



The Activity-based costing (ABC) in a Public Higher Education Institutions (HEI): Stakeholders' perceptions

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ABSTRACT

The purpose of this study is to investigate the differences in perceptions, i) on the usefulness of costing information produced by ABC and the traditional costing system, and ii) between users and preparers. The respondents were selected using disproportionate stratified random sampling method among staff in the biggest public university in Malaysia with a multi-campus university system. Twelve branch campuses across the country. The data was collected using structure postal questionnaires that were distributed to 153 respondents across all of their campuses. The results indicated that respondent perceived the information produced by ABC system as of higher functionality as compared to the traditional costing system information. The finding also showed that there was no significance difference between users and prepares with regards to the quality of ABC system, but users perceived the ABC information is of higher functionality than do the preparers.

Keywords: Activity-based Costing (ABC), Survey, Preparers and users, Higher Education Institutions (HEI), Quality and Functionality, multi-campus university system.

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1. INTRODUCTION

Activity-based costing (ABC) system was known to focus the management attention on the cost of key activities, better understanding of what causes such costs and what changes are necessary to reduce the costs. Accordingly, ABC also provides managers with information that enables them to make decisions concerning optimal allocation of resources. Even though the ABC is rapidly gaining favour in service organisations (Alejandro, 2000; Khrisnan, 2006), very limited research has been done to investigate the stakeholders perception toward its usefulness prior to its implementation, especially in the Higher Education Institution (HEI).

The urgency of implementing the ABC in HEI was due to the pressure to reduce operating costs (Boehner and McKeon, 2003; Fong, 2005) as well as increase accountability (Davies and Thomas, 2002; Mir and Rahaman, 2007). These pressure lead to the universities' administrations to have a more sophisticated costing technique to improve cost control in higher educational institutions.

While the urgent need of the ABC in other hand, the barrier of the successful of implementation of any innovation depends on acceptance by members of the organisation, in the other. As the acceptance can be proxy using the "perceived usefulness" of the stakeholders, several studies demonstrated that people are more accepting of an innovation that they believe is useful (Robey, 1979), and will improve job performance (Davis, 1989).

The objectives of the study are to investigate the differences in perceptions on the usefulness between two costing system (ABC system and traditional costing system) and also the possible differences perception between users and preparers of ABC system with regard to the quality and functionality of ABC system. The findings are expected to provide valuable information about the readiness of the university staff towards the implementation of ABC. This may lead to whether or not the universities will benefit from a more sophisticated costing system like ABC.

2. LITERATURE REVIEW

2.1. Activity-based costing

ABC is a two-stage procedure used to assign overhead costs to products or services (Hilton, 2001). In the first stage, significant activities are identified, and overhead costs are assigned to activity cost pools in accordance with the way resources are consumed by the activities. In the second stage, the overhead costs are allocated from each activity cost pool to each product line in proportion to the amount of the cost driver consumed by the product line. ABC differs from traditional cost accounting, such that overhead costs are traced to products or services using cost pools and activity cost drivers rather than volume based overhead absorption rates. Basically, ABC is able to measure the cost and performance of activities, resources and cost objects.

2.2. Benefits and reasons for adopting ABC in Higher Education Institutions (HEI)

In HEI, as can be evidently found in the literature noted that the ABC are able to recognise the causal relationships between cost drivers and activities (see Zaman, 2006; Tatikonda and Tatikonda, 2001), The establishment of this relationship is useful not only in identification of unused capacity, but also important for better budget estimation and improved resource allocation as a whole.

Even though several researchers suggested that the power of ABC resides in its ability to promote an enhanced understanding of the activities performed (Brimson and Antos, 1999) and to improve performance (Geishecker, 1996) but there are cases where, while ABC system may be favourably associated with certain job requirements on one hand, it also negatively influences others, on the other hand. A study by Hamilton and Chervany (1981), for example, concluded that while an ABC system improves decisions, it also lengthened decision time and decreased confidence. The mixed results and conflicting impact of ABC implementation triggered this study to investigate the perceived usefulness of ABC information prior to its implementation.

2.3. Dimensions of information usefulness

Literature suggested that there are two dimensions ABC information, namely (i) technical characteristics (or quality), and (ii) functionality (see Duron, 2001; McGowan, 1998). "Quality" is refers to five technical characteristics, namely accuracy, reliability, timeliness, accessibility and understandability. These characteristics investigated by McGowan (1998), and suggested by the literature (Kaplan and Anderson, 2004). Even though Lucus (1975) claimed that the output is perceived to be useful only if it is of high quality, other researchers reported that "quality" of information system is negatively related to management evaluation of the overall value of the ABC (Anderson and Young, 1999).

Another dimension, "functionality" can be defined as the ability of a costing system to provide sufficient detail of cost information to allow costs to be analysed for different purposes (Pizzini, 2006). Pizzini (2006) claimed that a better functional cost system is a system that can provide four integrated functions: (i) greater detail, (ii) better cost classification according to behaviour, (iii) report cost information more frequently, and (iv) calculate more variances.



While more detailed and frequent cost data is proven to be useful in a single setting (Hilton, 2001), an adverse result is shown in multi-firm settings (Callahan and Gabriel, 1999). Callahan and Gabriel (1999) noted that the evidence showed that strategic behaviour can bring about conditions in which less informative product-cost data are optimal.

The present study will not only combine both dimensions of information characteristics of costing information, i.e., quality and functionality (which have previously been investigated separately) in one single study but also use the multi setting of university's management. This is expected to provide valuable insights and understanding into the potential of ABC costing, particularly in the public university setting. Furthermore, it will provide more comprehensive meaning of perception and lead to better and more convincing conclusion.

2.4. Universiti of ABC (UOABC) and its stakeholders

University of ABC (UoABC) is the biggest multi-campus university in the country, with twelve branch campuses throughout the country. It receives the biggest allocation of Malaysia's annual budget for higher education and also the biggest university in the country in terms of number of programmes offered (almost 300 programmes) and student intake (almost 20000 student per session). The programmes are divided into three clusters: (i) Science and Technology (ST), (ii) Social Sciences and Humanities (SSH) and (iii) Business and Management (BM). The complexities in term of number of students, number of programmes offered as well of a multi-campus structure of its administration, provide a better population to investigate its stakeholders' perception toward any management accounting innovations.

The present study defines stakeholders as the combination of "users" and "preparers" of costing information. The Management Information Systems (MIS) literature suggests that the effectiveness of an information system must be evaluated on the criteria of its importance to the users (Lucus, 1975). The users' viewpoint, however, represent only one perspective of the multiple dimensions of system performance (Hamilton and Chervany, 1981; McGowan, 1998). Thus, there is a need to further investigate the impacts of ABC implementation across sites among preparers and users due to variations in the nature of jobs and tasks undertaken by both groups of stakeholders. In addition, several empirical evidences report mixed findings, indicating that not all benefits were equally received by participants. For example, McGowan (1998) reported that preparers generally respond more favourably to ABC implementation than do the users, particularly with respect to the quality of their work and their effectiveness on the job.

In HEI, only Jarrar et al., (2007) examined the relationship between the stakeholders' (preparer's and users') perception on the likelihood of ABC implementation success. They used a case study in the university setting and investigated the differences between the preparer's and users' perceptions and reported a positive significant correlation between either the user's perception or preparer's perception and the importance of independent variables, which among others are the organisational culture, project team, feedback and timing. They also indicated that there is a variation of participants due to the role of participant in the implementation process. As many authors noted, the implementation of cost management systems must consider the heterogeneity of needs and potential reactions of the individual within sites (Pizzini, 2006)

Thus, the present study intends to address these issues by examining the difference perceptions of preparers and users, within various branch campuses of UoABC. Its differ from the aforementioned because instead of to combine both types of stakeholder to define usefulness, it also try to investigate perceptions on the perceived usefulness of ABC costing information prior to its implementation, particularly in the public multi-campus university setting.

3. THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

Due to the fact that ABC is not yet implemented in Malaysian higher education environment, the understanding of the perceived usefulness of ABC information in comparison with information produced by traditional costing system is crucial to guarantee the successful implementation of ABC system. The negative perception towards the usefulness of ABC information is known to be among the major reasons for non-adoption of ABC in developed countries (Cohen et al., 2005; Gaidiene and Skyrius, 2006). The same pattern prevails in Malaysia as noted by several authors (for example, Ibrahim Kamal Abdul Rahman et al., 2005) who stated that the major reason contributing to the low rate of ABC adoption in Malaysia is due to respondents' perception that ABC has yet to achieve its objectives. Accordingly, the results of the present study will provide empirical evidence to the existing literature on the possible advantages of ABC over traditional costing, particularly in the HEIs' setting. As such, hypothesis H1 is developed.

H1: There is a significant difference in the perceived usefulness of costing information produced by an ABC system as compared to the costing information produced by a traditional costing system.

3.1 Different perceptions of quality

Some literature argues that ABC information is of better quality than traditional cost information (Cooper and Kaplan, 1988). Overall results on the quality of an ABC system over the traditional system showed conflicting findings, particularly in profit-making organisations. For example, McGowan (1998) reported that the traditional costing system is more accessible than the ABC system. In public HEIs, however, none of the previous studies investigated the five

characteristics of good costing information or made comparisons between an ABC system and a traditional costing system in a single study. The present study intends to use these five characteristics to define quality and compare the usefulness of an ABC system with that of a traditional costing system. As such, hypothesis H1a is developed.

H1a: There is a significant difference in the perception of the quality of the costing information produced by an ABC system as compared to the costing information produced by a traditional costing system.

3.2 Different Perceptions Of Functionality

Several authors (Chenhall, 2003; Kaplan and Mackey, 1992) noted that the level of detail and the desegregation of costs according to its behaviour are most important elements of cost system design. Pizzini (2006), however, reported that in the service sector, the systems that were evaluated to be relevant and useful positively correlated with three out of four information functions. These include the systems that can: (i) provide greater detail, (ii) better classify costs according to behaviour, and (iii) report cost information more frequently. However, conflicting results were reported on the functionality of ABC (as compared to the traditional costing system) for a single firm setting compared to multi-firm settings. For example, while Feltham (1977) reported that the more detailed costing information and more frequent cost data were proven to be useful in a single setting, several other authors (Callahan and Gabriel, 1999) reported an adverse result in multi-firm settings. This indicates that a multi-firm setting was not conducive for detailed costing information and more frequent cost data. This may be due to the complexities of report needed to be generated for various levels of management hierarchy, branches, as well as products produced by this type of firm. This leads to the development of H1b. Figure 1 simplifies the above discussion.

H1b: There is a significant difference in the perception of the functionality of the costing information produced by an ABC system as compared to the costing information produced by a traditional costing system.

4. DIFFERENT PERCEPTIONS OF QUALITY BETWEEN STAKEHOLDER

It has been suggested that particularly stakeholders perceived the usefulness of ABC information differently (Jarrar et al., 2007). McGowan (1998), for example, reported that preparers perceived ABC more favourably than do the users, particularly with respect to the quality of their work and their effectiveness on the job.



Figure 1 : Perceived Usefulness of Costing Information: ABC System versus Traditional Costing System

As several authors (as cited above) indirectly agreed on the benefits of ABC were not equally acknowledged by stakeholders, the investigation on the “end user” perception (i.e., users) need to be clearly understood. A finding reported by Jarrar et. al., (2007) stated that, while preparers perceived the information produced by ABC negatively, users perceived it positively. This may be due to the different roles and functions involved by different stakeholders in the organisation. Furthermore, several other authors (for example, McGowan and Klammer, 1997; Pizzini, 2006) noted that the implementation of cost management systems must consider the heterogeneity of needs and potential reactions of the individual within site, and the reactions can only be indicated through their perceived usefulness of ABC information. Other than that, as the end user of the information particularly in public sector, the positive perception from them (users) is crucial to maximise the benefit of information produced by ABC system. These beliefs developed the following hypotheses to be tested: Figure 2. simplifies the above discussion.

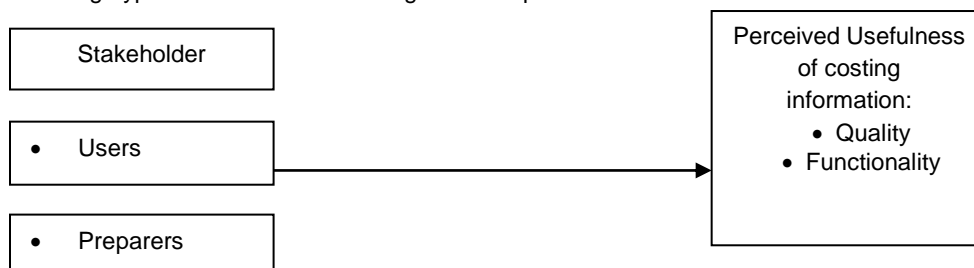


Figure 2 : Perceived Usefulness of Costing Information: Users and Preparers perception toward ABC System



H2: There is a significant difference in the perception of overall usefulness of ABC information between users and preparers.

H2a: User positively perceived the quality of ABC information as compared to the traditional costing system.

H2b: User positively perceived the functionality of ABC information compared to the traditional costing system.

5. RESEARCH METHODOLOGY

The present study utilised the survey approach using postal questionnaire based on the perceptions of respondents i.e. users and preparers toward the usefulness of costing information produced by ABC system. Using the disproportionate stratified random sampling, a total of 248 questionnaires was posted to respondents in thirteen branch campuses of the University. This sampling method is suitable because the respondents were expected to have the required knowledge, i.e., that they have gone through the experiences and processes related to budget preparation. The population of this study comprised of five hundred and seven (507) users and one hundred eighty seven (187) preparers.

As the present study adopted the guidelines as outlined by Jarrar et al. (2007) to classify two stakeholders of the HEI as can be seen in the Table 1. This means that the users can also be considered as prepares but they are not the persons that need to justify the amount during budget preparation. Their main duty is to ensure the money spent at their campus (or faculty or department) are in compliance with the standard rules and regulation. The preparers encompass a group of people that represent the management's point of view, as they are keen to ask a question like, "What a product should have costed". While users encompass those with the popular question of "What did it cost". Managers are constantly comparing their product cost with "what it should have costed".

Table 1. : Users and preparers designations

No	Stakeholders		Designations
1	Users	Head of unit	6. Assistant Registrars (Student Affairs, Academics Affairs etc) 7. Head of Units (Institute of Leadership and Quality Management (iLQAM), Librarians) 8. Security Officers
		Programmes Coordinator	9. Programme Coordinators (Diploma and Degree Programme) 10. Student Accommodation staff Head of Programmes (Diploma and Degree programme)
2	Preparers	Administration & Finance	11. Head of Finance (Account Management) 12. Engineer / Head of Facility Department 13. Head of IT Department.
		Top Management	14. Dean of the Faculty 15. Deputy Dean of the Faculty 16. Campus Directors 17. Deputy Directors (Academic Affairs) 18. Deputy Directors (Student Affairs)

Table 2 shows the population and sample size using disproportionate stratified random sampling among thirteen (13) campuses including the its main campus.

The survey questions were in the form of closed-ended questions (except one question) based on a five-point Likert scale. The questionnaire consists of 17 questions which are divided into two main parts. Part One initiates enquiries regarding some general information (five questions), followed by Part Two regarding the perceived usefulness of ABC information, five questions for quality, four questions for functionality and three questions for overall usefulness.

The questionnaire was pilot tested on the sample of 20 individuals to get some respond on the consistency and reliability of words, sentences etc. There were several modifications made including questionnaire format, the consistent use and grouping of the Likert-scale questions within a single section. A number of questions were re-worded to enable more precise interpretation, specifically for the potential of cost distortion, decision usefulness and



financial commitment to technology and the perception of ABC information. Instructions to the respondents emphasised the need to answer the survey questions from the perspective of their respective function and role in organisation.

Table 2 .Population and Sample Size: Disproportionate Stratified Random Sampling

No.	Branch Campuses	Users			Preparers			Total	
		N	%	S	N	%	S	N	S
1	Campus A	19	3.75	7	7	3.74	3	26	9
2	Campus B	38	7.50	14	9	4.81	3	47	17
3	Campus C	25	4.93	9	6	3.21	2	31	11
4	Campus D	10	1.97	4	7	3.74	3	17	6
5	Campus R	20	3.94	7	8	4.28	3	28	10
6	Campus F	25	4.93	9	7	3.74	3	32	11
7	Campus G	25	4.93	9	6	3.21	2	31	11
8	Campus H	19	3.75	7	7	3.74	3	26	9
9	Campus I	27	5.33	10	7	3.74	3	34	12
10	Campus J	9	1.78	3	2	1.07	1	11	4
11	Campus K	29	5.72	10	7	3.74	3	36	13
12	Campus L	29	5.72	10	7	3.74	3	36	13
13	Main Campus	232	45.76	83	107	57.22	38	339	121
	Total	507	100	181	187	100	67	694	248
			72.98	181		27.02	67		248

* N denotes Number of population

** S denotes Number of sample

6. RESULTS AND DISCUSSIONS

6.1. Descriptive findings

The response rate of approximately 54.03 percent (134 of 248 respondents) was obtained from the sample of twelve branch campuses and the main campus. Total questionnaires were posted to 248 respondents across the country, which consisted of all types of stakeholders, users and prepares. Out of 134 completed and returned questionnaires, 103 were from the first batch while the remaining 31 questionnaires were from the second batch. Chart 1 showed the statistic of completed questionnaire returned and completed.



Chart 1 : The Survey Profile – Campuses

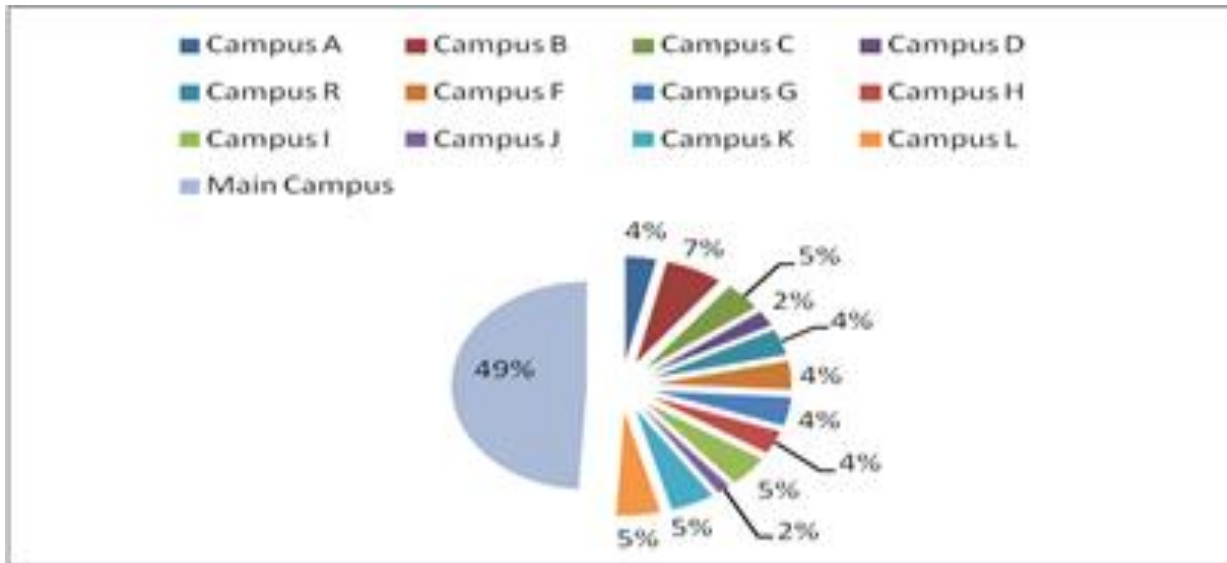


Table 3 displays the information on the respondents' designations. The first two rows of the table represented the users (Head of Unit and Programme Coordinator), while the last two rows represented the preparers' group of respondents. Thus, there were 97 users (72.4 percent), of which consisted of 24 (17.9 percent) Heads of Units and 73 (53.5 percent) Programme Coordinators. The remaining 37 respondents (27.6 percent) represented the preparers' group, which consisted of Administration and Finance (11 respondents: 8.2 percent) and the Top Management (26 respondents: 19.4 percent).

Table 3. Respondents: Stakeholders

Stakeholders		Frequency	Percent	Valid Percent	Cumulative Percent
Users	Head of unit	24	17.9	17.9	17.9
	Programme Coordinator	73	54.5	54.5	72.4
Preparers	Admin & Finance	11	8.2	8.2	80.6
	Top Management	26	19.4	19.4	100.0
Total		134	100.0	100.0	

There were three preliminary tests, namely (i) Normality test, ii) t-test for non-response bias, and (iii) measures of central tendency. The data fulfilled the normality assumption using skewness method which indicates that for all of the variables belong within the ± 2.0 range. For the non-response bias, the result for t-test showed that only three items (out of 17) were found to have a significant difference between batches. Therefore, it could be concluded that there was no material non-response bias for the items listed in the questionnaire.

Measures of the central tendency and dispersion for the dependent and independent variables were obtained. All variable measurements were obtained on a five point Likert-scale from 1 = strongly disagree to 5 = strongly agree. Table 4 consisted of three panels. Panel 1 represents the Perceived Usefulness which comprises the overall usefulness, quality and functionality of the ABC information from both users and preparers' perception.

Panel 1 showed the mean scores and standard deviation of perceived usefulness of ABC information in terms of its overall usefulness as perceived by the users and preparers. Both groups of stakeholders (users and preparers) shared the same perception toward the three elements of perceived usefulness of ABC information. Preparers however showed slightly higher mean (3.76) compared to the users (3.73). The standard deviation between stakeholders revealed a small difference, with the preparers recording slightly higher standard deviation (1.02).



Table 4. Stakeholders' perception on the Perceived Usefulness of ABC

Panels	Dependent Variable	Users		Preparers	
		Mean	Std Devn	Mean	Std Devn
1	Perceived Usefulness	3.73	0.83	3.76	1.02
2	Perceived Quality	3.49	0.54	3.67	0.71
	Perceived Functionality	4.02	0.59	4.09	

6.2 Different perception of costing system between ABC system and traditional costing system.

Hypothesis one was developed to investigate if there is any significant difference in perception about the quality and functionality of ABC information as compared to the costing information produced by the traditional costing system. Hypothesis one consisted of two sub-hypotheses, i.e., H1a and H1b, respectively.

Table 5. Activity-Based Costing (ABC) versus Traditional costing system

		Paired Differences					T	df	Sig.(2-tailed)
		Mean	Std Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	QABC-QTRAD	.04	.74	.06	-.09	.17	.61	133	.54
Pair 2	FABC-FTRAD	.69	.84	.07	.56	.84	9.51	133	.00*

* Significant at 5%.

Table 5 displays the result of the paired sample test for the perceived usefulness of quality and functionality of ABC system as compared to the traditional system. As can be indicated that, there is no significant difference of quality of information produced by ABC system as compared to the traditional system ($p > 0.05$: $p = 0.54$). This result indicated an inconsistency with the earlier claim that ABC information is of better quality than traditional cost information (Argyris and Kaplan, 1994; McGowan, 1998)

For functionality, since $p < 0.01$, it can be concluded that the respondents' perceived information produced by ABC is of higher functionality as compared to the traditional costing system information. The findings of the present study are consistent with several studies, as done by Chenhall and Morris, 1986, Feltham, 1977, Karmarkar et al., 1990 and Pizzini, 2006.

6.3 Different perception between stakeholders toward quality and functionality of ABC

Second objective of the study is to investigate whether there is any significant difference on perceptions between two groups of stakeholders, i.e., users and preparers. Table 6 shows the results of independent t-test. It consisted of three panels: panel one, POU; panel two, POQ; and panel three, POF.

The result for hypotheses two (with 2a and 2b) is displayed in Table 5. For POU (panel one), the F value is 1.60, which falls outside the rejection region ($F = 2.99$). Therefore the equal variances are assumed, and the reported p-value (first row) of significance 2-tailed will be used. As can be seen, the p-value (2 tailed) is 0.842 which falls outside the rejection region ($t = \pm 1.960$). This result indicates that the null hypothesis should not be rejected and it is to conclude that there is no significant difference on the perception between users and preparers with regard to the overall perceived usefulness of ABC information.

The same pattern of result can be found for hypothesis 2a. Since the F value is 3.53, with the p value is 0.06, the null hypothesis should not be rejected. Therefore, this is to conclude that users and preparers perceived the same level of quality of ABC information. For functionality, since the F value is 5.667 with the associated p value is 0.019, the null



hypothesis should be rejected. Therefore, the result indicates that users perceived of higher functionality of the ABC information than do the preparers.

Table 6. Independent Sample Test for Perceived Usefulness of ABC Information

		Levene's Test for Equality of Variance		t-test for Equality of Means						
		F	Sig	T	Df	Sig (2-tailed)	Mean Difference	Std Error Difference	95 percent Confidence Interval of the Difference	
									Lower	Upper
POU	Equal Variance Assume	1.6	.21	-.20	132	.84	-.034	.17	-.37	.30
	Equal Variance Not Assume			-.18	57.05	.86	-.034	.19	-.41	.34
POQ	Equal Variance Assume	3.53	.06	-.14	132	.18	-.15	.11	-.37	.07
	Equal Variance Not Assume			-1.21	55.09	.23	-.15	.12	-.39	.099
POF	Equal Variance Assume	5.67	.020*	-.42	132	.67	-.05	.12	-.28	.18
	Equal Variance Not Assume			-.37	54.22	.71	-.05	.13	-.31	-.22

* Significant at 5 % level.

7. CONCLUSIONS, LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

7.1 Conclusions

As the results indicate that there is no significant difference of quality of information produced by ABC system as compared to the traditional system. This result indicated an inconsistency with the earlier claim that ABC information is of better quality than traditional cost information (Argyris and Kaplan, 1994; Bailey and Pearson, 1983; Cooper and Kaplan, 1988; McGowan, 1998). However, respondents' perceived information produced by ABC is of higher functionality as compared to the traditional costing system information. The findings of the present study are consistent with several studies, as done by Chenhall and Morris, 1986, Karmarkar et al., 1990 and Pizzini, 2006.

The finding also showed that there is no significant difference was found in perception of the quality ABC information between the two groups of stakeholders, i.e. users and preparers. This finding is inconsistent with McGowan (1998), who explored that preparers generally respond more favourably to ABC implementation than the users. For functionality, user perceived the ABC information is of higher functionality than do the preparers.

This finding confirmed earlier findings (as noted by Jarrar et. al., 2007 and McGowan, 1998) that of different group of stakeholder perceived the usefulness of ABC information differently. As such, the result from this survey indicates that, even in PHEI, both groups of stakeholders facing the same understanding as what being facing in the profit oriented environment with regards to the perceived usefulness of ABC information. Perhaps, by having this understanding, a better strategy can be well planned to make them understand the basic concept, benefit and limitations of the ABC system implementation in their own organisation.

7.2 Limitations

The present study is subjected to several limitations. First, although tests were performed to address the issue of non-response bias, there was no way to ascertain whether the non-respondents were systematically different from the respondents. Thus, the perceived usefulness found toward the ABC as compared to the traditional costing system cannot be assured without any doubt and can only be valid within a specific context. Second, the present study is limited to a single university with several branch campuses throughout Malaysia. As such, generalising the results of the study in this population should be done with extreme caution.



This is due to the nature of a multi-campus public university system which might be different from a single campus public university system or even the private university system (either a single campus or multi-campus). Other than that, as there were no clear guidelines on the classification between two groups of stakeholders (users and preparers), the results of the present study may be influenced. There was no significant difference in the perceptions of these two groups of stakeholders toward all dimension of usefulness (either POF, POQ and POU). Therefore, future studies concerning the stakeholders need to be undertaken with extreme caution to ensure the findings can represent the actual perception of users and preparers.

In addition to the methodological limitations noted above, there were few limitations found from a technical perspective. For example, more specific instructions in the cover letter(s) and / or survey instrument might have included an advice to the recipient (i.e., in cases where he / she was not the addressee) to forward the instrument to the appropriate person in the organisation (i.e., campus director). Inclusion of this wording is expected to prevent the return of a number of incomplete instruments which may contribute to the increase in the survey response rate. While it is possible (particularly in this setting of public multi-campus university, the differences in cost management practices and/or environmental factors may be influenced by funding policies and other factors that are similar in nature. Replication of the entire study would be necessary to investigate and confirm the validity of these contextual factors in different settings of the multi-campus university environment.

7.3 Directions For Future Research

The present study was focused to examine the differences perceptions between two costing system with regard to their usefulness. Furthermore, the study also investigated the possible differences of perception between two groups of stakeholders (i.e., users and preparers) with regard to two ABC information dimensions (quality and functionality).

Further study needs to be done to further explain the contextual variables to explain the respondents' views on perceived usefulness of ABC information. McGowan (1998) proposed four aspects of ABC implementation, namely i) user's attitude, ii) technical characteristics rating, iii) perceived usefulness and iv) impact on organisational process. Future research might extend the theoretical model to identify and test more variables of another perspective such as users' attitude and its impact on organisational process, particularly in the setting of PHEIs. Besides, the insight and detailed specification of variables is crucial to provide the respondents with the element of significance of those variables toward the perceived usefulness of ABC information. Better measures and more specification of key variables could also enhance the findings of future studies.

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