 0.3 is considered 'workable'
- below 0.2 is considered unacceptable

Item discrimination of above 0.3 is considered 'good'. A discrimination of 0.2 to 0.3 is considered 'workable' while a discrimination of below 0.2 is considered unacceptable. (Falvey et al, 1994: 126ff) [2] Falvey P, Holbrook J. & David C. (1994) [2].

Table 2: Reliability and Validity Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
0.909	0.911	41

From the above table 1, In order to establish reliability Chronbach Alpha reliability coefficient of E-Learning Resources Access Scale was calculated to be **0.909.** The intrinsic validity coefficient was established by taking the square root of reliability coefficient which is **0.953.** Thus the tool is found to be highly reliable and valid.

Generally, a questionnaire with a Cronbach's Alpha is 0.8 is considered reliable (Field, 2009) [4]. Hence, this questionnaire certainly is reliable, since the Cronbach's Alpha is 0.909. The resulted Cronbach's Alpha should yet be interpreted with caution. Since the amount of items in a questionnaire is taken into account in the equation, a high amount of variables can upgrade the Cronbach's Alpha (Cortina, 1993; Field, 2009) [4].

Conclusion

The present study was aimed to develop and validate a scale to measures E-Learning Resources Access of undergraduate students. It is given that the designed measure has proved to have good psychometric properties; it can serve as a useful tool to assess E-learning resources access attitude of college students in Thiruvallur and Vellore districts. The constructed scale satisfied with E-Learning Resources Access as an effective alternative to traditional, teacher-centered classroom learning. As a result, the construction of this tool to assess the student's E-learning is considered an important step in achieving quality assessment and improving teaching and learning. The study covers various aspects of E-learning resources available in the web. The final draft of the scale has high level estimates of reliability and validity.

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