LEARNING ENGAGEMENT SCALE (LES): DEVELOPMENT OF A COMPOSITE MEASURE AND ANALYSIS OF PSYCHOMETRIC PROPERTIES FOR BUSINESS SCHOOLS

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ABSTRACT

Current measures of Learning Engagement do not adequately capture overall perceptions of engagement of various stakeholders in the environment of business schools. A classified structure is proposed to capture dimensions important to business schools and learning engagement literatures. Learning engagement Scale (LES) is a composite construct that signifies the inclination of various stakeholders of the learning environment including students, teachers, Alumni, parents and industry. This study has adapted major portion of the scale from reliable international sources and also created a part of the LES through scientific methods. In this study, psychometric properties of the LES were examined on the data obtained from 498 respondents. Structural Equation Modeling (SEM) was used for Psychometric analyses with reliability and validity estimations of the selected sample. Results showed notable convergent validity, factorial validity and internal consistency reliability, of the LES for business school samples.

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INTRODUCTION

Stakeholders in a Learning Environment

For today's educational institutes, it is pertinent to acknowledge, identify and classify those entities or persons which have an influence or being influenced by the progression or failure of an educational institute or have any kind of interest in its sustainability, known as "stakeholders" (Kettunen, 2014). An institution's progress and eminence depend upon its relationship with its stakeholders as they are the one who becomes a part in the success or failure of its system. According to (Alves, Mainardes, & Raposo, 2010; Freeman, 1984; Freeman & Evan, 1990; Mitchel, Agle & Wood, 1997) 'organizations', 'networks' and 'private people' are the parties which are considered as stakeholder as these parties provide support to the educational institution in the fulfillment of their prescribed objectives and goals. Stakeholders are divided into two categories: 1) Internal 2) External. Faculty and students are the internal stakeholders while on the other hand the quality of educational institutes determined by the external stakeholders (Becket & Brookes, 2006) including parents, alumni and employers. Parents are the body who have vested higher interest in their children educational institute for their better and bright future but they can put little influence on the progression of that institute (Gross & Godwin, 2005). Employers play their role while hiring the graduated or undergraduate students of a particular educational institute. Employers not only influence an educational institutes success but also they have high interest in their educational system, that how they prepare their students for the workplace and what kind of trainings they are providing to their students for quick placement in the industry. So that employers do not put extra efforts on the fresh candidates for their retraining and development. Thus educational institutes need to understand the requirements of industrial employers that what they require from their prospective employees and should start providing those trainings to the students for their institutes success (Gross & Godwin, 2005).

Concept of Engagement

Researchers are of the view that the concept of engagement is the consequence of a substantial human motivation model which has been intricate and developing from the past several decades (Connell & Wellborn, 1991; Deci & Ryan, 1985, 2000; Skinner, 1991; Wellborn, 1991). As opposed to engagement, the concept of disengagement exist in which the level of engagement including any effort and perseverance is missing. So it is comprised of all these factors which leads a person towards discouragement i.e. resistance, unable to take initiative, despair, state of depression, passivity and despondency (Murdock, 1999; Vallerand, 1997; Peterson, Maier, &

Seligman, 1993).

Maslach, Schaufeli, and Leiter (2001) has defined engagement and distinguish it from the concept job burnout in the way as, "it is characterized by energy (rather than exhaustion), involvement (rather than cynicism) and higher professional efficacy ratings (rather than reduced professional efficacy)". According to Markos and Sridevi (2010) the concept of employee engagement was previously related with the 'survey houses' and 'consultancy firms' and very few studies and researchers relate it with the academia. From the previous two decades the concept has been studied and revolutionaries in the field of HRM (Rafferty, Maben, West, & Robinson, 2005; Melcrum Publishing, 2005; Ellis, & Sorensen, 2007). The concept of employee engagement has been emerged from the other two concepts of organizational behavior including commitment and organizational citizenship behavior (Robinson, Perryman, & Hayday, 2004; Rafferty et al., 2005) in which commitment is conceptualized as "positive attachment and willingness to exert energy for success of the organization, feeling proud of being a member of that organization and identifying oneself with it and OCB is a behavior observed within the work context that demonstrates itself through taking innovative initiatives proactively seeking opportunities to contribute one's best and going extra mile beyond employment contract" (Macey & Schneider, 2008; Robinson et al, 2004).

Teachers Engagement

Teaching is a profession which faces many provocations as this profession demands teachers emotional, intellectual and social energies even in the phases of government restructures and social changes (Day, Kington, Stobart & Sammons,2006).In such an environment they lack adequate support from the relevant sources which becomes the reason for teachers' turnover and job switching (Hobson et al., 2009). So it is important to know that how teachers remain engaged in a learning environment is one of the purposes of this study.

Kirkpatrick and Johnson (2014) define teachers' engagement at work as, "the feelings teachers have about their work, which influence the choices they make in directing their effort and energy". They categorized teachers work engagement into two concepts: 1) psychological 2) behavioral. Teachers work engagement has been defined differently in previous studies but they all are same at one point that teachers' engagement is not merely a psychological concept but it's a behavioral concept too.

This concept has been introduced by Schaufeli, Salanova, Gonzales-Roma, and Bakker (2002) and Schaufeli and Bakker (2003) which can be

explained by 3 dimensions: "vigor (high energy, willingness to invest effort), dedication (sense of involvement at work), and absorption (being concentrated on one's work)". Thus the engagement is an individual's assertive, gratifying and task oriented mind status which is comprised by 'vigor', 'dedication' and 'absorption'. All these three dimensions contain unique characteristics, as vigor is comprised of prominent energy levels, flexibility of mind while completing a task, doing task by applying full capabilities and willingness, and staying stable in hard times. While the dedication pertains characteristics like a person's self-realization regarding the work seriousness and significance, eagerness, creativity, dignity, and being competitive and taking challenging tasks (Kanungo, 1982; Lawler & Hall, 1970). The features of absorption contains an individual's attentiveness and full concentration in his/her task that she/he would not be aware of time, which is referred as flow. Flow is basically such favorable experience in which a person is working with fully focus, clear mindset, self-control, without caring him/herself, and ingrained motivation (Csikszentmihalyi, 1990).

Hao (2000) have studied the relationship between teachers engagement in such a practices which are known as developmentally appropriate and their own personal characteristic and experiences and found significant correlation between variables of study. Rajber & Oklahoma, (2001) have studies the relationship between teacher's reflective aptitude and self-reported engagement and effectiveness of music teacher and found that teachers' effective role and their personal efforts for the learning of students played central role for enhancing music teachers' effectiveness. Researchers have investigated the concept of teachers engagement in diverse settings and context i.e. (Rossmiller, 1988; Metz, 1988; Saunders, 2006; Adekola, 2010; Ariffin, & Hashim, 2010; Lohman, 2006; Skaalvik & Skaalvik, 2013; Kirkpatrick & Johnson, 2014; Kulophas, Ruengtrakul, Wongwanich, 2015; Montgomery, Spânu, Baban, Panagopoulou, 2015; Mojsa-Kaja, Golonka, Marek, 2015; Rashid, Rahman, Abdul Rahman, 2016; Li, Wang, Gao, You, 2017) by taking only one stakeholder of academic institute but this study differ in such a way that each and every stakeholder has been studied in an educational institution in terms of its level of engagement.

Student Engagement

According to Connell & Wellborn (1991) and Skinner (1991) student engagement is, "the intensity and emotional quality of children's involvement in initiating and carrying out learning activities". The concept of engagement is basically comprised of two constituents: 1) emotional 2) behavioral. Engaged students exhibit certain characteristics including uninterrupted involvement in learning, select tasks be-

yond capabilities, initiators, implement learned skills and task by using acute efforts and engrossment, positivist, enthusiastic, confident, show keen interest and curiosity in learning activities. Kennedy (2000) have studied the profiles of students studying at different settings (On-campus, Online) and tried to find the factors associated with their success. Pascarella and Terenzini (1991) have inscribed in their study that students' interaction and communication with their teachers outside the classroom is a crucial factor in students' engagement. In the presence of teachers, the practices or activities which students perform in class, promote students' teacher relationship and communication level (Wilson & Gaff, 1975).

Mandernach (2015) explained that it is imperative to assess the student engagement because it is linked with their learning and success but its assessment is basically a challenge for institutions, administration and faulty due to absence of a cohesive definition of engagement. Bowen (2005) have highlighted this gap in his study, "an explicit consensus about what we actually mean by engagement or why it is important is lacking." But from higher education it would be expected that they would be diligent in fostering and assessing student engagement as, "learning begins with student engagement" (Shulman, 2005).

Engagement refers to, "a measure of institutional quality, it is incumbent upon institutions to be intentional about creating educationally engaging learning environments". This concept has gained prominence in higher education, the goal of which is to promote quality education which is the ultimate predictor of student success (Harper & Quaye, 2009). According to Astin (1984), student engagement is, "the amount of physical and psychological energy that the student devotes to the academic experience". Similarly, Skinner and Belmont (1993), define student engagement as "sustained behavioral involvement in learning activities accompanied by positive emotional tone." Barkley (2010), highlights that "…engaging students doesn't mean they're being entertained. It means they are thinking." Kuh (2003) integrate the definition of engagement by taking its three characteristics: 1) cognitive 2) affective 3) behavioral and highlighted simultaneously the students and institutions responsibility for predicting better student engagement. Kuh (2003) define student engagement as, "the time and energy students devote to educationally sound activities inside and outside of the classroom, and the policies and practices that institutions use to induce students to take part in these activities".

Several studies has been conducted to measure and assess the student engagement in higher education at different settings and diverse population i.e. (Skinner & Belmont, 1993; Kenneth & Doris, 1998; Kennedy, 2000; Kinzie, 2009; Skinner & Kinderman, 2009; Skinner & Chi, 2012; Timostsuk & Jaanila, 2015; Jang, Reeve & Deci, 2010; Rasiah, 2009; Appleton, Christenson, Kim, & Reschly, 2006; Karim &

Hamid, 2016).

Alumni Engagement

As per the UBC Alumni Association (2010-11 Annual Report) universities today are "engaging alumni in the life of the university after completing their degree program, so that they should stay connected with their alma mater and with one another". For this purpose universities organize some events and invite their existing and passed out students (alumni) so that the current students can spend some time in the company of their seniors and get information about the future opportunities they might get after graduating and gets inspired from the success stories of their alumni. According to Radcliffe (2011) there is not a specific/generalized definition of alumni engagement. The term is basically associated with the alumni's attitude in terms of their emotional attachment with their alma mater and their participation and attendance in the events or any other behavior which showed their affiliation and connection with the institute.

Sekelsky (2017) has define alumni engagement as, "the level of Attraction, Connection, Affection, and Influence an alumnus has with their alma mater over time." Educational institutes if want to get benefit from their alumnus and want that their alumnus should stay connected with them they should give benefits to them in return instead of merely relying on solicitation.

Many researchers (Clotfelter, 2003; Gaier, 2005; Hoyt, 2004; Monks, 2003) have argued that the students who are engaged during their studies are the future engaged alumnus. It means if universities identify their engaged students they can easily locate their engaged alumnus. Radcliffe (2011) argued that very little research has been conducted on the alumni engagement and have not been found widely. Moreover, no specific scale has been developed till now to measure this aspect of engagement. Thus this topic needs attention and should be addressed in a more generalized way.

Kaur (2016) has proposed four metrics to measure the alumni engagement: 1) Event attendance 2) Volunteer Participation 3) Vanity Metrics 4) Database counts. While shedding light on the importance of all these four metrics, she explained that every event is considered successful if majority of people attend it. Track all those alumni who signed up and showed interest but for any reason they couldn't attend or participate in the event. Ask them their priorities or what they want from the institution to participate. Make a vanity metrics by Online tracking number of alumni on the social media that who are tweeting on the institutions posts and share their educational memories. Finally institutions should enhance their outreach to their students by tracking their own progress.

Industry Engagement

Hubbard and Lopp (2015) have inscribed in their study that every stakeholder (parents, students, teachers, industry) in an educational setting desire such an educational environment from where students can get such skills which are required by the industrial sector for recruitment. From this, not only students and industry get advantage but also the academia and the whole society will be benefited. To achieve this goal, academia should involve industry in their educational process by inviting industrial executives who will make them aware about the skill sets which are valuable and most demanded by the employers.

Universities may do collaborations with the industrial sector by including industrial projects in the students' curriculum or through internship programs. Some other ways/forms to do collaborations with the industrial sector include 'work study programs', 'curriculum advisory boards', and 'involvement of industry in student courses design' (Roberts, 2007). The discussion on the collaboration between industry and universities has been started from Russia in 1960's, which were sponsored by government at that time and eventually it changes from government sponsorship to individual universities (Davydchenkov & Latsis, 1967).According to (Sivananda, Sathyanarayana, & Pati, 2009) many studies have been conducted on industry and universities collaboration with the focus of its impact on students learning, courses and academic work experience.

According to Thompson, McGraw and Hair (2015) industry engagement is a thoroughgoing concept and is becoming popular in the educational community. Mostly educational institutes conduct career fairs and counseling events for students but these events did not provide true career guide/support to the students due to time and settings constraints. All the information or knowledge which the students gained from these type of events are termed as "planned happenstance skills" (Kim, Jang, Jung, Lee, Puig & Lee, 2014). Industry and academia collaborations are beneficial at that time when these are managed and designed efficiently and may have research related or program-oriented purposes to engage the students with practical projects to increase the exposure of their education (Peters, & Lucietto, 2016).

Loera, Nakamoto, YounJoo, and Rueda (2013) have explained the role of teachers in the students' career and technical education. They stated that, "If teachers develop and expose students to a career-related curricula program, those students may be more likely to continue in their education and career preparation after high school and feel better prepared for their future" Thus students who are more involved in happenstance events during and before their college, are much capable to face "challenging experiences in problem based learning, research and internship" which they

will do after graduating and for the degree of graduation. Thus as per Thompson, McGraw and Hair (2015) if educational institutes and students want to make a fabulous recipe of success, they should consider engagement in industry an essential ingredient for success.

Thompson, McGraw and Hair (2015) have written an event's success story titled "Making it work (MIW) manufacturing and engineering fair". The event's characteristics lead towards a comprehensive industry engagement model which is based on 3 gap phenomenon 1) "Skills gap(focused on current workforce)" 2) "Incentives gap (focused on industry)" 3) "Interest gap (focused on future workforce)". MIW identify six characteristics to remove skills gap: "involving community, providing career and technical education, applied knowledge and experience, innovation and problem solving, providing students opportunities for scholarship and mentoring, industry engagement." The more the industry is engaged in educational institutes the better the educational institutes may understand about the skills required by the industrial sector. Incentives gap contain characteristics which helped industrial managers to find solutions of their human resource needs including: "industry engagement, social networking, community involvement, innovation and problem solving, applied knowledge and experience, site visitation and inspection." In the interest gap participants have highlighted all those aspects which provide them benefit in the participation: "industry engagement, community involvement, site visitation and inspection, applied knowledge and experience, innovation and problem solving, career counseling by peers in the field, Faculty immersion and mentoring, scholarship opportunities, career and technical education".

Parents Engagement

(Harper, Sax, & Wolf, 2012; McCarron & Inkelas, 2006) have studied the role of parents and their beneficial effects in students educational lives. Previously many studies have been conducted on the parents involvement in their children's educational lives (Green, Walker, Hoover-Dempsey, Sandler, 2007; Grolnick, Slowiaczek, 1994; Pomerantz, Moorman, Litwack, 2007; Useem, 1992; Spann, Kohler, Soenksen, 2003; Updegraff, McHale, Crouter, Kupanoff, 2004; Donna & Sue, 2008). This is also evident from the Kiyama, 2008and Kiyama & Harper, 2015 who argued that the parental involvement as an overriding prototype has been studied and reinforced from the previous 30 years.

Carreon, Drake, and Calabrese Barton (2005) provided a captivating difference between the terms 'involvement' and 'engagement' and suggested that educators should use the term 'engagement' and should solely focus on it. According to (Carreon et al., 2005, p. 469), "'involvement' has been used to describe the specific things

parents do, while 'engagement' also includes parents' orientations to the world and how those orientations frame the things they do".

Parental involvement composed of all these traditional behaviors and attitudes including parents participation in the events, meeting with teacher in a parent teacher association, observing daily attendance, purchasing the books or other educational material for the child to read at home, helping in doing homework, and if they have not enough time finding tutor for child's education (Calabrese Barton, Drake, Perez, Louis, & George, 2004; Daniel-White, 2002;Kiyama & Harper, 2015; Lopez, Scribner, & Mahitivanichcha, 2001; Zarate, 2007). The behaviors depicting parental involvement can be classified into two categories 1) internal involvement (checking attendance) 2) external involvement (ensuring the on time arrival of children in school) (Valencia & Black, 2002).Thus researchers critique the parents' involvement literature due to its framing gap, continuity, and limited involvement behaviors(Calabrese Barton et al., 2004;Kiyama, 2010;Kiyama & Harper, 2015; Lopez et al., 2001).

While According to Galindo & Medina (2009), "engagement is an overarching set of cultural attitudes and beliefs that belie and inform parental participation and parents' perceptions about education rather than simply a quantitative behavioral assessment of specific actions that might be better captured by involvement." Thus, the concept of parents' engagement comprised of such relationships between educational institutions and parents which are ongoing, strengths based and reciprocal (Halgunseth, Peterson, Stark, & Moodie, 2009). (Calabrese Barton et al., 2004) have broaden the concept of parents engagement from what parents do for their child to how and why they involve and show interest in their children's school and education. According to (Calabrese Barton et al., 2004, p. 4) in recent times the concept of "engagement" should be defined and used as, "to expand our understanding of involvement to also include parents' orientations to the world and how those orientations frame the things they do ...and [implies] that parental involvement goes beyond an individual and his or her participation in an event".

Parents are not only investing money on their children's education but also making emotional investment while keeping the best interest of their children's success in mind (Kiyama, Harper, Ramos, Aguayo, Page, & Riester, 2015). Moving from parents to institutions/universities for the purpose of engaging parents, program orientations and invite parents which provide support to the understated students and provide an opportunity to the parents to assess the future/success of their children (Dennis, Phinney, Chuateco, 2005;Lombardi, Murray, & Gerdes, 2012; Ward-Roof, Heaton, & Coburn 2008). Moreover, universities might engage parents by using several ways such as "family weekends, e-newsletters, parent websites, and professional development opportunities" (Kristic, 2013). Limited studies have been found which

explain the role, responsibilities and programs, institutions are playing to engage parents (Apprey, Preston-Grimes, Bassett, Lewis, & Rideau, 2014).

Thai and Yasin (2018) have studied the deaf child learning in the mathematics subject and the role of parents' engagement in this learning. They used 11 constructs to find out the parents engagement in mathematics learning and found that 'encouragement', 'affection' and 'expectation of child's mathematics achievement' are those constructs whose results are highest and others results are not very highly significant. Szumski and Karwowski (2017) have studied the relationship between parents' engagement in terms of their support and children school achievement among the two groups of children, one with special education needs and other without the special education needs and found that the strategies the parents used for both groups are different. Mligo (2017) have studied the parents' engagement in children early education and found that teachers and parents need close collaboration for building their child's future better. Arshad, Shahzadi and Mahmood (2016) have studied the students perception related to their parents involvement in their education at the level of university and found that students think parents should involve but their involvement would not have any impact on their course/program selection.

Evolution of Constructs

Teachers Engagement

The construct for measuring teachers' engagement has been adopted from Schaufeli et al., (2001). Schaufeli et al., (2001) has developed the Utrecht Work Engagement Scale (UWES) for measuring work engagement of employees. According to them the term engagement comprised of three dimensions: 1) Vigor, 2) Dedication, and 3) Absorption. From all of these three dimensions only the dimension "dedication" have been adopted on the bases of stakeholders' institutional engagement i.e. To me, my job is challenging representing engagement of faculty member with the institution and the other two dimensions (Vigor and absorption) considered irrelevant as they are exhibiting the personal traits of the teachers like When I get up in the morning, I feel like going to work (vigor) and When I am working, I forget everything else around me (absorption).

Student Engagement

Schaufeli et al. (2001) have introduced the Utrecht Work Engagement Scale (UWES) in two versions: 1) Employee Version and 2) Student Version. For measuring the students' engagement with their institution, Utrecht Work Engagement Scale (UWES) student version has been adopted. This version of construct also contain

three dimensions 1) Vigor, 2) Dedication, and 3) Absorption but for the purpose of this study only one dimension has been chosen/adopted that is 'dedication' on the bases of its items which are related to institutional engagement i.e. I find my studies full of meaning and purpose (dedication) rather than personal engagement i.e. When I'm doing my work as a student, I feel bursting with energy (vigor); I am immersed in my studies (absorption).

Parents Engagement

Norwegian Directorate for Education and Training (2011) has developed the "Parents Survey Questionnaire" which has been adapted for the purpose of this study. To measure parents' engagement with the institution the third section of this questionnaire containing two items has been adapted which is "information to and from the school". The reason for choosing only a specific section of this questionnaire is that the information which is required for the purpose of this study is related with the parents engagement with the institution of their child which is only provided by this section and the remaining sections are addressing some other aspects of parents involvement which are irrelevant in the case of present study.

Industry Engagement

"WIL Industry Engagement Survey" has been formulated by the Australian Collaborative Education Network (2016) for the purpose of ensuring those resources which meet the needs of industry and community partners. This survey has identified five key areas in which employers find lack of resources which are challenging for host organizations (universities) i.e. 1) Preparation of students and host organization staff, 2) Supervision and providing feedback to students, 3) Student assessment, 4) Developing partnerships with educational institutions, 5) Different types of WIL and their benefits.

After critical evaluation of all the five areas which may be a challenge for academia as per the WIL Industry engagement survey, only two has been adapted for measuring industry engagement which are 1) Student Assessment and 2) Developing Partnerships as these are fulfilling the objective of universities engagement with the industry which is one of the objectives of this study. Other areas are considered irrelevant for this study as they are measuring some other phenomenon rather than industry engagement and the adapted two areas are fully fledged covering the understudy domain.

Alumni Engagement

According to Radcliffe (2011) very little research has been conducted on the alumni engagement and have not been found widely. Moreover, no specific scale has been developed till now to measure this aspect of engagement. However, Radcliffe (2011) has measured the alumni engagement via policy capturing approach and has developed an alumni engagement score by taking survey data of Valley University alumni whose administrative staff has maintained all the record of their alumni. But the developing countries faces problems in conducting research as they lack data on virtually all aspects of higher education (Kapur & Crowley, 2008). Thus it has become essential to develop a construct which would measure alumni engagement in a particular setting. So the study tried to propose a construct which could measure the alumni engagement and for this purpose we have created indirect psychometric questions by taking information from the websites of the local universities. Afterwards these indirect psychometric questions which are predicting alumni engagement have been validated by the four field experts who gave their valuable comments and suggestions for ensuring face validity of the questionnaire (Hardesty & Bearden, 2004).

Table 1: Summary of LES Evolution

Variable	Construct Title	Author	Year	No of items	No of items taken	Adapted/ Adopted
Teachers Engagement	Utrecht Work Engagement Scale (UWES)	Schaufeli et al.	2001	17	5	Adopted
Students Engagement	Utrecht Work Engagement Scale (UWES)	Schaufeli et al.	2001	17	5	Adopted
Parents Engagement	Parent Survey Questionnaire	Norwegian Directorate for Education and Training	2011	12	2	Adapted
Industry Engagement	WIL Industry Engagement Survey	Australian Collaborative Education Network	2016	31	3	Adapted
Alumni Engagement	Alumni Engagement	Hassan, Atif & Bashir, Rizwana	2018	2	3	Created

RESEARCH METHODOLOGY

The data was collected through self-administered questionnaire technique by using 5-point Likert scale. The respondents of selected organizations were contacted and informed about the idea of the research by personal meetings, emails and even through telephonic conversation at the taking appointments.

Population and Sample

Target population of this study was faculty members, students and alumni of the business schools. Data was collected from public as well as private sector business schools of the country.

Unit of Analysis

Unit of analysis of this study is institution (business school) and the respondents include Faculty members, students and Alumni. Table 1 describes the itemized list of respondents. Alumni is a very appropriate respondent in terms of learning engagement scale. Alumni has the experience of the entire educational process of the business school therefore, it was the consensus among the experts during the face validity process that alumni can provide the exact measures of the parents' involvement in the educational process based upon their past experiences. Secondly, the researcher has chosen the alumni who are working in the industry therefore, they can provide the measures of industry engagement in their relevant business schools. Thirdly, alumni engagement measure is directly related to their own involvement in the learning engagement process of the business schools.

Table 2: Respondent Details

Variable	No of items	Respondent
Teachers Engagement	5	Teachers
Students Engagement	5	Students
Parents Engagement	2	Alumni
Industry Engagement	3	Alumni
Alumni Engagement	3	Alumni

Sampling Technique

Convenient Sampling technique was used in this research study. The reason for choosing this type of non- probability sampling technique was based on ease of

reaching respondents, time constraints and accessibility to the respondents. So that the more representation in the collected data can be entailed from the company which is big and have more users because it shows that the employees and the organization is more competitive in terms of novelty. Furthermore the employees for data collection were chosen on the basis of convenience and accessibility.

Sample size

Determining an appropriate sample size that represents targeted population is of key importance in quantitative research. Researchers have suggested numbers of ways or rules for selecting a reliable sample size. Moreover, many Online calculators and resources are also available in this regard.

Out of all the most popular rule is to determine sample size against the number of items being analyzed (Hair, Black, Babin, Anderson, & Tatham, 2009; Pituch & Stevens, 2016). It is suggested that every item to be analyzed or measured should have 5 to 10 observations Comrey and Lee (2013) or in other words supported by 5 to 10 respondents (Hair et al., 2009). On the contrary, Pituch and Stevens (2016) in their research study suggested that the number of observations against each variable may range from 2-20 observations . However they have also mentioned in their book that minimum 5 should be taken against each item to be measured.

In multivariate study, the sample size should be many times (preferably 10 times or more) as large as the number of variables in the research. Hair et al. (1998) suggested a sample size of 200 to test a model using SEM, because 200 is a 'critical sample size' that can be used in any common estimation procedure for valid results (see Hoelter, 1983). In addition, the standard and complex statistical analysis including structural equation modeling recommends sampling of 200 as fair, and 300 as sufficient (Tabachnick & Fidell, 1996). Based on the references argued above, the researcher considered a sample size of 500 (498) this research work. All these 498 respondents were considered for the purpose of survey connecting objective of the study.

Table 3: Demography of Business School Respondents

		Business School (n = 498)	
		N	%
Sex:			
Male		272	54.4

Female		226	45.6
Marital status:			
Single		165	31.3
Married		339	68.1
Other		3	.6
Education:			
Bachelor degree		118	23.6
Master degree		308	61.8
Doctorate degree		22	4.4
Diploma		50	10.1
		Mean (SD)	
Age (years)		31.6 (7.9)	
Tenure (years)		8.7 (7.5)	

Psychometric Analyses

The SEM was used to examine the psychometric properties of the LES using AMOS package (Arbuckle, 2011). Goodness-of-fit for the models was assessed using the Chi-square, the Goodness of Fit Index (GFI), the Root Mean Square Error of Approximation (RMSEA), the Standardized Root Mean Residual (SRMR), the Tucker-Lewis Index (TLI), and the Comparative Fit Index (CFI). According to methodologists, model fit is attained when the RMSEA and SRMR are .08 or less and the GFI, TLI, and CFI are .90 or greater (Hair, Black, Babin, & Anderson, 2010). Following Anderson and Gerbing (1988), the chi-square difference test was used for the comparison among different models. Two models are considered different if the value of this test is statistically significant.

Table 4. Descriptive Statistics of the LES Items

		Business School (*n* = 498)			
		M(*SD*)	Min–Max	Skew	Kurtosis
Industry Engagement					

I1. Working collaboratively with industry to develop industry-focused assessment.		4.29 (.58)	3–5	−.13	−.55
I2. Negotiating and maintaining mutually beneficial relationships with Industry.		4.33 (.59)	3–5	−.24	−.64
I3. Managing difficulties and conflicts which arise in the university-industry relationship.		4.21 (.63)	2–5	−.44	.45
Parents Engagement					
P1. The university informs parents about their child's development in studies.		4.42 (.55)	3–5	−.18	−1.02
P2. Parents inform the university about their child's development in studies.		4.44 (.55)	3–5	−.27	−.97
Alumni Engagement					
A1. Alumni are closely linked with the university.		4.20 (.63)	2–5	−.39	.24
A2. Administration offices keep accurate and retrievable alumni record.		4.13 (.60)	2–5	−.23	.35
A3. The institution arrange alumni networking events regularly.		4.31 (.62)	2–5	−.37	−.39
Teacher Engagement					
T1. To me, my job is challenging.		4.41 (.62)	2–5	−.60	−.32
T2. My job inspires me.		4.38 (.59)	2–5	−.39	−.34
T3. I am enthusiastic about my job.		4.17 (.62)	2–5	−.27	.19

T4. I am proud of the work that I do.	4.20 (.64)	2–5	−.43	.37
T5. I find the work that I do full of meaning and purpose.	4.10 (.58)	1–5	−.26	1.41
Student Engagement				
S1. To me, my studies are challenging.	4.12 (.62)	2–5	−.19	−.05
S2. My study inspires me.	4.21 (.60)	3–5	−.12	−.45
S3. I am enthusiastic about my studies.	4.15 (.58)	3–5	−.01	−.16
S4. I am proud of my studies.	4.00 (.61)	2–5	−.10	.02
S5. I find my studies full of meaning and purpose.	4.21 (.54)	3–5	.11	−.16

Descriptive Analysis of the LES Items

Table 2 presents the LES items and the related descriptive statistics. In order to determine normality, statistical software generally set the values of skew and kurtosis to zero for a normal distribution (Byrne 2010; Hair et al. 2010). A distribution departs from normality when its skew and kurtosis are positive or negative. According to DeCarlo (1997), when data is not normal, skew impacts the tests of means and kurtosis affects the tests of variance. There seems to be a lack of consensus over the clear cut threshold for deciding the extent to which departure from normality becomes a serious threat to the validity of results. According to Meyers et al. (2006), researchers may consider data to be sufficiently normal if the values of skew and kurtosis fall within the range from +1.0 to −1.0. In the case of covariance-based SEM, where larger sample sizes are usually required to produce reliable results, researchers recommend that the values of skew and kurtosis should be less than 2 and 7,respectively (Byrne 2010; West, Finch & Curran 1995). Some researchers also suggest that non-normality has detrimental effects only in small samples and this effect diminishes effectively for the sample size of 200 or more (Hair et al. 2010). Thus, skew and kurtosis for both country samples in this study were moderate and did not affect the validity of the results presented here.

Scale Reliability

The internal consistency reliabilities of the LES pertaining to dataset are presented in Table 3. It can be noted that the internal consistency reliability for overall learning engagement and its three subscales ranged from .88 to .96, which were well above the threshold of .70 (Nunnally& Bernstein, 1994) and, thus, indicated good reliability of the LES for Business Schools.

Table 5. Alpha Reliabilities and Pearson Correlations among the JES Subscales

	Learning Engagement Scale
1. Industry engagement	.96
2. Parents engagement	.89
3. Alumni engagement	.91
4. Teacher engagement	.88
4. Student engagement	.95

[***]*p*< .001.

Factor Structure of the LES

In order to test for the convergent validity of the LES, factor loadings of each item were computed for both countries. Factor loading is a statistical estimate representing the relationship between a factor (latent construct) and its respective indicators (observed variables), and is generally interpreted in terms of a standardized regression coefficient (Kline 2011). Factor loading scores range from -1.0 to $+1.0$. According to Anderson and Gerbing (1988), the factor loading score of a measurement item should be greater than twice its standard error to make the factor loading significant. The most commonly used threshold for a factor loading is .70, and factor loadings above this value indicate high association between the factors and indicators (Hair et al. 2010).

Table 4 shows that factor loadings of all items of the LES on business school data were above the threshold of .70 and significantly ranged from .72 to .86 (p< .001). These results indicated that the LES achieved sufficient convergent validity for business schools.

Table 6.Factor Loadings of the LES Items

Factor Loadings	
	Learning Engagement Scale
Industry Engagement	
I1. Working collaboratively with industry to develop industry-focused assessment.	.83***
I2. Negotiating and maintaining mutually beneficial relationships with Industry.	.72***
I3. Managing difficulties and conflicts which arise in the university-industry relationship.	.86***
Parents Engagement	.83***
P1. The university informs parents about their child's development in studies.	.82***
P2. Parents inform the university about their child's development in studies.	.78***
Alumni Engagement	
A1. Alumni are closely linked with the university.	.82***
A2. Administration offices keep accurate and retrievable alumni record.	.84***
A3. The institution arrange alumni networking events regularly.	.82***
Teacher Engagement	
T1. To me, my job is challenging.	.85***
T2. My job inspires me.	.86***
T3. I am enthusiastic about my job.	.86***
T4. I am proud of the work that I do.	.82***

T5. I find the work that I do full of meaning and purpose.	.80***
Student Engagement	
S1. To me, my studies are challenging.	.83***
S2. My study inspires me.	.82***
S3. I am enthusiastic about my studies.	.83***
S4. I am proud of my studies.	.79***
S5. I find my studies full of meaning and purpose.	.83***

Note. *** $p < .001$.

CONCLUSION

In this study, psychometric properties of the LES were examined on the data obtained from teachers, students and Alumni worked in diverse manufacturing and service organizations. Using various psychometric analysis techniques, an analysis was performed with regard to the reliability and validity of the LES.

In conclusion, the present study revealed that the psychometric properties of the LES were encouraging in case of business schools data. Therefore, it is established the LES is a reliable and validated scale to measure the learning engagement of business schools.

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