
Development of the instrument for psychological contract effectiveness for service quality in academic institutions

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Abstract: Psychological contracts' theoretical argument arises from social exchange theory which consists of professed commitments and hopes that are having an individual perspective. The study on the basis of social exchange theory is aimed to analyse relationship between students and educational institutes referred to as psychological contract effectiveness. Students from various educational institutions are composed of a significant sample for EFA and CFA respectively. Scale reliability was assessed by Cronbach's alpha and Jöreskog's rho, and was found to be statistically significant. Results demonstrate that student psychological contract significantly varies from teacher's obligation, placement cell's obligation, infrastructure facilities, institutional facilities, and various other facilities. Managerial contributions suggest logical invention in the field of educational practices. Multiple factors studied under the model can be utilised not merely in relational studies, but also as an estimated mechanism by educational institutions both at the national and international level.

Keywords: psychological contract; higher education; educational institution facilities; teacher's obligation; placement cell's obligation; factor analysis; structural equation modelling.

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1 Introduction

A psychological contract (PC) can be defined as a set of individual beliefs or perceptions regarding the reciprocal obligations between the employee and the organisation (Robinson et al., 1994). PCs are highly subjective with regard to the expectations and promises made by the employing organisation; hence, there is no certainty that one will be treated fairly in relation to others. Here only persuasive behaviour and mindsets could directly state whether the exchange linked conduct should be performed or not. This control can become evident in numerous ways. It provides a criterion with which an interchange can be evaluated as satisfaction or violation (Rousseau, 1995; Rousseau and Tijoriwala, 1998). The researches have perceived that promises are being fulfilled to enhance employees' commitment, intention to remain with the organisation, and organisational citizenship behaviour that go beyond the formal job description (Bolino and Turnley, 2003). The same behaviour can be shown by a pupil who thinks that institutions could not fulfil some part of the agreement (e.g., "I worked hard but did not receive good grades") and, for that reason, leaves his or her educational pursuits. The current study investigated the PC effectiveness using the three building blocks of the social exchange theory: subject matter of the exchange, parties to the exchange, and the framework of the exchange.

The report of IBEF (2017) has suggested some critical areas where India has been cited as emerging market for educational sector. In less than two decades, India with 751 universities and 35,539 colleges has managed to create additional capacity for over 40 million students. The percentage of students enrolled in higher education in India increased to 25.8% in 2017–2018 from 24.5% in 2015–2016. In India, there is a wide network of higher education institutions, and the country has become the second largest market for e-learning after the USA. Investment in the education sector in India is presently secured at US\$2 billion and is predicted to reach US\$5.7 billion by the year 2020. Distance education is projected to grow 11% annually between 2017 and 2020. Furthermore, the government aims at increasing the present gross enrolment ratio (GER) by 30% that will in part happen by expanding distance education in India. The education sector in India is poised to witness key progress in the coming years, as India will have the world's leading tertiary-age population and the second largest graduate talent pipeline internationally by the end of 2020. The current value of India's education market is US\$100 billion and it is poised to increase to US\$118 billion by the year 2020. The primary and secondary school segment is valued at US\$52 billion and contributes 52% to the education market in India; higher education contributes 15%, e-learning and related services contribute 28% and vocational education in manufacturing and services

contributes 5%. Rapid change and expansion have been witnessed in the higher education sector (IBEF, 2017).

The above paragraph has clearly indicated that the higher education industry is growing rapidly. So, it has become imperative to find out whether the students from higher educational institutes are satisfied with the quality of education imparted to them. Thus, here the concept of PC has been initiated in relation to factors of education sector service quality regarding student PC.

The presented study explores the review of applicable literature for studying and selecting the various factors for student PC responsible for service quality in higher education institutions. In the next section, method and procedure for scale development has been explained and further in result section EFA and CFA has been elaborated. The panel response of the experts from the education industry, academia and human resource field are analysed for the formulation of the SEM model. This is followed by analysis and discussion on managerial implications. At last, the conclusion and future scope of the study are presented.

2 Literature review

Earlier researchers such as Argyris (1962), Roehling (1997) and Levinson et al. (1962) have given the description of the historical development of the PC. In continuation with these studies, PCs have also evolved through the introduction of innovative methods such as feedback systems. Moreover, the student charters group, 2011, has been recognised as a small ‘task and finish’ working group takes into consideration both the higher education institution management and its student representatives to discover the current practice for the use of student charters and other student contracts. Further, being a modified Code of Quality for Higher Education by Quality Assurance Agency 2012, the group has focused on understanding student hopes and the best way to contend with them. The fulfilment of student hopes has become synonymous with student contentment. It is assumed that student contentment will enhance academic excellence, thus necessitating customer response (Woodall et al., 2014).

Studies on PC in educational sector can help us understand why sometimes educational institutions fail to provide better outcomes. PCs help identify the gap between the expected and perceived value related to teacher’s obligation, placement cell’s obligation, and infrastructure and institutional facilities; in general, perceived value is less than expected value. Rousseau (1995) further explained that the idea of a PC can be useful for a person’s dealings with “a client, customer, supplier or any other interdependent party.” Considering the broad-level organisational focal point, researchers have repeatedly centred their studies on particular PC, but people are expected to experience several psychological agreements that represent a diverse bond. In a student-institution relationship, the former has obligations toward the institution; similarly, the institution also has obligations toward students. In the PC framework, students potentially have different hopes from other individuals and groups they interact, such as advisors and classmates.

One of the largely significant obligations that a higher education institute has with students is to make them employable and provide them with placement and training opportunities so that their career gets a good start. Institutes also have obligations to

provide opportunities for the overall development of its students. Therefore, the PC is based on the obligations that both the parties have to each other. The demands of other parties, many of which will not be expressed verbally, should be properly understood prior to fulfilling these obligations. Hidden expectations of the students should be well understood and observed by the institution so that there is no dissatisfaction among the students.

Bordia et al. (2010) found that satisfaction in graduate students was related to the capability of the teacher in fulfilling their expectations, and the failure to accomplish such expectations is detrimental for the well-being of the student. Bowen and Rudenstine (1992) focused on the relationship between graduate students and their faculty advisors. They found that students tend to depend on their advisors for their consent regarding tapping other educational prospects. The faculty has certain obligations, the unfulfilment of which may generate strain and worry amongst students. The studies of Clark (1993, 1996a) and Rhoades (1990) showed that faculty cooperation plays a crucial role in determining the organisation and behaviour of university. The focus is largely on the PC of faculty with the institution because each individual is considered significant in enhancing the operation of an organisation. Students also need a classroom environment that is conducive to learning (Stearns, 2001). They require support from teachers whom they perceive as mentors, guides, friends, and trainers. Moreover, they want teachers to be encouraging and motivating so that they can pursue whatever is correct for them. Anderson and Schalk (1998) found that in relation to employment, the written official contract has certain obligations but they are typically understood and concealed. Furthermore, these requirements originate from an additionally established association between student and faculty.

Gumport (2000) explained the changes that have taken place in the higher education system, which has transformed from a community institution to an industry. The results also highlighted the impact of transformation on the system of education and place of work as well as its consequences the association among employers, employees, students and institutions. Lovitts (2001) explained that the relationship of students with their faculty members was the central focus of his work. The PC of students should be contented. The findings recommended that a bad connection between faculty and students not only hampered their development but also acts as an impediment to the growth of the institution and society. The choice of a student to vacate or pursue a course sometimes relies on his or her relationship with the faculty.

Researchers have also observed that educational employees (Joseph et al., 2005) are an imperative facet for service value, which affect the usefulness of PC. Therefore, different researchers have stressed the centrality of understanding students' expectations and the profound effect these expectations can have on students' motivation, attitudes, beliefs, behaviour, performance, and learning experience (Bordia et al., 2006). It will be reliant on parts of the educational course that students think about the academic, professional, community, and psychological enrichment (Volkwein et al., 1998). For students' commitment, it is important to fulfil their expectations and consequently observed their experiences (Lowe and Cook, 2003). Cao et al. (2008) informed that student satisfaction is certainly associated to teachers' performance and depend on the PC between both of these parties, thus pointing that both teachers and students have obligations toward fulfilling their responsibilities.

The researchers have also discussed some factors other than teacher and student PC. The considerable consequence of tangible elements on student contentment has been

sustained in earlier studies (El-Hilali et al., 2015). Pascarella and Terenzini (2005) acknowledged that academic affairs have a deep consequence on the student learning process. Other significant concepts like students' affairs evaluation activities are not given importance even though these things play an imperative role in the learning process of students along with academics. A significant quantity of student's learning takes place in an exterior environment, and hence, the incorporation of student's affairs in campus is essential. Researchers like Magolda (2005) and Manning et al. (2006) have recognised the value of alliance for campus units with students' learning units but they have observed that this collaboration is relatively complicated due to disparity in values, socialisation pattern, and structure. This difference is reasonable as campus units are commonly based on regulation and academics, whereas students' units are tend to be out-of-class knowledge learning.

In the overall context, the PC of students in educational institutes is concerned with service excellence. Quality assertion purposes require capturing the role taken by students as well as the ways in which institutions can give confidence and support educationally determined actions (Coates, 2005). Zineldin (2007) projected an outline, called 5Q, which consists precisely five input dimensions, i.e., the eminence of an entity, the quality of the method, infrastructure, interaction, communication and atmosphere (Zineldin, 2007; Zineldin et al., 2011). The outcomes also widen a number of prevailing notions (Ulriksen, 2009) and research results (Sander et al., 2000; Willcoxson et al., 2011) in education literature.

This study presents a new standpoint on the students' PC by presenting how their concerns for the meaning of this concept may notify their hopes of the university understanding. In the educational institutions, the services and substantial environments have undeviating effects on student satisfaction. Vaz and Mansori (2013) studied the impact of five factors of service quality (responsiveness, empathy, assurance, reliability, tangibility) on satisfaction of students at colleges and private universities. Further, they found that tangibility has control on fulfilment followed by understanding. In addition, responsiveness and reassurance have an unswerving and affirmative consequence on students' satisfaction. Ahmed and Nawaz (2011) initiated that there is a noteworthy correlation of satisfaction with the magnitudes of service quality, i.e., reliability, assurance, responsiveness, and empathy; however, the fifth factor, tangibility, has an irrelevant rapport with satisfaction of student. It is also pragmatic that the increase in students' satisfaction enhances their eagerness to put supplementary hard work in the direction of their studies. This empirically-based research presents the ways through which the pupil's voice can feed into excellence assertion results and highlights the issues students experience these days. Employability can also be considered as a method and creation of learning in higher education (Aamodt and Havnes, 2008). Moreover, the role of institutions in assigning their possessions and systematising their core curriculum, learning prospects, and support services further strengthens the relation with students (Kuh et al., 2003). The study recognised that PC theory has an imperative role in shaping the relationship of students with the institution and future studies can examine the various ways of enhancing this relationship.

The researchers showed the concerns of other constructs used in the study like placement cell as well as institution obligations. The review has also helped in recognising the themes related to student's PC, for example, students and staffs hopes etc.

The research of Gansemer-Topf et al. (2007) on student attrition encouraged them to address the challenges faced by students. They concluded that such proposals, i.e., the factors of institution obligations will assist in the enhancement of relationship of students with their institutes and will have a constructive outcome with regard to the accountability of an institute. Robinson and Garton (2007) examined the employability skills and traits introduced in students through tertiary education. It was inferred that institutes should develop appropriate skills in students so that they can become easily accustomed with the work place and generate high-quality culture. Gaffney-Rhys and Jones (2010) recommended that to enhance students' satisfaction, the contract created between them and their institute or university must be developed considerably so that services received by students can develop a belief that they are an element of community and that they will have an assured future. Seagraves and Dean (2010) examined in their research that outside institute learning is also essential for the general development of students and fulfilment of their PC, so they depicted that institutes must put together outside learning with academic learning. O'Toole and Prince (2014) conducted a study to discover the reciprocal exchange connection of student with the university and their view regarding the obligations of a university.

It has also been found from the previous literature that many studies concerning PCs are available in an organisational context, but there are fewer studies in educational settings, mainly concerning the undergraduate and postgraduate students within educational institutions. These studies have discussed the perspective of service quality in educational institutions. So, the current study will throw a light on the PC effectiveness factors in context to students in educational institutions. Further the current study has not only explored students' psychological contact regarding their relation or expectations from a teacher, but also reviewed some other factors concerning this PC. These factors include students' expectations from specific institutions regarding placement cell's obligation, infrastructure facilities, institution facilities, and various other facilities. The study has been done from a student's point of view, and it will help to understand the mental image of students regarding their expectations from an institute. The study will also help to know whether these expectations of students have been fulfilled in a positive manner or not. Table 1 illustrates various factors extracted from the literature given by the researchers who have developed the theoretical background of factors contributing to and maintaining PC effectiveness of students in the educational institutions at international level. Below mentioned, hypotheses played a contributing role from international context also because all these have been formulated from the various studies by foreign researchers.

Therefore, after going through the literature, the following hypotheses have been framed:

- Ha There is a positive relationship between teacher's obligations and infrastructure facilities as perceived by students.
- Hb There is a positive relationship between infrastructure facilities and institute facilities as perceived by students.
- Hc There is a positive relationship between teacher's obligation and institute facilities as perceived by students.

Table 1 Summary of selected PC factors and authors reviewed

<i>Factors for students psychological contract</i>	<i>Description</i>	<i>Authors reviewed</i>
Teacher's obligation	<i>Teacher's obligation</i> is defined as their responsibilities toward their students' improvement and learning progress. Teachers should accept accountability of their students' performance in their classroom.	Bowen and Rdenstine (1992), Muñoz Cantero et al. (2002), Martínez (2008), Cao et al. (2008), Pozo et al. (2011), Shukrie (2011), and Dodeen (2013)
Placement cell's obligation, infrastructure facilities, institution facilities, and various other facilities	<i>Placement cell's obligation</i> is defined as its responsibility to guide students in the selection of their career and development of their skill, knowledge, and aptitude to meet the manpower necessities of the industry. <i>Infrastructure facilities</i> include classrooms, laboratories, buildings, equipment's and education infrastructure, i.e., proper learning environment in universities. <i>Institution facilities</i> include the varied learning environments and spaces.	Robinson and Garton (2007), O'Toole and Prince (2014), Gaffney-Rhys and Jones (2010) and Seagraves and Dean (2010)

3 Methods

A group of self-selected postgraduate management students of various central (two) and state universities (six) of Haryana, India was considered for collecting data. These central and state-level educational institutions were chosen because of their good reputation, and students across India and abroad come to study in these universities. A total of 300 students of the management department were contacted from these universities. These students supplied an appropriate purposive sample for this study because they could potentially demonstrate the importance and nature of PC because of their acquaintance with this thought. Moreover, being a student of professional course, the factors associated with the PC are the basic requirements for them. Moreover, the management students being more aged than students of other diploma and undergraduate level courses can comparatively be better judge than the rest.

4 Procedure

We adopted the procedures for scale development as outlined by Pasquali (2008). The data for the study were collected from 2017 to 2018. A quantitative survey was designed and made available online via Google Docs. The link generated through this process was distributed among the management students at the universities. The email addresses of students were collected from the respective universities administrative departments. In the case where email addresses were not available, printed questionnaires were sent to those students at their postal addresses.

5 Measures

5.1 Demographics

Both the surveys contained various demographic items pertaining information related to gender, annual family income, and residential area of the respondents. These demographics helped in understanding the respondent's PC.

5.2 Students' PC on the service quality of the educational institutes

We used statements that represented the characteristics of service quality provided by educational institutions considering five major factors. The initial scale included 40 items that assessed the student's perception of service quality factors at their universities. The scale items were drafted from the perspective of an Indian educational institute's service quality. The items being selected after reviewing the international studies, so the study can be generalised for other countries also. Therefore, items that were selected proved to be of the best fit. The scale development participants were interviewed and answered principally with regard to two questions: first, in your belief, what is the significant measure for enhancing content regarding PC for you to feel valued by the institution? Second, which practices of PC would facilitate toward encouraging your interests at an institution? For checking the face or content validity, ten experts, including professors from the fields of human resource management and psychology, evaluated whether the draft items pertained to the factor in question. Items were tested with the sample of 30 students. The sample testing was done to check whether the students will be able to answer the items of the instrument. We chose the postgraduate students of management stream from various selected universities for data collection. Items were accurately understood with the help of rationalisation else it would be most likely difficult to expel item from the scale. Finally, after the judges' analysis, the items were finalised, which were to be measured with a five-point Likert scale ranging from strongly disagree to strongly agree.

6 Statistical analysis

SPSS Version 19 and SPSS AMOS 22 were used for the analysis. Data were collected from 232 properly filled questionnaires and were examined thoroughly for missing values. We found that there was no multicollinearity because values concerning tolerance were above 0.2 and values concerning variance inflation factor (VIF) were less than 5.0. The normality of data was assessed in AMOS 22, and the practical values fall along a straight line, thus signifying that the experiential values are similar as could be anticipated from a normally distributed dataset (Field, 2009). The values for kurtosis were between +3 and -3 and the values for skewness were between +1 and -1. Through the process of exploratory factor analysis (EFA), the psychometric validation was first performed on the sample of 232 students. Further to analyse which factors' composition adjusts superior to a PC of students was calculated with the help of AMOS 22 on the sample of 300 including the previous sample of 232 students also.

Validation of the instrument involved several steps. First, principal components analysis (PCA) was used to perform EFA on the sample employing the original 40 items of the PC of students related to the educational institutions. The factor analysis helped to reduce the items to smaller set, i.e., from 40 to 26 for capturing the item variability. The original 40 items are given in Table 2. All standard adopted (eigenvalues higher than 1.0 and explained variance percentage of each factor above 3%) pointed to the existence of five factors.

Next, confirmatory factor analysis (CFA) was conducted using structural equation modelling techniques to confirm the factor structure found through the PCA method of factor analysis. Model fit for the confirmatory structure was judged using fit indices along with the chi square statistic (χ^2) (non-significant probability value indicates an excellent fit to the data); which is the degree of freedom ratio (CMIN; ideally less than 2.0 but should not exceed 5.0); the root mean square error of approximation (RMSEA) must be less than 0.10; and comparative fit index (CFI) must be greater than 0.95 (Tabachnick and Fidel, 2007; Bentler, 1990; Hu and Bentler, 1999). After determining the final instrument, the Cronbach's alpha and Jöreskog's ρ in CFA for reliability on all five factors were computed. The correlation was also computed for three factors of CFA as an additional measure of convergent validity.

7 Results

7.1 Participants

The data was collected from 300 students belonging to various selected central (two) and state universities (six) of Haryana, India. The total of male and female respondents was 159 and 141, respectively, and most of the students belonged to the family whose annual income is more than Rs.3 lakhs. About 83% of the students belonged to the urban areas.

7.2 Exploratory factor analysis

The results of analysis established matrix high factorability. The value of KMO was 0.917, which is an outstanding, as is presented in the study of Kaiser (1974). The correlation matrix determinant was approximately close to zero, thus representing that the numbers of items were greater than the factors generated. Through the application of PCA, we were able to make a decision about extracting some of the factors. The factors were well-suited with a review based on theory, explaining 58% of construct's total variance and fulfilling the measure needed for a scale to have sufficient factors that give details regarding 60% of construct variance (Hair et al., 2009). In the current study, the value obtained was 70.314%. The factor loadings of 70% items were classified as very good according to the criteria suggested by Pasquali (2008). All five factors also demonstrated high internal consistency reliability, with alpha coefficients more than 0.70 (Nunnally and Bernstein, 1994; Peterson, 1994).

Table 2 Factor loadings, eigenvalue, variance explained, reliability (Cronbach alpha and Jöreskog's ρ) for each factor of the study

<i>Factor and no. of items</i>	<i>Items</i>	<i>Loading of items</i>	<i>Results</i>
F1 Teacher's obligation (16)	S20, S23, S28, S29, S30, S22, S17, S18, S19, S 27, S26, S13, S21, S16, S25, S24	0.848, 0.847, 0.818, 0.795, 0.782, 0.804, 0.809, 0.795, 0.794, 0.751, 0.754, 0.628, 0.737, 0.726, 0.690, 0.687	<i>Eigenvalue</i> = 17.776 <i>Variance explained</i> = 28.137% <i>Reliability:</i> <i>Cronbach alpha</i> = 0.969 <i>Jöreskog's ρ in CFA</i> = 0.954
F3 Institution facilities (8)	S8, S9, S10, S11, S10, S14, S15, S2	0.750, 0.651, 0.685, 0.645, 0.558, 0.643, 0.590, 0.600	<i>Eigenvalue</i> = 2.680 <i>% of variance explained</i> = 12.956 <i>Reliability:</i> <i>Cronbach alpha</i> = 0.921 <i>Jöreskog's ρ in CFA</i> = 0.795
F4 Placement cell's obligation (10)	S36, S33, S34, S37, S39, S35, S40, S32, S38, S31	0.718, 0.703, 0.692, 0.723, 0.696, 0.662, 0.598, 0.580, 0.605, 0.468	<i>Eigenvalue</i> = 1.544 <i>% of variance explained</i> = 12.512 <i>Reliability:</i> <i>Cronbach alpha</i> = 0.881 <i>Jöreskog's ρ in CFA</i> = 0.878
F2 Infrastructure facilities (4)	S1, S3, S4, S5	0.541, 0.515, 0.677, 0.668	<i>Eigenvalue</i> = 1.311 <i>% of variance explained</i> = 7.412 <i>Reliability:</i> <i>Cronbach alpha</i> = 0.801 <i>Jöreskog's ρ in CFA</i> = 0.478
F5 Other facilities (2)		0.840, 0.686	<i>Eigenvalue</i> = 1.056 <i>% of variance explained</i> = 5.506 <i>Reliability:</i> <i>Cronbach alpha</i> = 0.751 <i>Jöreskog's ρ in CFA</i> = 0.161

Notes: Total variance explained: 70.314%, teacher's obligation = F1, institution facilities = F3, infrastructure facilities = F2, placement cell's obligation = F4, other facilities = F5.

Source: Calculated

7.3 Confirmatory factor analysis

CFA was conducted to confirm a factor structure for the PC between institutions and students using the gathered data. This analysis has been executed on factors obtained from the exploratory analysis to choose the maximum likelihood technique for assessing all models. For evaluating dimensionality prior to the testing of a multiple-factor model, a single construct model should be tested in CFA (Byrne, 2009). Therefore, in this study, two models were tested and evaluated. Model 1, with one-factor, concerning the PC of

students (PCS) as a latent variable and 26 items demonstrating the various observed variables regarding teachers and placement cell’s obligation, institutions, and infrastructure facilities was developed. Model 2, a three-factor structure taken from EFA, was also designed. In model 1, only 26 items out of 40 were taken because for all other items factor loading (in AMOS) was less than 0.5. Therefore, on this basis, the one-factor model was designed.

The values that point out acceptable adjustment for a model are: NC (CMIN/DF), values can be 2.0 or 3.0 or at most up to 5.0; CFA values must be higher than 0.90, and the RMSEA values must be lower than 0.06 or up to 0.08 as suggested by Kline (2011). Hence, the one-factor model was found to be not a good fit, as the values shown in Table 3 are not appropriate.

Table 3 Model fit indices

<i>Parameters</i>	<i>ChiSq (χ^2)</i>	<i>Df</i>	<i>ChiSq/df</i>	<i>CFI</i>	<i>RMESA</i>	<i>Confidence interval</i>	<i>p-value</i>
<i>Model 1: model fit indexes</i>							
105	1,925.655	299	6.440	0.736	0.153	0.147 to 0.160	p < 0.001
<i>Model 2: model fit indexes</i>							
110	1,447,261	296	4.889	0.813	0.130	0.123 to 0.136	p < 0.001

Source: Calculated

However, upon testing the hypothesised three-factor model (model 2), we found that the results give improved indices as shown in Table 3. The factor loadings of items were having its values between 0.55 and 0.88, thus presenting good-class items.

It is vital to highlight that for conducting CFA, similar multi-factorial structure of 26 items were distributed across three factors, which was in conformity with the previous literature and exploratory justification, such that understanding of factors is similar as exhibited in Table 2. Two factors have not been shown in model 2 because the factor loadings of these two factors were less than 0.5. The results validated the institution and student’s PC model by viewing the theoretical appropriateness of the structure acquired in the exploratory analysis and logical fit. The three-factor model is signified in Figure 1.

In this study, we examined the construct validity of various factors related to student’s PCs by measuring the discriminant and convergent validity. The convergent validity refers to the degree of conformity between two or more measures of an identical construct. Its appropriateness has been indicated through the reliability of all five factors that were above $\rho = 0.70$, thus indicating effective convergence (Hair et al., 2009). Further, all items of the factors measure loaded considerably positive onto their particular factor. All 40 items presented the loadings to be over 0.5 (Hair et al., 2009) for four factors to which they were allocated; hence, it shows convergent validity of the scale. Thus, it can be stated that the scales for these five factor dimensions possessed convergent validity. In continuation with assessing discriminant validity, MSV and AVE were calculated for model 2, and we found that MSV of all the factors was less than AVE of all the factors. The above table shows all the calculated values of AVE and MSV. Hence, it can be concluded that model is fulfilling the requirement of construct validity for convergent and discriminant validity.

Model 2

Figure 1 Model for Student psychological contract effectiveness factors (see online version for colours)

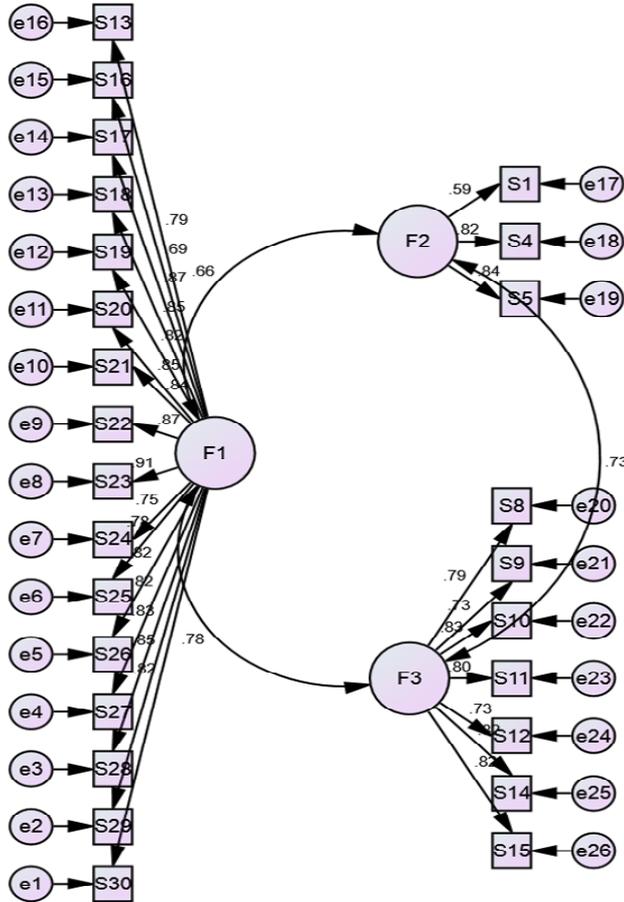


Table 4 Convergent validity

Convergent validity	Teacher's obligation	Infrastructure facilities	Institution facilities	Placement cell's obligation
Average variance extracted (AVE) (model 1)			0.5709	
Average variance extracted (AVE) (model 2)	0.678314	0.576954	0.626431	NA
<i>AVE > 0.5</i>				
Composite reliability (CR) (model 2)	0.971	0.800	0.921	Nil
<i>CR > 0.7 (except infrastructure facilities)</i>				
Convergent validity	Established	Established	Established	Established

Source: Calculated

Table 5 Discriminant validity (model 2)

<i>Discriminant validity</i>	<i>Factor correlation (r)</i>	<i>Squared factor correlation (r²)</i>	<i>AVE's > r²</i>	<i>p-value</i>	<i>Discriminant validity</i>
F1 <--> F2	0.663	0.439	0.678, 0.576	p < 0.001	Established
F3 <--> F1	0.782	0.611	0.626, 0.678	p < 0.001	Established
F3 <--> F2	0.727	0.528	0.626, 0.576	p < 0.001	Established

Notes: Model 2. F1 = teacher's obligation, F2 = infrastructure facilities, and F3 = institution facilities.

Source: Calculated

Table 4 also depicts that all the hypotheses constructed from the literature have been proved to be significant at the p-value for F1 <--> F2, F3 <--> F1, and F3 <--> F2, which is less than 0.001. The correlation value is also greater than 0.5. So, it has been analysed from the results of model 2 that the three factors of this model can be used by any educational institution to improve the quality of their services. Literature also highlighted that the role of teachers seems to be very important in determining student satisfaction (Shah et al., 2013; Butt and Rehman, 2010; Gibson, 2010). According to Fredrickson (2012) student satisfaction is largely influenced by the support of faculty, curricular challenge, instruction, and academic advertisement. This opinion is also supported by Purgailis and Zaksa (2012) claiming that quality of academic faculty influences the content received by students hence maximising their satisfaction. They further concluded that "currently the most important elements in the provision of the study process are the academic staff that pass over their knowledge, study content and teaching methods, acquired skills and readiness for labour market" [Purgailis and Zaksa, (2012), p.148]. A qualified teaching faculty, who have consistency in teaching and demonstrate adequate knowledge and skills are recognised by students (Douglas et al., 2006) and is highly ranked as a determinant of student satisfaction in their study. The same is suggested in several other studies (Navarro et al., 2005; Elliott and Shin, 2002). DeShields et al. (2005) also assert that students' perception of faculty will provide them with a positive learning experience and result in satisfaction. Hill et al. (2003) state that the role played by teachers in any institute determines the students' perception on quality education. Further regarding the other two factors suggested by the model like the institute facilities and infrastructure are also highlighted by the into two categories, i.e., academic and non-academic facilities which included IT laboratory, library resources, and well-equipped classrooms and non-academic facilities like dormitory rooms, infrastructure for games and sports, cultural activities and location. Therefore, college facilities have been found to influence student satisfaction (Bezuidenhout and De Jager, 2014; Manzoor, 2013; Gibson, 2010; Douglas et al., 2008). Moreover, both of these factors will finally lead to the effectiveness of PC between the stakeholders.

8 Theoretical contribution and managerial implications

This section of the study is divided into two subsections. The first sub-section discusses the theoretical contribution of the study. The focus of the next sub-section is on the managerial implications related to PC effectiveness for service quality in academic institutions regarding various factors such as teachers' obligations for imparting good

quality education, better infrastructure, institution and placement facilities, etc. The study has also developed an instrument and model comprising above discussed factors.

8.1 Theoretical contribution

This study is an attempt to address PC effectiveness of students regarding various factors of service quality with the help of model developed in context to higher education institutions.

The study enhances the literature by proposing and validating the research model which measure the psychological contact effectiveness of students. It also formulates both educational and practical assistance and proposes a number of applications for research. Previous researches on the quality of services in higher education have focused more on the educational (Atheyyaman et al., 1997; Soutar and McNeil, 1996) rather than the administration perspective. Thus, reflecting a concentration on course delivery methods and the value of courses and teaching. Kamal and Ramzi (2002) studied the administrative perspective of higher education institutions by determining students' observations regarding registration and academic counselling across dissimilar faculties and other organisational services to reassure the constructive eminence facility that are related with the academics. In addition, according to De Jager and Gbadamosi (2013), the prospects associated with the learning services by students are internationalisation, promotion and support, right to use, employees and academic superiority, accommodation, and conveniences. All these studies taken together did not focus on PC effectiveness of students regarding various factors of service quality. Accordingly, the current literature has been enriched with PC effectiveness of students regarding various factors of service quality.

8.2 Managerial implications with respect to PC factor effectiveness model

The various factors of model 2 as shown in Figure 1 suggest that the students' perception of education quality is heavily influenced by an institution. This study shows that environment formed by education institutions controls students' perception of excellence, i.e., students and institution. The educational institutions advocate the offering of a high level of quality education expectations of the students. Therefore, authorities of these institutions should ensure an encouraging learning atmosphere for students by offering them various facilities as per their expectations from the institutions. These facilities must include teachers' obligations for imparting good quality education, better infrastructure, institution, and placement facilities. The establishment of proper practice of inspection to support all these facilities needs a continuous monitoring. Administration of higher institutions ought to devise a structure for accumulating feedback from their students on a consistent basis. Evidences so realised should form part of the source for making decisions about superiority issues in their institutions in direction to reinforce the PC between students and educational institution for service quality of various factors.

In lieu to eliminate the violation of PC for all these facilities and to give assurance for quality services, the different types of standards should be established. However, the incorporated and supervisory bodies both at national and international level should be assigned the responsibility to check appropriate compliance of these standards for maintaining a sound educational environment. Further, all these factors discussed in the study are pertinent not only in one country but have remained the major area of

discussion with various researchers at international level also. It has been highlighted in the current study in literature review as well as Table 1 also depicts the factors discussed by various foreign researchers. So, the study's result can be implicated in all the countries contributing to the field of higher education.

9 Conclusions

The study's rationale was to analyse the efficiency of student PC for facilities presented in different educational institutions. These constructs consisted of teachers and placement cell's obligations as well as infrastructure and institution facilities. Here the two models consisting of identifying factors have been tested. For the study, three hypotheses have also been framed on the basis of earlier literature. The models consist of a single factor and three-factor model. It has been further analysed from the work that second model (3-factor) did better than one factor model. The three-factor model consists of constructs like teacher's obligation, infrastructure, and institution facilities. On the basis of model 2, the hypotheses derived from literature have been analysed. The first hypothesis that there is a positive relationship between the teacher's obligations and infrastructure facilities has been confirmed from the value of correlation 0.663 and the p-value which is less than 0.001 ($p < 0.001$). According to DeShields et al. (2005), the major predictors of student contentment with educational services are performance of faculty, staff, and classes. Further, for the second hypothesis, the facilitation of positive relationship between infrastructure and institute has proved to be positive as the correlation value is 0.782 and analysed that the p-value is also less than 0.001. This hypothesis measures the areas that help in analysing the institutions that provides an environment for students, which leads to experiences and outcomes that comprise student accomplishment, generally defined as determination, knowledge, and the degree of attainment (Kuh, 2001). Finally, a third hypothesis is that there is a positive relationship between teacher's obligation and institute facilities, which is definite from the positive p-value and correlation values. So, these results have recommended that student PC in the framework along with the educational institution facilities factors consist of three-factor, including 26 items largely and named as a multi-dimensional construct. Hence, the study has numerous inferences for policy community and education management and they should have to logically make available three facilities for fulfilling students' PC in the contemporary scenario, will uphold a resonance relation between students and institutions. Furthermore, the probable limitation and testing of the model in a current study of higher education systems would endow with an important understanding about higher educational quality both at the local and international levels as the studies in worldwide context have supported all the factors.

10 Limitations and directions for future research

The researchers have motivated to pursue work in this area, which provides recommendations for future studies. The potential studies in this area can be elaborated by making a comparative study of the public and private educational institutes. Further, this comparison can be extended in the context of the geographical area by making proper segmentation of the population as well as choosing a representative sample from each

area. Moreover, as viewed from the previous literature, few studies of the mediation effects for constructs like teacher obligation, institute, and infrastructure facilities and training and placement cell obligation have been conducted. So, in future research, all these areas can be incorporated. In the current study an instrument has been developed with various factors of student PC. In further studies in this area, this instrument can be tested at an international level also. Since as discussed earlier all the factors have been created from the research in international context also.

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