Vol. 14, Sp. Issue: 1, December: 2025
ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

Construction and Validation of Online Student Engagement Scale

J. T. AUGUSTIN JEBAKUMAR
Ph.D. Research Scholar
Department of Educational Planning and Administration
Tamil Nadu Teachers Education University
Karapakkam, Chennai-600 097

DR. P. SUBRAMANIAN
Assistant Professor
Department of Educational Planning and Administration
Tamil Nadu Teachers Education University
Karapakkam, Chennai-600 097

Abstract:
Individuals seek adaptable learning to meet their requirements for advancement. An alternative is via web-based education or e-learning. The internet has granted individuals limitless access to information. Online education makes lifelong learning easier to access. The advancement of online education provides teachers the chance to establish virtual mentorships that enhance student participation in learning. Virtual education offers diverse media and teaching resources. Through electronic communications, e-mentoring aims to enhance and nurture the abilities, expertise, self-assurance, and cultural awareness of the less skilled person. Online education allows teachers to communicate with students via email, LMS, online chat, and digital bulletin boards, no matter where they are located. As a result, students can construct their own understanding when they feel involved in the activity they participate in. This study is carried out by the researcher to construct and validate a tool for measuring the student engagement in online education. A sample of 300 students were selected for study and the constructed tool was administered to them to assure their validity and reliability.

Keywords: *Student engagement, Online education, Construction and validation*

1. Introduction

With the advancement of computer, network, and other technologies, online education emerged, emphasizing the availability of learning resources and student communication throughout the learning process. Many students engage in online learning, which has emerged as the most popular method of instruction. However, because of the relationship between teachers and students, "communication is not enough, students participate in online learning is not ideal, student participation is persistent, and efficiency is not good enough." Online learning is significantly impacted by student involvement, which is a prerequisite for learning. Hence, it is essential to analyze and research students' involvement in online learning in order to support teachers in providing timely intervention, assist students in reflecting on their own learning, and encourage their participation in the learning process.

2. Construction of Online Student Engagement Scale

The researcher after considering all the necessary facts, framed the required items of the scale. The quality of the research tool was maintained while constructing it. At each level of construction, the quality of the tool has been ensured. The tool was constructed based on an extensive review of related literature, consultation with experts, and pilot testing. The researcher also considered constructing the scale in a very simple language that can be easily understandable. The detailed process of construction of the present research tool and establishment of validity and reliability of the tool is given below.

3. Description of Online Student Engagement Scale

The Online Student Engagement Scale consists of 100 items distributed under ten dimensions. The

researcher has considered all possible dimensions and has framed ten different dimensions for the Online Student Engagement Scale. Each dimension consisted of ten items. The dimensions considered by the researcher are given below.

1. General Engagement (Items 1– 10)
2. Behavioural Engagement (Items 11 – 20)
3. Cognitive Engagement (Items 21 – 30)
4. Emotional Engagement (Items 31 – 40)
5. Instructor Influence on Engagement (Items 41 – 50)
6. Peer Interaction and Social Engagement (Items 51 – 60)
7. Technological Aspects of Engagement (Items 61 – 70)
8. Barriers to Engagement (Items 71 – 80)
9. Future Engagement in Online Learning (Items 81 – 90)
10. Comparison with Traditional Learning (Items 91 – 100)

The researcher has carefully taken into consideration the simplicity in language, understanding ability of the learner, clarity of the questions, etc., while preparing the scale. The researcher has prepared the items of the scale under expert guidance.

4. Validation of Online Student Engagement Tool

Content validity was established by submitting the preliminary drafts of both tools to a panel of experts in Education, Educational Technology, and Psychology. Based on their suggestions, necessary modifications were incorporated. Thus, both tools were ensured to possess adequate content validity.

5. Sample Chosen

To validate the tool, the researcher has selected 150 B.Ed. students as the sample. Simple random sampling technique was used by the researcher to draw the sample.

6. Pilot Study

After discussion with the research guide and other experts, necessary modifications were made in the scale before the actual try out was done. A rough draft of the online student engagement scale was prepared and it was administered for pilot study. Specific instructions were given to the B.Ed. students about the time limit, method of answering etc., The items were presented to 150 B.Ed. students. The researcher met the students personally and clearly explained the purpose of data collection and gave assurance to them that the data collected from them are used only for research purpose. Then, the researcher briefly explained each question to the students and instructed them to put a (√) mark for the relevant choice of items and instructed them to answer all the items without omitting any. The scale used is the five-point likert scale. For Positive Items, the score has been given as follows. Strongly Agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1. For negative items, the score has been given as follows. Strongly Agree = 1, Agree = 2, Neutral = 3, Disagree = 4, Strongly Disagree = 5. Each item has been scored. The recorded answers were counted as per the scoring key. The item-wise - corrected item-total correlation was calculated with the collected data scores.

Table 1 - Item Wise Corrected Item Total Correlation

S.No	Item	'r' value	Remark
1.	Item 1	0.848	Accepted
2.	Item 2	0.845	Accepted
3.	Item 3	0.347	Rejected
4.	Item 4	0.339	Rejected
5.	Item 5	0.845	Accepted
6.	Item 6	0.853	Accepted
7.	Item 7	0.852	Accepted
8.	Item 8	0.341	Rejected

9.	Item 9	0.850	Accepted
10.	Item 10	0.348	Rejected
11.	Item 11	0.853	Accepted
12.	Item 12	0.324	Rejected
13.	Item 13	0.853	Accepted
14.	Item 14	0.352	Rejected
15.	Item 15	0.860	Accepted
16.	Item 16	0.353	Rejected
17.	Item 17	0.853	Accepted
18.	Item 18	0.362	Rejected
19.	Item 19	0.848	Accepted
20.	Item 20	0.855	Accepted
21.	Item 21	0.349	Rejected
22.	Item 22	0.859	Accepted
23.	Item 23	0.851	Accepted
24.	Item 24	0.844	Accepted
25.	Item 25	0.847	Accepted
26.	Item 26	0.850	Accepted
27.	Item 27	0.340	Rejected
28.	Item 28	0.846	Accepted
29.	Item 29	0.343	Rejected
30.	Item 30	0.349	Rejected
31.	Item 31	0.852	Accepted
32.	Item 32	0.850	Accepted
33.	Item 33	0.858	Accepted
34.	Item 34	0.850	Accepted
35.	Item 35	0.341	Rejected
36.	Item 36	0.351	Rejected
37.	Item 37	0.845	Accepted
38.	Item 38	0.846	Accepted
39.	Item 39	0.847	Accepted
40.	Item 40	0.348	Rejected
41.	Item 41	0.852	Accepted
42.	Item 42	0.343	Rejected
43.	Item 43	0.854	Accepted
44.	Item 44	0.849	Accepted
45.	Item 45	0.854	Accepted
46.	Item 46	0.345	Rejected
47.	Item 47	0.857	Accepted
48.	Item 48	0.862	Accepted
49.	Item 49	0.346	Rejected
50.	Item 50	0.348	Rejected
51.	Item 51	0.845	Accepted
52.	Item 52	0.845	Accepted
53.	Item 53	0.846	Accepted
54.	Item 54	0.847	Accepted
55.	Item 55	0.351	Rejected
56.	Item 56	0.847	Accepted
57.	Item 57	0.349	Rejected
58.	Item 58	0.844	Accepted

59.	Item 59	0.347	Rejected
60.	Item 60	0.350	Rejected
61.	Item 61	0.848	Accepted
62.	Item 62	0.351	Rejected
63.	Item 63	0.846	Accepted
64.	Item 64	0.347	Rejected
65.	Item 65	0.845	Accepted
66.	Item 66	0.844	Accepted
67.	Item 67	0.851	Accepted
68.	Item 68	0.346	Rejected
69.	Item 69	0.854	Accepted
70.	Item 70	0.354	Rejected
71.	Item 71	0.848	Accepted
72.	Item 72	0.845	Accepted
73.	Item 73	0.847	Accepted
74.	Item 74	0.846	Accepted
75.	Item 75	0.351	Rejected
76.	Item 76	0.353	Rejected
77.	Item 77	0.854	Accepted
78.	Item 78	0.346	Rejected
79.	Item 79	0.853	Accepted
80.	Item 80	0.347	Rejected
81.	Item 81	0.342	Rejected
82.	Item 82	0.848	Accepted
83.	Item 83	0.849	Accepted
84.	Item 84	0.861	Accepted
85.	Item 85	0.340	Rejected
86.	Item 86	0.346	Rejected
87.	Item 87	0.844	Accepted
88.	Item 88	0.847	Accepted
89.	Item 89	0.848	Accepted
90.	Item 90	0.344	Rejected
91.	Item 91	0.862	Accepted
92.	Item 92	0.845	Accepted
93.	Item 93	0.845	Accepted
94.	Item 94	0.342	Rejected
95.	Item 95	0.343	Rejected
96.	Item 96	0.849	Accepted
97.	Item 97	0.851	Accepted
98.	Item 98	0.347	Rejected
99.	Item 99	0.851	Accepted
100.	Item 100	0.348	Rejected

Most items, which most students did not attempt, were modified to ensure simplicity, clarity and unnecessary items were deleted. Forty items were deleted out of hundred items, sixty were retained, and the scale was finalized.

7. Reliability of the Online Engagement Scale

Reliability was established using Cronbach's Alpha. The obtained Cronbach's Alpha values ranged between 0.674 and 0.762, indicating good internal consistency for all ten dimensions. The dimension wise reliability testing is as follows.

Vol. 14, Sp. Issue: 1, December: 2025
ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

Dimension	Cronbach's Alpha
General Engagement	0.722
Behavioural Engagement	0.730
Cognitive Engagement	0.748
Emotional Engagement	0.695
Instructor Influence on Engagement	0.674
Peer Interaction and Social Engagement	0.762
Technological Aspects of Engagement	0.747
Barriers to Engagement	0.710
Future Engagement in Online Learning	0.755
Comparison with Traditional Learning	0.735

Thus, the reliability of the tool was ensured.

8. Conclusion

The researcher in this study has attempted to construct and validate the Online Student Engagement Scale. 150 B.Ed. students were selected as the sample for the present study using simple random sampling. The validity of the tool was ensured by content validity and item wise corrected item correlation. The reliability of the tool was established using Cronbach's Alpha test. After ensuring the validity and reliability, the Online student engagement tool was employed for further studies.

References

1.Allen, M., Titsworth, S. and Hunt, S.K. (2009). Quantitative Research in Communication. London: Sage.
2.Boettcher, J. V., Conrad, R. M. (2016). The online teaching survival guide: Simple and practical pedagogical tips (2nd ed.). Jossey-Bass.
3.Davidson-Shivers, G. V., Muilenburg, L. Y., Tanner, E. J. (2001). How Do Students Participate in Synchronous and Asynchronous Online Discussions? Journal of Educational Computing Research, 25(4), 351-366.
4.Gayton, J. and McEwen, B.C. (2007). Effective online instructional and assessment strategies. The American Journal of Distance Education, 21(3), 117-132.
5.Hughes, G. (2008). Diversity, identity and belonging in e-learning communities: Some theories and paradoxes. Teaching in Higher Education, 12(5-6), 709-720.
6.Serdyukov, P. (2020). Asynchronous/synchronous learning chasm. In Sistek-Chandler, C. M. (Ed.). Exploring Online Learning Through Synchronous and Asynchronous Instructional Methods (pp.1-33).
7.Vai, M., Sosulski, K. (2016). Essentials of online course design: A standards-based guide. Routledge.