

Investigating Satisfaction with Blended Learning in Universitas Terbuka Framework

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Abstract

This study was aimed at signifying dimensions and attributes engaged on satisfaction with blended learning in Universitas Terbuka framework behold by graduates. It was also of interests to observe how and in what routine those factors were interconnected. The study was completed using explanatory-design. It was quantitatively verified that satisfaction (moderating variable) was influenced by instruction, interactivity, instructor, management, and technology (independent variables). Additionally, satisfaction preceded to competence, motivation, retention, and application (dependent variables). Respondents were randomly selected through survey by allocating 600 questionnaires to 1,000 graduates attending first period of 2016 graduation day; 252 of them were completed. Methodologically, importance-performance analysis (IPA) and customer-satisfaction index (CSI) were concurrently utilized to measure satisfaction level and degree of its importance. Nine hypotheses were established and then scrutinized under structural equation model (SEM) to capture significance level and interrelations intensity among variables engaged; and then followed by qualitative inquiry. Seven hypotheses were authenticated by the analysis. Technology was the most influential factor to satisfaction followed by management and instructor; interactivity and instruction were excluded from the main factors. Additionally, retention was primarily influenced by satisfaction, followed by competence, application and motivation. While qualitative upshot was entirely inline with the initial framework.

Keywords: blended learning, explanatory-design, IPA-CSI, SEM

INTRODUCTION

In the past couple decades, one of challenges encountered by prevailing higher education institutions (HEI) was to probe of structuring and adopting highly supportive learning environment to accomodate student necessities. This is imperative due to the increased number of student enrollment and program diversification (Poon, 2013). These marvels are not related to face to face mode of delivery only; more importantly, this is also relevant to an open and distance learning (ODL) milieu. Every HEI, especially for ODL institution, is ought to understand ways of providing quality education effectively and productively regardless of possible constraints in terms of delivery, time and space; it should also be inline with students needs and conditions.

An approach of overcoming possible hindrance in establishment of effective quality education in this study is referred to as the so-called blended learning. It is normally viewed as a combination of face to face and online delivery methods with the prime aim of each complementing the other. In Universitas Terbuka, blended learning has been in operations for about twenty years. This approach has been practiced mostly in basic education programs in Faculty of Education and Teacher Training; recently in graduate programs as well. Blended learning in Universitas Terbuka is the convergence of face to

face settings that are characterized by synchronous; and human interaction which are asynchronous with information communication technology (ICT) based arrangements. They are generally in text-base and involve human operating independently.

There are approximately 160,000 students in basic education and more than 2,000 students in graduate programs (Universitas Terbuka, 2015). In these programs, students are equipped with printed and non-printed (digitized) learning materials. Moreover, students are provided regular and scheduled face to face plus online tutorial supports. They are also eligible to access digital library and other related academic portals to support their study; they are ICT-based. Blended learning in Universitas Terbuka is therefore extremely vital to both students and the University.

The prime aim of this study is to explore and analyze blended learning experiences in Universitas Terbuka framework. It is reflected in the following questions: What are current blended learning experiences in view of users? How such experiences support their study? What are the reflections and lesson learnt from graduates to improve existing blended learning? These questions incorporate the convoluted impact of pedagogical and technological responses collectively. The first and second questions are made to identify and analyse the current blended learning practices. The finding from the third question is used to improve satisfaction level for the sake of students success. Ultimately, it was expected that through blended learning there will be substantial improvement on pedagogy, access to knowledge, social interaction, presence of lecturer, cost effectiveness and ease of revision; as indicated by Osguthorpe and Graham (2013)

To recognize the conceptual framework of the study, it is described as follow. Academic policy of the University on the mode of delivery using blended learning is generally derived from ODL framework. The study is first prearranged under quantitative and then followed by qualitative series. It is implemented under explanatory-design as part of mixed-methods procedure. Quantitatively, blended learning dimensions/attributes are evaluated under CSI-IPA first and then followed by SEM. Afterwards, qualitative inquiry is implemented before inferring the end results for future actions (Figure 1).

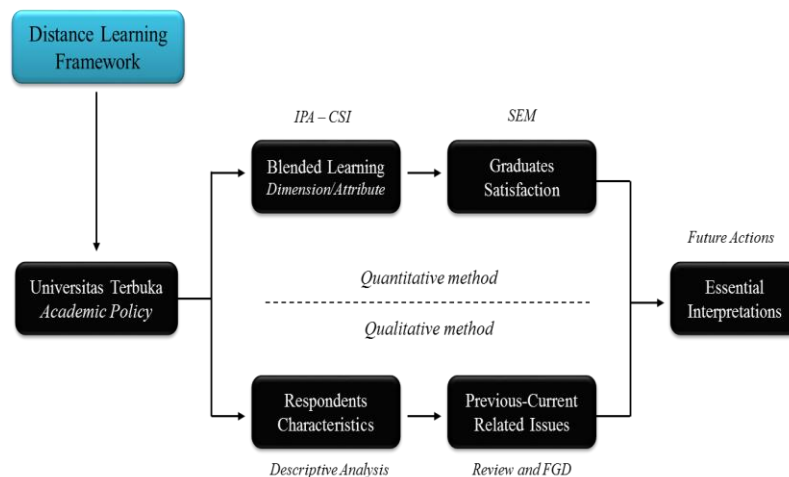


Figure 1: Conceptual Framework

Quantitatively, satisfaction in blended learning is a moderating variable. It will operationally be observed from 5-dimension (independent variables), namely instruction, interactivity, instructor, management and technology (Naaj, Nachouki & Ankit, 2012). The 5-dimension is observed with respect to how systematic, helpful, updated, enjoyable and flexible are available blended learning provided, used and experienced by users. Each

independent variable is also perceived through 3-attribute. The independent variables with 3-attribute of each dimension are used to observe level of satisfaction expected and experienced by users (students/graduates). Afterwards, it will be observed whether satisfaction has effects to students competence, motivation, retention and application (Smaldino, Lowther & Russel, 2008); this 4-dimension is dependent variables. Variables and dimensions involved are illustrated in Table 1. The operational framework of the study will be further developed based on this summary.

Table 1: Variables and Dimensions of the Study

<i>No</i>	<i>Variables</i>	<i>Dimensions</i>	<i>Notes</i>
1	Instruction X₁	X ₁₁ : More independent X ₁₂ : Comprehensive X ₁₃ : Ready for exams	Each independent variable (X) has three dimensions and questions that should be answered by all respondents Each question within X is answered two times simultaneously by the respondents. The first question is to measure their satisfaction and the second is to measure the level of its importance respectively
2	Interactivity X₂	X ₂₁ : Focus and alert X ₂₂ : Multi-ways X ₂₃ : Prompt	
3	Instructor X₃	X ₃₁ : Available X ₃₂ : Encouraging X ₃₃ : Open	
4	Management X₄	X ₄₁ : Discipline X ₄₂ : Attentive X ₄₃ : Consistent	
5	Technology X₅	X ₅₁ : Affordable X ₅₂ : Reliable X ₅₃ : Friendly	
6	Satisfaction in blended learning Y₁	Y ₁₁ : Systematic Y ₁₂ : Helpful Y ₁₃ : Updated Y ₁₄ : Enjoyable Y ₁₅ : Flexible	Satisfaction in blended learning (Y₁) is the modertaing variable upon X (X ₁₋₅)
7	Competence Y₂	Y ₂₁ : Knowledge Y ₂₂ : Skill	While others [Y ₍₂₋₅₎] are the dependent variables and determined by satisfaction on blended learning in Universitas Terbuka context
8	Motivation Y₃	Y ₃₁ : Inquisitive Y ₃₂ : Enthusiastic	
9	Retention Y₄	Y ₄₁ : Explicable Y ₄₂ : Memorable	
10	Application Y₅	Y ₅₁ : Applicable Y ₅₂ : Relevance	Total questions in the questionnaire are 49 (2x20+9)

RESEARCH FRAMEWORK AND METHODOLOGY

The study utilizes mixed-methods: explanatory-design (Creswell & Clark, 2011). Technically, the research is implemented under quantitative approach first and then followed by qualitative sequence. Two instruments are developed; they are questionnaires (quantitative purpose) and the list of inclusive questions for interviews/focus-group discussions (qualitative necessity). Table 1 is referred as a basis to develop instrument (questionnaire). All questions incorporated in X (X₁₁–X₅₃), were simultaneously answered two times by respondents. The first and second answers measure satisfaction level and their importance degree respectively. The rests are answered by respondents to view the effects of satisfaction related to competence, motivation, retention and application.

Variables involved are explored through questionnaire inspired by Bird (2009). Survey is implemented to accumulate data from respondents by following Fowler (2014). Simple random (quantitative) and purposive (qualitative) sampling techniques are both selected to choose eligible respondents (Cochran, 1977). IPA-CSI are simultaneously used to measure satisfaction level concerning blended learning along with its importance degree

(Kitcharoen, 2004; Silva & Fernandez, 2010; Wong, Hideki & George, 2011). SEM is finally applied to discover conceivable relations among variables engaged by practicing Wijayanto (2008) and Hair, Black, Babin and Anderson (2009); refer to Figure 2.

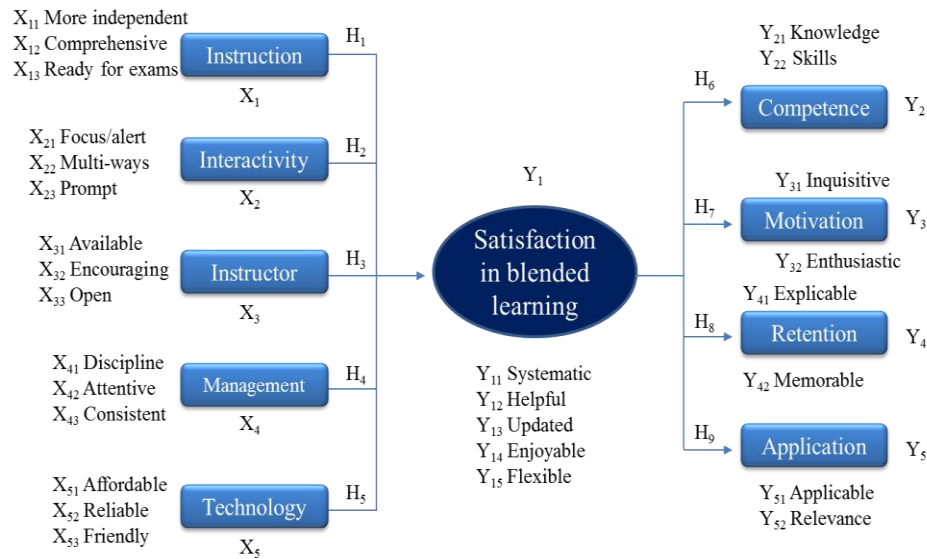


Figure 2: Operational Framework

Figure 2 describes features affecting satisfaction (Y₁) leading to competence (Y₂), motivation (Y₃), retention (Y₄) and application (Y₅). Satisfaction includes features in terms of systematic (Y₁₁), helpful (Y₁₂), updated (Y₁₃), enjoyable (Y₁₄) and flexible (Y₁₅) perspectives. Satisfaction (Y₁) is assessed by perceiving attributes from dimensions of instruction (X₁), interactivity (X₂), instructor (X₃), management (X₄) and technology (X₅) arrangements. The instrument consists of 2x20 questions related to satisfaction and the level of its importance; plus nine additional questions to validate whether the dependent variables were relatable to satisfaction or not. Serially, these will subsequently be unified with the results obtained from qualitative approach afterwards.

This approach scrutinizes nine hypotheses (H, Figure 2). Satisfaction with blended learning is directly influenced by instruction (H₁), interactivity (H₂), instructor (H₃), management (H₄) and technology (H₅). Moreover, competence (H₆), motivation (H₇), retention (H₈) and application (H₉) are directly influenced by satisfaction.

RESULTS AND DISCUSSIONS

Having described the fundamental of the study, we are in the position to expose the results of hypothesis and the loading factor (Figure 3). Figure 3 evidently shows seven out of nine hypotheses were validated by the analysis. They are: H₃=4.69 (instructor-satisfaction), H₄=6.76 (management-satisfaction), H₅=9.03 (technology-satisfaction), H₆=12.57 (satisfaction-competence), H₇=11.59 (satisfaction-motivation), H₈=13.63 (satisfaction-retention) and H₉=9.47 (satisfaction-application); since the $t_{\text{values}} \geq 1.96$ ($\alpha=0.05$). Whereas H₁=0.64 (instruction-satisfaction) and H₂=1.69 (interactivity-satisfaction) were not; since the $t_{\text{values}} \leq 1.96$ ($\alpha=0.05$).

Before exposing result of loading factors, it is worth exposing satisfaction in blended learning and their importance level obtained from IPA-CSI chart. The analysis generates spots of satisfaction with respect to related quadrants (Q) to comprehend the degree of their importance. Figure 4 has 4-Q: Q₁ (Concentrate Here), Q₂ (Maintain Performance), Q₃ (Low Priority) and Q₄ (Possible Overkill); respecting Wong, Hideki & George (2011).

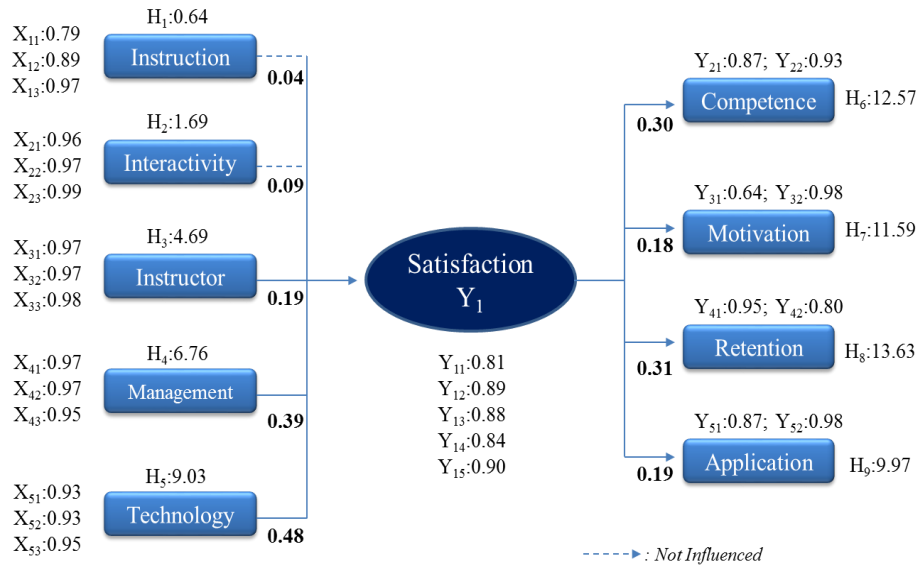


Figure 3: Results of Hypothesis and the Loading Factor

Q₁ has 3-attribute that should be noted, they are: Y₁₃ (updated), X₃₁ (available) and X₃₂ (encouraging). **Q₁** indicates satisfaction is at a low level whereas degree of its importance is high. The University must pay attention to the 3-evidence and put them into a top priority so that user expectations can be fulfilled and they are more likely to get advantages of blended learning. **Q₂** includes 6-attribute that should be recognized, they are: Y₁₂ (helpful), X₄₃ (consistent), X₅₁ (affordable), X₅₃ (friendly), X₁₃ (ready for exams) and X₅₂ (reliable). This quadrant is a symptom of satisfaction and importance degrees are being concurrently placed at a high level. The University, therefore, must take care of the 6-aspect for they are the strength and pillar of satisfaction of existing blended learning schemes; these are the pride of the University.

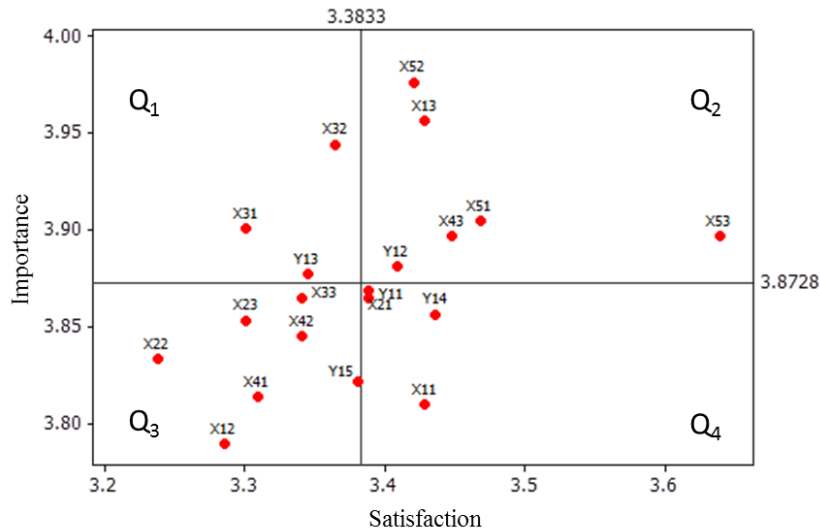


Figure 4: IPA-CSI Chart

Q₃ has 7-attribute that should be remarked, they are: X₁₂ (comprehensive), X₄₁ (discipline), Y₁₅ (flexible), X₂₂ (multi-ways), X₄₂ (attentive), X₂₃ (prompt) and X₃₃ (open). This quadrant is an indication both satisfaction and degree of its importance are in low category. The University should classify the 7-point as the next focus after concentrating on the critical spots found in Q₁ and Q₂. Any attribute falls into Q₃ is not too important and

poses no risks. Finally, **Q₄** has 4-attribute, they are: X_{11} (more independent), Y_{14} (enjoyable), X_{21} (focus/alert) and Y_{11} (systematic). Q_4 indicates academic service provided is considered much less important but users considered them as high in satisfaction. Here, attention to the 4-attribute can be less focused, so it can save costs by redirecting efforts to take up vital attributes in Q_1 and maintain fundamental attributes in Q_2 instead.

Having arranged attributes/dimensions related to proper quadrants within IPA-CSI chart, we turn to associate loading factors of the operational framework. This is to remark power of relation each variable involved as an integrated model under SEM to work out the end results. Figure 3 objectively displays 5-crucial consequences, as follows:

1. The first is related to three main variables directly influenced satisfaction in blended learning. They are well-ordered: technology ($X_5=0.48$), management ($X_4=0.39$) and instructor ($X_3=0.19$).
2. The second is relatable to the rank of dimensions in technology (X_5), they are: friendly ($X_{53}=0.95$) and followed by both affordable and reliable ($X_{51}=X_{52}=0.93$). The order in management (X_4) is both discipline and attentive ($X_{41}=X_{42}=0.97$) and followed by consistent ($X_{43}=0.79$). The position in instructor (X_3) is open ($X_{33}=0.98$) and both available and encouraging ($X_{31}=X_{32}=0.91$).
3. In the third finding, respondents put the order of satisfaction (Y_1) from the provision of existing services perspectives related to: flexible ($Y_{15}=0.90$), helpful ($Y_{12}=0.89$), updated ($Y_{13}=0.88$), enjoyable ($Y_{14}=0.84$) and systematic ($Y_{11}=0.81$) sequentially.
4. The fourth is associated with the power of relations between satisfaction (Y_1) and competence (Y_2), motivation (Y_3), retention (Y_4) and application (Y_4). Figure 5 positively confirmed satisfaction with blended learning has significant and direct effects on: retention ($Y_4=0.31$), competence ($Y_2=0.30$), application ($Y_5=0.19$) and motivation ($Y_3=0.10$) successively.
5. The fifth is position of dimensions in retention (Y_4): explicable ($Y_{41}=0.95$) and memorable ($Y_{42}=0.80$). Competence (Y_2): skill ($Y_{22}=0.93$) and knowledge ($Y_{21}=0.87$). Application (Y_5): relevance ($Y_{52}=0.98$) and applicable ($Y_{51}=0.82$). Motivation (Y_3): enthusiastic ($Y_{32}=0.98$) and inquisitive ($Y_{31}=0.64$)

Table 2: Goodness of Fit of the Framework

Goodness of Fit	Cut-off Value	Results	Notes
RMR (Root Mean Square Residual)	< 0.05 or < 0.1	0.090	Good Fit
RMSEA (Root Mean Square Error of Approx)	≤ 0.08	0.078	Good Fit
AGFI (Adjusted Goodness of Fit Index)	≥ 0.90	0.960	Good Fit
NFI (Normed Fit Index)	≥ 0.95	0.970	Good Fit
CFI (Comparative Fit Index)	≥ 0.90	0.980	Good Fit

Prior to amalgamating quantitative and qualitative results, it is worth bearing in mind the goodness of fit of the framework. The analysis showed that they are all categorized in ‘good fit’ classification (Table 2). They are therefore reliable and useful to be used as a point of reference in terms of drawing conclusions inferentially.

Having collected and aggregated outcomes accomplished under qualitative inquiry with reference to quantitative outputs, three major effects need to be noticed attentively. This is relevant as the qualitative results were entirely in concordance with the initial operational framework. It implies that qualitative upshots were essentially aligned with the operational farmework; It needs additional the interpretations. The first is related to the conceptual and operational framework of the research (Figure 1, 2 and 3; including Table 1). The second is on IPA-CSI chart (Figure 4). The third is on methodology chosen (mixed-methods, i.e., explanatory-design).

It was quantitatively understood that retention was confirmed as the prime factor and then followed by competence, application and motivation related to satisfaction in blended learning. In general, this result is in agreement with the qualitative inquiry. It implies that the four factors are also found from literatures and interviews/focus-group discussions. In terms of its order, however, selected experts preferred to express satisfaction in blended learning in Universitas Terbuka context leads to motivation, retention, competence and application. These implied that quantitative upshots were imperfectly followed by qualitative inquiry. It appears a slight incongruity between quantitative and qualitative outcomes in terms of order of variables engaged. The gap is lightly exist but it presumably does not create a strong contradictory that shall drive us to take opposite position. It rather gives wider perspectives to be seriously taken into account for further consideration if comparable research will be shortly arranged.

In addition, quantitative consequences moderately excluded both instruction and interactivity from the main variables. Gazing at these facts, it might implicitly indicate that graduates were much more concerned on technology, management and instructor aspects rather than instruction and interactivity. Auxiliary explanation is required to find the reasons behind this quite peculiar consequences. The rests of quantitative outcomes, other than explained above, are almost all consistent with the qualitative marks.

Refer to the second effect related to IPA-CSI chart (Figure 4), qualitative inquiry completed afterwards are almost exclusively equivalent with quantitative one. To certain extent, it implies they are remarkably the same. It is surprising, however, instructor in terms of availability and encouragement were both included in Q_1 . This implies there was still problem in acquiring good contact and feedback from instructor. All the same, most respondents stated that the third influential factor to satisfaction was instructor; further and deeper root underpinned this regard is certainly needed. It indicates the University should pay attention to this spot. Respondents considered this attribute is critical but most of them found it unsatisfied. Additionally, Y_3 (updated blended learning) was fell in this quadrant too. This entails that the University should also put this attribute as a top priority to be cautiously tackled to suit the needs and expectations of users.

Looking up to the third effect, from methodological magnitude, it appears that mixed-method used is nearly suitable despite there is a slight and minor difference in terms of the final results. However, they are firmly limited in numbers or low in implications with respect to initial conceptual and operational framework arrangements. Difference in terms of end results take place in the level of ranks, not in the sense of conceptual outlooks within the dependent variables. Despite the difference, it does not indicate they are in high contradictory intensity.

From methodological direction, the outcomes of the study give us durable bases that mixed-methods with the choice of explanatory-design was suitable to assess satisfaction in blended learning behold by graduates in Universitas Terbuka context. Quantitatively, it is understandable that IPA-CSI approach was able to display distinctively what are things should be positioned within the top priority to be controlled prudently (Q_1). The approach is proficient enough to classify what are things should be persistently maintained (Q_2); and at the same time what are things classified as the next priority (Q_3) and things that considered to be less important (Q_4) so there is no need to be rush by all means (Wong, Hideki & George, 2012).

Correspondingly, IPA-CSI chart effects are reinforced quantitatively by SEM results. By combining these upshots, it will objectively direct the University to formulate another course of action for upcoming needs with respect to user expectation with blended learning in Universitas Terbuka. It is providential that to certain extent qualitative inquiry was in line with quantitative results. It is normal most universities are constrained by noticeable

supplies, i.e., 5-m (man, money, material, machine, and method). By pondering this constraint, it is appropriate to formulate notions on how to effectively re-address the existing assets so that there are sufficient endeavors and related supports to mainly focus on dealing with and maintaining attributes in Q_1 and Q_2 respectively (Tileng, Wiranto & Latuperissa, 2013).

In Universitas Terbuka contexts, this result will be improbably constructive to re-formulate on what are things should be put as a top priority to fulfil user expectations in conjunction with satisfying needs of students are studying through provision of effective blended learning. Three aspects dropped into Q_1 should be brilliantly controlled with high intent. Additionally, six aspects drop into Q_2 should also be repetitively conserved as they are pillar and the pride of the University in assuring academic excellence. By all means, some aspects from Q_1 can be moved onto Q_2 . If this took place, it will improve number of users getting satisfied with blended learning. The more users satisfied, the more likely they got advantages as ODL students.

To end up the discussion, respondents were asked final question. Overall, how would you rate blended learning offered by the University? Remarkably, the answer gave convincing acceptance that in future the University will be able to provide better blended learning schemes to students so they are really competence and motivated in completing their study. The answer: (i) Unsatisfied: 0.79%; (ii) Uncertain: 6.35%; and Satisfied: 92.86%. It entails that more than 92% respondents are actually satisfied with blended learning of Universitas Terbuka.

CONCLUSIONS

The research has created a quantitative model of satisfaction with blended learning and its dimensions/attributes in Universitas Terbuka setting with respect to their links extended from a comprehensive analysis of educational perspectives from user attitude. The model was validated using SEM assessing empirical data by a survey of 252 graduates from all over Indonesia. The study finally ascertains satisfaction in blended learning leads to retention, competence, application and motivation; this is relatively inline with qualitative inquiry. In addition, satisfaction itself is in well-ordered affected by technology, management and instructor; there are differences compare to qualitative effects. Under IPA-CSI procedures, three aspects should be cautiously taken into account, updated blended learning, instructor availability and role of encouraging learning processes. Methodologically, despite a slight difference, it differs in the ranks of dependent variables. In a positive expression, quantitative result is closely consistent with qualitative upshots; in a more challenging spirit, it can be inferred that quantitative approach is imperfectly approved by qualitative end.

Further research is crucial, including follow-up with broader respondents, i.e., active students. It should also explore satisfaction level beyond attributes included in the 5-dimension assessed on the independent variables. By implementing such activity, it would set onward of more wide-ranging angles particularly on student competence, motivation, retention and the ability to apply knowledge and skills obtained from the program they attend. All these accomplishments are surely in accordance with satisfaction in blended learning of the University to meeting needs as an ODL student.

This will grant prospect to Universitas Terbuka to exterminate restrictions for the nations to gain higher education access to improve qualification. In a broader perception, given this interpretation is universally emblematical, ODL stakeholders would then be well-recommended to consider on findings in blended learning satisfaction percieved from graduates stance to deliver better academic services to students. For Universitas Terbuka, student persistence can be attained through the provision of effective academic excellence

(Sembiring, 2015). This will direct the University to reassure its respectable mission of making higher education open to all in relations to protecting the nation through flexible quality education. The University is dignified to reach the vision of becoming a world quality institution in preparing world quality graduates (Universitas Terbuka, 2014).

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