Revisiting Management Accounting Practice Gap: A Proposed PERAPPGAP Model

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Management accounting practice follows contingency framework characterized by factors from the environment where the firm operates, firm specific factors, practitioners' perception and owner-manager's requirements. It is always critical and observes a compromised demonstration in its diffusion. This paper tries to propose a generic model named as ***PERAPPGAP Model*** *to quantify the gap that exists between the perception on and application of different management accounting tools based on a semi-structured questionnaire survey. It also highlights some relationships between the gap scores and firm specific factors to bring inferential dimension and some extra merit in analysis.*

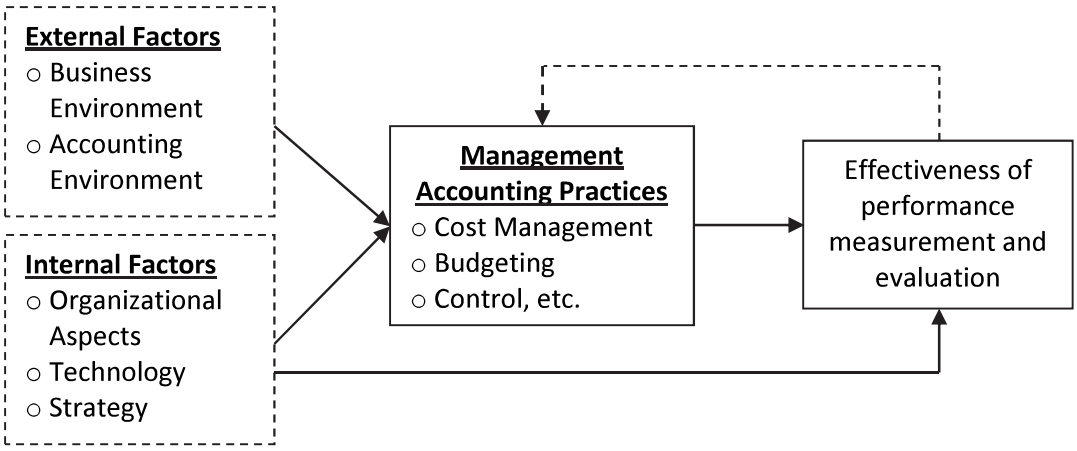
INTRODUCTION

Management accounting is generally understood as a process or as referring to the use of techniques. It has been defined as the application of appropriate techniques and concepts in processing the historical and projected economic data of an entity to assist management in establishing a plan for reasonable economic objectives, and in the making of rational decisions with a view towards achieving these objectives. Similarly, the emergent conceptual framework of management accounting started by the National Association of Accountants defined it as the process of identification, measurement, accumulation, analysis, preparation, interpretation and communication of financial information used by management to plan, evaluate and control within an organization and to assure the appropriate use of and accountability for its resources. Management accounting also comprises the preparation of financial reports for non-management groups such as shareholders, creditors, regulatory agencies, and tax authorities. These definitions direct the compositions of management accounting practices in a wider framework.

Many scholars (Otley, 1995; Kaplan and Atkinson, 1998, Hoque and Mia, 2001; Fullerton and McWatters, 2002; Haldma and Laats, 2002) argue that the 'new' techniques have affected the whole process of management accounting (planning, controlling, decision-making, and communication) and

have shifted its focus from a 'simple' or 'naive' role of cost determination and financial control, to a 'sophisticated' role of creating value through improved deployment of resources. However, the degree of application of different management accounting tools, old or new, depends on different contingent factors which is essentially been guided by the contingency theory of management accounting. The contingency approach to management accounting is based on the premise that there is no universally appropriate accounting system applying equally to all organizations in all circumstances (Emmanuel et al., 1990). Rather it is suggested that the particular features of an appropriate accounting system will depend upon the specific circumstances in which an organization finds itself. As depicted in **Figure 1**, contingency approach is being shaped by some external and internal contextual factors. The most common internal factors that have been examined in relation to management accounting are organizational size (Khandwalla, 1972; Bruns and Waterhouse, 1975; Merchant 1981), technology (Khandwalla, 1977; Merchant, 1984; Dunk, 1992), and companies' strategies (Miles and Snow, 1978, Gupta and Govindarajan, 1984; Simons, 1987; Chenhall and Morris, 1995). The major external factors that have been examined at the company level in management accounting and control (including cost accounting) research are external environment (Khandwalla, 1977; Merchant, 1990; Chapmann, 1997; Hartmann, 2000), and national culture (Hofstede, 1984; Harrison, 1992; O'Connor, 1995).

FIGURE 1
THEORETICAL FRAMEWORK OF CONTINGENCY APPROACH



SOURCE: Haldma and Lääts, 2002

If a management accounting system is designed without understanding the contingency approach or without the identification of appropriate contextual factors behind such contingency approach, management accounting practices lose its gravity and spoil the whole process generating a huge gap. Due to redefining management accounting by IMA in 2008, management accounting practitioners, academics and researchers become interested in studying the nature of management accounting practices. This interest is initially being rationalized by the existence of perceived gap between the theory and practice of management accounting, and specially the generally accepted belief that the traditional wisdom of management accounting as reflected in textbooks is not widely used in practice. Such conceptualization was based on few published studies (Cooper et al., 1983; Berry, 1984; Wilkinson, 1986; Ouibrahim and Scapens, 1988) covering the use of particular management accounting techniques (Hoque, 1991). This is the motivation behind gap analysis in Bangladesh with regard to management accounting practices. This gap is the difference between practitioners' perceived importance towards different management accounting tools and their level of application in operation. The proposed **PERAPPGAP Model** is made instrumental here in line with a similar model which exists in marketing literature popularly named as **SERVQUAL Model** developed by Parasuraman et al. (1985) to measure gaps between customer expectation and customer perception of service quality along five dimensions. Like **SERVQUAL Model**,

a template is also proposed here which can be customized based on the contingent requirements. A methodology is also proposed here to compute the gap score in a scientific way. Later on, the relationship between the gap score and some firm specific parameters are searched to bring contingency approach in the analysis. The research is based on a semi-structured questionnaire survey where the respondents are management accounting practitioners playing strategic role in respective firms.

LITERATURE REVIEW

Studying gaps in management accounting is not a new research agenda. However, literature favors such analysis from a narrow dimension which covers the gap between theory (academicians' role) and practice (practitioners' role). Existence of a possible 'gap' in management accounting between theory and practice may indicate that academics are not teaching the latest techniques or are not teaching the traditional methods still in use (Scapens, 1983; Novin, Pearson & Senge, 1990). This perspective doesn't address the choice of practitioners under a contingency regime which may be decisive behind the selection of particular technique. At the same time, the pressure from the top level management also plays a significant role in choosing such techniques. This study assumes that the gap arises in the field due to the perception of management accounting practitioners which may be different than what they really practice due to pressure and other contingent factors.

For many years there has been a concern that accounting research is separate from and largely irrelevant to, practice. Baxter (1988) summarizes this concern well when he says 'I fear that a great gap separates much research from practice'. This concern about a 'gap' has echoes in much of the recent literature on this important topic (see, for example, Tilt, 2010; Parker et al., 2011; Tucker, 2011), even though this literature has recognized that there is not a simple solution to such a complex problem. A literature on researches conducted so far on management accounting practices in Bangladesh has been presented below in most of which a clear gap is reflected.

Sarkar & Yeshmin (2005) has focused on the application of responsibility accounting as one of the management accounting techniques in 30 organizations. The authors have focused on four responsibility centre as cost center, revenue center, profit center and investment center to show the accountability of the organization. This study has also revealed that the most common technique - budget is using to evaluate the performance. Sharkar et al. (2006) has given an overview of the management accounting practices in the listed manufacturing companies of Bangladesh. The analysis of this study has revealed that all sectors fail to practice some newly developed techniques. They have suggested to improve and fasten the management accounting practices.

Mazumder (2007) has examined the status of use of management accounting techniques in the manufacturing enterprises of Bangladesh. It has been discovered that modern techniques like Activity-Based Costing, Target Costing, Just-in-Time (JIT), Total Quality Management (TQM), Process Reengineering and The Theory of Constraints (TOC) were not used in public and private sector manufacturing enterprises but a few Multinational Corporations (MNC) are using some of techniques like JIT and TQM. Also traditional techniques like financial statement Analysis, Cash Flow Analysis, budgetary control, management reporting were found widely used followed by CVP Analysis, Marginal Costing, and Fund Flow Analysis etc. Yeshmin and Das (2009) have conducted a study on financial institutions in Bangladesh. It revealed that managers of the financial institutions are very much satisfied in application of budgetary control analysis and variance analysis to measure their performance among the fourteen management accounting techniques. At the same time managers were very much dissatisfied in application of segment reporting. A recent study (Yeshmin and Fowzia, 2010) aimed to examine the use of the management accounting techniques in manufacturing and service industries of Bangladesh for discharging managerial functions. To achieve this objective, 151 organizations from manufacturing and service industries had been surveyed. By identifying 14 management techniques, three factors had been identified to determine the variability's of the usage level in managerial functions. The findings revealed that management accounting techniques such as financial statement analysis, budgetary control, CVP

analysis, variance analysis and fund flow analysis were common 14 both the industries and were used frequently in managerial functions.

The study conducted by Yeshmin & Hossan (2011) has emphasized on the level of usage of twenty-three management accounting techniques in making effective decisions by the different manufacturing organizations in Bangladesh. This study would be of particular relevance to Bangladesh, because it would help to assess the significant influence of management accounting techniques in decision-making by manufacturing organizations of Bangladesh. The study (Yeshmin & Hossan, 2011) reveals that cash flow statement analysis, ratio analysis, budgetary control, CVP analysis, variance analysis, fund flow analysis, TQM, and TOC are widely used management accounting techniques. The study also applies factor analysis to identify any hidden relationship resulting five factors considering the variability of the responses given by the respondents. Finally, the authors have tried to find out the level of significance of different managerial accounting techniques in decision making. Out of 23 techniques, only eight techniques namely, budgetary control, fund flow analysis, absorption costing, balanced scorecard, TOC, ABC, segment reporting and inter firm comparison become statistically significant.

In another study (Shil &Pramanik, 2012), a survey is conducted across 25 manufacturing companies to put comments on the adoption and implementation status of Activity Based Costing. The study reveals that a good number of companies surveyed (64%) apply ABC for product costing and other purposes, however, the quality of ABC is not up to standard, even costing system with only one cost driver is also referred to as ABC. Thus the diffusion rate is not satisfactory. At the same time, the sample size was so small and it may not reflect the actual scenario of the market. Another study (Kabir et al., 2013) aims at exploring the extent to which the listed pharmaceutical companies in Bangladesh are practicing management accounting tools in making managerial decisions and revealed that management accountants use a number of tools, on average 35, across a wide range of operational, managerial and strategic functions.

Based on the above literature, a total of 21 management accounting tools have been identified to study the gap between perceived importance and level of application in responding firms. The methodology as applied here calculates a gap score for each firm in a range between zero and 33.2. The calculated gap score has been regressed with different firm specific parameters to bring rationality on inferential explanation of gap score.

Gap Score and Intention to Switch

High gap score reflects the significant divergences between practitioners perception on different tools as compared with the ultimate application which increases dissatisfaction in pursuing jobs. This may be a very important reason for job dissatisfaction and intention to switch. Thus, this study takes the hypothesis to test whether calculated gap score shows any relationship with intention to switch.

H1: *Gap score doesn't vary with the Intention to switch.*

Gap Score and Accuracy

Increasing gap score gives an importance message on the level of accuracy in generated information from management accounting system. Usually more gap score means less accuracy, thus leaving an inverse relationship. Keeping this relationship, the study considers the following hypothesis to test:

H2: *Gap score doesn't vary with the change in level of accuracy.*

Gap Score and Profitability, Turnover and Net Assets

Profitability, turnover and net assets are three important firm specific parameters. Different management accounting techniques applied in firms must show some pattern of relationships with these firm specific parameters. Thus the study assumes the following hypotheses to reveal any hidden relationships between gap score and all the three firm specific parameters.

H3: *Gap score doesn't vary with the change in level of profitability*

H4: *Gap score doesn't vary with the change in level of turnover*

H5: *Gap score doesn't vary with the change in level of net assets*

RESEARCH METHODOLOGY

The paper is based on the result of a questionnaire survey and completely newer of its kind. A questionnaire to study the management accounting practices in Bangladesh was constructed covering mostly every definition of practices of management accounting. The respondents are asked to mark values on a 5-point **Likert** scale corresponding to different management accounting techniques that is supposed to be applied in Bangladesh. These techniques are identified from different researches conducted so far in Bangladesh on management accounting practices. Technically, the questionnaire presents a comparative scenario before the respondents to choose two values for each technique, one to identify the level of application in the respective firms, and another to specify the level of importance of the techniques as the respondents think of relating to the firm he represents. It is believed that the biased attitude of the respondents could be checked significantly due to the structure of the questionnaire.

Population and Sample

In this type of Study, identification of population and sample is always contradictory. And in Bangladesh, it is challenging as well due to non-availability of required data. Considering the nature of the study, only manufacturing companies in Dhaka (capital of Bangladesh) region are considered as the population of the study. However, during the research phase, the researchers were failed to collect a dedicated list of manufacturing companies operating in Dhaka region. To bring more objectivity in research methodology, a sample frame is thought of the manufacturing companies where professional management accountants are working. This is done through the scrutiny of membership directory of ICMAB (the Institute of Cost and Management Accountants of Bangladesh) for the year 2012. Such scrutiny results around 200 companies. The study doesn't consider any service industry and companies operating outside Dhaka. Out of the 200 companies, around 50 companies expressed their reluctance to participate in the survey. Other 150 companies are considered as the sample for the study. However, questionnaires are not received from some of the companies though they have been given remainder in time and some of the received questionnaires are rejected due to the missing data. Finally a total of 113 questionnaires are used to reach to the conclusion.

Tools Applied

Module 1: Proposing PERAPPGAP Model to Compute an Overall Gap Score

Different descriptive statistics are used to deal with the management accounting techniques used in the study to give a comparative picture. However, the specialty of the paper is that it proposes a PERAPPGAP (perception-application gap) Model in the form of a template to calculate a gap score for a company. This template can be replicated to make it more holistic considering any new techniques alongwith improved methodologies of computing weightage and sub-weightage as applied here. The multi-stage approach of computing gap score under PERAPPGAP Model is presented below:

Stage 1: Group the management accounting techniques considered in the study based on the cohesiveness among them as it is reflected in the responses of the respondents by using Confirmatory Factor Analysis (CFA) or Exploratory Factory Analysis (EFA) or any other methods applied for grouping like cluster analysis, image processing etc. This grouping is important in a sense that all the techniques chosen for the gap analysis should not have the same importance.

Stage 2: Gap of individual technique (GAP_i) should be computed by using the following formula:

$$\mathrm{GAP_i} = \mathrm{P\ I_i} - \mathrm{A_i} \quad (1)$$

In eq. (1), PI_i refers to perceived importance for ith technique and A_i refers to the level of application for ith technique.

Stage 3: Based on the gap score of individual technique, total gap score for each group will be computed by using eq. (2) as given below:

$$GAP\_GROUP_j = \sum_{i=1}^{n} w_i(PI_i - A_i) \quad (2)$$

Here, w_i refers to the respective weight for ith technique which may be anyone among zero, one or two as per the following norms:

a. Set w_i = zero (0) if $(PI_i - A_i)$ is equal to zero. Here the rationality is that while $(PI_i - A_i)$ is zero; actually there exists no gap in practice.
b. Set w_i = one (1) if $(PI_i - A_i)$ is positive. Here the rationality is that while $(PI_i - A_i)$ is positive; the impact of this gap will remain same on the gap score. This gap is expected as due to lot of reasons, companies may not be able to establish the level of application as it is perceived to be.
c. Set w_i = two (2) if $(PI_i - A_i)$ is negative and consider the absolute value. Here the rationality is that while $(PI_i - A_i)$ is negative; the gap score should be higher than that of while it was positive. This gap is irrational and shows some sort of negligence which should be penalized by putting larger values in total gap score.

In this study, a good number of respondents choose such values which results negative gap value and necessitates such adjustment. The following table (**Table 1**) shows the overall status of choosing values by respondents which results zero, positive and negative gap values across different parameters.

TABLE 1
GAPS IN DIFFERENT MANAGEMENT ACCOUNTING TOOLS

Management Accounting Tools	Zero	Positive	Negative	Total
Cash Flow Statement Analysis	75	25	13	113
Ratio Analysis	76	25	12	113
Budgetary Control	77	23	13	113
Variance Analysis	65	35	13	113
Fund Flow Analysis	66	31	16	113
Theory of Constraints	61	38	14	113
Back-flush Costing	74	30	9	113
Process Re-engineering	64	36	13	113
Activity Based Costing	70	27	16	113
Keizen Costing	69	30	14	113
Target Costing	71	29	13	113
Lean Manufacturing	70	32	11	113
Responsibility Accounting	70	33	10	113
Segment Reporting	63	34	16	113
Balanced Scorecard	79	24	10	113
Total Quality Management	72	34	7	113
Inter-firm Comparison	57	40	16	113
Standard Costing	58	41	14	113
Variable Costing	63	35	15	113
CVP Analysis	63	36	14	113
Absorption Costing	58	32	23	113

Stage 4: And finally, gaps of groups are summed up with respective weights to reach to final gap score by using the following formula:

$$\text{Gapscore} = \sum_{i=1}^{5} w_j \times \text{GAP\_GROUP}_j \quad (3)$$

where, $\sum_{i=1}^{5} = 1$

Module 2: Gap Score and its Relationship with Intension to Switch, Accuracy, Turnover, Net Assets and Profitability

As the gap score represents the status of the respective firms regarding its implementation status of different management accounting tools, such gap score can easily be collated with other firm specific parameters for a more critical observation. These variables are profitability, net assets, turnover, intention to switch and accuracy. Both parametric and non-parametric tests have been applied assuming the structure of data set which is detailed in analysis and findings section below.

ANALYSIS AND FINDINGS

Respondents' Profile

The study was conducted based on a very rich respondents' profile due to the gravity of the subject itself. Respondents' demographic biography is presented below in Table 2:

TABLE 2
RESPONDENTS' PROFILE

Demographic Profile of Respondents	Frequency	Percentage
a) Educational Background		
Professional Degrees	46	35
Graduated	66	51
Undergraduate	11	9
Others	6	5
	129	
b) Years of Experience		
Less than 5 years	25	22
5 – 10 Years	44	39
More than 10 years	44	39
	113	100
c) Intention to Switch		
Yes	20	18
No	93	82
	113	100
d) Number of Jobs		
Less than 3	56	50
3-5	50	44
More than 5	7	6
	113	100

e) Organizational Designation		
i) Top Level Management		
Managing Director	2	
Director	7	
Chief Financial Officer	5	
Country Manager	2	
Group CFO	3	
Finance Controller	6	
VP Finance and Company Secretary	3	
Total	**28**	25
ii) Mid Level Management		
Production Supervisor	2	
General Manager	7	
Manager	25	
Assistant Manager	11	
Chief Accountant	3	
Assistant General Manager	2	
Deputy General Manager	2	
Assistant Finance Controller	3	
Head of Accounts	5	
Total	60	53
iii) Lower Level Management		
Executive	18	
Accounts Officer	7	
Total	25	22
	113	100

As already mentioned, mostly all the respondents are affiliated with different professional accounting institutes, some are already qualified members and others are student members. In terms of years of experience, a good percentage of respondents (78%) are having more than 5 years of experience. About 18% of the respondents have an intention to switch current job. Respondents are not severely job shopper which is a good tendency among accounting professionals. In terms of managerial hierarchy, only 22% respondents are holding lower level management position.

Corporate Profile

This section presents the profiles of companies participated in the survey in terms of different size and profitability related parameters. These parameters are important to find out any potential impact of firm related variables on the ultimate outcome.

TABLE 3
CORPORATE PROFILE

Corporate Profile	Frequency	Percentage
a) Years in Operation		
0-10	20	18
11-20	56	50
21-30	11	10
31-40	13	12
41-50	4	3
More than 50	9	7
	113	100
b) **Number of Employees**		
0-1000	65	58
1001-2000	18	16
2001-3000	14	12
3001-4000	7	6
4001-5000	2	2
More than 5000	7	6
	113	100
c) **Annual Turnover**		
Less than 100 million	36	32
101 – 1000 million	31	27
1001-10,000 million	34	30
More than 10,000 million	12	11
	113	100
d) **Net Assets**		
Less than 100 million	25	22
101 – 1000 million	47	42
1001-10,000 million	30	27
More than 10,000 million	11	9
	113	100

Like respondents' profile, corporate profile (**Table 3**) of the responding firms is also very rich. More than 80% of the firms are in operation for more than 10 years. More than 40% of the firms are having more than 1,000 employees. Around 40% of the firms have annual turnover of more than 1,000 million.

Exploratory Factor Analysis

Literature review and selective interview before finalizing the questionnaire has identified 21 management accounting tools that may be applicable to Bangladeshi firms. Thus, the questionnaire provides a specific section covering 21 management accounting tools where respondents are asked to choose values for level of application in their respective firms and perceived importance of the tool in the firm he is representing on a 5 point scale. The difference between these two values selected by the respondents is considered the gap. However, considering these 21 tools separately to compute the gap score seems to be irrational as there may exist some underlying relationships among these 21 tools. Thus, exploratory factor analysis is done as a data reduction technique to identify whether any grouping among them is possible or not. This analysis is done three times based on three different dataset as mentioned below:

a) Based on 113 responses across 21 tools as given by the respondents to represent their choice on 'Level of Application'

b) Based on 113 responses across 21 tools as given by the respondents to represent their choice on 'Perceived Importance'

c) Based on the gap between the choices for 'Perceived Importance' and 'Level of Application'

A summary of all the analysis done on three different dataset is given below (Table 4):

TABLE 4
SUMMARY OF EXPLORATORY FACTOR ANALYSIS

		Level of Application	Perceived Importance	Gap
1.	Measure of Sampling Adequacy	**.756**	**.770**	**.815**
2.	Level of Significance	**.000**	**.000**	**.000**
3.	Number of Factors Extracted	**6**	**5**	**5**
4.	Cumulative Percentage	**64.950**	**60.658**	**71.094**
5.	Existence of Complex Structure	**Yes**	**No**	**Yes**
6.	Reliability – Cronbach's Alpha	**.863**	**.871**	**.893**

Three different analyses grouped the variables in different groups. Out of the analysis based on three datasets, exploratory factor analysis result considering the perceived importance data set is selected for further analysis and use. In most of the cases, all the three dataset results are within acceptable range, however, validity analysis results the dataset of perceived importance more acceptable. This grouping doesn't allow any complex structure of multiple loading of single parameter into more than one. It confirms both the construct and content validity which is absent in other analysis. As per the analysis, all the 21 management accounting tools have been grouped into five as given below:

Group 1 **:** Cash Flow Statement Analysis, Ratio Analysis, Budgetary Control, Variance Analysis, Fund Flow Analysis

Group 2 **:** Theory of Constraints, Back-flush Costing, Process Re-engineering, Activity Based Costing, Keizen Costing, Target Costing and Lean Manufacturing

Group 3 **:** Responsibility Accounting, Segment Reporting, Balanced Scorecard, Total Quality Management

Group 4 **:** Inter-firm Comparison, Standard Costing, Variable Costing

Group 5 **:** CVP Analysis, Absorption Costing

COMPUTATION OF GAP SCORE UNDER PERAPPGAP MODEL: A HYPOTHETICAL EXAMPLE

In line with the research methodology, a gap score computation worksheet is presented below (**Table 5**) that helps to compute the gap score for each of the firms participated in the survey. The work paper considers responses of the sample firms with regard to 21 management accounting tools grouped into five categories as per exploratory factor analysis. For each of the statements, the respondents are asked to mark two responses in a 5-point scale; one to represent the level of application in the firm and another to represent the perceived importance. The column 'gap' refers to the difference between 'level of application' and 'perceived importance' across different management accounting tools falls in five different groups as per exploratory factor analysis. The template presents the scenario of one respondent only. The column 'weight' chose the value '0' for zero gap, '1' for positive gap and '2' for negative gap as explained in methodology section. And finally 'gap score' column computes the gap score of each management accounting tool as a multiplication quotient between 'gap' and 'weight'.

TABLE 5
GAP SCORE COMPUTATION WORKPAPER

Application		A	Perceived Importance		I	Gap	Weight	Gap Score
Group 1								
A1	CFS is analyzed severely within the company	1	I1	CFS analysis is important for regular decision	4	3	1	3
A2	Ratio analysis is done at regular interval to appraise performance	1	I2	Ratio analysis is perceived to be an important tool to evaluate performance	4	3	1	3
A3	Company uses budget to control cost and other targets	3	I3	Budgetary control is important to keep things under control	1	-2	2	4
A4	Variances are analyzed to control cost and revenue	4	I4	Management conceive variance analysis as an important control tool	1	-3	2	6
A5	Fund flow analysis is applied to establish more control over funds	5	I5	Fund flow analysis is important to run investing and financing activities very smoothly	1	-4	2	8
								24
Group 2								
A6	Theory of constraint is applied to handle constraint resources	4	I6	Theory of Constraint is important to utilize constraint resources more efficiently	1	-3	2	6
A7	Back-flush costing is applied to keep pace with the advanced production technology	3	I7	Back-flush costing is important to come to the market in time ensuring minimum production lead time	1	-2	2	4
A8	Process re-engineering is applied to ensure best work method in practice	3	I8	Process re-engineering is important to put more focus on value added activities	1	-2	2	4
A9	Activity based costing is applied to handle complexity in product costing	1	I9	Activity based costing is important to trace indirect costs with the ultimate cost objects more accurately	3	2	1	2
A10	Keizen costing is applied to practice continuous development	1	I10	Keizen costing is important to remain competitive in the market always	2	1	1	1
A11	Target costing is applied for product costing when market price of the products are known well ahead	1	I11	Target costing is important to keep the cost under control, within a limit	1	0	0	0
A12	Lean manufacturing is applied to ensure zero-defect during production	1	I12	Lean manufacturing helps us to justify our passion or commitment to quality	1	0	0	0
								17

Group 3								
A13	Responsibility accounting is practiced to adhere to the ultimate strategic goal	1	I13	Responsibility accounting is important to ensure that everybody is working to achieve 'goal congruence'	3	2	1	2
A14	Segment reporting is applied to evaluate segment wise performance	1	I14	Segment reporting is important to take decision targeting to resource allocation to different segments	4	3	1	3
A15	Balanced scorecard is used to appraise the performance of business units	1	I15	Balanced scorecard is important to integrate both financial and non-financial measure for performance evaluation	4	3	1	3
A16	Total quality management is applied as a drive to ensure quality in totality	1	I16	Total quality management is important to achieve trust and faith of customers	5	4	1	4
								12
Group 4								
A17	Inter-firm comparison is done to evaluate competitive status and to take necessary actions as well	3	I17	Inter-firm comparison is important for competitive appraisal	1	-2	2	4
A18	Standard costing is applied to control cost and product costing	1	I18	Standard costing is important to control cost, price products and analyzing variances	1	0	0	0
A19	Variable costing is applied to appraise economic profit	4	I19	Variable costing is important for CVP analysis	1	-3	2	6
								10
Group 5								
A20	CVP analysis is done to take day to day managerial decision	5	I20	CVP analysis is important for break even analysis, cost structure and product mix decisions	1	-4	2	8
A21	Absorption costing is applied for meeting the external requirements	1	I21	Absorption costing is important for compliance	2	1	1	1
								9

The above template results the total gap score across five groups which is as follows:

Group	1	2	3	4	5
Gap Score	24	17	12	10	9

To reach to the final gap score as advocated by one respondent, we need to know the respective weight across different groups total of which will be equal to one. Application of such weight will bring more discipline in the analysis and the gap score will be more meaningful. It will address the respective choice of different groups by respondents which is reflected properly in perceived importance. Otherwise, each group will be considered equally in the final gap score which may lead the gap score into a tunnel version with narrow focus. To compute the weights, following steps are applied:

1. Line wise responses of all the 113 respondents are re-grouped as per the result of EFA. The responses are collected from the scale for perceived importance as these weights represent the respective importance of different groups as advocated by the practitioners.
2. Later on, average scale value is computed for each line item as shown in column 3 of the following table. For example, individual score for 'Fund Flow Analysis' as given by 113 respondents are summed and the divided by 113 to calculate average score.
3. Average score for each group is computed in next step as shown in column 4 of the following table. This is done by summing the average scale value of each item in a group and then dividing the same with the number of items in the group.
4. Average score for each group is summed up and then respective weight for each group is computed by dividing individual average score with the total as shown in column 5 of the following table.
5. Gap score is copied as computed in the above template considering the response given by only one respondent which is shown in column 6 below.
6. Finally, the weighted gap score is computed (column 7 in the table below) by multiplying weights with the gap score (column 5 × column 6) which is summed to have a final gap score. As per the example, the final gap score results to be 14.553.

Computation of weights and final gap score is shown below (**Table 6**):

TABLE 6
COMPUTATION OF GAP SCORE

Group	Management Accounting Tools	Average Score	Average Score of Group	Weights	Gap Score	Weighted Gap Score
1	2	3	4	5	6	7 = 5 × 6
Group 1	Cash Flow Statement Analysis	4.390909091	4.074545455	0.23	24	5.449
	Ratio Analysis	4.045454545				
	Budgetary Control	4.281818182				
	Variance Analysis	3.809090909				
	Fund Flow Analysis	3.845454545				
Group 2	Theory of Constraints	2.909090909	2.971428571	0.17	17	2.815
	Back-flush Costing	2.563636364				
	Process Re-engineering	3.390909091				
	Activity Based Costing	3.245454545				
	Keizen Costing	2.5				
	Target Costing	3.318181818				
	Lean Manufacturing	2.872727273				
Group 3	Responsibility Accounting	3.554545455	3.65	0.20	12	2.441
	Segment Reporting	3.554545455				
	Balanced Scorecard	3.318181818				
	Total Quality Management	4.172727273				
Group 4	Inter-firm Comparison	3.490909091	3.809090909	0.21	10	2.123
	Standard Costing	3.881818182				
	Variable Costing	4.054545455				
Group 5	CVP Analysis	3.363636364	3.440909	0.19	9	1.726
	Absorption Costing	3.518181818				
Total			17.94597394	1.00		14.553

Range of Gap Score

The value of the weighted gap score will follow a range between zero and 33.20 (**Table 7**). The minimum and maximum value is computed as follows:

TABLE 7
RANGE OF GAP SCORE

Group	Management Accounting Tools	Minimum Gap Score	Maximum Gap Score	Weights	Minimum Range	Maximum Range
1	2	3	4	5	6 = 3 × 5	7 =4 × 5
Group 1	Cash Flow Statement Analysis	0	-4×2=8			
	Ratio Analysis	0	-4×2=8			
	Budgetary Control	0	-4×2=8			
	Variance Analysis	0	-4×2=8			
	Fund Flow Analysis	0	-4×2=8			
	Total	0	40	0.23	0	9.2
Group 2	Theory of Constraints	0	-4×2=8			
	Back-flush Costing	0	-4×2=8			
	Process Re-engineering	0	-4×2=8			
	Activity Based Costing	0	-4×2=8			
	Keizen Costing	0	-4×2=8			
	Target Costing	0	-4×2=8			
	Lean Manufacturing	0	-4×2=8			
	Total	0	56	0.17	0	9.52
Group 3	Responsibility Accounting	0	-4×2=8			
	Segment Reporting	0	-4×2=8			
	Balanced Scorecard	0	-4×2=8			
	Total Quality Management	0	-4×2=8			
	Total	0	32	0.20	0	6.40
Group 4	Inter-firm Comparison	0	-4×2=8			
	Standard Costing	0	-4×2=8			
	Variable Costing	0	-4×2=8			
	Total	0	24	0.21	0	5.04
Group 5	CVP Analysis	0	-4×2=8			
	Absorption Costing	0	-4×2=8			
	Total	0	16	0.19	0	3.04
Total				**1.00**	**0**	**33.20**

Thus a gap score close to zero represents better scenario in terms of application of management accounting tools whether a gap score close to 33.20 represents the poorest status.

Inferential Analysis

Gap Score and Intention to Switch

Intention to switch means the possibility of the respondents to switch to another firm within near future. The response is captured by either 'yes' or 'no'. To find out any relationship between gap score and intention to switch, the Mann-Whitney U test is applied. The test is a nonparametric test that can be used to analyze data from a two-group independent groups design when measurement is at least ordinal. It analyses the degree of separation (or the amount of overlap) between the groups. The null hypothesis assumes that the two sets of scores are samples from the same population; and therefore, because sampling was random, the two sets of scores do not differ systematically from each other. The alternative hypothesis, on the other hand, states that the two sets of scores do differ systematically. The test results two important tables based on which the decision should be taken whether null hypothesis will be accepted or rejected. The ranks table is the first table that provides information regarding the output of the actual Mann-Whitney U test. It shows mean rank and sum of ranks for the two groups tested (i.e., yes and no groups). The table is very useful because it indicates which group can be considered as having the higher gap score, overall; namely, the group with the highest mean rank. In this case, the 'no' group had

the highest gap score. The test statistics table shows us the actual significance value of the test. Specifically, the test statistics table provides the test statistic, *U* statistic, as well as the asymptotic significance (2-tailed) *p*-value. From this data, it can be concluded that gap score in the groups do not differ significantly ($U = 687$, $p = .066$).

As per the output of Mann-Whitney U test, it can be concluded that the model is not statistically significant and thus null hypothesis is not accepted. In other words, alternate hypothesis is accepted which means that gap score varies with the intention to switch of the respondents. The justification of such conclusion is well-founded. A practitioner who has positive intention to switch, he may not be happy with the job definition which is responsible for low diffusion of management accounting tools leading to wider gap score.

Gap Score and Profitability, Turnover, Net Assets

Profitability is measured in terms of net profit percentage with four groups. Turnover refers to annual sales and net asset is the value which is reached after deducting total liabilities from total assets. Both turnover and net assets are the parameter reflecting the size of the firms. The grouping of all the three parameters is shown in the following table (**Table 8**):

TABLE 8
GROUPING OF PROFITABILITY, TURNOVER, NET ASSETS

Profitability	**Turnover**	**Net Assets**
Less than 5%	Less than 100 million	Less than 100 million
5% - 10%	100 - 1,000 million	100 - 1,000 million
10.01% - 20%	1,001 - 10,000 million	1,001 - 10,000 million
Above 20%	More than 10,000 million	More than 10,000 million

As these parameters have four groups and distribution free assumptions hold true, **Kruskal-Wallis Test,** a non-parametric test is applied to test the hypothesis. Three different run of the test considering three different grouping variables are presented below (**Table 9**) in a comparative way for easy interpretation.

TABLE 9
TEST STATISTICS

Tests	**Grouping Variables**		
	Profitability	**Turnover**	**Net Assets**
Kruskal-Wallis Test			
Test Statistics - Asymp. Sig.	.002	.685	.819
Median Test			
Test Statistics - Asymp. Sig.	.050	.824	.832
Jonckheere-Terpstra Test			
Test Statistics - Asymp. Sig. (2-tailed)	.000	.504	.846

The above output results that only first null hypothesis out of three is accepted and other two is not accepted. It means the gap score doesn't change due to change in profitability. However, changes in size of the firm in terms of turnover and net assets have a good bearing on the amount of gap score. It means that the size of the firms requires the application of more sophisticated management accounting tools and thus gap score varies for any change in the definition of size of the firms in terms of turnover and net

assets. However, in terms of profitability, gap score doesn't vary. The reason may be that none of the participating firms is enjoying super-normal profit due to the application of sophisticated management accounting tools.

Multiple Regression Analysis

Considering the normality in distribution, a multiple regression analysis is conducted to identify the explanatory power of different independent variables on gap score which is the dependent variable. The model is presented below:

$$GS_i = \alpha + \beta_1 Accuracy_i + \beta_2 Profitability_i + \beta_3 Turnover_i + \beta_4 NetAssets_i + \beta_5\ Intentiontoswitch_i + \varepsilon$$

Model summary reports a correlation coefficient (R) of .466 and coefficient of determination (R^2) of only .217 which refers that the explanatory power of the model is very weak. However, the model is significant ($p<.01$) as reported in ANOVA table. The coefficients table shows the relationship between gap score and each independent variables along with the level of significance. The relationship can be interpreted as below (**Table 10**):

TABLE 10
ANALYSIS AS PER REGRESSION OUTPUT

Independent Variables	Relationship with Gap Score	Level of Significance
Accuracy	Negative	Significant ($p<.01$)
Profitability	Positive	Marginally Significant ($p<.1$)
Turnover	Negative	Not Significant
Net Assets	Negative	Not Significant
Intention to Switch	Positive	Not Significant

Negative relationship between gap score and accuracy refers that increase in gap score results decrease in accuracy and vice versa. However, the positive relationship between gap score and profitability which is marginally significant doesn't carry any logical explanation. Turnover and net assets show negative relationship which is not statistically significant. Finally, intention to switch is positively related with gap score; however, it is not statistically significant. The collinearity statistics (Tolerance and VIF) also shows that multicollinearity problem doesn't exist in the dataset. Based on the analysis, a summary on the test of hypothesis may be developed as given in Table 11 below:

TABLE 11
SUMMARY OF TEST OF HYPOTHESIS

Sl.	Hypothesis	Result
H1	Gap score doesn't vary with the Intention to switch	Rejected
H2	Gap score doesn't vary with the change in level of accuracy	Rejected
H3	Gap score doesn't vary with the change in level of profitability	Accepted
H4	Gap score doesn't vary with the change in level of turnover	Rejected
H5	Gap score doesn't vary with the change in level of net assets	Rejected

CONCLUSION

Studying management accounting practices in Bangladesh is always challenging due to management accounting as an emerging profession which always attract a twinkling feedback from the practitioners. In many firms in Bangladesh, management accounting functionality is being embedded with overall

corporate accounting giving it an overlapping role in corporate decision making. Thus it is very commonly observed that one accountant serves the dual functions; sometimes as financial accountant and again sometimes as management accountant. This poor status in practice is caused by different reasons. Firstly, the country is still lead by service sector where the requirement of management accounting is not so explicit like financial accounting. Secondly, level of competition is not so bitter in the market that sophisticated management accounting practices are in less demand. Thirdly, management accounting profession in the country is still it its primitive form which causes a serious obstacle before smart diffusion of such practices. Fourthly, socio-economic condition of the country is leaned towards the information generated by the conventional accounting. Fifthly, market awareness regarding the usability of management accounting practices to different stakeholder groups like consumers, regulators, owner-managers etc. is in a very poor state. These reasons collectively pave a weak foundation for the growth and maturity of sound management accounting practices generating a huge gap between the perception and application which is the main focus of this paper.

This paper is based on a questionnaire survey where each respondent has a professional accounting background and represents different manufacturing firms located in Dhaka region. The questionnaire is a semi-structured one which captures the responses mostly in a face to face communication mechanism. The responses so collected are analyzed in a multistage process as proposed in PERAPPGAP Model to calculate a gap score for each participating firm which is later on related with some other firm specific parameters as hypothesized for testing.

As per the findings of the analysis, gap score varies with the intention to switch of the respondents with the meaning that when a practitioner is considering the option of switching for better options, he will depict some sort of reluctance towards the current job resulting a higher gap score. In other hypotheses, gap score is tested with profitability, turnover and net assets of firms. The result shows that the gap score doesn't vary with the profitability, however, it varies with turnover and net assets of firm. It means that the gap score is related with the size of the firm but it has no bearing on the profit earning capability of the firm. In an extended analysis through regression, it is also found that the gap score is negatively related with accuracy which is statistically significant. This is an important finding which means that the higher gap score will result lower accuracy which is also theoretically justifiable. However, two other parameters in regression model (profitability and intention to switch) shows positive direction and two other parameters in repression model (turnover and net assets) shows negative direction with relation to gap score. All of these variables are not statistically significant except profitability measure which is marginally significant. These findings confirm the earlier findings of non-parametric tests.

The findings of the study result some strategic dimensions. The reasons of higher gap score specific to different firm can be directly identified and addressed to reduce the gap score in a later time period. It also shows the potential benefit that a firm can avail from improvement in gap score. The analysis of gap score creates conducive environment that will bring different sophisticated management accounting techniques in practice. At the same time, the role of management accountants needs to be understood to reap the maximum benefit out of them. They are not the bean counter with the clerical role like a traditional steward rather they are the strategic partner to lead a board towards strategic success.

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APPENDIX

QUESTIONNAIRE

The purpose of this study is to understand the nature of management accounting tools your company use and is there any gap between your perception on those tools and level of application. The reason of such analysis is to prioritize practitioners focus on understanding the gaps in management accounting practice. Thus, your response is very important.

Declaration: Your answers are completely confidential, so be as frank as you wish. This is not a test-your opinion is the only right answer. Do not sign your name; we do not wish to know who you are. The answers will be combined into groups for reporting purposes.

Respondents Profile

Position	:		
Educational Qualification (Latest)	:		
Years of Experience	:		
No. of Job (including current one)	:		
Any intention to Switch very recently?	:	☐ Yes	☐ No

Corporate Profile

Name	:
Year of Establishment	:
Number of Employees	:
Market Share (%)	:
Annual Turnover (Approximately)	:
Net Profit (as a percentage of sale)	:
Net Assets	:

Rate the following management accounting tools in terms of their application and perceived importance in your firm in a 5-point scale. The difference will form the gaps. Please be careful while you are choosing two values for each of the tools below:

SL	Mgt. Accounting Tools	Application					Perceived Importance				
1.	Cash flow Statement Analysis	1	2	3	4	5	1	2	3	4	5
2.	Ratio Analysis	1	2	3	4	5	1	2	3	4	5
3.	Budgetary Control	1	2	3	4	5	1	2	3	4	5
4.	Variance Analysis	1	2	3	4	5	1	2	3	4	5
5.	Fund Flow Analysis	1	2	3	4	5	1	2	3	4	5
6.	Inter-firm Comparison	1	2	3	4	5	1	2	3	4	5
7.	Standard costing	1	2	3	4	5	1	2	3	4	5
8.	CVP Analysis	1	2	3	4	5	1	2	3	4	5
9.	Variable Costing	1	2	3	4	5	1	2	3	4	5
10.	Absorption Costing	1	2	3	4	5	1	2	3	4	5
11.	Responsibility Accounting	1	2	3	4	5	1	2	3	4	5
12.	Segment Reporting	1	2	3	4	5	1	2	3	4	5
13.	Theory of Constraints	1	2	3	4	5	1	2	3	4	5
14.	Back-flash Costing	1	2	3	4	5	1	2	3	4	5
15.	Process Reengineering	1	2	3	4	5	1	2	3	4	5
16.	Activity-Based Costing	1	2	3	4	5	1	2	3	4	5
17.	Kaizen Costing	1	2	3	4	5	1	2	3	4	5
18.	Target Costing	1	2	3	4	5	1	2	3	4	5
19.	Balance Scorecard	1	2	3	4	5	1	2	3	4	5
20.	Lean Manufacturing	1	2	3	4	5	1	2	3	4	5
21.	Total Quality Management	1	2	3	4	5	1	2	3	4	5