

Validating student satisfaction related to persistence, academic performance, retention and career advancement within ODL perspectives

Maximus Gorky Sembiring
Universitas Terbuka (Indonesia)
gorky@ut.ac.id

Abstract

Student satisfaction associated with persistence, academic performance, retention, and its relations to career advancement were examined. It was aimed at measuring service quality (Servqual) dimensions as a foundation of satisfaction and how, in what compartments, they were interrelated. The study was conducted under explanatory-design. Data was collected proportionally and purposively followed by congregating them through unified interviews. Population was 1,814 Universitas Terbuka students domiciled overseas; 350 questionnaires were dispersed, 169 completed. Satisfaction was assessed by examining Servqual dimensions. Importance-performance analysis (IPA) and customer-satisfaction index (CSI) were applied to measure satisfaction and the level of its importance. Structural equation model (SEM) was then employed to examine influencing variables. Nine hypotheses developed were all validated by the analysis. Responsiveness, assurance, tangible, reliability, and empathy were in harmony to satisfaction. Career advancement, retention, academic performance, and persistence were influenced by satisfaction. Qualitative inquiry implemented afterwards was basically coherent with the quantitative findings.

Keywords: Servqual; satisfaction; retention; explanatory-design; IPA-CSI; SEM

Introduction

It is observably recognized that some factors lead to student satisfaction and its relations to retention perceived from service quality (Servqual) outlooks (Brown, 2006; Arokiasamy & Abdullah, 2012). The framework of Servqual leading to satisfaction has been formulated by Parasuraman, Zeithaml and Berry (1988) and elaborated in educational sectors by Tan & Kek (2004), Petruzzelis, D'Uggento & Romanazzi (2006), and Rojas-Méndez, Vasquez-Paraga, Kara, & Cerda-Urrutia (2009). These efforts are imperative since many students who endeavored to earn a degree failed to persist (Robert & Styron, 2009) as the service delivered is below the required standard. To certain extent, this phenomenon is tightly relevant to Universitas Terbuka Indonesia ambiance as documented by Sembiring (2014 & 2015).

Issues related to persistence, academic performance, and retention as a result of satisfaction in the context of Universitas Terbuka are now indispensably consistent with maintaining the size and growth of the student body. In 2014, for example, it was expected students to total 361,461 nationally and 3,000 regionally; the latter refers to students living overseas. The targeted number nevertheless dropped short of that goal and totaled up to 333,501 nationally and 1,814 regionally (Universitas Terbuka, 2015b). This implies that there was a gap between the initial target and the realization. This fact drives us to explore: Was it as a result of many students having graduated? Was it a question of fewer new students registered? Or, was it due to the fact that many students did not re-register themselves in a consecutive semester consistently? If the latter is the most probable case, we then come to the inquiry of student persistence and/or retention associated with student satisfaction within Servqual configurations.

The primary aim of the study is therefore to evaluate the Servqual implemented and its dimensions as they were expected and experienced by students. It is also significant to reveal the crossing

points between satisfaction along with persistence, academic performance, retention, and career advancement in Open and Distance Learning (ODL) settings. The answers to these questions are related to the efforts on maintaining the size and growth of the University’s student body, such that all services provided meet as many students’ needs and expectations as possible (Ostegard & Kristensen, 2005). Besides, the University will be able to anticipate and concentrate the entire associated efforts productively with respect to assuring better and faster services viewed from a student perspective.

Related Literature and Framework

Servqual and satisfaction, even in the educational sector, attract many scholars in a wide variety of disciplines (Kitcharoen, 2004). The dimensions of Servqual mentioned previously: reliability, assurance, tangibility, empathy, and responsiveness were adopted in this inquiry. Previous work by Tileng, Wiranto and Latuperissa (2013) gave confidence to utilize this basis within Universitas Terbuka context. The origin of the study was Servqual and satisfaction integrated with prominent constructs within retention and/or persistence (Tinto, 1982, 1993 & 1997) and attrition (Bean, 1983 & 1985). It makes such a progress in understanding elements of Servqual, satisfaction and retention (Hanaysha, Abdullah & Warokka, 2011). Furthermore, Ilias, Hasan and Rahman (2008), Mailany (2011) and Martirosyan, Saxon and Wanjohi (2014) recognized that evaluation on satisfaction leads to increasing academic performance. Students also search for a program that will prepare them for more promising and great career advancement in their future. It is then believed that many students expected to gain more established forthcoming jobs (Archambault, 2008).

Having considered these expectations, it becomes just right to introduce an integrated structure of this study by uniting all relevant factors in Servqual framework, satisfaction, and associated possible links as the conceptual framework of this research (Figure 1).

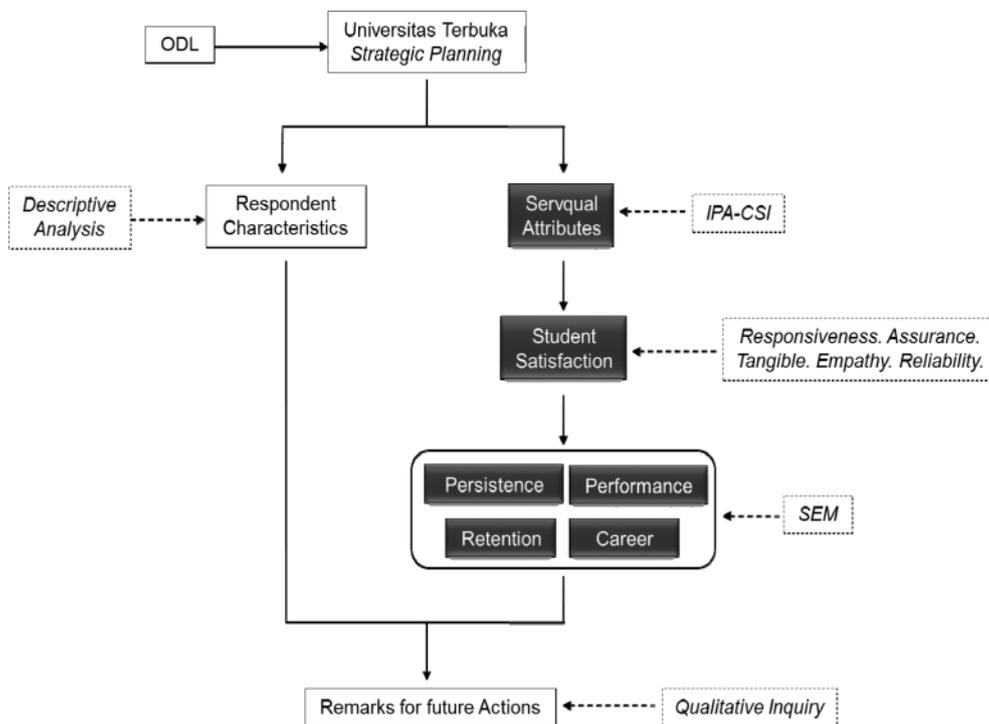


Figure 1: Conceptual Framework

This conceptual framework would be a tool for measuring student satisfaction and its inferences viewed from Servqual outlooks. This would allow ODL institutions to change important aspects of their operations to accommodate student expectations. It might also focus on institutional directions to fulfil student needs extensively so that the universities can maintain and make progress on the size and growth of their student bodies as it was prearranged.

Before establishing the operational framework as a furtherance of the conceptual one, it is worth noting that student satisfaction is conceptually determined by Servqual. It is operationally demarcated on five dimensions (reliability, assurance, tangible, empathy, and responsiveness). Each dimension is further elaborated accordingly into attributes. Moreover, satisfaction is operationally a pointer to persistence, academic performance, retention, and career advancement. To ease the research design, all variables engaged associated with their dimensions are systematically arranged as shown in Table 1.

Table 1 is utilized as a basis to develop an instrument in the form of questionnaire. All questions incorporated in X, as the independent variables (X_{11} – X_{53}), are answered two times by respondents simultaneously. The first and second answers measure satisfaction and its level of importance. The rest are answered by respondents to view the impact of satisfaction related to persistence, academic performance, retention, and career advancement from students' perspectives.

Table 1: Variable, Dimension, and Question of the Research

No	Variables	Dimensions	Questions
1	Reliability X_1	<ul style="list-style-type: none"> Curriculum Relevance Reputation 	X_{11} : Curriculum of the program X_{12} : Relevance between program and the work X_{13} : acknowledgement from the society in large
2	Assurance X_2	<ul style="list-style-type: none"> Services Schedules Fees 	X_{21} : Student service through electronic media X_{22} : The university academic calendar X_{23} : Tuition fee and other related expenses
3	Tangible X_3	<ul style="list-style-type: none"> Website Design Information in web Web interactivity 	X_{31} : Design of the web (www.ut.ac.id) X_{32} : Information inside the web X_{33} : Interaction from students to the university via electronic media, and vice versa
4	Empathy X_4	<ul style="list-style-type: none"> Attention Support Complaints 	X_{41} : Response from student service official X_{42} : Tutor support X_{43} : Handling student complaints
5	Responsiveness X_5	<ul style="list-style-type: none"> Feedback Communication Access 	X_{51} : University feedback mechanism to students X_{52} : Information delivery system to students X_{53} : Student access to the management
6	Satisfaction $Y_{(1-5)}$	<ul style="list-style-type: none"> Registration Modules Tutorials Exams General admin 	Y_1 : Student registration service Y_2 : Module distribution system Y_3 : Tutorial management system, classroom & online Y_4 : Implementation of semester final exam Y_5 : Tuition fee payment scheme
7	Persistence $Y_{(6-8)}$	<ul style="list-style-type: none"> Re-register Active in tutorial Active in group 	Y_6 : Re-registering regularly in each semester Y_7 : Enthusiastically participate in tutorial activity Y_8 : Involve in study group activity via available media

No	Variables	Dimensions	Questions
8	Academic Performance $Y_{(9-10)}$	<ul style="list-style-type: none"> • Assignments • GPA • (Grade Point Average) 	Y_9 : Assignments in the tutorial session are helpful Y_{10} : I am satisfied with the results (GPA) in the previous final exams
9	Retention $Y_{(11-13)}$	<ul style="list-style-type: none"> • Study up to finish • Further study • Recommend to others 	Y_{11} : I will do my best to complete my study at any cost Y_{12} : I will continue my next degree in this University Y_{13} : I will recommend the University to others
10	Career Advancement $Y_{(14-15)}$	<ul style="list-style-type: none"> • Future career • Civic contribution 	Y_{14} : I do believe that after completing my degree here then my career will be more improved Y_{15} : I am happy to contribute through alumni association

At this stage, it is on the right spot to establish the study's operational framework in accordance with the structure of the conceptual framework (Figure 1) and the essence of variables involved (Table 1) and then followed by their attributes. They are all displayed diagrammatically in Figure 2. This figure will be used as the basis for determining the methodology used, research design, and the way on how to ensure the analysis accomplished further.

Methodology, Design and Hypotheses

This study utilized mixed-methods, i.e., explanatory-design (Creswell & Clark, 2011). Technically, the research was prearranged to be implemented under a quantitative approach first and then followed by a qualitative sequence. Two instruments were developed; a questionnaire for quantitative purposes and a list of questions for in-depth interviews and/or focus group discussions to be analyzed qualitatively.

Figure 2 describes the highlights affecting Student Satisfaction (Y_{1-5}) leading to Persistence ($Y_{6,7,8}$), Academic Performance ($Y_{9,10}$), Retention ($Y_{11,12,13}$), and Career Advancement ($Y_{14,15}$). Satisfaction (Y) includes Registration (Y_1), Module (Y_2), Tutorial (Y_3), Examination (Y_4), and Administration (Y_5). Satisfaction (Y) was assessed by perceiving the components of Servqual, including the attributes of Reliability (X_1), Assurance (X_2), Tangible (X_3), Empathy (X_4) and Responsiveness (X_5).

The instrument consists of 2x20 questions related to satisfaction and its level of importance, plus ten additional questions to validate whether or not persistence, academic performance, retention and career advancement were relatable to satisfaction. This approach is meant to address the conceptual and operational framework, research design, hypotheses, survey and sampling techniques, data collection and processing, and finally drawing the conclusions quantitatively. Serially, these will be unified with the results obtained from the qualitative approach.

Variables involved were explored through a questionnaire inspired by Tjiptono & Chandra (2011). A survey was implemented to collect data from respondents (Singarimbun & Effendi, 1989). Proportional (for quantitative purposes) and purposive (for qualitative purposes) sampling techniques were chosen to select eligible respondents (Sugijono, 2012). IPA-CSI were utilized afterwards to measure the satisfaction level along with its importance (Kitcharoen, 2004; Silva & Fernandes, 2010; Wong, Hideki & George, 2011). SEM was finally utilized to detect probable relations among variables engaged (Wijayanto, 2008).

This approach will assess the *hypotheses* (H), which consisted of nine entries (Figure 2). They are: Satisfaction is directly influenced by Reliability (H_1), Assurance (H_2), Tangible (H_3), Empathy

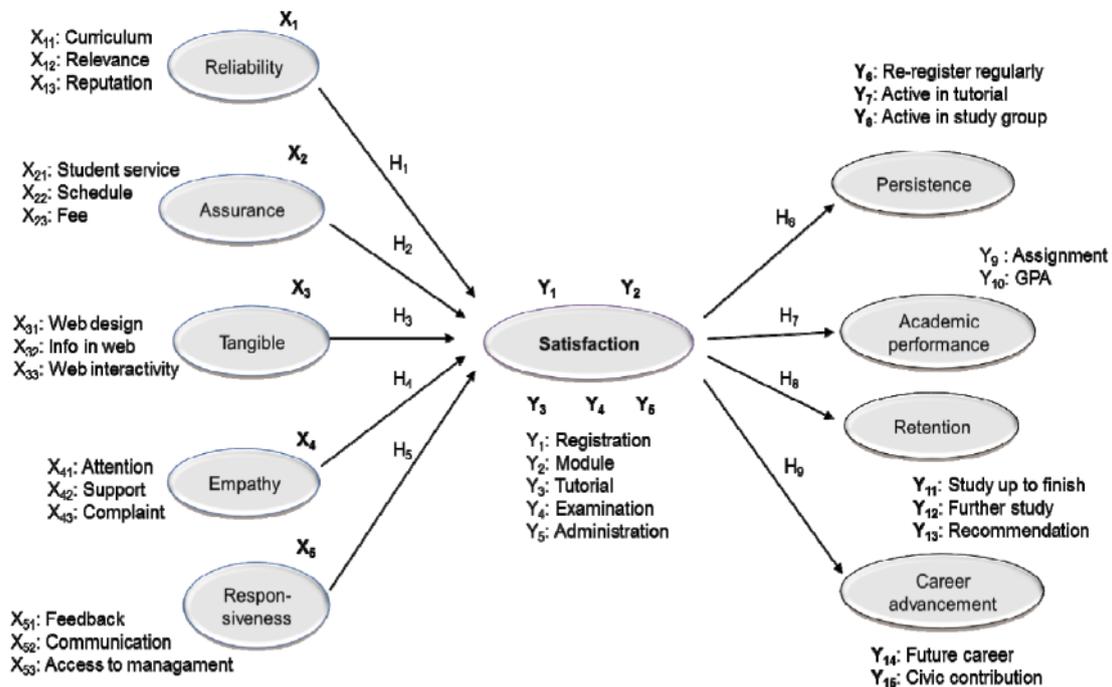


Figure 2: Operational Framework

(H₄), and Responsiveness (H₅). Moreover, Persistence (H₆), Academic Performance (H₇), Retention (H₈), and Career Advancement (H₉) are directly influenced by Satisfaction.

Results and Arguments

Before conferring the outcomes, it is convenient to represent the main characteristics of the respondents of the study as shown in Table 2, as it will certainly enhance our perspectives on the end results. This picture would also give us broader insights of the context and the methodology used. The results of analyses are detailed in the following clarification, table, and figures.

Table 2: Respondents' Characteristics

Number of Countries Students Domiciled Overseas = 27	Total Students = 1,814	Questionnaires	Distributed = 350
	Respondents = 169		Completed = 169

Student Domicile (%)	Hong Kong	18.34	Taiwan	17.75	South Korea	18.93
	Malaysia	19.52	Singapore	17.15	Others	8.28
Study Program (%)	Communication	25.43	Management	23.66	English	38.46
	Business Admin	2.36	Accountancy	8.28	Others	1.77
Profession (%)	Public Service	0.00	Private Sector	23.07	Industry	28.99
	Own Business	5.32	Non Formal	38.46	Others	4.14

Number of Countries Students Domiciled Overseas = 27		Total Students = 1,814		Questionnaires		Distributed = 350	
		Respondents = 169				Completed = 169	
GPA (2014, %)	0.00–1.99	4.73	2.00–2.49	12.82	2.50–2.59	50.88	
	3.00–3.49	21.30	3.50–3949	10.65	3.50–4.00	0.59	
Age (Year, %)	18–25	40.82	26–30	28.99	31–35	23.66	
	36–40	4.73	41–45	1.18	46 ⁺⁺	0.59	
Selected Respondents	Hong Kong	1	Malaysia	1	South Korea	1	
	Taiwan	1	Singapore	1	Others	3	

Figure 3 evidently shows that all the nine hypotheses were validated by the analysis. They are: (1) $H_1=7.88$ (Reliability to Satisfaction), $H_2=11.68$ (Assurance to Satisfaction), $H_3=7.92$ (Tangible to Satisfaction), $H_4=6.84$ (Empathy to Satisfaction), $H_5=13.58$ (Responsiveness to Satisfaction), $H_6=7.06$ (Satisfaction to Persistence), $H_7=7.67$ (Satisfaction to Academic Performance), $H_8=8.95$ (Satisfaction to Retention), and $H_9=14.38$ (Satisfaction to Career Advancement); for all $t_{\text{values}} \geq 1.96$ (for $\alpha=5\%$). This implies that they are all validated positively and directly by the analysis.

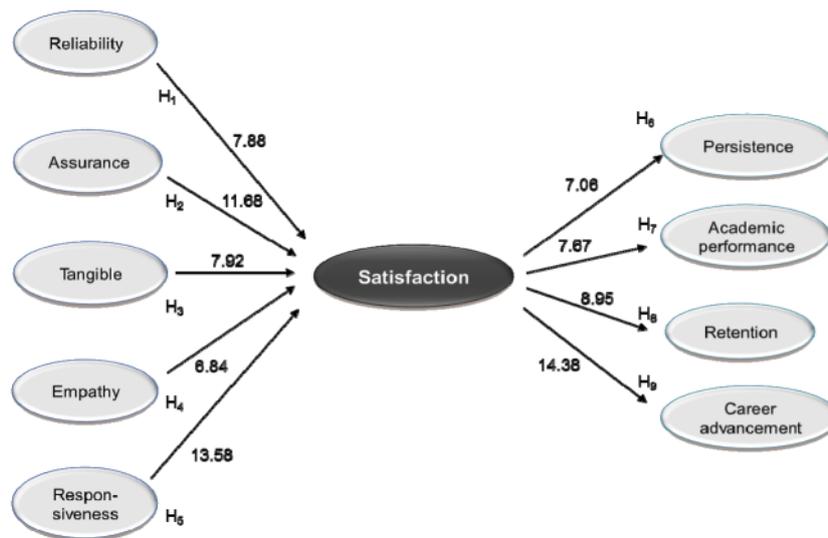


Figure 3: t_{value} of the Framework

Before describing the end results, it is worth revealing satisfaction level and its importance degree obtained from IPA-CSI structures. The analysis generates the spots of Servqual components with respect to related quadrants to comprehend the degree of their importance (Figure 4). Figure 4 below has four quadrants. They are: (1) Concentrate Here, (2) Maintain Performance, (3) Low Priority, and (4) Possible Overkill; following Wong *et al.* (2011).

Quadrant 1 (Concentrate Here) has eight important attributes that should be seriously noted. They are: (i) Handling Complaints, (ii) Communication, (iii) Tutorial, (iv) Access to Management, (v) Attention, (vi) Module, (vii) Support from Faculty, and (viii) Student Service. This quadrant indicates that satisfaction is at a low level whereas the degree of its importance is high. The University must pay attention to these eight critical facts and put them in a top priority so that student expectations can be fulfilled and they are more likely to complete their study as intended.

Quadrant 2 (Maintain Performance) includes four points that should be recognized. They are: (i) Examination, (ii) Information in Web, (iii) Schedule, and (iv) Registration. This quadrant is a symptom of both satisfaction and the degree of their importance being concurrently placed at a high level. The University, therefore, must take care of these aspects so that more students will get advantage of these conditions and will pursue their studies with intent. All attributes that fall into this quadrant are the strength and pillar of the University; altogether, they should become the pride of the University.

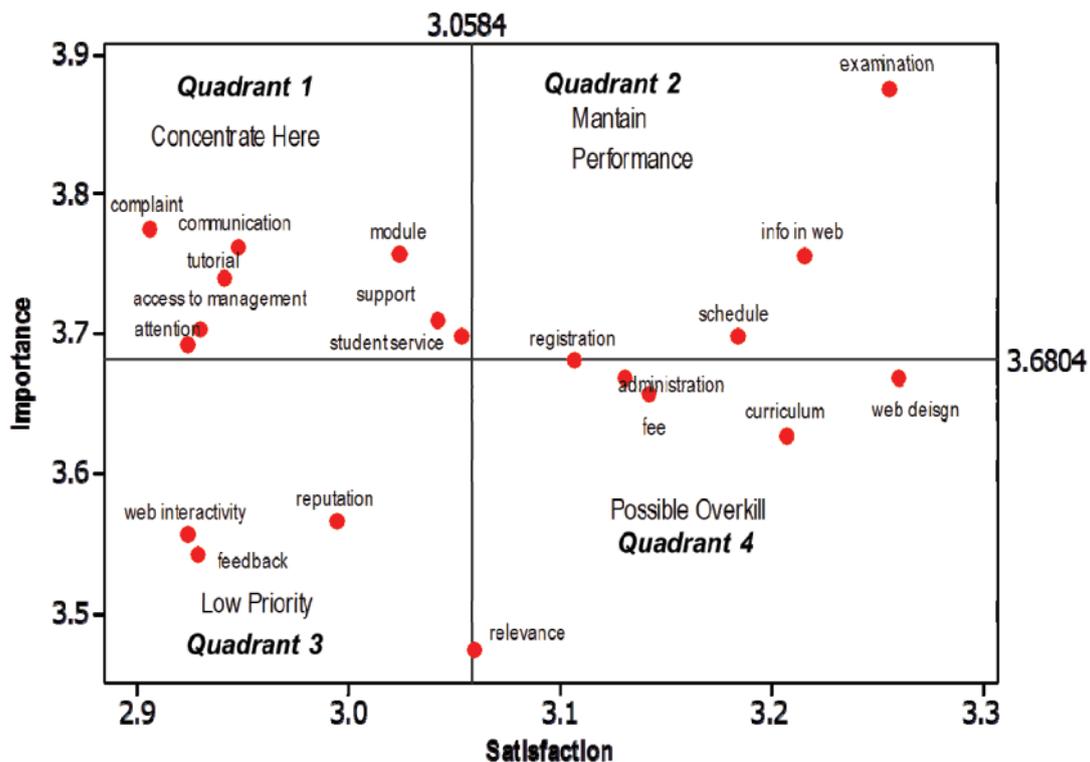


Figure 4: IPA-CSI Chart of the Framework

Quadrant 3 (Low Priority) has three points which should be remarked. They are: (i) Reputation, (ii) Web Interactivity, and (iii) Feedback Mechanism. This quadrant is an indication that both satisfaction and the degree of its importance are in the low category. The University should classify these aspects as ‘the next’ focus after concentrating on the critical spots found in Quadrant 1 and Quadrant 2. Therefore, any of the attributes falling into this quadrant is not important and poses no threat.

Finally, in **Quadrant 4**, five points are classified as *Possible Overkill*. They are: (i) Administration, (ii) Fee, (iii) Curriculum, (iv) Web Design, and (vi) Relevance of the Program. This quadrant indicates that the Servqual provided is considered much less important but respondents considered them as high in satisfaction. Here, attention to the attributes included can be less focused so that the University can save costs by redirecting them to take up vital spots in Quadrant 1 and maintain fundamental spots in Quadrant 2.

Having positioned variables and dimensions in relation to the appropriate quadrants based on IPA-CSI approach, we are now in the position to relate loading factors of the framework. This is to observe the power of relations between each variable involved in the operational framework as a comprehensive framework under SEM (Wijayanto, 2008; Hair, Black, Babin & Anderson, 2009), to work out the end results (Figure 5).

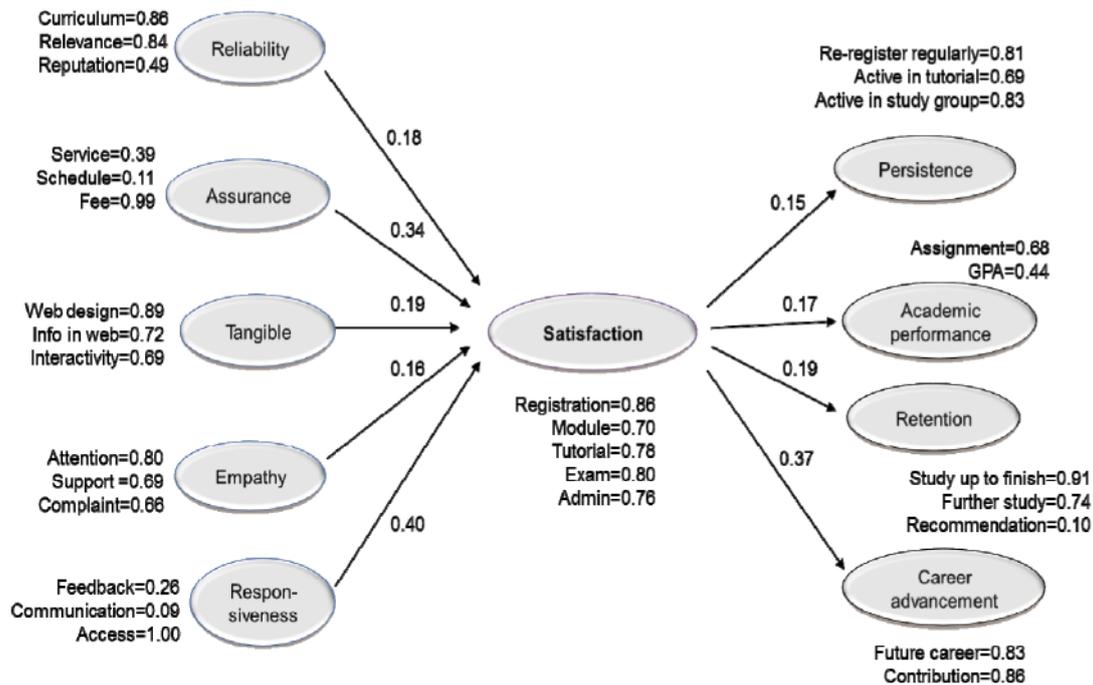


Figure 5: Loading Factor of the Framework

Figure 5 above obviously displays five prime final upshots quantitatively, as follows:

- The first is related to the main five variables which directly influence satisfaction (orderly rank). They are: (i) Responsiveness ($X_5=0.40$), (ii) Assurance ($X_2=0.34$), (iii) Tangible ($X_3=0.19$), (iv) Reliability ($X_1=0.18$), and (v) Empathy ($X_4=0.16$)
- The second finding is related to the ranks of the dimensions in Responsiveness (X_5). They are: (i) Access to management, ($X_{53}=1.00$), (ii) feedback scheme ($X_{51}=0.26$), and (iii) Communication ($X_{52}=0.09$). The ranks in the dimensions of Assurance (X_2) are: (i) Fee ($X_{23}=0.99$), (ii) Service ($X_{21}=0.90$), and (iii) Schedule ($X_{22}=0.11$). The standings of dimensions in Tangible are: (i) Web design ($X_{31}=0.89$), (ii) Information in the web ($X_{32}=0.72$), and (iii) Web interactivity ($X_{33}=0.69$). The positions of dimensions in Reliability (X_1) are: (i) Curriculum ($X_{11}=0.86$), (ii) Relevance ($X_{12}=0.84$), and (iii) Reputation ($X_{13}=0.49$). The ranks in the dimensions of Empathy (X_4) are: (i) Attention ($X_{41}=0.80$), (ii) Support ($X_{42}=0.69$), and (iii) Handling Complaints ($X_{43}=0.66$)
- In the third finding, respondents put the order of satisfaction (Y) from the provision of services related to: (i) Registration ($Y_1=0.86$), (ii) Examination ($Y_4=0.80$), (iii) Tutorial ($Y_3=0.78$), (iv) Administration ($Y_5=0.76$), and (v) Module ($Y_2=0.70$)
- The fourth result is associated with the power of relations between satisfaction (Y) and Persistence ($Y_{6,7,8}$), Academic Performance ($Y_{9,10}$), Retention ($Y_{11,12,13}$), and Career Advancement ($Y_{14,15}$). Figure 5 clearly confirms satisfaction has a very significant effect on: (i) Career Advancement (0.37), Retention (0.19), (iii) Academic Performance (0.17), and Persistence (0.15) successively.
- The fifth effect is the ranks on dimensions of: (1) Career Advancement: (i) Civic contribution ($Y_{15}=0.86$) and (ii) Future career ($Y_{14}=0.83$); (2) Retention: (i) Study up to finish ($Y_{11}=0.91$), (ii) Further study ($Y_{12}=0.74$), and (iii) Recommendation to others ($Y_{13}=0.10$); (3) Academic Performance: Assignments ($Y_9=0.68$) and (ii) GPA ($Y_{10}=0.44$); and (4) Persistence: (i) Active in Study Group ($Y_8=0.83$), (ii) Re-register Regularly ($Y_6=0.81$), and (iii) Active in Tutorial Activities ($Y_7=0.69$).

Before moving to the qualitative findings, it is worth considering whether the SEM result is labelled as a 'good fit' category so it is possible to assess the hypotheses and engender the loading factors of the framework. The analysis showed that they were all considered in 'good fit' category (Table 3). This means that the framework is reliable. The conceptual and basic (operational) frameworks in this research are substantially and methodologically aligned with each other (Wijayanto, 2008).

Having collected and aggregated outcomes accomplished under *qualitative* inquiry, there are *three* major effects, which need to be noticed thoughtfully. The first outcome is related to the conceptual and operational framework of the research (it refers to Figure 1, Figure 2, and Figure 3; including Table 1). The second is on the IPA-CSI chart results (it refers to Figure 4). The third concerns the methodology used (mixed-methods, i.e., explanatory-design).

Table 3: Goodness of Fit of the Framework

Goodness of Fit	Cut-off Value	Results	Notes
RMSEA – Root Mean Square Error Approximation	≤ 0.08	0.063	Good Fit
RMSR – Root Mean Square Residual	< 0.05 or < 0.10	0.008	Good Fit
GFI – Goodness of Fit	≥ 0.90	0.960	Good Fit
AGFI – Adjusted Goodness of Fit Index	≥ 0.90	0.950	Good Fit
CFI – Comparative Fit Index	≥ 0.90	0.980	Good Fit
NFI – Normal Fit Index	≥ 0.95	0.950	Good Fit
RFI – Relative Fit Index	≥ 0.90	0.940	Good Fit

It is understood that the conceptual framework structure quantitatively confirms career advancement as the primary aspect and is then followed by retention, academic performance, and persistence successively. In general, this result is in agreement with the qualitative inquiry. It implies that four factors are also found from in-depth interviews and focus group discussions. In terms of its order, however, the selected respondents express that satisfaction leads to (in different order of ranks than that of quantitative results): (i) Academic Performance, especially for the GPA, (ii) Persistence, especially for re-registering regularly in consecutive semesters, (iii) Retention, especially for study up to finish, and (iv) Career Advancement especially for future career. These are the things that are most preferably beheld by the selected eligible respondents. This, to a certain extent, is comparable to the work of Swail (2004).

In this upshot, it seems that there is a slight discrepancy between quantitative and qualitative outcomes in terms of the positions of the variables involved and their dimensions. This gap lightly exists but it does not create a vivid contradiction that shall drive us to take opposite position further. It rather gives us a wider perspective to be kept in mind for further consideration if we conduct comparable research in the future.

In addition, quantitative outcomes partially put 'access to management' ($X_{53}=1.00$) as the prime attribute in prime variable (X_5 , Responsiveness) that leads to Satisfaction (Y). From the discussions, it was detected that selected respondents prefer to place communication as the top rank in this dot. This is imperative since the students are domiciled overseas and at the same time they are not full-time students. This implies that they have a shortage of time to attend academic activities, such as face to face tutorial or student orientation with regular and fixed schedules (Sawitri & Sembiring,

2013). Students prefer to have other communication arrangements that allow them to access activities, despite not being able to come physically to the specified session. Again, this result does not contradict the other, such that they are totally considered to be opposite to each other in the level of the variable. This even gives us broader angles, as there are many details and aspects that should be taken care of to fulfil various students' need and expectation.

The rest of the quantitative outcomes other than explained above are entirely consistent with the qualitative marks. It implies that from the five dimensions of Servqual only two of them have slightly different ranks from the initial framework; they are only different in terms of the rank. It is the same in the case of the dependent variables, since the difference between what was obtained quantitatively versus qualitatively in the impact of satisfaction was only related to the rank; including ranks in attributes within the variables/dimensions, i.e., career advancement, retention, academic performance, and persistence.

Referring to the second finding from IPA Chart (Figure 4), results from qualitative inquiry are exclusively equivalent with the quantitative ones. To some extent, it implies that they are remarkably the same. It is a pity, however, that the communication system fell in Quadrant 1 (Concentrate Here). All the same, students consider this attribute is critical for most of them, as they are part-time based students; this is in line with Roberts & Styron (2009). Students moreover believe that the communication system in an academic context is extremely important and most of them placed it in the "unsatisfied" level. Additionally, access to management is extremely crucial according to students, it fell in the first quadrant. This entails that the University should put these two attributes as a top priority to be tackled particularly, to suit the needs and expectations of those overseas students.

Support from faculty and tutorial support are also dropped in this quadrant. These two services however are tightly related to academic service. It implies that the two services are crucial according to students and concomitantly they found it unsatisfactory. This vital issue should be taken care of as it will promptly influence student performance in academic sense; it finally affects students' GPA.

Looking up to the third effect, from a methodological perspective, it appears that mixed-methods used in this study are proper. There are slight and minor differences in terms of the end results but they are firmly limited in numbers as well as trivial or low in implications and consequences with respect to the initial conceptual and operational frameworks. Differences in terms of end results took place in the level of ranks, not in the sense of conceptual or even theoretical outlooks. Although they differ, this does not indicate that they are in contradictory dots. To a certain extent, it can be inferred that the differences that emerged were actually in the sense of widening our perspectives, and that they support each other methodologically in practicable intensity (Creswell & Clark, 2011).

From a methodological direction, the outcomes of the study give us durable bases that the mixed-methods with the choice of explanatory-design, is suitable to assess Servqual and its dimensions with respect to their plausible linkages. Quantitatively, it is understandable that IPA-CSI approach is able to display distinctively what are the things that should be placed within the top priority to be controlled prudently (Quadrant 1). The approach is proficient enough to classify which things should be persistently maintained (Quadrant 2), what are the things to be classified as the next priority and pose no threats (Quadrant 3), and what are the things considered to be less important so that there is no need to rush and take them into account by all means (Wong, Hideki & George, 2012).

Correspondingly, IPA Chart effects are reinforced quantitatively by SEM outcomes. Combining these end results will objectively direct the University to formulate alternative courses of action for future needs with respect to student outlooks. It is fortunate that the qualitative inquiry was also in accordance with the previous results implemented under the quantitative approach. It has been a phenomenon that most universities are generally limited by tangible resources, they are referred to

5-M (man, money, material, machine, and method). By considering this constraint, it is then just right to formulate “new” ideas on how to effectively re-direct the available resources (5-M) such that there are sufficient efforts and related supports to primarily concentrate dealing with aspects in Quadrant 1 and maintaining aspects in Quadrant 2 (Tileng, Wiranto & Latuperissa, 2013).

In Universitas Terbuka contexts, this result will be incredibly useful to “re-formulate” the things that should be put as a top priority to fulfil students’ expectations in conjunction with satisfying needs of those students living overseas. At least eight aspects dropped into Quadrant 1 should be brilliantly controlled with high intent. Additionally, four aspects that drop into Quadrant 2 should also be repeatedly preserved as they are the pillar and the pride of the University. By all means, some aspects from Quadrant 1 can be moved on to Quadrant 2. If this takes place, it will improve the number of students feeling satisfied. The more students are satisfied, the more likely they will persist. Persistence is operationally defined as students doing their registration regularly in each and every semester. It implies that the University is able to maintain the size and growth of the student body as it was initially planned (Archambault, 2008).

Concluding Remarks

The research has created a quantitative framework of student satisfaction and its dimensions with respect to their links, extended from a comprehensive analysis of educational perspective in terms of student’s behavior literatures. The framework was validated using SEM, assessing the empirical data from a survey of 169 Universitas Terbuka students living overseas. The study ascertains that satisfaction leads to career advancement, retention, academic performance, and persistence successively. Besides, satisfaction is affected by responsiveness, assurance, tangible, reliability, and empathy, in this order. Under IPA-CSI procedures, eight aspects should be taken into account cautiously (they are: handling complaints, communication, tutorial, access to management, attention, module, support, and student service) from a student standpoint. Methodologically, results under a quantitative approach are consistent with the results from the qualitative series. Although there is a difference, they only slightly differ in ranks of dimensions/attributes; not in theoretical or conceptual levels. It can be inferred that they are empirically supplemented one to another.

Further research is also necessary, including follow-up studies with students who did not enroll each semester successively. It should also explore satisfaction level beyond attributes that were included in the five dimensions explained. The scope should also be broadened beyond students living overseas. By doing so, it would put forward a more comprehensive perspective, especially on persistence, academic performance, retention, and career advancement, since meeting the needs of ODL students will improve at least for both the persistence and retention rates (Sampson, 2003).

It is sincerely hoped that these results will provide opportunities for the University to be more contributive in helping Indonesia government to eradicate restraints for the nations to gain access to higher education as well as improving their qualifications. In a more general sense, if this experience is emblematical of universities worldwide, then universities’ management and academy would be well recommended to cogitate student satisfaction as being instruments to prolonged accomplishment and continued existence of their institution. If student persistence and retention can be achieved through excellent Servqual approach, this implies that the University is on the right path to encourage its upright mission of making higher education open to all. This is consistent with the 31st anniversary tagline of the University, i.e., *membangun pagar bangsa* (advancing/protecting the nation through flexible quality education). The University will ultimately be poised to achieve the vision of becoming a world quality institution in the provision of graduates with world quality standards (Universitas Terbuka, 2015a).

Acknowledgements

I am grateful to Professor Tian Belawati, the Rector of Universitas Terbuka Indonesia, and Kristanti Ambar Puspitasari, Ph.D., the Director of Research Institute, Universitas Terbuka, for the incessant supports, such that the research and the paper are finally accomplished.

This paper has been awarded an ICDE Prize for Innovation and Best Practice at the 26th ICDE Conference, held in Sun City (South Africa) in October 14th–16th 2015.

References

- Archambault, L. Z. (2008). Measuring service performance, student satisfaction and its impact on student retention in private, post-secondary institutions. *Proceedings EDU-COM International Conference*, Edith Cowan University. Retrieved from <http://ro.ecu.edu.au/ceducom/2>
- Arokiasamy, A. R. A., & Abdullah, A. G. (2012). Service quality and students' satisfaction at higher learning institutions: a case study of Malaysian University competitiveness. *International Journal of Management and Strategy*, 3(5), 1–16. Retrieved from http://www.facultyjournal.com/webmaster/upload/__Copy%20of%200017ARA_SQ_Student%20Satisfaction_UC.pdf
- Bean, J. P. (1983). The application of a model of turnover in work organizations to the student attrition process. *Review of Higher Education*, 6, 129–148.
- Bean, J. P. (1985). Interaction effects based on class level in an exploratory framework of college student dropout syndrome. *American Educational Research Journal*, 22(1), 35–64.
- Brown, R. M. (2006). Factors driving student satisfaction and retention in Australian universities: The importance of institutional image. Paper presented at the 20th Annual ANZ Academy of Management Conference, Rockhampton, 6–10 December 2006.
- Creswell, J. W. & Clark, V. L. P. (2011). *Designing and conducting mixed methods research* (2nd Ed.) Los Angeles: Sage Publication, Inc.
- Hair, Jr., J.F., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate data analysis with readings* (7th Ed.) New Jersey, USA: Prentice Hall, Inc.
- Hanaysha, J. R. M., Abdullah, H. H., & Warokka, A. (2011). Service quality and students' satisfaction at higher learning institutions: The competing dimensions of Malaysian universities' competitiveness. *Journal of Southeast Asian Research*, 2011. <http://dx.doi.org/10.5171/2011.855931>
- Ilias, A., Hasan, H. F. A., & Rahman, R. A. (2008). Student satisfaction and Servqual: Any differences in demographic factors? *International Business Research*, 1(4), 131–143.
- Kitcharoen, K. (2004). The Importance-Performance Analysis of Service Quality in administrative departments of private universities in Thailand. *ABAC Journal*, 24(3), 20–46. Retrieved from http://www.journal.au.edu/abac_journal/2004/sep04/ajvol24n3_article3.pdf
- Mailany, H. (2011). Study on the factors affecting student satisfaction in Bogor Agriculture University. *Thesis*, Bogor Agriculture University, Indonesia.
- Martirosyan, N. M., Saxon, D. P., & Wanjohi, R. (2014). Student satisfaction and academic performance in Armenian higher education. *American International Journal of Contemporary Research*, 4(2), 1–5. Retrieved from <http://www.aijcrnet.com/journal/index/646>
- Ostergaard, P., & Kristensen, K. (2005). Drivers student satisfaction and loyalty at difference levels of higher education. *The Aarhus School of Business*, 6(1), 145–152.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perception of Servqual. *Journal of Retailing*, 64(1), 12–40.
- Petruzzellis, L., D'Uggento, A. M., & Romanazzi, S. (2006). Student satisfaction and quality of service in Italian universities. *Managing Servqual*, 16(4), 349–364.

- Roberts, J., & Styron, R. Jr. (2009). Student satisfaction and persistence: Factors vital to student retention. *Research in Higher Education Journal, AABRI*, 1–18. Retrieved from <http://www.aabri.com/manuscripts/09321.pdf>
- Rojas-Méndez, J. I., Vasquez-Paraga, A. Z., Kara, I., & Cerda-Urrutia, A. (2009). Determinants of student loyalty in higher education: A tested relationship approach in Latin America. *Latin American Business Review*, 10(1), 21–39. <http://dx.doi.org/10.1080/10978520903022089>
- Sampson, N. (2003). Meeting the needs of distance learners. *Language Learning & Technology*, 7(3), 103–118.
- Sawitri, H. H., & Sembiring, M. G. (2013). Visualizing impending features shaping persistence viewed by Universitas Terbuka students at Denpasar Regional Office. *Paper presented at the 27th Annual Conference of AAOU, Pakistan*, 1–3 October 2013.
- Sembiring, M. G. (2014). Modeling determinants of student retention in distance education institutions. *International Journal of Continuing Education & Lifelong Learning*, 6(2), 15–18.
- Sembiring, M. G. (2015). Student satisfaction and persistence: Imperative features for retention in Open and Distance Learning. *AAOU Journal*, 10(1), June 2015, 1–11.
- Silva, F., & Fernandes, O. (2010). Using importance-performance analysis in evaluating of higher education: A case study. *International Conference on Education and Management Technology*. IEEE. (Pp. 121–123). <http://dx.doi.org/10.1109/ICEMT.2010.5657689>
- Singarimbun, M., & Effendi, S. (1989). *Metode penelitian survai*. Jakarta: LP3ES.
- Sugiyono. (2012). *Metode penelitian kombinasi*. Bandung: Penerbit Alfa beta.
- Swail, W. S. (2004). The art of student retention. Educational Policy Institute, *20th Annual Recruitment and Retention Conference*, Texas, 21 June 2004. USA: Magna Pub. Inc.
- Tan, K. C., & Kek, S. W. (2004). Servqual in higher education using an enhanced Servqual approach. *Quality in Higher Education*, 10(1), 17–24.
- Tileng, M. Y., Wiranto, H. U., & Latuperissa, R. (2013). Analysis of Servqual using Servqual method and IPA in Population Department, Tomohon City, South Sulawesi. *International Journal of Computer Applications*, 70(19), 23–30.
- Tinto, V. (1982). Limits of theory and practice in student attrition. *The Journal of Higher Education*, 53(6), 687–700.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd Ed.). Chicago: University of Chicago.
- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *The Journal of Higher Education*, 68(6), 599–623.
- Tjiptono, F., & Chandra, G. (2011). *Service, quality & satisfaction*. Yogyakarta: Penerbit Andi.
- Universitas Terbuka (2015a). *Strategic and operational planning of Universitas Terbuka 2014–2021*. Tangerang Selatan: Universitas Terbuka.
- Universitas Terbuka (2015b). *Rector office yearly report of 2014*. Tangerang Selatan: Universitas Terbuka.
- Wijayanto, S. H. (2008). *Structural equation model—Lisrel 8.80*. Yogyakarta: Graha Ilmu.
- Wong, M. S., Hideki, N., & George, P. (2011). The use of Importance-Performance Analysis in evaluating Japan's e-government services. *Journal of Theoretical and Applied Electronic Commerce Research*, 6(2), 17–30.