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Development and Validation of Students' Learning Experiences (SLE) Scale at Higher Education Level

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Contents:

Abstract: This study aimed at the development and validation of a research instrument for students learning experiences (SLE) at the higher education level in the public sector universities of Punjab, Pakistan. Data were collected on three constructs as students learning experiences inside the classroom, outside the classroom and on-campus. The factors in students learning experiences inside the classroom factors like teacher interaction, assessment and feedback, and peer group discussion were measured. The factors of outside classroom learning experiences as cultural diversity, library and learning resources and conferences, seminars and webinars were measured. The simple random sampling technique was applied in the department of education, psychology and sociology in six public universities in Punjab to collect data. The tryout of the instrument was conducted on 200 students' samples to measure the content validity and reliability. The expert opinion was sought from the University of Sargodha and the University of Punjab Lahore. The Cronbach alpha reliability was .95, which showed the instrument is reliable. Having pilot tested the instrument. Data were collected from 1024 male and female students. The questionnaire comprised 42 items. Structure Equation Model (SEM) was used to validate the instrument using Confirmatory Factor Analysis (CFA). The Cronbach alpha and SEM results indicated that students learning experiences resulted in fit indices as an acceptable model.

Introduction

Students' learning experiences play a critical part in shaping their character and enabling them to be effective and skillful in playing their roles in society.

The learning experience means any interaction, event or time in one's life that exert a significant effect, particularly that is memorable and it can occur in any formal or informal life setting (Preet,

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2010). This research focuses on the scale development and validation of students learning experiences in the classroom, outside the classroom, and on-campus at the higher education levels. It is critical to assess students' experiences, interactions, and talents at the university level. This was a novel problem to be researched at the university level. University graduates are a valuable resource for any state, nation, or country.

The studies on students learning experiences by Baird and Gordon (2009); Arambewela and Maringe (2012) investigated the student learning experience as central to many activities in higher education. There has been a shift in how students are regarded, Baranova et al. (2011) found that from a focus on teaching and learning to one that increasingly involves the student's interaction with administrative and support services provided by a higher education institution. The useful learning experiences are defined in which students identify as being especially significant due to their intellectual-emotional effect. Furthermore, the learner focuses on previous experiences whether they are negative or positive in nature (Guitart, 2016; Guitart *et al.,* 2017). Since 1970 there has been huge and systematic research on students learning experiences and the results of these researches helped in identifying the major concerns regarding quality learning in higher education (Biggs & Tang, 2011; Laurillard, 2002; Ramsden, 2003). The following are three constructs of students learning experiences discussed at length in this study.

Inside Classroom Learning Experiences

Classroom learning experiences imply the students' interactions with teachers as White *et al.,* (2007); peer group discussions (Goldsmith *et al*, 2013); and assessment and feedback (McMillan, 2013). Many studies have found that the quality of teaching and learning is influenced by teacher-student interactions (White *et al.,* 2007; Den Brok *et al.,* 2004; Hamre, 2006; Roorda *et al.,* 2011); as well as teacher well-being (Wubbels *et al.,* 2011). McMillan (2013) maintains that the students learning experience of instruction in the classroom are more directly related to classroom educational assessment. Monitor students' progress in the

classroom helps to increase their learning experiences. Formative and summative assessment in the classroom is central to the teaching and learning process (Dorans, 2012 & Kane; 2012), maintaining that the students are learners as well as their examinees also. Classroom assessment is basically initiated to enhance the learning experiences of students in the classroom environment.

Outside Classroom Learning Experiences

Outside classroom learning experiences are cultural diversity, library and learning resources, conferences, seminars and webinars in the light of previous literature are taken as factors for the development and validation of an instrument. Fink (2013) highlights the creatively redesigned learning experiences and teaching environment from the traditional system of chalk and talk lectures in the classroom and developed engaging significant learning space outside the classroom. According to Lai (2015), there has been, over the last 20 years, a spike in research interest in foreign language learning outside of the classroom. It has increased our understanding of language learning in such an environment as out of classroom boundaries. The out-of-classroom learning is not only considered in relation to in-class learning but also as learners experience between the two types of environments, apart from a few studies in recent years by (Kashiwa & Benson 2018; Lai 2015; Ranta 2017) that have focused on both environments to examine the connection between them. According to Lantolf (2013), the learners inside the classroom as well as outside the classroom engage in sociocultural behaviors. This is one of the most important means and ends of learning. Learners engage in autonomous learning when they establish desirable learner identities and take strategic learning activities based on their own assessments, whether they are learning in the classroom or outside the classroom context.

In the case of classroom learning experiences, the library is an important component to play its role in students learning experiences outside the classroom. Professional development for academic librarians. Pan and Hovde (2010) stated provide

additional training not available at library schools, such as on-the-job training. Many academic librarians, according to (Coiffe, 2014; Wyatt *et al.,* 2018), must keep up with current trends and technological breakthroughs, as well as present and write on librarianship topics. According to Lozano et al. (2013), today's students are growing up in a highly globalized world with a green economy where climate change is posing increasing obstacles to their daily lives, well-being, and employment opportunities. The extent to which present education and learning experiences are preparing key stakeholders, decision-makers, and future leaders with the skills to adequately address such current and long-term difficulties is increasingly being questioned.

On–Campus Learning Experiences

On-Campus experiences are those interactions that occur in different spaces on the campus. In the light of previous studies, the unions and clubs (Barr *et al.,* 2014), accommodation facilities (Abisuga *et al., 2020*); peace and security (Chapman, 2013) were taken as factors to developing the instrument to measure these experiences. According to Barr *et al.* (2014), student problem professionals perform a range of roles in order to fulfil their professional responsibilities. Administrator, caretaker, change agent, confidant, counsellor, consultant, crisis responder, diplomat, disciplinarian, entrepreneur, fundraiser, grant administrator, leader, programmer, and many other positions are available. Chen *et al.* (2009) concluded that the smart campus environment provides self-study learning and feedback according to the needs of the students. This is skillful and beneficial through the blending of real learning resources into a campus-wide public network. Furthermore, the recommended technique can profile and record learner behaviors. Some of these facilities are active participants, while others serve as backup. On the other hand, each facility serves a specific purpose and provides value to the university (Abisuga *et al., 2020*). On-campus student housing is one of the sorts of amenities that contribute to the availability of high-quality higher education (Simpeh & Shakantu, 2020). Akinsanmi (2009) maintain that

the students learn best in a challenging, safe, pleasant, social, and enriching setting. According to Brown *et al.* (2011) careful space planning can assist information flow and as a result, constructive learning on campus happens. Chapman (2013) and Jarvis (2009) found out that campus is a tapestry of sensory, cognitive, and intellectual encounters. The researcher further describes the experience as a spatial value that improves the overall quality of life on campus.

Instrumentation

The major objective of the study is to develop and validate a scale for students learning experiences inside the classroom, outside the classroom and on-campus at the higher education level. The questionnaire was developed in the light of relevant literature. The first section of the questionnaire addressed the demographics of the students' age, gender, university, department, semester, and location. The second section of the questionnaire focused on students' learning experiences inside the classroom (Steh & Kalin, 2012; Holman 2000; Saenz & Cano, 2009; Kolb & Kolb 2005; outside classroom, Kishwa *et al.,* 2018; Benson, 2011; Lai, 2015; Kashiwa & Benson 2018; Lai 2015; Ranta, 2017), and on-campus experiences Falahi *et al.,* 2012).

The factors inside classroom learning experiences were teacher interaction (White *et al., 2007*; 2004; Hamre, 2006; Wubbels *et al., 2011*; Granic& Patterson, 2006; Nowak *et al.,* 2020; assessment and feedback, McMillan,2013; Dorans, 2012; Kane, 2012; Bransford *et al.,* 2000; Pellegrino, 2006; Allal, 2010; Brookhart & Nitko, 2015; Stiggins, 2017; Moss *et al.,* 2013; Torrance, 2017) and peer group discussion, Ladyshewsky, 2010; Goldsmith *et al.,* 2013; McKenna and French, 2011; Stone *et al.,* 2013; Boud *et al.,* 2014; Secomb, 2008).

The outside classroom learning experiences factors were cultural diversity (Lantolf, 2013; library and learning resources (Pan & Hovde, 2010; Coiffe, 2014; Wyatt *et al.,* 2018; Lozano *et al.,* 2013; Pinar, 2011; Stocklmayer *et al.,* 2010) and conferences, seminars and webinars. The on–campus experience factors were unions and clubs (Barr *et al.,* 2014;

Simpeh & Shakantu, 2018; Atif, 2010; Chen *et al.,* 2009; El Bishouty *et al.,* 2010; Zhou *et al.,* 2017; accommodation facilities, Abdullahi & Yusoff, 2018; Abisuga *et al., 2020*; Simpeh & Shakantu, 2020; Hassanain 2008; Muslim *et al.,* 2012; Oke *et al., 2017*; Simpeh and Akinlolu, 2018; Nimako & Bondinuba, 2013; Abubakar *et al.,* 2015; Adisa *et al., 2019*; Addai, 2013 peace and security (Akinsanmi, 2009; Chapman, 2013; Jarvis, 2009).

Instrument Validity and Reliability

The face validity of questionnaire was reviewed and the pilot tested its content validity. All the items in the questionnaire were peer reviewed by the expert professors of education at the University of Sargodha and the University of the Punjab, Lahore. The questions in the questionnaire were close-ended. It was developed on Five-point Likert Scale as Strongly Agree, Agree, Neutral, Disagree and Strongly disagree. The questionnaire has two sections: the first one includes the respondents' demographics and the second comprises items regarding students learning experiences inside the classroom, outside classroom experiences and on-campus experiences.

Table 1. Construct-Wise Reliability of Questionnaire of Student Learning Experiences

S. No	Factors	Statement Nos.	Total	Cronbach Alpha
1	Inside Classroom Experiences	1 to 14	14	.848
2	Out of Classroom Experiences	15 to 28	14	.926
3	Campus Experiences	29 to 42	17	.921

Table 2. Factor-Wise Reliability of Questionnaire of Students' Learning Experiences

S. No	Factors (SLE)	Cronbach's Alpha Score	Nos. of items
1	Teacher interaction	.603	4
2	Assessment & Feedback	.681	5
3	Peer Group Discussion	.854	5
4	Cultural Diversity	.881	4
5	Lib.& learning Resources	.836	4
6	Conferences, seminars &Webinars	.899	5
7	Unions& Clubs	.847	5
8	Accommodation Facil.	.922	4
9	Peace & Security	.939	4

Tryout of the Instrument

The pilot testing of a questionnaire of students learning experiences was conducted on 200 students at University of Sargodha in three departments as education, psychology and sociology. According to Vaske *et al.* (2017), the consistency of scores or answers from one set of items to the next is referred to as reliability. The internal consistency coefficient was measured using Cronbach's alpha. Muijs (2011) deliberated that if the value of a research instrument's reliability coefficient is more than or equal to 0.70, the research instrument's internal validity is regarded as satisfactory.

Construct wise and factor-wise, Cronbach alpha reliability of the instrument was .97, a well reputed measure of reliability. The items were reduced from 60 to 41 because in pilot testing, 19 items were found superfluous and were deleted from the instrument. Having pilot tested, the final questionnaire of students learning experiences for higher education level students consisted of 41 items excluded demographics of respondents. The second part of the questionnaire comprised nine factors. Teacher interaction comprised of 4 items, assessment and feedback 5 items, peer group discussion 5 items, cultural diversity 4 items, library and learning resources 5 items, conferences, seminars and webinars 5 items, unions and clubs 5

items, accommodation facilities 5 items, and peace and security 5 items.

Data Collection and Analysis

The questionnaire was applied to a large population of 1024 students from six public sector universities in Punjab. Data were collected from the Department of Education, Psychology students studying in semesters 3rd, 5th and 7th appropriately. It was analyzed in two phases. The data were analyzed using the statistical program for social sciences (SPSS) version 21 and AMOS for Confirmatory Factor Analysis. In the first phase, the data were analyzed using descriptive techniques, such as frequencies and percentages. Descriptive approaches are those that use number keys to describe a set of essential data (Gay, 2008). Descriptive statistics enable the researcher to describe a variety of data using indices such as average and median (Fraenkel & Wallen, 2009). In the second phase, simple linear and multiple regression analysis was applied to measure students learning experiences. The data were collected personally visiting sites by the researcher himself while visiting the classes and explaining questionnaire to the students.

Results

It showed that students learning experiences inside the classroom constructs i.e., teacher–student interaction, assessment and feedback, and peer group discussion. Out of classroom learning experiences constructs i.e., cultural diversity, library and learning resources, conferences, seminars and webinars, are reliable.

Table 3. Instruments Factor-wise Items

S. No	Factors	Items	SD	Mean
A1	Teachers Interaction	1–4	3.775	.6358
A2	Assessment & Feedback	5–8	3.807	.6296
A3	Peer Group Discussion	9–14	4.068	.6379
B1	Cultural Diversity	15–19	3.919	.6664
B2	Library and Learning Resources	20–23	3.471	.8496
B3	Conferences, seminars &webinars	24–29	3.700	.7266
C1	Unions and Clubs	30–34	3.739	.6946
C2	Accommodations Facilities	35–38	3.645	.6703
C3	Peace and Security	39–42	3.931	.6385

Table 3 above shows the Mean and Standard Deviation of the factors. It shows the descriptive analysis of the factors. All mean values (<3) show that responses were highly agreed regarding the statement included in the instrument regarding all factors of the instrument.

Table 4. CFA and Reliability Analysis of Students' Learning Experiences inside Classroom, Outside Classroom and On-Campus

S. No	Statements	Factor Loading	Alpha
1.	**Teachers Interaction**		
2.	The teacher repeats the content material again.	.786	.603
3.	The teacher acts confidently.	.739	
4.	The teacher has a sense of humor.	.651	
5.	The teacher uses multimedia in the classroom.	.886	
	Assessment& Feedback		.681
1.	I am satisfied with the quality of this course.	.632	
2.	I receive helpful comments on my work.	.604	

S. No	Statements	Factor Loading	Alpha
3.	I learn new ideas while preparing for the exams.	.726	
4.	I get feedback timely on my assignments.	.824	
5.	Classroom assessment improves my learning experience.	.770	
	Peer Group Discussion		
1.	Group discussion improves my learning experience.	.722	
2.	Role playing in the class enhances my knowledge.	.692	
3.	The cooperative learning method enhances my confidence.	.687	.854
4.	Group discussion enhances my critical thinking.	.646	
5.	The generic skills enhance my learning.	.787	
	Cultural Diversity		
1.	My department promotes diversity.	.728	
2.	I am satisfied with my educational institution.	.707	.881
3.	Diversity on department improve quality education.	.612	
4.	Diversity groom's personality.	.712	
	Library and Learning Resources		
1.	I have digital library access in the department.	.654	
2.	The librarian helps me to access the relevant material.	.662	
3.	Library has all electronic resources.	.701	.836
4.	I can use all the learning resources.	.589	
	Conferences, seminars and webinars		
1.	Faculty staff supports to participate in the seminars.	.546	
2.	Due to covaid-19, department arranges webinars for students.	.571	
3.	The institute arranges extracurricular activities.	.598	.899
4.	Seminar hall has all digital facilities for students.	.624	
5.	Educational conferences enhance my confidence.	.562	
	Unions and Clubs		
1.	Students' union membership enhances public speaking.	.825	
2.	Students' union resolves students' problems	.720	
3.	Literary society enhances my creativity.	.616	.847
4.	Participation in drama club activities enhances my critical thinking.	.616	
5.	Blood donation activities make me compassionate.	.764	
	Accommodations Facilities		
1.	Healthy food items are available in the cafeteria.	.674	
2.	Hostel manages catering services.	.651	.922
3.	Extracurricular activities improve my confidence.	.653	
4.	The self-study facility improves peer socialization.	.673	
	Peace and Security		
1.	An active security camera system ensures security.	.792	
2.	Peaceful environment provides learning opportunities.	.651	.939
3.	Participation in games make me healthy and peaceful.	.603	
4.	University arranges conferences on peace and security.	.703	

Table 4 shows the Confirmatory Factor Analysis and Reliability Analysis of the students learning experiences inside classroom factors. The Factorability of all factors was analyzed. The alpha score was .603, .681 and .854, respectively. The factor loadings were all above 0.6, which showed a strong relationship with inside classroom learning experiences of students. Confirmatory Factor Analysis and Reliability Analysis of the factor outside classroom learning experiences all-factors factorability was analyzed and the alpha score was .881, .836 and .899, accordingly. The factor loadings of outside classroom learning experiences of students above 0.6 showed a strong relationship among all three factors. Confirmatory Factor Analysis and Reliability Analysis of the on-campus students learning experiences all-factors factorability was analyzed. The alpha score was .847, .922 and .939, proportionately. The factor loadings above 0.6 showed a strong relationship among students on-campus learning experiences.

Table 5. Inter Variable Correlation (IVC)

S. No	A1	A2	A3	B1	B2	B3	C1	C2	C3
A1	1	.678**	.505**	.660**	.543**	.668**	.189**	.763**	.588**
A2	.678**	1	.552**	.577**	.517**	.568**	.777**	.562**	.513**
A3	.505**	.552**	1	.607**	.568**	.585**	.681**	.571**	.516**
B1	.660**	.577**	.607**	1	.501**	.576**	.527**	.535**	.547**
B2	.543**	.517**	.368**	.501**	1	.662**	.557**	.579**	.536**
B3	.668**	.568**	.485**	.576**	.662**	1	.662**	.657**	.641**
C1	.689**	.777**	.481**	.527**	.557**	.662**	1	.687**	.688**
C2	.763**	.562**	.571**	.535**	.579**	.657**	.687**	1	.641**
C3	.588**	.513**	.516**	.547**	.536**	.641**	.688**	.641**	1

A1= Teacher interaction A2= Assessment and feedback A3= Peer Group Discussion
B1= Cultural Diversity B2= Library and Learning Resources B3= Confer. Sem. and Webinars
C1= Unions and Clubs C2= Accommodation Facilities C3= Peace and Security

Table 7 showed that all items corrected total item correlation (CITC) values are greater values than the cut-off value of 0.5. It indicated that in the data, the discriminant validity was reliable and not a problem

Table 6. Composite Reliability, Average Variance Extracted, and Maximum Reliability (H) for Construct Validation

Factors	VIF	CR	AVE	CITC
A1	2.24	0.87		
A2	2.25	0.76	0.52	0.67
A3	2.21	0.77		
B1	2.08	0.67		
B2	2.66	0.74	0.51	0.75
B3	2.31	0.71		
C1	2.99	0.64		
C2	2.66	0.82	0.59	0.66

C3	1.86	0.63

(CR) Composite Reliability, (AVX) Average Variance Extracted, and (MR) Maximum Reliability (H), (CITC) All Items Corrected Total Item Correlation

Table 8 indicates that the maximum Variance Inflation Factor value (2.00) showed that data was free of multicollinearity as such. Composite Reliability values range from 0.63 to 0.87, showing that the model is fit. The Composite Reliability values ranged from 0.66 to 0.75 and it showed that the measurement model was valid and valid.

Table 7. Model Fit Scale

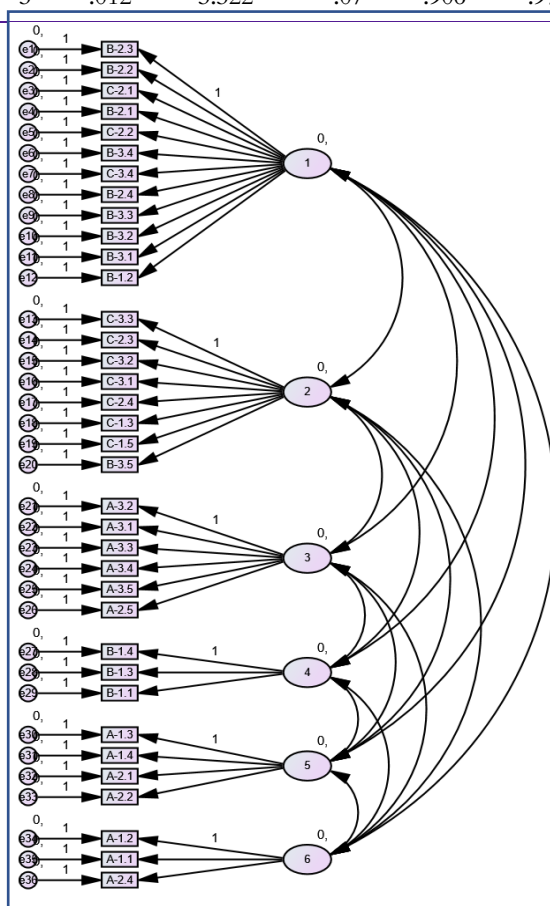| Model	CMIN	Df	P	CMIN /DF	RMR	GFI	AGFI	RMSEA	CFI
Model fit	9.967	3	.012	3.322	.07	.906	.974	.071	.992

Figure1: Confirmatory Factor Analysis

Figure 1 above shows the inter-reliability of the factors. There were three main factors in the instrument as students learning experiences in the classroom, outside classroom learning experiences and on-campus learning experiences. The

statements those having low reliability from cut point were removed from the instrument.

Conclusion and Implications

The students learning experiences are vital in the education system as a whole. Students learning experiences (SLE) instrument that measures students' academic as well as nonacademic experiences at the higher education level. It is a matter of immense attention for educators, policy makers and educational institution managers to keep an eye on the students' educational needs in the 21century. It is a digital age and it has changed the mode of teaching and learning from the old rigid inside classroom teaching and learning where only text books used to be focused. The researcher, for this purpose, developed an instrument to measure students learning experiences inside the classroom, outside the classroom and on-campus learning experiences. The standardized process of the MEASURE approach by Kalkbrenner, (2021)

was followed to Make purpose and rationale clear; Establish an empirical framework; Articulate theoretical blueprint; Synthesize content and scale development; Use expert opinions; Recruit participants and Evaluate Reliability and Validity. The previous studies scale students learning experiences inside the classroom as Seth and Kalin (2012), Mishra et al., (2020), Heid et al., (2020), Outside classroom as Kalin (2012), and on-campus experiences Seth and Kalin (2012), Pospiech (2016), and Halberstadt et al., (2019) investigated students learning experiences in different contexts. These instruments do not fulfill the need to measure students learning experiences in different contexts. So, the researcher developed this instrument to

measure students learning experiences inside, outside and on campus experiences from different angles. These models of the instrument were not insufficient to fulfill the needs of scale as a whole, so this instrument was developed.

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