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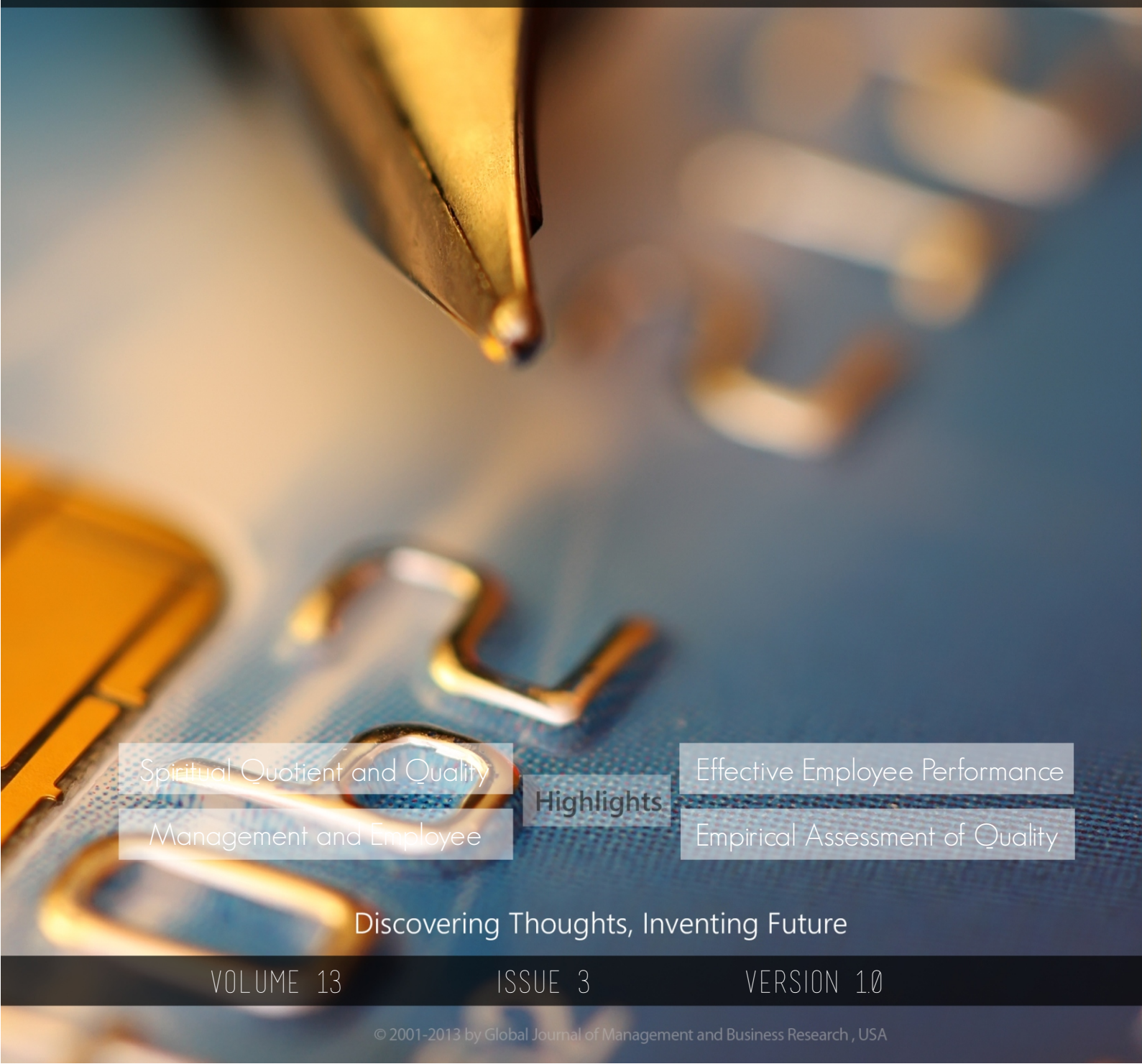

Spiritual Quotient and Quality Management and Employee

Highlights

Effective Employee Performance

Empirical Assessment of Quality

Discovering Thoughts, Inventing Future

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Email:suyog@suyogdixit.com

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(MS) Computer Science Department
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The Intelligence, Emotional, Spiritual Quotients and Quality of Managers

By Dr. Juhary Haji, Ali Bambang Bemby & Ilham Sentosa

Abstract - Intelligence, emotional, and spiritual quotients (IESQ) has been predicted to escalate with the increase of personal quality of corporate managers. In line with the enhancement of personal quality, it has been estimated that internal locus of control would also amplify. This study examined the drivers of personal quality of corporate managers based on the examination of intelligence, emotional, and spiritual quotients (IESQ) and mediated by internal locus of control. Data were collected from 237 stated owner enterprises managers via questionnaires. The analysis produced structural models of personal quality predicted by IESQ and mediated by internal LOC. It shows that hypothesized model created three significant positive direct (IESQ) and indirect (internal LOC) impacts of predictors to personal quality of managers. For mediating effect of internal LOC on each hypothesized path, this study found partial mediating effects of internal LOC. The structural model achieved the highest SMC (R^2), explaining 65.6% of internal locus of control and 76.2% variance of the personal quality of managers. This study confirmed a significant positive direct relationship between the harmonies of IESQ to personal quality. This study found most of managers have a good standard of EQ and SQ rather than IQ. In this case, the application of EQ in a workplace depended on the person, whether he or she could place him or herself in gathering with others. Spiritual quotient seemed placed highest portion when mediated with locus of control. As we know that internal LOC is a strong feeling that pushes someone to do something correctly.

Keywords : *personal quality of managers, intelligence quotient, emotional quotient, spiritual quotient, locus of control.*

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The Intelligence, Emotional, Spiritual Quotients and Quality of Managers

Dr. Juhary Haji [α], Ali Bambang Bemby [σ] & Ilham Sentosa [ρ]

Abstract - Intelligence, emotional, and spiritual quotients (IESQ) has been predicted to escalate with the increase of personal quality of corporate managers. In line with the enhancement of personal quality, it has been estimated that internal locus of control would also amplify. This study examined the drivers of personal quality of corporate managers based on the examination of intelligence, emotional, and spiritual quotients (IESQ) and mediated by internal locus of control. Data were collected from 237 stated owner enterprises managers via questionnaires. The analysis produced structural models of personal quality predicted by IESQ and mediated by internal LOC. It shows that hypothesized model created three significant positive direct (IESQ) and indirect (internal LOC) impacts of predictors to personal quality of managers. For mediating effect of internal LOC on each hypothesized path, this study found partial mediating effects of internal LOC. The structural model achieved the highest SMC (R^2), explaining 65.6% of internal locus of control and 76.2% variance of the personal quality of managers. This study confirmed a significant positive direct relationship between the harmonies of IESQ to personal quality. This study found most of managers have a good standard of EQ and SQ rather than IQ. In this case, the application of EQ in a workplace depended on the person, whether he or she could place him or herself in gathering with others. Spiritual quotient seemed placed highest portion when mediated with locus of control. As we know that internal LOC is a strong feeling that pushes someone to do something correctly. By the data gathered, it shows that most of managers are Moslem. As a good Moslem, most managers practice religion tightly, they pray, spells the good name of God (*Dziki*) which is thought by the Quran. A spiritually managers will apply good attitudes and behaviors in organization to enhance their personal quality in the organization and the society surrounds. The findings are discussed in the context of personal quality and IESQ among state owned enterprise managers in South Sumatera Province of Indonesia.

Keywords : personal quality of managers, intelligence quotient, emotional quotient, spiritual quotient, locus of control.

I. Introduction

Intelligence quotient or IQ as an ability to solve an objective problem alone, can be used to make a person to be competent enough (Brody and Brody, 1976). Besides, there are other tools in assessing people competencies, emotional quotient and spiritual quotient. Still, emotional quotient refers to an ability understand our emotions and other people (Goleman, 1995). Spiritual quotient refers to an ability to access our deepest meanings, values, purposes and motivations (Zohar and Marshall, 2004). Both of these quotients are the important elements to create a person to be a competent employer (Boyatzis, 1982; Spencer and Spencer, 1993; Goleman, 1995; Zohar and Marshall, 2004).

It means that, managers are the backbone of the companies; and as the powerful people in the organizations, and people who have power to do everything in order to make profit for their workplaces (Mealiea and Latham, 1996; Williams, 2002; Griffin, 2006; Montana and Charnov, 2008). It is difficult to be a good manager who could take over every task burdened on. Most managers feel that they are boss in their workplaces (Caruso and Salovey, 2004). They manage the process of getting things done through others to perform activities necessarily to achieve personal and organizational goals only sometimes (Mealiea and Latham, 1996). It means that good management that performed by managers bring a successful business at the top, to fulfill satisfaction for stockholders, but not pay much attention to the whole levels of the organization (Mealiea and Latham, 1996; Montana and Charnov, 2008). Employers in this case, managers of public companies in South Sumatera insisted to make profit for their organization through products and services. Managers have to apply and practice an integral and combination of intelligence even intellectual, emotional and spiritual quotients together, in thinking, decision making and motivating, then behaving. If it is success, they become emotionally intelligent managers. It is mentioned by Malhi (2004) that emotional quotient as EQ or emotional intelligence as EI, in term of being able to monitor and regulate self–owned feeling and others, and used that feelings to a guidance in thinking and acting. This opinion supported Goleman's idea (1995) that emotional intelligence is the capability for recognizing our feelings and others, to motivate and manage emotions of ourselves and others.

There is no detail research on the influence of competencies as intelligence quotient or IQ, emotional quotient or EQ, and spiritual quotient or SQ to personal quality or PQ, especially on managers' level in public companies, even in Indonesia or other countries. Only some research conducted related to IQ or EQ or SQ separately to performance or success, combined with self – efficacy or other mediator variables. This research

Author α : E-mail : juhary@uum.edu.my

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conducted to share the influence of IQ, EQ and SQ to the personal quality of managers. This assessment fulfill the space of knowledge of personal quality of managers and support knowledge related to the function of IQ, EQ and SQ in achieving personal quality of high level of managers. There is a theoretical gap within theories that exploring working competencies and personal quality.

Literature reviews pointed out that conceptual models of competencies as IQ, EQ and SQ applied separately, especially to working performance (Salmiah, 2004; Catano, 2001; Zohar, 2000), but not to personal quality of managers. As we known that there is a strong and tied relation between IQ, EQ and SQ (Agustian, 2002; Zohar, 2004; Wilding, 2007 and Malhi, 2004), that means working competencies must be also consisted of IQ, EQ and SQ. The achievement of high personal quality of managers has a strong relation with the stage of competency their (managers) intelligence, emotional and spiritual quotients. By recognizing and understanding the relation of competency of IQ, EQ and SQ and personal quality managers, we could create an adjustable competency framework model for exploring personal quality. Literature review even not pointed out an assessment or research that using those three integrated competencies together.

II. Underpinning Theory

According to UNIDO (2002) competencies theory content of two item as essential competencies and core values. Essential competencies are managerial, generic, technical and functional. Core values are integrity, professionalism and cultural sensitivity. Further, the core values become important because the way employees behave in the workplace is a reflection our personal and organizational values. Core values are essentials because they need to be permanently lived in the heart of everyone and must integrate in our daily interaction with colleagues, clients and society at last. The integrated competencies are the combination of essential and core as the working competencies which famous as intelligence, emotional and spiritual intelligence (Goleman, 1995, Zohar and Marshall, 2004, and Wilding, 2007).

a) Intelligence Quotient (IQ)

Intelligence quotient refers to an ability of thinking in solving problems. Intelligence quotient is the label that supposed to predict whether a person will be able to do a certain work; whether that work is reading, writing or creating such business plan. Intelligence is about the skills that enable a person to read, write or create a perfect technical business plan. The whole concept relating intelligence quotient to life achievement is misguided, because IQ is pretty miserable predictor of life achievement. According to Sternberg (1996) that Binet (in 1904) introduced the theory of intelligence consists three distinct elements as direction, adaptation and criticism. Direction concerns to knowing what has to be done and how to do it. Adaptation includes customizing a strategy for performing task, and criticism refers to the ability to critique thoughts and action. According to Sternberg (1994), the entire concept associating IQ as human life achievement in misguided, because IQ can be used as predictor of life achievement. This idea supported by Wildings (2007) that IQ is only connected to logical and analytical reasoning ability; linguistic skills and spatial orientation.

b) Emotional Quotient (EQ)

The terms of emotional quotient used for the first time by Salovey and Mayer (1990), which referred to intelligence in what people recognize feelings, motivate and manage emotions in life. Relating to management, Goleman (1995) mentioned that a person with high IQ makes a brilliant teacher of financial analyst, but high IQ combined with high EQ creates us to be the leader of it. It seemed that IQ consisting verbal, numerical, and thinking skills important for effective leadership.

However, EQ has more specific function to control negative things. According to Wilding (2007) that emotional quotient or EQ is very important to human being as one solution for them to be success with other people. It is because emotional quotient or EQ contents of "high quality of soft skills". Further, Goleman (1998) noted that, more emotionally intelligent persons are categorized as succeed at communicating whether interesting and affirm ways, that could others feel better in the job circumstances. Then, Bar-On (1997) pointed out that, EI is also useful for group development since that large group of smooth and effective workers, knowing each other's strength and weaknesses and always strong influence whenever possible.

c) Spiritual Quotient (SQ)

At the end of the 1990s, research on neurology found that brain has another "Q" or other kind of intelligence (Zohar and Marshall, 2004). This new intelligence with which we have access to deep meaning, fundamental values, and a sense of abiding purpose in our lives, and the role that this meaning, values and purpose plays in our lives, strategies, and thinking process. Then, this newest intelligence is famous named by "spiritual quotient." Spiritual quotient comes from the Latin word "spiritus," and the meaning is "the vitalizing principle of an organism" (Zohar and Marshall, 2004: 97). Besides, the alphabet "S" in SQ also derived from Latin "Sapientia" means "wisdom intelligence," embracing all that we traditionally mean by wisdom as opposed to mere knowledge acquisition or to a rather mechanistic talent for solving problem (Zohar and Marshall, 2004). A person may have high SQ but have no faith in his or her religion or belief, and inversely, others may have low SQ although very religious. Religion based on, particular set of custom, beliefs and values, and usually depends on culture, and

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up bringing (Zohar and Marshall, 2004). However, spiritual quotient is hereditary capacity of the human brain, based on structures in the brain that gives us basic ability to form meanings, values, and beliefs in the first place; it means that, spiritual intelligence is "the soul's intelligence."

d) Personal Quality (PQ)

Malhi (2004) mentioned that personal quality is "the bedrock of organizational quality". It means that people as an important source, who run, carry out, manage and develop the organization entirely. So, the good performance of the organization is really mirrored of the good performance of its personal quality as a whole. In simply word, we say that people because every quality happened. Further, personal quality itself, refers to the grade to which individuals are expressed positive personal attributes, practices good human relations and displayed superior work presentation. However, people manage and create process and do the systems; and is that why we can say that "quality is the expression of human excellent".

III. Methodology

Figure 1 proposed the final hypothesized structural model for the study. It consists of three exogenous variables (intelligence, emotional and spiritual quotients) and two endogenous variables (internal locus of control and personal quality). Internal locus of control is hypothesized to act as a mediator between all relationships of exogenous and behavior.

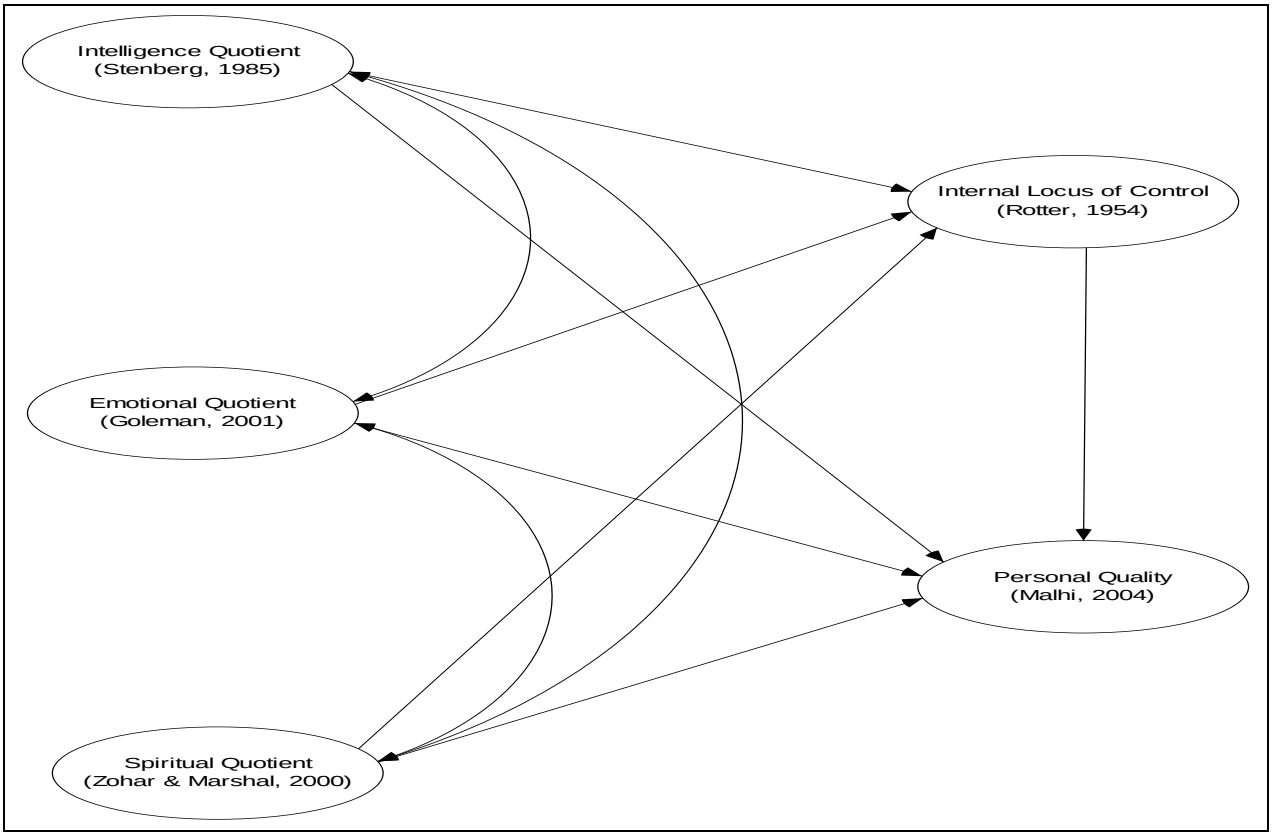

Figure 1 : Hypothesized Model

Table 1 summarizes the operation definition of final latent variables used in this study. Afterwards, eight hypotheses (Table 2) are derived from the hypothesized model for the study.

Table 1 : Operational Definition of Variables

Intelligence Quotient	Intelligence quotient is an ability of thinking in problem solving, which is not adequate to make a worker to be competent.	Stenberg (1985)
Emotional Quotient	EQ is an ability of a person in knowing and understanding him or herself and other people. People' emotional quotient and spiritual quotient might be a greater predictor of success rather than intelligence quotient.	Goleman (1995)
Spiritual Quotient	Spiritual quotient as SQ refers to the ability of a person to understand life more, and as an important element of labor competency	Zohar and Marshal (2004)

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Internal Locus of Control	Locus of control is an individual's generalized expectations concerning where control over subsequent that events reside. Internal locus of control figured by habit of hard - working, high initiatives, always try to solve problems, always thinking effectively and having high perception.	Rotter (1966)
Personal Quality	Personal quality refers to the positive personal attributes showed and manager exhibited superior work performance and presented good human relations.	Malhi (2004)

Table 2 : Hypothesis Formulation

H1	Intelligence Quotient has a direct positive influence to the Personal Quality
H2	Emotional Quotient has a direct positive influence to the Personal Quality
H3	Spiritual Quotient has a direct positive influence to the Personal Quality
H4	Internal Locus of Control has a direct positive influence to the Personal Quality
H5	Internal Locus of Control has a positive mediation influence in the relationship between Intelligence Quotient to the Personal Quality
H6	Internal Locus of Control has a positive mediation influence in the relationship between Emotional Quotient to the Personal Quality
H7	Internal Locus of Control has a positive mediation influence in the relationship between Spiritual Quotient to the Personal Quality
H8	Internal Locus of Control has a positive mediation influence in the relationship between Intelligence, Emotional and Spiritual Quotient to the Personal Quality

a) Sampling and Instrument

A total of 265 managers from various levels of department and units were requested to complete a questionnaire that contained measures of the constructs of concern. The questionnaires were distributed to the respondents by using proportionate stratified random sampling method. Out of the desired sample size of 265, 255 were returned. This gives a response rate of 96.22%. However, according to Mintzberg (1996), for managerial survey, a response rate of over 50% is reliable. As such, the response rate for this study is favorable and 255 questionnaires received, 237 questionnaires were subsequently used for analysis.

Measurement tools used in this study must valid and reliable where to test each variable will provide some statements that have to choose by the respondents. After that, result taken from the list of questionnaires will be scaled by Likert's scale to find the answer of the respondents through the score from 1 as strongly disagree to 5 as strongly agree. A summary on the profile of respondents is tabulated in Table 3.

b) Data Screening and Analysis

The 255 dataset were coded and saved into SPSS version 16 and analyzed using AMOS version 7.0. In this study, a test for multivariate outliers is conducted using the techniques described by Tabachnick and fidell (2007). Using the 255 data from a set of 7 items of IQ, 12 items of EQ, 8 items of SQ, 6 items of ILOC and 10 items of PQ, the Mahalanobis distance was calculated based on a total of 43 items. The criterion of $p < 0.001$ and critical value of $\chi 2 = 73.402$ is used. The tests conducted identified 18 cases with Mahalanobis values above 73.402. The Mahalanobis distance succeeded in identifying the multivariate outliers Several statistical validity tests and analysis were then conducted such as reliability test and composite reliability tests, validity tests using confirmatory factor analysis (CFA) for construct validity, discriminate validity for multi-collinearity treatment, descriptive analysis, correlation and structural equation modeling analysis. The step in SEM analysis were CFA analysis, measurement exogenous and endogenous analysis, discriminate analysis, composite reliability analysis and direct indirect impact analysis (mediating effect), testing the fit for the hypothesized and re-specified model.

IV. Results

a) Demographic Profile of Respondents

Based on gender category there were 91.1% or 216 respondents were male while 8.9% or 21 respondents were female. In terms of religion background, 94.1% or 223 are Moslem, 3.4% or 8 are Christian, 1.7% or 4 are Catholic, 0.8% or 2 are Hindu. In terms of education, 5.1% or 12 have high school education, 11.8% or 28 possessed their diploma education, 67.9% or 161 possessed bachelor degree education, 14.8% or 35 possessed their master degree and 0.4% or only 1 possessed their PhD degree. Most managers 40.1% or 95 have served the company for more than 21 years, 22.4% or 53 have worked between 16 to 20 years, 18.1% or 43 have worked between 11 to 15 years, and 11.0% or 26 have worked between 6 to 10 years. 8.4% or 20 have served less than 5 years. There are 13.5% or 32 have served their current position for more than 5 years, 35.9% or 85 for a period of between 2 to 5 years, 35.9% or 85 for a period of between 1 to 2 years and 14.8% or 35 have been in their current

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position less than 1 year. In terms of position, 14 or 5.9% are Chief of Department, 10 or 4.2% are General Manager of the company respectively. 111 or 46.8% are Chief of Units and 35 or 14.8% indicate in other category. Based on the department, there are 24.5% or 58 serve in administration agencies, 19.8% or 47 serve in services agencies, 33.8% or 80 serve in technical agencies and 21.9% or 52 categorize as others units. Based on number of subordinate in their organization, there are 12.7% or 30 has more than 100 employees, 11.4% or 27 has 51 to 100 employees, 32.9% or 78 has11 to 50 employees and 43% or 102 has employee less than 10 person. Based on training frequency in the past 2 years, there were 6.8% or 16 managers has more than 10 times, 16.5% or 39 managers has 6 to 10 times, 71.3% or 169 has 1 to 5 times and 5.5% or 13 managers never joined to the training in the past 2 years (Table 3).

Table 3 : Profiles of Respondents (N=237)

Gender	N	%
Male	216	91.1
Female	21	8.9
Religion		
Islam	223	94.1
Christian	8	3.4
Catholic	4	1.7
Hindu	2	0.8
Budha	-	-
Education Level		
High School	12	5.1
Diploma Degree	28	11.8
Bachelor Degree	161	67.9
Master Degree	35	14.8
PhD	1	0.4
Present Position		
Chief of Department	42	17.7
General Manager	31	13.1
Chief of Unit	129	54.4
Others	34	14.8
Years in Current Structure Level		
Less than 1 year	35	14.8
1 – 2 years	85	35.9
2 – 5 years	85	35.9
More than 5 years	32	13.5
Length of Service		
Less than 5 years	20	8.4
6 – 10 years	26	11.0
11 – 15 years	43	18.1
16 – 20 years	53	22.4
More than 21 year	95	40.1
Training in the past 2 years		
Never	13	5.5
1 – 5 Times	169	71.3
6 – 10 Times	39	16.5
More Than 10 Times	16	6.8
No of Sub Ordinary in Organization		
Less than 10 Employees	102	43.0
11 – 50 Employees	78	32.9
51 – 100 Employees	27	11.4
More Than 100 Employees	30	12.7
Education Background		
Public Administration/Politic/International Relation	8	3.4
Economic/Management	44	18.6
Finance/Banking/Accountancy	47	19.8
Law	5	2.1
Mechanical/Engineering	83	35.0
Medical	2	0.8
Linguistic	2	0.8
Information Technology	5	2.1
Agriculture	12	5.1
Others	29	12.2

b) Descriptive Analysis of Variables

The research framework consists of three exogenous and two endogenous variables (Table 4). Each construct shows Cronbach's alpha readings of acceptable values of above 0.60 (Nunnally, 1970). However, the composite reliability also confirmed the reliability of the variables.

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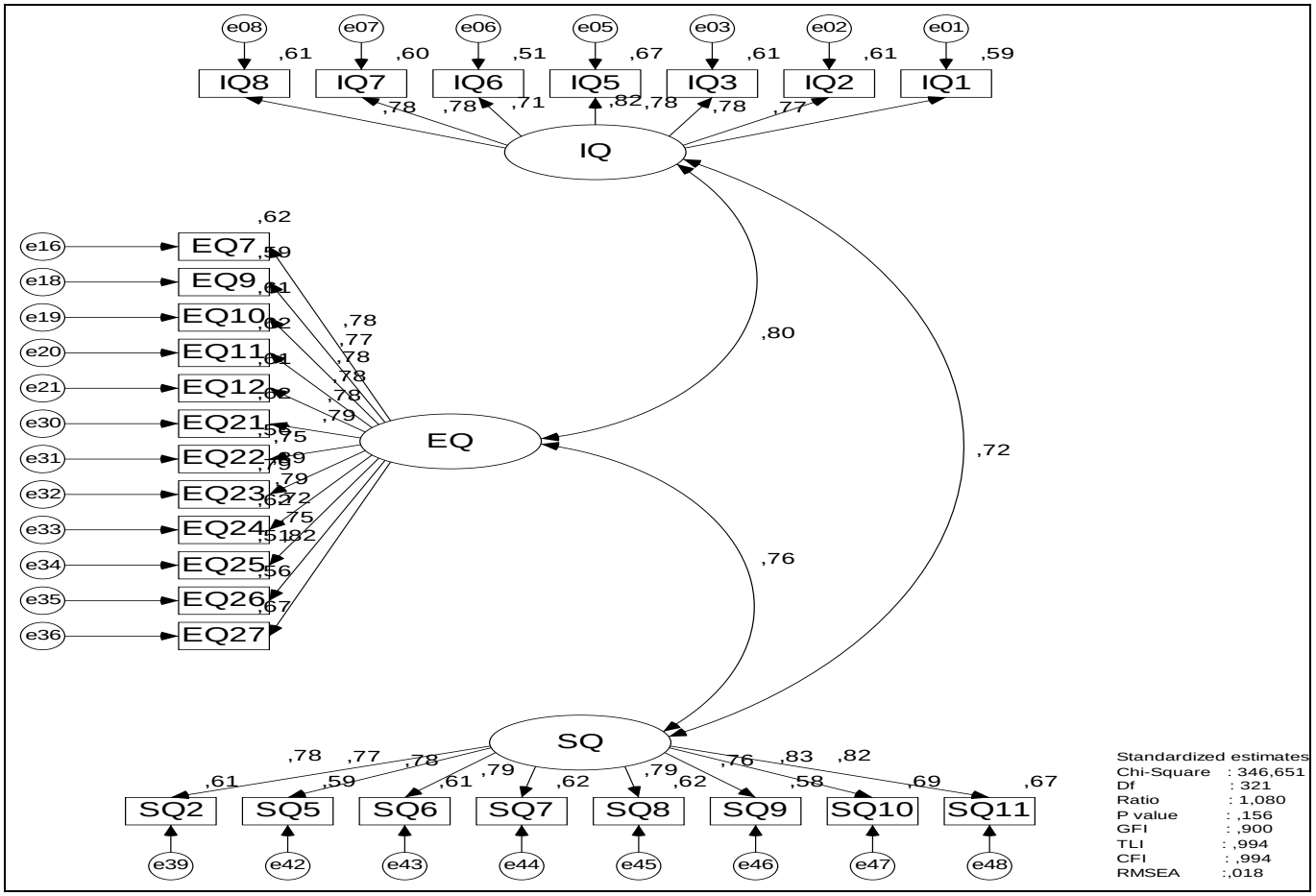
Table 4 : Descriptive Statistics of Variables

Variables	Mean	Standard Deviations	No of Final Items	Composite Reliability	Cronbach Alpha	Variance Extracted
Intelligence Quotient	3.894	0.830	7	0.913	0.902	0.600
Emotional Quotient	3.791	0.769	12	0.950	0.950	0.615
Spiritual Quotient	3.912	0.831	8	0.930	0.929	0.625
Internal Locus of Control	3.860	0.839	6	0.882	0.882	0.554
Personal Quality	3.793	0.956	10	0.956	0.955	0.685

c) Confirmatory Factor Analysis

Goodness of fit indices for the 43 observed variables of IQ, EQ, SQ, ILOC and PQ shows the reading is good ranging from 0.624 to 0.885 for the significance standardized regressions weight. Standard error (SE) for each observed show the goodness of fit and low level reading from 0.054 to 0.088, and estimate (Square Multiple Correlation) of observe shows the contribution level to the latent variable (0.512 to 0.784). In detail Figure 2 and 3 shows the goodness of observed variable and measurements in the model.

Figure 2 : Confirmatory Factor Analysis of Measurement of Exogenous Variables



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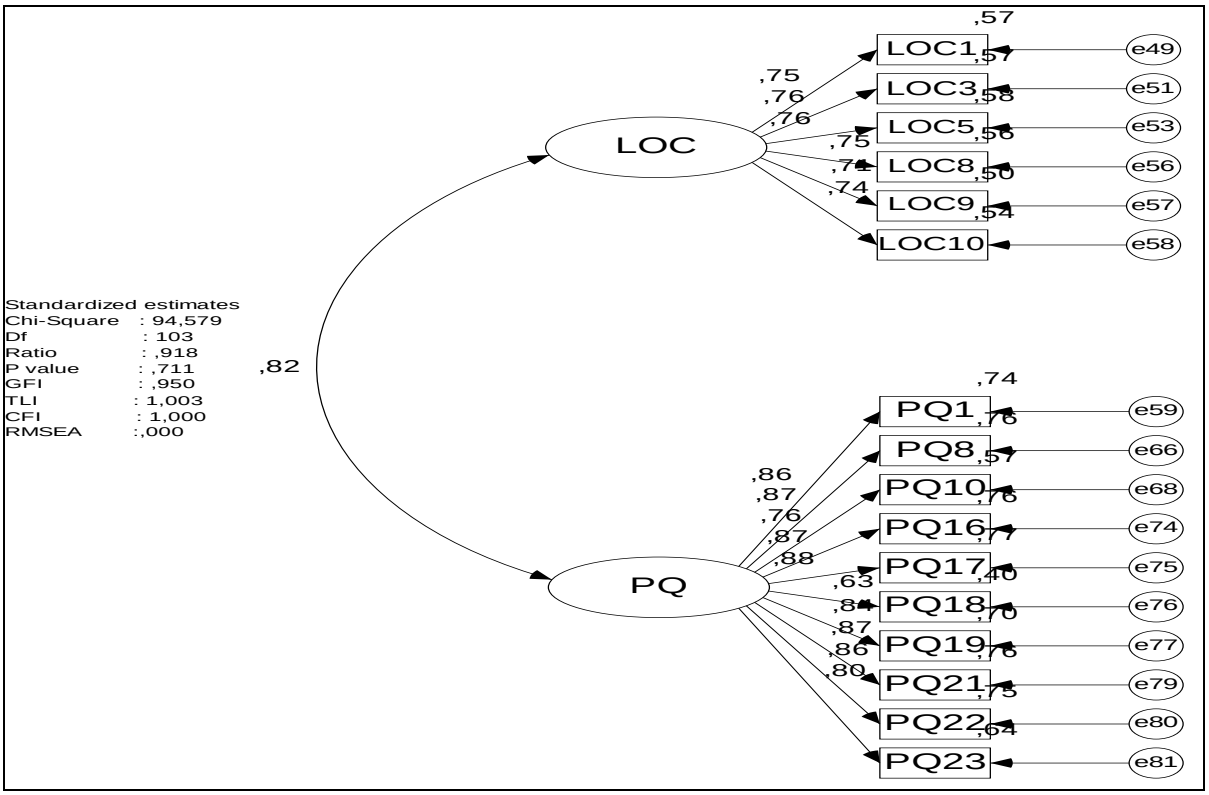

Figure 3 : Confirmatory Factor Analysis of Endogenous Variables

d) Goodness of Fit Index

Confirmatory factor analysis was conducted on every construct and measurement models. All CFAs of constructs produced a relatively good fit as indicated by the goodness of fit indices such as CMIN/df ratio (<2); p-value (>0.05); Crimental Fit Index (CFI) of > .95; Tucker-Lewis Index (TLI) of >.95; and root mean square error of approximation (RMSEA) of values less than .08 (<.08) (Bollen, 2002; Bentler, 1989). The measurement model has a good fit with the data based on assessment criteria such as GFI, CFI, TLI, RMSEA (Bagozzi & Yi, 1988). Table 5 shows that the goodness of fit of generated or re-specified model. The re-specified model confirmed the interaction among variables in the structural model.

Table 5 : Summary the Goodness fit of CFA to the Structural Model

Model Fit Indicator	IQ	EQ	SQ	ILOC	PQ	Exogenous	Endogenous	Re-specified Model
(χ^2)	14.808	76.577	20.612	16.371	36.981	346.651	94.579	885.566
DF	14	65	20	9	35	321	103	850
CMIN/DF	1.058	1.178	1.031	1.819	1.057	1.080	0.918	1.042
P	0.391	0.154	0.420	0.060	0.378	0.156	0.711	0.193
GFI	0.983	0.953	0.978	0.976	0.969	0.900	0.950	0.854
TLI	0.999	0.953	0.999	0.981	0.999	0.994	1.003	0.995
CFI	0.999	0.994	0.999	0.989	0.999	0.994	1.000	0.995
RMSEA	0.016	0.027	0.011	0.059	0.015	0.018	0.000	0.013

e) Results of Hypotheses Testing

The result of path analysis indicated a significant positive relationship between intelligence quotient and personal quality (β=0.171, P=0.023) and hypothesis 1 was asserted. The result also indicated a significant positive relationship between emotional quotient and personal quality (β=0.194, P = 0.016) and hypothesis 2 was asserted. The hypothesized path, from spiritual quotient to personal quality of corporate managers was supported (β=0.185, P = 0.011) There is a direct positive significance relationship between spiritual quotient and personal quality and hypothesis 3 was asserted. Similarly, internal locus of control also has a direct significant impact on personal quality of corporate managers (β=0.413, P = 0.000) hence, H4 was asserted. Hypothesis 4 predicted a positive relationship between internal locus of control and personal quality. Therefore, H1 to H4 were asserted.

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Table 6 : Direct Impact of Re-Specified Model

H	Exogenous	→	Endogenous	Std Estimate	S.E.	C.R.	P	Descriptions
H1	Intelligence Quotient	→	Personal Quality	0.171	0.088	2.269	0.023	*Asserted*
H2	Emotional Quotient	→	Personal Quality	0.194	0.099	2.418	0.016	*Asserted*
H3	Spiritual Quotient	→	Personal Quality	0.185	0.083	2.538	0.011	*Asserted*
H4	Internal Locus of Control	→	Personal Quality	0.413	0.093	5.198	0.000	*Asserted*
-	Intelligence Quotient	→	Internal Locus of Control	0.211	0.093	2.244	0.025	*Asserted*
-	Emotional Quotient	→	Internal Locus of Control	0.290	0.105	2.912	0.004	*Asserted*
-	Spiritual Quotient	→	Internal Locus of Control	0.380	0.084	4.359	0.000	*Asserted*

Note: P Value is significant less than 0.05

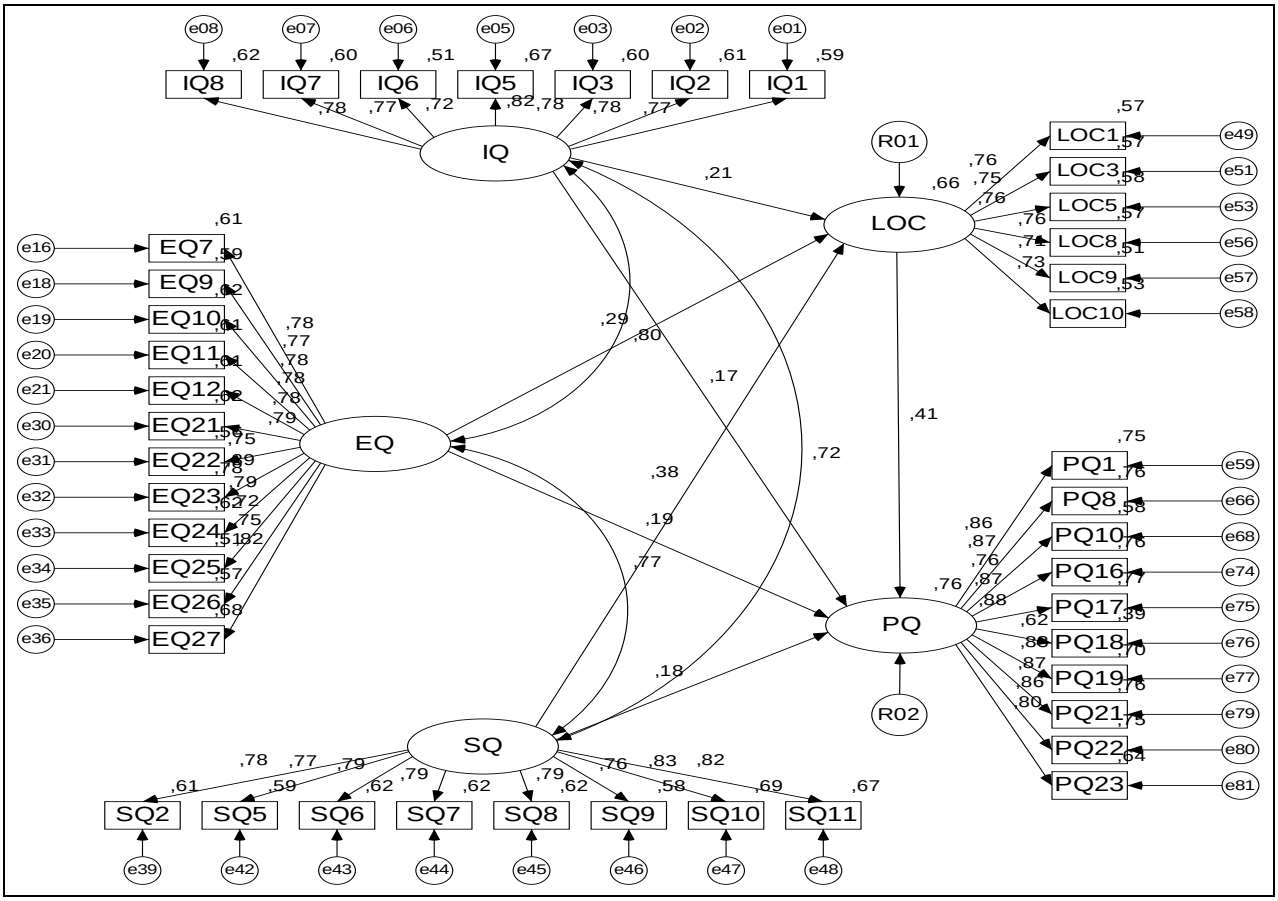

Figure 4 : Re-Specified Model

The re-specified model displayed in Figure 4 shows the model explained a substantial portion of the variance in all the endogenous variables (square multiple correlations). Table 10 indicates the three exogenous variables (IESQ) jointly explained 65.6% variance in internal locus of control. Subsequently, IESQ and internal locus of control collectively explained 76.2% variance in personal quality of managers.

f) Mediating Effect of Internal Locus of Control

Based on the results of the indirect effect, the interaction between intelligence quotient and internal locus of control was significant (β = 0.211 and P = 0.025). Furthermore the interaction between internal locus of control and personal quality significance also found significantly (β = 0.413 and p = 0.000). The results found there was a indirect positive significant (β = 0.258 and p = 0.000) partial mediating effect of internal locus of control in the relationship between

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intelligence quotient and personal development, thus hypothesis 5 asserted The direct and indirect calculation was calculated for the total effect loading. The interaction between emotional quotient and internal locus of control was found significantly (β = 0.194 and P = 0.016). Furthermore the interaction between internal locus of control and personal quality significance also found significantly (β = 0.413 and p = 0.000). The results found there was an indirect positive significant (β = 0.313 and p = 0.000) partial mediating effect of internal locus of control in the relationship between emotional quotient and personal development. Thus, hypothesis 6 asserted. The indirect effect results also found that the interaction between spiritual quotient and internal locus of control was significant (β = 0.185 and P = 0.011). The direct relationship between internal locus of control and personal quality significance also found significantly (β = 0.413 and p = 0.000). The results found there was an indirect positive significant (β = 0.341 and p = 0.000) partial mediating effect of internal locus of control in the relationship between spiritual quotient and personal quality, thus hypothesis 7 asserted. Table 7 shows the total effect estimates to test the mediating effect of internal locus of control in the relationship between IESQ and personal quality as hypothesized in H5, H6 and H7. The internal locus of control has a significant standardized regression weight (P < 0.05) which is confirmed the partial mediating effect in the relationship (Hair, et., al, 2006). The indirect effect estimates for all indirect were higher than direct relationship. In other words, the total effects of internal locus of control in the relationship between IESQ and personal quality were higher or significant compared to direct effects. Thus, H5, H6 and H7 were accepted.

Table 7 : Total Effect of Internal Locus of Control

H	Exogenous	Mediated	Endogenous	Path (Direct + Indirect)	Total Effect Estimate	Hypothesis	Descriptions
H5	Intelligence Quotient	Internal Locus of Control	Personal Quality	IQ → ILOC → PQ (0.171 + 0.087)	0.258	Partial Mediating	*Asserted*
H6	Emotional Quotient	Internal Locus of Control	Personal Quality	IQ → ILOC → PQ (0.194 + 0.119)	0.313	Partial Mediating	*Asserted*
H7	Spiritual Quotient	Internal Locus of Control	Personal Quality	IQ → ILOC → PQ (0.185 + 0.156)	0.341	Partial Mediating	*Asserted*

V. Discussions

Direct positive relationship intelligence quotient and personal quality were supported by the data. All findings are generally consistent with previous study done by Wilding (2007) and Malhi (2004) wherein intelligence quotient was found to be positively related to personal quality. Consistent with Mintzberg (1983), this study confirmed emotional quotient in predicted personal quality. When corporate managers identify their emotional quotient had more positive towards personal quality. Previously, numerous studies have found emotional quotient of managers to be a significant predictor to their personal quality (Goleman, 1998; Stein, 2001); Malhi, 2004; Wilding, 2007). The present study also found there is a direct positive significance relationship between spiritual quotient and personal quality and hypothesis 3 was asserted. This finding is generally consistent with previous studies done by Zohar and Marshall (2004) and Malhi (2004) wherein a spiritual quotient of managers was found to be positively related to personal quality. Similarly, internal locus of control also has a direct significant impact on personal quality of corporate manager. The result was consistent with this prediction as evidenced by positive and significant path estimates towards personal quality the positive associations between internal locus of control are consistent with previous studies done by Goleman (1998), Stein (2001), Zohar and Marshall (2004), Sentosa (2007) and Wilding (2007).

The hypothesis 5 was found the partial mediating effects of internal locus of control on the relationship between intelligence quotient and personal quality (β=0.258, P=0.000). This finding is generally consistent with previous studies done by Gabbard, et. al, (1986), Mascaro (2004), and Wiley (2006). This study confirmed the internal locus of control has an impact as process to improve the influence of intelligence quotient as predictor of personal quality. The hypothesis 6 was found the partial mediating effect of internal locus of control on the relationship between emotional quotient and personal quality (β=0.313, P=0.000). This finding is generally consistent with previous studies done by Klein, Wasserstein and Warnet (2000), Roberts et al. (1997) and Spector and O'Connell (1994), .This study confirmed internal locus of control has an influence as process to improve the emotional of intelligence quotient to the personal quality. Hypothesis 7 also found a partial mediating effects substantiated in hypothesized of spiritual quotient (β=0.341, P=0.000), the indirect effect as method to investigate mediating effect of internal locus of control has a higher influence to personal quality of corporate managers. This finding is generally consistent with previous studies (Bjorck et al., 1997; Berrenberg, 1987; Gabbard et al., 1986; Jackson & Coursey, 1988; McIntosh & Spilka, 1990;

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Richards, 1990; Welton et al., 1996). This study also confirmed the internal locus of control has an impact as process to improve the influence of spiritual quotient as predictor of personal quality.

VI. Conclusions

This study found that IESQ must become potential intelligence within human being, although the degree or the level of it in each person is different. As mentioned by Stein (2001) that IQ is a measurement of an individual is intellectual, analytical, logical and rational abilities. Thus, IQ is concerned with verbal, spatial, visual and mathematical skills. Further, IQ also figures of the ability of someone in learning new things, focusing on task and exercising, retaining and recalling objective information. Still, IQ is also engage in a reasoning process, manipulate numbers, even think theoretically as well as analytically, then, and solve problems by the dedication of prior knowledge. People could have an IQ standard through how seriously attended educational institutions, formally and graduated as engineers, economist and many more. Emotional quotient as EQ can be enhanced everyday.

However, it is quite different when compared with IQ, because EQ uses more 'feeling' rather than IQ. That is why, not all people can apply good emotion when gathered with others. For, someone who categorized a temperamental person will have a difficulty applying his or her temper even in workplace.

VII. Suggestion for Further Research

Based on the limitations of the present study, it is proposed that further research should consider following areas or aspects: The present study was conducted in SOE organization in South Sumatera Province of Indonesia. The findings may not reflect the overall situations in the state owner enterprises sector. As such, further research should be conducted in other organizational culture and environment to examine the generalizability of the findings of this study. The study employed in the present study was the survey method that used a set of questionnaire as measurement scale. Future studies should consider the use of other tools such as through observation to collect the required data for measuring IESQ, internal locus of control and personal quality.

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Effective Employee Performance through Enhanced Agreeableness and Self-Image

By Dr. Rishipal & Nidhi Jain
Indus Instt. of Engg. and Technology, Kinana, Jind

Abstract - Fast and frequent change in technology has put the present day employee under pressure. This pressure has impact on employee's personality dimensions and consequently on employee's performance. So, one of the most critical issue of modern era is to study the impact of changing psychological dimensions on employee's performance. This research was aimed to study effects of improved psychological traits like self image and agreeableness on employee performance. Statistical universe for this study was the employees having experience of more than three years from governmental and non-governmental organizations. Employee Performance, Agreeableness and self image among managers were assessed by using the employee performance inventory developed by researchers, Agreeableness Measuring Scale (AMS) (Rishipal & Jain, N., 2012) and The State Self-Esteem scale (SSES) (Heatherton & Policy, 1991) respectively. A cross-sectional and longitudinal study was conducted by using the before and after with control group research design to compare the performance of treatment group consisting of the low performer employees having lower tendency of agreeableness and self-image and control group consisting of the high performer employees having higher tendency of agreeableness and self-image. Control and treatment group were formed by adopting the sampling technique of randomization on availability basis.

Keywords : *agreeableness, behaviour modification therapy, employee performance, high performer, low performer, observation and suggestion technique, personality traits, self image.*

GJMBR-A Classification : *JEL Code: P27*

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Effective Employee Performance through Enhanced Agreeableness and Self-Image

Dr. Rishipal [α] & Nidhi Jain [σ]

Abstract - Fast and frequent change in technology has put the present day employee under pressure. This pressure has impact on employee's personality dimensions and consequently on employee's performance. So, one of the most critical issue of modern era is to study the impact of changing psychological dimensions on employee's performance. This research was aimed to study effects of improved psychological traits like self image and agreeableness on employee performance. Statistical universe for this study was the employees having experience of more than three year from governmental and non-governmental organizations. Employee Performance, Agreeableness and Self-image among managers were assessed by using the Employee Performance Inventory developed by researchers, Agreeableness Measuring Scale (AMS) (Rishipal & Jain, N., 2012) and The State Self-Esteem scale (SSES) (Heatherton & Policy, 1991) respectively. A cross-sectional and longitudinal study was conducted by using the before and after with control group research design to compare the performance of treatment group consisting of the low performer employees having lower tendency of agreeableness and self-image and control group consisting of the high performer employees having higher tendency of agreeableness and self-image. Control and treatment group were formed by adopting the sampling technique of randomization on availability basis. Before treatment both the control and treatment group were tested. The mean scores for employee performance (EP), agreeableness (Ag.) and self-image (SI) for control group were 24.27, 213.76 and 79.69 respectively, whereas, the mean scores of test group before treatment for employee performance (EP), agreeableness (Ag.) and self-image (SI) were 10.28, 90.23 and 33.98 respectively. There was significant difference between the pre and post treatment mean scores values of Employee Performance ($Mean_{pre\text{-}treatment}$ = 10.28 & $Mean_{post\text{-}treatment}$ = 23.57), Agreeableness ($Mean_{pre\text{-}treatment}$ = 90.23 & $Mean_{post\text{-}treatment}$ = 213.61) and Self Image ($Mean_{pre\text{-}treatment}$ = 33.98 & $Mean_{post\text{-}treatment}$ = 80.37) of treatment group. Before and after application of treatment to treatment group, relationship between the employee performance, agreeableness and self-image among treatment and control group were also tested and analyzed. Findings revealed that there was positive and significant relationship between the employee performance and psychological traits of agreeableness and self-image among control as well as the treatment group. Findings related to the personality dimensions and employee performance proved that the personality traits of agreeableness and self image were predictive of employee work performance and improved level of agreeableness and self-image among employees have enhanced their performance.

Keywords : agreeableness, behaviour modification therapy, employee performance, high performer, low performer, observation and suggestion technique, personality traits, self image.

Abbreviations : Ag. – Agreeableness, AMS – Agreeableness Measuring Scale, BMT – Behaviour Modification Therapy, EP – Employee Performance, SI - Self Image, SSES – State Self Esteem Scale, cg – control group, tg – treatment group.

I. Introduction

Corporate world is facing cut throat competition and organizational battle for successful accomplishment of their goals. Increasing technological change, competition, globalization and expansion of different organizational sectors demand effective performance by employees. Effective employee performance needs high degree of physical, mental and psychological involvement. The role of performance management has also undergone a sea change when total quality management programme and six sigma quality control techniques received utmost importance for achievement of superior standards and quality performance.

a) Employee Performance

Employee performance includes all activities related to job which organization expects from an employee and how effectively employee performs that. Employee performance evaluation is an ongoing process between the management and employees throughout the year. "Performance Management is both a strategic and an integrated approach to delivering successful results in organizations by improving the performance and developing the capabilities of teams and individuals" (Armstrong and Baron, 1998). An effective performance plan is essential for the smooth and predesigned running of organization, because employee performance is a critical resource to achieve the best possible results in this hyper-competitive, complex and global economy. Major elements of an effective performance design include clearly defined organizational strategies, identification of gap between current performance and targeted performance, work oriented employees behavior, effective psychological traits among employees and designing of effective performance management plan.

Author α : Professor and Head, Department of Business Administration, Indus Instt. of Engg. and Technology, Kinana, Jind.
Author σ : Asstt. Prof., Department of Business Administration, Indus Instt. of Engg. and Technology, Kinana, Jind.

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b) Psychological Traits and Employee Performance

Organizational effectiveness and employee performance is very much affected by various factors like employee profile, technology, work environment, employer-employee relationship, physical fitness, psychological development, personal life, personality dimensions and health of employees. According to Rishipal (2012), managerial effectiveness and mature style of defense mechanism are positively associated. In another research, Rishipal (2012) has revealed that cognitive style is a predicator of managerial effectiveness. Employee performance could be influenced by psychological factors such as locus of control, agreeableness, need for achievement, cognitive style, neuroticism, self image, openness to experience, extraversion, emotional stability, conscientiousness etc. and interaction between these factors. An employee's personality will help to shape their reputation within the workplace and it may also affect teamwork or collaboration. Salgado J.F. (1997) indicates that agreeableness has close relationship with job performance. Other theorists and researchers have argued that agreeable people can better regulate their behavior (Graziano & Eisenberg, 1997; Jensen-Campbell, 2002) and self regulation has been causally associated with more constructive conflict resolution strategies (Finkel & Campbell, 2001).

Rishipal (2011) has pointed that individual's behavior is a function of the values and attitudes he/she holds. If value and attitude can be changed, behavior will change itself. Various personality traits may interact with each other to blend and result in desirable, as well as undesirable workplace behaviors. Goldberg (1993) also came across in his research that indicated personnel's personality traits are valid predictors for different dimensions of job performance. Psychological features describe and predict human behavior. Rishipal and Chand P.K (2012) have pointed that personality traits of middle and senior level managers in private organizations has positive relationship with work behavior. Although there are many psychological factors attributed to employee performance, this study will focus on impact of agreeableness and self image on employee performance. One of the personality traits that may indicate the success of an employee may be agreeableness. In the present study, researchers have found out the consequences of change in degree of agreeableness and self image upon employee performance.

c) Agreeableness

Agreeableness is a psychological trait or tendency which individual adjust and have the same opinion with others. The sub-traits of agreeableness include trust, morality, altruism, cooperation, modesty and sympathy. According to Rishipal & Jain N (2012) agreeable means, "being in harmony but it doesn't mean that the person will always agree with another's opinions". It does mean that individual will not show indifference to others and ready to listen even when others have conflicting views. Highly agreeable people are cooperative, warm and trusting. People who score low on agreeableness are cold, disagreeable and antagonistic (Rothman S, Contzer, E.P, 2003). Researchers have also suggested that agreeableness is the main concept to consider in the appraisal of individual differences (e.g. Havill, Besevegis & Mouroussaki, 1998). However, agreeableness seems to be most significant to job performance in situations where joint action and collaboration are required (Mount, Barrick & Stewart, 1998). In addition, agreeableness can push staff members to work together, which should result in effective working behaviors (Barrick and Mount, 1991).

d) Self Image

Self image is a term which includes the comprehensive perception, assessment, idea and observation about self. It is a judgment of oneself as well as an attitude towards the self. It is mental image or self-portrait. Self image also refers to an individual's overall self-evaluation of his/her competencies (Rosenberg, 1965). Employee's self image is how they perceive themselves. Elements of individual's self image may include:

- Perception about self and
- Others perception about individual

Baumeister (1999) defines self image as "The individual's belief about himself or herself, including the person's attributes and who and what the self is." Self image changes as a process taking place over lifetime. A healthy self image starts with learning to accept and love oneself. It also means being accepted and loved by others. Self esteem should be viewed as a continuum and can be high, medium or low and is often quantified as a number in empirical research (Saul Mc Leod, 2012). People with high self esteem consider themselves worthy and view themselves as equal to others. They do not pretend to be perfect, recognize their limitations and expect to grow and improve, whereas low self esteem people consider them-selves have little confidence in their abilities and question their self-worth (Clcurry, 2005).

II. Need for Study

In the competitive world, achievement of organizational success is very difficult. It requires effective and optimum utilization of all resources including employees. Employees performance is a major factor influencing organizational performance and it might be affected by various factors including the degree of various personality dimensions and traits such as locus of control, agreeableness, need for

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achievement, cognitive style, neuroticism, self image, openness to experience, extraversion, emotional stability, conscientiousness etc. According to Rishipal & Jain N. (2012) the individuals who are motivated by affiliation have an urge for a friendly and supportive environment. Such individuals are effective performers in a team. Most of the previous studies of employees performance have examined the moderating influence of mental ability (Wright, Kacmar, McMahan, & Deleeuw, 1995) or situational variables, such as autonomy (Barrick & Mount, 1993) and organizational politics (Hochwarter, Witt, & Kacmar, 2000) not the relationship among variables studied in present research. So, there was need to conduct such study which could analyze the impact of psychological traits on employee performance. Present study is an effort to investigate and understand the dimensions of effective employee performance, agreeableness and self image with a new perspective of enquiring the relationship among these and how they can influence each other. Besides this, present study has also investigated how Behavior Modification Therapy can affect the psychological traits of agreeableness and self image and consequently the impact of enhanced agreeableness and self image improves the employee performance.

III. Objectives of Study

The study was aimed to investigate and understand the relationship between agreeableness, self image and employee performance. Conduction of present research has achieved the following three specific objectives.

1) To enquire the relationship of agreeableness and self image with employee performance.
2) To understand the difference of the relationship between agreeableness and employee performance of high and low performer employees and also the relationship between self image and employee performance among high and low performer employees.
3) To enquire the affect of Behaviour Modification Therapy on the psychological traits of self image and agreeableness and also their simultaneous consequential impact on the employee performance.

IV. Hypotheses of Study

1) Employee performance will be positively associated with agreeableness and self image.
2) High performer employees will have high degree of agreeableness and self image in comparison to low performer employees.
3) The Behaviour Modification Therapy will certainly enhance the degree of agreeableness and self image in treatment group of employees and as a result improved agreeableness and self image will further improve the employee performance.

V. Research Method

a) Research Design

Present research has been conducted by using before and after with control group type of research design. Research design can be better understood with the help of following table.

Table 1 : Research Design

Treatment Group	Before treatment (X_{t1})	Application of treatment for a period of 4 months ⟹	After treatment (X_{t2})
Control Group	Without treatment (Y_{t1})		Without treatment (Y_{t2})
Treatment Effect = $(X_{t2}-X_{t1}) - (Y_{t2}-Y_{t1})$			

To conduct the research a sample of 589 employees having experience of more than three year and working with various governmental and non-governmental organizations was taken randomly on availability basis. Selected employees were tested for their capability of performance and categorized as high and low performers. Subjects included in the category of high performers were employees whose score was twenty percent more than the mean employee performance score. Low performer's category included the employees whose score was twenty percent less than the mean employee performance score. After such categorization, subjects from high and low performers categories were tested for agreeableness and self image. After testing the subjects of both the high and low performer category for their personality traits of employee performance, agreeableness and self image, two groups were formed. From the high performer employees' category a group of 40 such subjects was selected which were having high agreeableness and high self image. Similarly from the low performer employee's category a group of 40 subjects was selected which were having low agreeableness and low self-image. For deciding the high and low agreeableness and self image tendency, same criteria was used as it was used in the case of employee performance i.e. twenty percent more and less than mean scores for high and low degree of agreeableness and self-image respectively. By this method two groups were formed each consisting of 40 subjects. First group of high performers was having higher degree of employee performance, agreeableness

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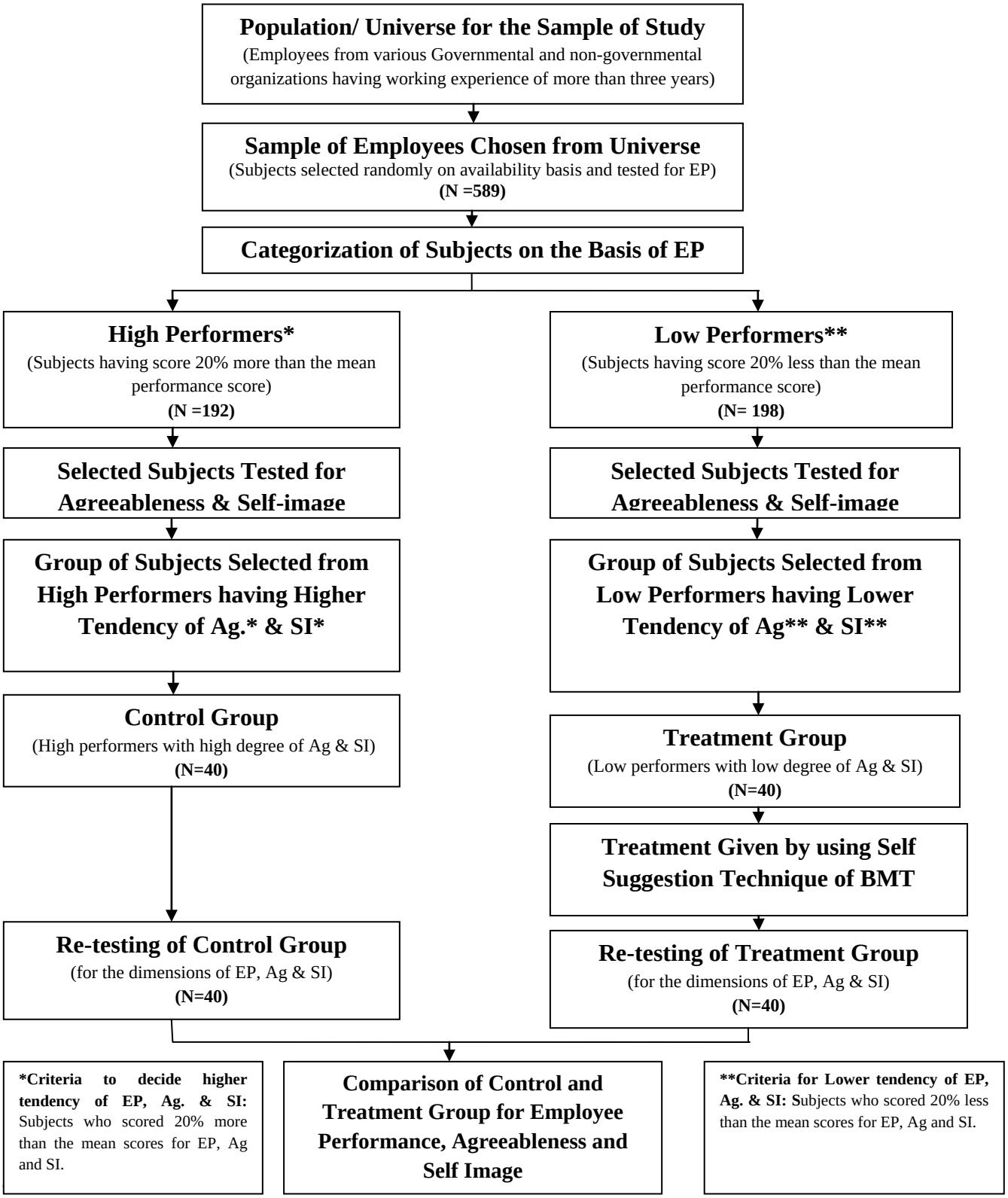
and self image. Second group was also having 40 subjects with lower tendency of employee performance, agreeableness and self image. The first group having the tendency of high employee performance, agreeableness and self image was declared as control group whereas second group i.e. the subjects having lower tendency of employee performance, agreeableness and self image was considered as

Figure 1 : Flow Diagram for the Presentation of Research Design



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treatment group. The treatment group was given the "Behavior Modification Therapy" based upon the techniques of observation and suggestion for a period of four months. On completion of the therapy, after four months, both the control and treatment group were re-tested for employee performance, agreeableness and self image by using the same research tools. Pre and post treatment results and findings of treatment and control group were analyzed and compared.

b) Description about Behaviour Modification Therapy Given to Treatment Group

Employees of test group were given treatment by using "Behaviour Modification Therapy" based upon the researcher's and subject's personal observation and suggestions during their work performance regarding tendency of agreeableness and self image. Subjects were also guided by the instructions of researchers and emplyee's self suggestion technique to improve the tendency of agreeableness and self image.

Subjects of the treatment group were also given counselling sessions, individually or in small groups, for the enhancement of their Agreeableness and self Image for a period of 4 months on a regular interval of one week by using. After giving Behaviour Modification Therapy to the treatment group, both the control and treatment groups were retested for all the three variables of Employee Performance, Agreeableness and Self Image. Results and findings worked out so for control and treatment groups has been given in the results and discussions.

c) Method of Data Collection and Research Tools Used

Data was collected by using questionnaire method. Agreeableness Measuring Scale (AMS) developed by Rishipal & Jain N (2012), State Self-Esteem scale (SSES) developed by Heatherton & Polivy (1991) and for measuring employee's performance an inventory type questionnaire consisting of 10 items, developed and prepared by the researchers were used for measuring agreeableness, self image and employee performance respectively. The reliability of items included in all scales used in the research has been measured by using Cronbach's alpha technique. The reliability of various scales was found 0.815, 0.830 and 0.795 for employee performance, agreeableness and self image respectively.

d) Statistical Techniques and Methods

Collected data was analyzed by using various descriptive and inferential statistical techniques and methods to work out the results and findings for research. Statistical calculation and analysis was carried out with the help of SPSS software. Descriptive statistics such as mean and standard deviation etc. were used to analyze the results. Cronbach alpha coefficients and inter-item correlations were used to assess the internal consistency of the measuring scales. Karl Pearson correlation coefficient, coefficient of determination (r^2), regression analysis and t test were used to find out inter and intra group and variable relationship analysis. Multivariate regression technique was also used to analyze the relationship among employee performance, agreeableness and self image.

VI. Results and Discussions

Results and findings for the research were obtained by using descriptive and inferential statistical techniques.

Table 2 : Descriptive Statistics Showing Mean Score Values for Employee Performance (EP), Agreeableness (Ag.) and Self Image (SI)

Variables	N	Min.	Max.	Range	Mean	Std. Dev.
Employee Performance	589	7	26	19	16.44	4.15
Agreeableness	589	65	250	185	154.47	52
Self Image	589	22	89	67	55.22	13.64

Table (2) exhibits the statistical values of mean score, range and standard deviation calculated by using the data collected from 589 subjects (employees) chosen randomly on availability basis from different governmental and non-governmental organizations. Mean score values for Employee Performance (EP), Agreeableness (Ag.) and Self Image (SI) were found to be 16.44 for EP, 154.47 for Ag and 55.22 for SI. Higher value of mean score for EP, Ag & SI indicates the higher tendency of psychological traits of Employee Performance, Agreeableness and Self Image. Standard deviation calculated with respect to the mean scores of various psychological traits taken as variables for the research like Employee performance, Agreeableness and Self Image was 4.15, 52 and 13.64 respectively. Standard deviation measures the dispersion of individual scores around mean score of all the scores. Higher value of standard deviation with respect to mean score point out a wide spread of scores among data and considered as inconsistent data whereas low value of standard deviation shows the consistency of the data i.e. the scores of the subjects were scattered near to the mean score of the group.

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Table 3 : Co-relationship between Employee Performance & Agreeableness, Employee Performance & Self Image and Agreeableness & Self Image

Variables	N	Pearson Correlation (r)	Coefficient of Determination (r^2)	Adjusted r^2	Standard Error	t value	P value
EP & Ag	589	.864	.746	.502	10.1824	3.79	.031
EP & SI	589	.809	.654	.356	3.1343	3.04	.048
Ag & SI	589	.795	.632	.590	8.030	3.37	.043

Table (3) depicts the values of coefficient of correlation, coefficient of determination and adjusted r^2 calculated by using Karl Pearson method with t value, standard error and p value. The value of coefficient of correlation was found to be r = 0.864 between the variables of Employee Performance and Agreeableness and the r^2 value between these two variables was found to be 0.746 with adjusted r^2= 0.502, these values show a positive and significant relationship between the Employee Performance and tendency of Agreeableness. The t value between employee performance and agreeableness shown in the same table (3) was found to be (t = 3.79, p = 0.031) which supports the finding of positive and significant correlation between the Employee Performance and the tendency of Agreeableness.

The value of coefficient of correlation between the variables of Employee Performance and Self Image was found, r = 0.809 and the r^2 value between these two variables was 0.654 with adjusted r^2 = 0.356, which again shows a positive and significant correlation between the Employee Performance and Self Image. The t value between these two variables i.e. EP & SI shown in the table (3) was found to be (t = 3.04, p = 0.048) which supports the findings of a positive and significant correlation between Employee Performance and Self Image.

The value of coefficient of correlation among Agreeableness and Self Image was found to be r=0.795 and the r^2 value between these two variables was found to be 0.632 with adjusted r^2 = 0.590, this shows a positive and significant correlation between Agreeableness and Self Image. The t value between these two variables (t = 3.37, p = 0.043) also supports the findings of positive and significant correlation. Present research was an effort to find out the effect of enhancement in the tendency of Agreeableness and Self Image upon the Employee Performance. So, the subjects were divided into the two categories of high performer employees and low performer employees on the basis of their performance.

Table 4 : Categorization on the Basis of Performance

Category	Criteria	N	Score Range
High Employee Performance	Subjects having score 20% more than Mean Employee Performance, Agreeableness and Self Image Scores	192	EP = Score≥ 21.294 Ag. = Score≥185 SI = Score≥71
Low Employee Performance	Subjects having score 20% less than Mean Employee Performance, Agreeableness and Self Image Scores	198	EP = Score≤14.196 Ag. = Score≤124 SI = Score≤47

Table (4) shows the categorization of the subjects on the basis of their employee performance as high and low performers. Subjects scored 20% more than the mean Employee Performance score were taken as high performers and subjects having Employee Performance score 20% less than the mean performance score were categorized as low performers. Total 192 subjects were found high performers, 198 low performers and 199 were in others category. Subjects were further grouped on the basis of higher tendencies of Ag & SI as shown in Table (4). 192 subjects selected as high performers were further grouped on the basis of their higher tendency of Ag and SI. Subjects among high performers, who were having higher tendency of Ag & SI i.e. who scored 20% more than mean Ag. & SI score values were grouped as high performers group. Whereas from low employee performance category subjects with lower tendency of Ag. & SI i.e. who scored 20% less than the mean Ag. & SI score values were grouped as low performers group.

Table 5 : Selection of High Performers with Higher Tendency of Agreeableness & Self Image and Low Performers with Lower Tendency of Agreeableness & Self Image

Category	Subjects with Higher Tendency of Agreeableness & Self Image	Subjects with Lower Tendency of Agreeableness & Self Image
High Performers	168	24
Low Performers	16	182

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Table (5) presents the categorization of subjects chosen from high employee performance category with higher tendency of Ag. & SI and low performance category with lower tendency of Ag. & SI. Out of total 192 subjects of high performance group, 168 were found with higher tendency of Ag. & SI and from low performance group of 198 subjects 182 subjects were found with lower tendency of Ag & SI. Subjects selected so were asked to participate in the research and undergo the Behaviour Modification Therapy (for the treatment group) based on the observation, self suggestions and researcher's instructions. Only 110 employees from both the categories (60 from control group and 50 from test group) gave the consent to participate in the research. So, lastly two groups of 40 subjects each were formed both from the high and low performers on random basis by use of lottery draw.

Table 6 : Control and Treatment Group Formation on the Basis of High & Low Tendencies of Employee Performance, Agreeableness and Self Image

Groups	Criteria for EP, Ag & SI Scores	N
Control Group	Subjects having scores 20% more than mean score for EP, Ag. & SI	40
Treatment Group	Subjects having scores 20% less than mean score for EP, Ag. & SI as well as who gave consent to participate in research and undergo the treatment	40

Being the cross-sectional and longitudinal study, selected subjects were lastly divided into two groups i.e. Control Group and Treatment Group of 40 subjects each on the basis of degree of tendency for EP, Ag & SI. Control group was formed of the subjects having higher tendency of EP, Ag. & SI and treatment group was formed of subjects with lower tendency of EP, Ag & SI as shown in Table (6). Now the groups formed so, i.e. control and treatment group were re-tested for all the dimensions of EP, Ag and SI and finding were tabulated in the Table (7)

Table 7 : Descriptive Statistics for Pre-treatment Measure of Employee Performance, Agreeableness & Self Image

Groups	Variables	N	Min.	Max.	Range	Mean	Std. Dev.
Control Group	Performance	40	21	28	7	24.27	1.73
	Agreeableness	40	187	250	63	213.76	18.7
	Self Image	40	72	89	17	79.69	5.46
Treatment Group	Performance	40	7	14	7	10.28	2.0002
	Agreeableness	40	65	123	68	90.23	17.74
	Self Image	40	22	47	25	33.98	7.54

Table (7) shows the pre-treatment values of mean scores of EP, Ag. & SI as 24.27, 213.76 & 79.69 respectively for control group and for treatment group 10.28, 90.23 & 33.98 for EP, Ag & SI respectively. It is clear from the comparison of values of mean scores of control group and treatment group that the mean scores of control group were higher than the mean scores of treatment group for all the variables i.e. EP (Mean $_{cg}$ =24.27 & Mean $_{tg}$ = 10.28), Ag (Mean $_{cg}$ = 213.76 & Mean $_{tg}$ = 90.23) and SI (Mean $_{cg}$ = 79.69 & Mean $_{tg}$ = 33.98). The comparative analysis of pre-treatment values of Standard deviation in control group and treatment group for EP (Std. dev $_{cg}$=1.73, Std. dev $_{tg}$ = 2.0002), Ag (Std. dev $_{cg}$=18.7, Std. dev $_{tg}$ = 17.74) and SI (Std. dev $_{cg}$=5.46, Std. dev $_{tg}$ = 7.54) shows that there is difference in the dispersion of individual score values among control group in comparison to treatment group.

Table 8 : Descriptive Statistics for Control Group and Treatment Group after Treatment

Groups	Variables	N	Min.	Max.	Range	Mean	Std. Dev.
Control Group	Performance	40	22	28	6	24.47	1.579
	Agreeableness	40	185	260	75	216.30	19.73
	Self Image	40	71	89	18	80.89	5.45
Treatment Group	Performance	40	20	26	6	23.57	1.39
	Agreeableness	40	185	250	65	213.61	19.02
	Self Image	40	71	89	18	80.37	4.752

Table (8) presents descriptive statistical results of control and treatment group after application of treatment on subjects of test group only by using the techniques of observation and suggestion based upon the Behaviour Modification Therapy. After giving the treatment to the specified group, both the control and treatment groups were re-tested after a period of 4 months for the dimensions of EP, Ag. and SI. When the results of control group were compared (this group was not given any treatment) with their mean scores recorded four months back, there was no significant difference in the mean scores of this group even after the duration of 4 months. Table (8) also shows that there was no significant difference between the mean score of

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EP, Ag. & SI among the control and treatment group which means that the employees performance of treatment group has improved because of positive impact of the Behaviour Modification Therapy. Comparison of score values shown at Table (7) and Table (8) exhibits that there was significant difference between the mean scores of pre-treatment and post treatment test results of treatment group for all the dimensions such as EP (Mean $_{pre\text{-}treatment}$ = 10.28 & Mean $_{post\text{-}treatment}$ = 23.57), Ag. (Mean $_{pre\text{-}treatment}$ = 90.23 & Mean $_{post\text{-}\ treatment}$ = 213.61) and SI (Mean $_{pre\text{-}treatment}$ = 33.98 & Mean $_{post\text{-}treatment}$ = 80.37). The increased mean score for EP, Ag. & SI of test group after treatment proved that observation and suggestion technique of Behaviour Modification Therapy has enhanced the tendency of Agreeableness and Self Image among employees and consequently it has improved Employee Performance. Rishipal, (2011) has also stated in his book that managers behavior can be changed by providing them with new knowledge for example in some aspect of their profession, by providing them with new skills, say in the area of human relations. From Table (8) the analysis of Standard deviation values of control and treatment group for EP (Std. dev_{cg}=1.579, Std. dev_{tg} = 1.39), Ag. (Std. dev_{cg}=19.73, Std. dev_{tg} = 19.02) and SI (Std. dev_{cg}=5.45, Std. dev_{tg} = 4.752) shows that there was no significant difference in the dispersion of individual score values among control and treatment group, this again means, the individual values in treatment group were more closer to the mean score value in comparison to the values of treatment group before applying treatment.

Table 9 : Inferential Statistics for Relationship between Employee Performance & Agreeableness after Treatment

Groups	Pearson Correlation (r)	Coefficient of Determination (r^2)	Adjusted r^2	Standard Error	t value	P value
Control Group	.862	.743	.657	12.67	2.10	.032
Treatment Group	.890	.792	.723	12.54	3.16	.027

Table (9) shows inter and intra group relationship between EP & Ag. in between the results of pre and post treatment score values among control and treatment group. The results revealed that EP & Ag were positively and highly correlated (r_{cg} = 0.862, r^2_{cg} =0.743 and r_{tg} = 0.890, r^2_{tg} = 0.792) among both groups findings. The t values (t_{cg} = 2.10 p = 0.032, t_{tg} = 3.16 p = 0.027) also supported that there is positive and significant relationship between EP & Ag.

Table 10 : Inferential Statistics for Relationship between Performance & Self Image after treatment

Groups	Pearson Correlation (r)	Coefficient of Determination (r^2)	Adjusted r^2	Standard Error	t value	P value
Control Group	.754	.568	.411	3.725	3.11	.028
Treatment Group	.801	.641	.631	3.74	2.59	.044

Table (10) shows inter and intra group relationship between EP & SI among control and treatment group after using the treatment on test group. The results revealed that EP & SI were positively and significantly correlated (r_{cg} = 0.754, r^2_{cg} = 0.568 and r_{tg} = 0.801, r^2_{tg} = 0.641) among both the groups. The t values (t_{cg} = 3.11 p = 0.028, t_{tg} = 2.59 p = 0.044) have also supported the findings.

Table 11 : Inferential Statistics for Relationship between Ag. & SI after Treatment

Groups	Pearson Correlation (r)	Coefficient of Determination (r^2)	Adjusted r^2	Standard Error	t value	P value
Control Group	.753	.567	.503	9.048	3.53	.043
Treatment Group	.689	.474	.362	8.89	3.59	.039

Table (11) shows inter and intra group relationship between Ag. & SI among control group and Treatment group after applying the treatment on test group. The results revealed that Ag. & SI were positively and highly correlated (r_{cg} = 0.753, r^2_{cg} = 0.567 and r_{tg} = 0.689, r^2_{tg} = 0.474) among both groups. The t values (t_{cg} = 3.53 p = 0.043, t_{tg} = 3.59 p = 0.039) also supported the results.

Table 12 : Inferential Statistics to Measure Inter-relationship between Employee Performance, Agreeableness and Self Image

Groups	Coefficient of correlation	Coefficient of determination r^2	Adjusted r^2
Control Group	0.785	0.616	0.596
Treatment Group	0.790	0.624	0.601

The interrelationship between Employee Performance, Agreeableness and Self Image was worked out by using multivariate regression technique. Agreeableness and Self Image were independent

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variables and Employee Performance was dependent. Coefficient of determination (r^2_{cg} = 0.616, adjusted r^2_{cg} = 0.596 and r^2_{tg} = 0.624, adjusted r^2_{tg} = 0.601) shows that employee performance was dependent on Agreeableness and Self Image and in both control group and treatment group.

VII. Hypotheses Testing

a) Hypothesis 1

Employee performance will be positively associated with agreeableness and self image.

Findings:

Table (7) shows that employee performance was positively linked to agreeableness and self image. So, the null hypothesis is true and accepted by the findings of research. Viswanathan R. (2011) states in his research that employee personality is closely linked with organizational performance through its effect on employees' behavior, attitudes and service performance. Research of Fisher D.c. and Boyle J.G. (1997) also supports that personality measures predict contextual and motivational aspects of performance. There is also evidence that personality sometimes interacts with ability to predict performance. (Hollenbeck, Brief, Whitener & Pauli, 1988)

b) Hypothesis 2

High performer employees will have high degree of agreeableness and self image in comparison to low performer employees.

Findings:

Table (7) exhibits that high performer employees were having high degree of agreeableness and self image whereas the tendency of agreeableness and self image for low performing employees was lower. So, Hypothesis 2 is accepted. The results are also supported by the research of Nariripour A.A., Tabibi J.S. and Beydokhti T.T. (2011), which found that there is positive significant relationship between performance of managers with extroversion, openness and agreeableness.

c) Hypothesis 3:

The Behaviour Modification Therapy will certainly enhance the degree of agreeableness and self image in treatment group of employees and as a result improved agreeableness and self image will further improve the employee performance.

Table 13 : Impact of Behaviour Modification Therapy on Treatment Group

Treatment Group	Before treatment ($X_{t1 = 10.28}$)	Application of treatment for a period of 4 months	After treatment ($X_{t2 = 23.57}$)
Control Group	Without treatment ($Y_{t1 = 24.27}$)		Without treatment ($Y_{t2 = 24.47}$)
Treatment Effect = $(X_{t2}-X_{t1}) - (Y_{t2}-Y_{t1})$ = (23.57-10.28) – (24.47-24.27) = 13.09			

Findings:

The critical analysis of Table (7), (8) and (13) shows that the mean scores of agreeableness and self-image have improved as a result of Behaviour Modification Therapy and accordingly this improvement in Ag. and SI has further improved the employee performance. Table (13) has also supported the approval and acceptance of Hypothesis 3 as there is significant impact of treatment on the test group (Treatment Effect = 13.09).

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Performance Management and Employee Loyalty

By Dr. Rishipal & Manish
Teerthankar Mahaveer University, Moradabad

Abstract - Present research is a comparison between the various dimensions of the performance management among the loyal and disloyal employees. A sample of 162 bank employees was selected randomly on availability basis for this research from a universe of bank employees of private and nationalized banks situated at Punjab, Haryana and National Capital Region of New Delhi. Selected employees were tested for their loyalty. On the basis of higher and lower scores of loyalty, employees were divided into two groups, each having 57 subjects. First group was consisting of the subjects who scored on the loyalty scale from 87-117 and nominated as group of disloyals. Whereas, second group was consisting of employee who scored 120-150 and this group was categorized as loyals. After formation of loyal and disloyal groups, subjects of both the groups were tested for the role in performance management. Performance Management was tested with its four major dimensions, such as "Organizational Planning", "Decision Making", "Effective Execution", and "Result Producing Capability". The mean scores for organizational planning among loyal and disloyal groups were (22.3) and (10.6) respectively. There was significant difference between the mean score values of organizational planning between the loyal and disloyal employees. The mean score values for the capability of decision making were (21.7) and (9.5) respectively. There was significant difference in the mean scores of loyal and disloyal groups. When the mean scores of third dimension i.e. effective execution of performance management for loyal and disloyal employees group were compared, they were found (20.4) and (13.2). The mean scores of loyal and disloyal group for effective execution also differ significantly.

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Performance Management and Employee Loyalty

Dr. Rishipal [α] & Manish [σ]

Abstract - Present research is a comparison between the various dimensions of the performance management among the loyal and disloyal employees. A sample of 162 bank employees was selected randomly on availability basis for this research from a universe of bank employees of private and nationalized banks situated at Punjab, Haryana and National Capital Region of New Delhi. Selected employees were tested for their loyalty. On the basis of higher and lower scores of loyalty, employees were divided into two groups, each having 57 subjects. First group was consisting of the subjects who scored on the loyalty scale from 87-117 and nominated as group of disloyals. Whereas, second group was consisting of employee who scored 120-150 and this group was categorized as loyals. After formation of loyal and disloyal groups, subjects of both the groups were tested for the role in performance management. Performance Management was tested with its four major dimensions, such as "Organizational Planning", "Decision Making", "Effective Execution", and "Result Producing Capability". The mean scores for organizational planning among loyal and disloyal groups were (22.3) and (10.6) respectively. There was significant difference between the mean score values of organizational planning between the loyal and disloyal employees. The mean score values for the capability of decision making were (21.7) and (9.5) respectively. There was significant difference in the mean scores of loyal and disloyal groups. When the mean scores of third dimension i.e. effective execution of performance management for loyal and disloyal employees group were compared, they were found (20.4) and (13.2). The mean scores of loyal and disloyal group for effective execution also differ significantly. Similarly the mean scores of result producing capability among loyal and disloyal groups were found (19.5) and (10.7). Mean score values of result producing capability also differs considerably. Lastly the combined mean scores for all the dimensions for performance management were compared, they were found (83.9) and (44.0) respectively. These mean scores of performance management among loyal and disloyal differs significantly.

I. Performance Management

Performance Management (PM) is sum total of all such activities and efforts which can support organizational management to achieve its goal by utilizing the available resources in the most effective and efficient manner. In simple words performance management can be understood as the activities performed by its employees to achieve their goals effectively and efficiently. Performance Management is a collective effort by individual employees, departmental units and organizational management as a whole. The role of organizational management in the present scenario has undergone a sea change and its focal point is on evolving such functional strategies which enable the management for successful implementation of major corporate strategies for effective and efficient performance of its activities. Today performance management works towards facilitating and improving the performance of the employees by building a conducive work environment and providing maximum opportunities and resources to the employees for participating in organizational planning, decision making, executing and result producing process. Today all the major organizational activities are driven towards development of high performance. So it can be interpreted that the role of performance management has evolved merely an appraiser to a facilitator and an enabler.

II. Loyalty

Loyalty is the sincerity, devotion, relatedness and faithfulness towards a belief, place, person or organization. Organizational loyalty is the faithfulness, devotion and relatedness of its stakeholders such as customer, employees, investors and society towards the organisation. Different stakeholders of organization, such as employee, customer, investor and other have different type of loyalty. The employee loyalty is the characteristic by virtue of which loyal employees has faith and devotion towards organization and this loyalty is shown by the employee by contributing maximum of their time, energy, knowledge, skill and effort for the effective and efficient achievement of organizational goals. The long-term success of any company depends upon the quality of its employees and their loyalty. Loyal employees can be incredible assets to a growing company. Furthermore, there is a direct relationship between employee loyalty and a company's growth and profitability (Aaron Green, 2007). Employee loyalty is evident to the customers and it's nearly impossible to generate loyal customers without strong internal employee loyalty.

As already said every organization has different stakeholders or interest groups, the direction and degree of loyalty of these stakeholders are different. Businesses seek to become the objects of loyalty for owner, employee, society, customer etc. Without loyalty

Author α : Professor and Head, Department of Business Administration, Indus Instt. of Engg. and Technology, Kinana, Jind.

Author σ : Research Scholar, Teerthankar Mahaveer University, Moradabad, Uttar Pardesh.

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all the interest groups of organization, its existence and achievement of goals is not possible. Organizations need loyal employees in order to attract loyal clients/customers. Employees who are loyal and enthusiastic will work dedicatedly and manufacture the goods and services of best quality. Best quality products and services will generate the loyal customer, which is very significant and crucial factor of performance management. So there may exist a relationship between the employee loyalty and their role in performance management. Most prominently a loyal employee will stand with the organization, whatever the circumstances may be, in comparison to a disloyal employee. Present study has discovered the factors responsible for the effective and efficient performance management as well as the factors which were cause for loyalty and disloyalty among employees. Besides this, study has also established the relationship between performance management and employees loyalty.

III. Objectives

1. To enquire the relationship between employee loyalty and performance management.
2. To find out the relationship between the dimensions of performance management i.e. organizational planning, decision making, effective execution and result producing capability among the loyal and disloyal employees.

IV. Hypothesis

1. There will exist a relationship between employee loyalty and performance management.
2. There will exist a relationship between the dimensions of performance management i.e. organizational planning, decision making, effective execution and result producing capability among the loyal and disloyal employees.

V. Research Methodology

a) Research Design

162 bank employees were taken for this research from different nationalized and private sector factors responsible for performance management such Region of Delhi. Selected subjects were tested for their approach towards performance management and the tendency of loyalty towards their banks. Subjects were tested for loyalty by using questionnaire method, whereas for the performance management, an inventory of statements was developed and used to find out the role of employees in performance management. With the help of these testing, subjects were categorized into the loyal and disloyal as well as the employees having approach for effective and ineffective performance management. While testing the subject, not only the basic tendency and approach for loyalty and performance management were tested but also the factors responsible for performance management such as organizational planning, decision making, effective execution and result producing capability etc. were tested and compared among the loyal and disloyal employees. After collection of data for the above stated purpose, results and findings were analyzed to test the hypothesis.

b) Sample

The population for sample of this study was the employees working on the position of bank office assistant to the level of branch managers from various nationalized & private sector banks situated in the National Capital Region of Delhi, Haryana and Punjab state. From this universe a sample of 162 employees was taken randomly on availability basis for this research.

c) Method of Data Collection

Questionnaire method was used to collect the data for testing the loyalty of the subjects. But for finding the approach towards performance management, selected subjects were tested with the help of an inventory consisting of a set of statements. Both the tests of loyalty and performance management were developed by the researcher.

d) Tools Used

Both the Employee Loyalty Test and Performance Management Inventory were developed by the researchers and used for scaling the tendency of loyalty and Performance Management.

VI. Results and Discussion

Present research is a comparison between the various dimensions of the performance management among the loyal and disloyal employees. Total 162 bank employees were taken for this research from a universe of bank employees of private and nationalized banks situated at Punjab, Haryana and National Capital Region of New Delhi. Selected employees were tested for their loyalty towards the banks with which they were working. The details of their scoring such as minimum score (87), maximum score (152), range (65), mean (132.5), Standard deviation (28.2) etc. has been shown at Table (1).

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Table 1 : Scores, mean and standard deviation for loyalty

No.	Minimum score	Maximum score	Range	Mean	Standard Deviation
162	87	152	65	132.5	28.2

Higher the score, greater the tendency and lower the score, lesser the tendency for loyalty. On the basis of higher and lower scores, employees were divided into two groups, each having 57 subjects. First group was consisting of the subjects having score from 87-117 and this group was nominated as the group of disloyals. Whereas, second group was consisting of employee who scored 120-150 and this group was categorized as the loyal. Details of their minimum score, maximum score, range, mean and standard deviation etc. have been shown in Table (2) and Table (3) presented here under.

Table 2 : Group formation on the basis of higher tendency of loyalty and nominated as loyal

No.	Minimum score	Maximum score	Range	Mean	Standard Deviation
57	122	152	30	140.3	10.3

Table 3 : Group formation on the basis of lower tendency of loyalty and nominated as disloyal

No.	Minimum score	Maximum score	Range	Mean	Standard Deviation
57	87	117	30	96.6	9.5

After formation of loyal and disloyal groups, subjects of both the groups were tested for their role in performance management. Performance Management was tested by evaluating four major and important dimensions of performance management like "Organizational Planning", "Decision Making", "Effective Execution", and "Result Producing Capability". Subjects were tested for all these dimensions as well as the combined score for their role in Performance Management. Details of the scores such as minimum, maximum score, range, mean, standard deviation etc. for organizational planning, decision making, effective execution, result producing capability and overall role in performance management for loyal category were found as under in Table (4).

Table 4 : Scores for organizational planning, decision making, effective execution, result producing capability and performance management of loyal group

Dimension of Loyalty	N	Minimum Score	Maximum score	Range	Mean	Standard Deviation
Organizational Planning	57	18	28	20	22.3	8.20
Decision Making	57	14	32	18	21.7	6.70
Effective Execution	57	15	34	19	20.4	8.04
Result Producing Capability	57	13	29	26	19.5	9.2
Overall	57	60	123	63	83.9	28.14

Details of the scores such as minimum, maximum score, range, mean, standard deviation etc. for organizational planning, decision making, execution capability, result producing and overall role in performance management for disloyal category have been shown in Table (5).

Table 5 : Scores for organizational planning, decision making, effective execution, result producing capability and performance management of disloyal group

Dimension of Loyalty	N	Minimum Score	Maximum score	Range	Mean	Standard Deviation
Organizational planning	57	8	18	10	10.6	4.30
Decision Making	57	5	12	7	9.5	6.50
Effective Execution	57	6	22	16	13.2	8.30
Result producing capability	57	7	16	9	10.7	7.20
Overall	57	26	68	42	44.0	6.67

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A comparison of Table (4) and Table (5) revealed the following facts. The mean score for organizational planning among loyal and disloyal groups were (22.3) and (10.6) respectively. These results show that there was significant difference between the mean score values of organizational planning between the loyal and disloyal employees. This means that loyal employees were playing better role in Performance Management of the organization in comparison to the disloyals. The mean score values for the capability of decision making which is one of the dimensions of performance management were (21.7) and (9.5) respectively. These values show that there was noteworthy difference between the two mean scores.

This difference in the mean score values of Decision Making ability shows the effective decision making among loyal employees whereas disloyal employees were not that much effective. When the mean scores of third dimension i.e. effective execution of performance management for loyal and disloyal employees group were compared, they were found (20.4) and (13.2). The mean scores for effective execution differ radically. The means difference clearly exhibits that the loyals are better executor in comparison to disloyals. Similarly the mean scores of result producing capability of performance management among loyal and disloyal groups were found (19.5) and (10.7). Mean score values of result producing capability differs considerably. Mean score values of result producing capability for both the groups shows that loyals were better result producer in comparison to disloyals. Lastly the combined mean scores for all the dimensions for performance management were compared. They were found (83.9) and (44.0) respectively. These mean scores of performance management among loyals and disloyals differed significantly. So from the above findings it was clear that loyal employees were having an effective and better role for performance management towards their organization.

A simultaneous and comparative analysis of results and findings shown at various tables and discussion given above shows that there was a positive and significant relationship between the loyalty of employees and their role in performance management which concludes the approval and acceptance of comparison of all the dimensions of performance management such as organizational planning, decision making, effective execution and result producing capability among loyal and disloyal groups shows that the loyal employees were better role player in the performance management in comparison to the disloyal, hypothesis 2 is also accepted and approved.

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The Impact of Procurement Operations on Healthcare Delivery: A Case Study of Malawi's Public Healthcare Delivery System

By Kizito Elijah Kanyoma & James Kamwachale Khomba
University of Malawi, Malwi

Purpose - To investigated the impact of procurement operations on healthcare delivery in Malawi's public healthcare delivery system. It sought to confirm the existence, establish the frequency, effects and causes of stock outs of drugs. The Study was provoked by local media reports on acute drug stock outs in the public healthcare delivery system despite the same being adequately available in private hospitals.

Design/Methodology/Approach: Data was collected using three sets of questionnaires administered to 40 patient caregivers (nurses, clinicians and doctors), 12 senior hospital managers, and 6 procurement managers. Data was analyzed using the Statistical Packages for Social Sciences

Findings: The study found that procurement functions derailed healthcare delivery through failure to ensure availability of drugs. Frequent stock outs of drugs were confirmed, the effects of which on healthcare delivery ranged from death of patients, deterioration of medical conditions of patients, hospital overcrowding, to transfer of patients to other hospitals. These stock outs were attributed to: failure by a 'government-instituted supplier' to fulfill drug orders; delays by procurement staff; and withholding of funds by donors.

Research limitations: The study was conducted at a time when drug stock outs were at crisis levels in public hospitals. The results may therefore strongly represent the situation at that material point in time.

Practical Implications: The study provides insights into the significance of procurement operations in healthcare delivery. It recommends a strategy shift from single sourcing to dual sourcing in order to avert the persistent drug stock outs in public hospitals.

Keywords : *healthcare delivery; malawi; procurement; supply chain management; supply risk.*

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I. Introduction

The procurement and supply management function plays an important role in healthcare delivery. Failure by the function to safeguard the availability of supplies can sabotage the very interests of the organization which the function is supposed to support (Kumar, Ozdamar and Zhang, 2008). Over the past 12-18 months, local media in Malawi was awash with reports on the worsening situation of drug shortage in Malawi's public hospitals (Mmana, 2011) despite the same being adequately available in private and Christian Health Association of Malawi (CHAM) hospitals. This raised questions regarding both internal and external forces (Day and Lichtenstein, 2006) affecting the ability of procurement functions at public hospitals to ensure availability of medicines in public hospitals. Such shortages / stock outs of medical supplies can have fatal consequences on patients because they can result in total failure of healthcare delivery systems (White and Mohdzain, 2009). With a single supplier, the supply risk at hospitals could be greater since all procuring entities would be prone to forces affecting the supplier (Khan and Burnes, 2007). This is in direct contrast with the CHAM hospitals which have multiple suppliers and continue to enjoy high levels of availability of medical supplies.

According to Mmana (2011), procurement audit reports for 2010 at the Malawi ministry of health headquarters which controls for the single government instituted supplier namely Central Medical Stores (CMS), uncovered irregularities in the procurement of medicines that consequently resulted in Health Sector-Wide Approach (HSWAp) pool partners withholding funds meant for the procurement of medicines until the situation was rectified. This meant the CMS could not have sufficient inventory of medicines and could therefore hardly meet the drug requirements of public hospitals. This and other challenges external to hospital procurement functions 'can directly affect the downstream customer' (the patient) in public hospitals (Miocevic, 2011).

While literature suggests procurement's significance in safeguarding availability of medicines and consequently, healthcare delivery; (Kumar, Ozdamar and Zhang, 2008; Mustaffa and Potter, 2009; and Miocevic, 2011); practices, decisions and interventions derailing the function's performance in Malawi's public hospitals do not seem to be treated with due urgency and significance. In addition, despite acknowledging challenges in public procurement of medicines, both the Malawi Health Sector Strategic Plan (HSSP, 2011) and the Draft Annual Report (2010-2011) for the Ministry of health fell short of linking the procurement performance to the downstream customer.

This researcher could only assume that such a link was well known and implied, although the conduct

Author α : Lecturer, Department of Business Administration University of Malawi, MALAWI Private Bag 303, Blantyre 3, Malawi.
E-mail : kkanyoma@poly.ac.mw
Author σ : PhD, FCMA Associate Professor, Department of Management Studies University of Malawi, MALAWI Private Bag 303, Blantyre 3, Malawi. E-mail : jkkhomba@gmail.com

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of authorities in handling issues affecting the function might suggest otherwise.

II. Problem Statement and Research Objectives

In the absence of any empirical studies testing the procurement and healthcare delivery link in local public hospitals in Malawi, it is difficult for policy makers to manage the function with due consideration to its impact and significance in healthcare delivery. The research therefore sought to empirically investigate the extent to which procurement functions affected healthcare delivery, as judged by the impact on public healthcare delivery supply chain's downstream customers. It also attempted to establish the aspects of the function that had the most impact on healthcare delivery in Malawi's public hospitals. The research further explored the impact of single sourcing in either mitigating or exacerbating supply risk, given that non-availability or delays in the delivery of drugs can have fatal consequences on patients as observed by Mustaffa and Potter, (2009).

The remainder of this paper begins with a review of the literature, followed by the methods section. The survey data are then analyzed to profile the respondents and identify how they manage supply chain risks. The article then concludes with an evaluation of the factors underlying the decision to develop a system for managing supply chain.

III. Literature Review

a) Supply Chain Management (SCM) Systems

The concept of supply chain is defined by Meijboom, Schimidt-Bakx and Westert (2011) as a way to envision all steps needed from beginning to end in order to deliver products or services to the customer. Supply chain management (SCM) on the other hand, involves the management of flows between and among stages in a supply chain to maximize total profitability (Sila et al, 2006) and customer satisfaction (Danese and Romano, 2011). The procurement function occupies centre stage in managing supply chains. According to Juha and Pentti (2008), the function determines availability, cost, quality of materials as well as responsiveness and flexibility of organizations in meeting customer needs and expectations. In recent years, various articles have noted the strategic importance and competitive potential of procurement or the purchasing and supply management (PSM) function (Gonzalez-Benito, 2007; Ogden et al., 2007). Previous research quoted by Gonzalez-Benito (2007), reveals the importance of aligning the function with the overall business strategy.

The significance of the purchasing and supply management function in organizations can neither be downplayed nor limited to a particular industry (Saranga and Moser, 2009; Van Weele; 2008). Schiele (2007) cites the rising purchasing volume expressed as a percentage of a firm's total turnover, as evidence of the function's strategic potential across industries. In the healthcare industry, procurement can play a key role in the value chain for healthcare delivery in hospitals. As noted by Aronsson, Abrahamsson and Spens (2011), hospitals and healthcare systems could gain competitive advantages and improved performance through good procurement practices such as lean and agile supply chain processes.

b) Procurement and Healthcare Delivery

Since services cannot be produced for storage like physical products, Meijboom, Schmidt-Bakx and Westert, (2011) note that providers adopt customer waiting as a remedy. However, as a result of the differences between healthcare and other services, long waiting times are not affordable in healthcare systems because patient condition may worsen substantially during the waiting (Mustaffa and Potter, 2009). This therefore calls to duty all functions including procurement which must ensure that medical supplies are always available. Meijboom, et al. (2011) underscore the role of the procurement function in healthcare systems. They contend that 'simultaneity of production and consumption of services results in highly unpredictable and unique demand which is difficult to match with service capacity; hence the need for sufficient inventory. Additionally, extant literature suggests that some aspects of procurement performance such as inefficient processes and delayed delivery or stock outs of medical supplies may affect both efficiency (Kumar, DeGroot, and Choe, 2008) and effectiveness (Mustaffa and Potter, 2009) of healthcare systems.

Whatever basis of performance measurement is used, the driving feature of such performance should primarily be the extent to which healthcare systems are customer focused (Parnaby and Towill, 2007). According to Butt and Run (2009, p.659) 'customers are concerned about healthcare providers' ability to cure their diseases, while upholding their best interest at a lowest possible cost'. More specifically, they note that due to the significance of healthcare service, patients are willing to abandon free healthcare services in public hospitals for expensive but better healthcare in private hospitals. As Aronsson et al. (2011) suggest, it really does not matter which dimension of performance measurements takes prominence (cost or customer satisfaction / healthcare quality), because both dimensions can be achieved through the PSM function. Such is the significance of the procurement function.

Regarding the impact of procurement on healthcare delivery costs to the customer, Kumar, DeGroot, and Choe, (2008) suggest that inefficient purchasing as well as any advances in efficiency will

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eventually be passed along to the patient as additional costs or lower costs respectively. In addition, Aaronson et al. (2011) notes that inadequate and tedious procurement procedures and practices are responsible for rising costs and inefficiencies in healthcare systems.

c) Aspects of Procurement Affecting Healthcare Delivery

Several authors have underlined the uniqueness of supply chain management (SCM) in a healthcare setting which makes it difficult to transfer knowledge from the industrial sector to the healthcare sector in a direct way (White and Mohdzain, 2009; Vries and Huijsman, 2011). Chandra, Kumar and Ghildayal (2009), argue that the importance of healthcare services has reduced the extent to which the industry adopts cost reduction and responsiveness strategies and practices such as Just-in-time (JIT) purchasing and Kanban systems.

The significance of SCM is further emphasized by Mustaffa and Potter (2009), when they note that within the healthcare industry, procurement operations associated with pharmaceutical products can affect the standard of care for patients. They contend that effective management of the function can ensure that both service level and cost objectives are met. Similarly, Kumar et al., (2008) suggest that procurement practices affect inventory levels and ultimately the service provided to the consumer or patient in the case of hospital. There is high risk therefore, that erroneous decisions in SCM can culminate into stock-outs (White and Mohdzain, 2009) and total failure of healthcare delivery systems (Mustaffa and Potter, 2009). Consequently, Kumar et al., (2008) rule out the feasibility of inventory elimination because medical supplies must be available for immediate use by medical professionals.

d) Healthcare Inventory Management

Extant literature suggests that inventory management is one key aspect of procurement having substantial impact on healthcare delivery (Chandra et al., 2009). Lee, Lee and Schniederjans (2011) contend that managing costs while meeting customer demands is one of the biggest challenges for SCM in the healthcare industry. Further literature show that hospital inventory management can have far reaching consequences on healthcare delivery systems. For example, Varies (2010, p.61) contends that 'under-stocking of medicines can result in increased dissatisfaction of physicians and/or surgeons'; can delay treatment such as surgery and 'in a worst case scenario, can even cause death of patients'. On the contrary, he suggests that overstocking can at worst only result in an increase of carrying costs.

Much as the latter impact (over stocking) sounds a lesser evil, reality surrounding accelerating healthcare costs (Chandra, Kumar and Ghildayal, 2009) and the fact that inventory of medical supplies comprise a substantial percentage of hospital costs (Tordoff, Norris, and Reith, 2008), make inventory management a real challenge for hospitals. Failure to control the escalating costs will in the long-term make healthcare services unaffordable and therefore unavailable to most people.

Consequently, the long-term effects of overstocking may become as expensive as the effects of under stocking where both scenarios lead to service unavailability and death of patients (Mustaffa and Potter, 2009). The implication of rising expenses in the long run will either be reflected in fewer beneficiaries accessing free healthcare services at public hospitals, or more tax payer funds being spent on healthcare delivery (Chandra et al., 2009). Further challenges come as a result of forces external to procurement. On this, Vries (2010) argues that inventory management decisions for hospitals are often made by many stakeholders who have conflicting interests. He notes that such decisions often seem to be more politically and experience-based rather than data-driven and potentially affect availability. Regardless of the interests of policy makers, Pan and Pokharel (2007) advise that it is prudent that some minimum stock of medical supplies be kept. Similarly, Vries (2010) encourages managers to clearly understand how inventory systems are affected by specific hospital characteristics, in order to improve healthcare inventory management.

e) Logistics for Medicines

Many other aspects of procurement adversely and positively affect healthcare delivery. Specifically, Tetteh and Pharm (2009) contend that the state of drug supply chains affect availability, affordability and acceptability dimensions of medicines access. They suggest that failures of in-country supply chains to operate effectively and efficiently can erode all the success achieved in earlier stages of the supply chain.

Lengthy public distribution systems have also been identified by Tetteh and Pharm (2009) as one factor affecting availability of medicines and therefore healthcare delivery. They note that such situations are common where distribution systems involve delivering of drugs to central warehouses, wherein they are then transferred to regional and district warehouses before being delivered to health facilities. Such chains of non-value adding and time consuming activities comprise what Taiichi Ohno, in Bailey et al, (2005) refers to as 'the waste of unnecessary movements'. Tetteh and Pharm precisely indicate that these lengthy distribution systems, coupled with lack of extensive information systems are responsible for frequent drug stock-outs and shortages in African nations.

These assertions are strongly supported by Ramani and Mavalankar (2006) who in their research on health systems in India, found that poor logistics

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management of supply of medicines and drugs negatively affected the availability of healthcare services in India. Further research demonstrates that shortening the supply chain in Mexico did not only reduce the procurement cycle times but also reduced costs through lower numbers of warehousing staff and storage space. The resultant cost savings can positively affect healthcare delivery if reinvested into the procurement of more drugs which can improve both availability and variety (Tetteh and Pharm, 2009).

IV. Research Design and Methodology

The research collected data from three different categories of staff namely patient caregivers, hospital managers and procurement managers at five public healthcare delivery centres in Southern Malawi. A combination of quantitative and qualitative data collection instruments was used. This comprised questionnaires and interviews respectively. Data was collected through three sets of self completed questionnaires, which allowed respondents to complete at their convenience thereby minimizing interruptions to healthcare delivery at participating hospitals. Follow up interviews with randomly selected managers were also conducted in order to obtain clarification on any ambiguous or contradicting results from the study. These interviews were semi-structured in order provide both in depth and specific insight into the understanding, interpretation and discussion of findings (Black, 2005).

The first of the three questionnaires was completed by staff that used or at least handled procured medical supplies in delivering healthcare to the end customer, the patient. The purpose of this questionnaire was to establish the link between procurement functions and healthcare delivery. It investigated the occurrence of stock outs of medical supplies, the effects of such stock outs and also enquired into the reasons given for the stock outs.

The second questionnaire was completed by procurement staff. It investigated the causes of stock outs at respective hospitals from the 'horse's mouth', and assessed the performance of the single supplier and how the same affected availability of medical supplies. Finally, the third questionnaire was completed by hospital managers and administrators. It probed into the effects of procurement in healthcare delivery; and the role of sourcing strategy in improving responsiveness and averting supply risks respectively. Although the latter two questionnaires mostly addressed similar issues, the responses from the different respondent categories helped illuminate different aspects of the research problem (Gill and Johnson, 2006).

The questionnaire was designed in such a way that the structure, focus and phrasing of questions was intelligible with respondents, reduced bias and provided data that could be statistically analyzed (Gill and Johnson, 2006). Although the research was generally qualitative, questionnaires were quantitatively designed to increase objectivity. A five point Likert Scale was used with response options ranging from 'strongly disagree', disagree, neutral (or do not know as the case may be), agree, to 'strongly agree'. Open ended questions were also included to allow for the collection of in depth data.

A total 78 questionnaires were sent out from which 58 questionnaires were collected representing an overall response rate of 74.4%. Among patient caregivers, 50 questionnaires were sent and 41 collected representing a response rate of 82%. To hospital managers, 12 questionnaires were collected out of the 20 distributed giving a response rate of 60%. The response rate for procurement managers was 75% with 6 out of 8 questionnaires collected.

Stratified random sampling which involves taking a random sample from identifiable groups (strata) that are homogenous for the desired characteristics' (Black, 2005), such as people working in one hospital ward or belonging to the same profession, was used to distribute questionnaires to patient care givers and hospital managers. For procurement staff, non-probabilistic purposive sampling which involves handpicking respondents based on desired traits (Black, 2005) was used to ensure that only functional heads participated.

Quantitative data was analyzed using Statistical Packages for Social Sciences (SPSS) whereas thematic analysis (Braun, 2006) was adopted for qualitative data. Themes were identified in textual data based on three criteria namely recurrence, repetition and forcefulness (Keyton, 2006).

The research empirically establishes the significance of procurement operations in healthcare delivery in Malawi's PHDSC and beyond. It will provide useful guidance to policy makers in raising the function's profile, so that matters affecting the function's performance can now be treated with due urgency and diligence in order to avoid disruptions to healthcare delivery.

V. Empirical Results and Discussion of Findings

The results are placed into four main sections. The first section concerns the link between procurement and healthcare delivery. It also discusses the causes of stock outs, which, as the study reveals, represent the greatest source of interruption to healthcare delivery. Section two is about the role of single sourcing in exacerbating or mitigating the risk of supply failure. The third section ranks the factors considered to negatively affect healthcare delivery in public hospitals.

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a) Frequency of stock out of drugs

43.1% of all respondents indicated that stock outs occurred at least once every month, and 25.9% put the frequency at 'once every 2-3 weeks' while the remaining 31% rated the same at 'once every week'. Despite these differences, there was overwhelming agreement at all the hospitals that stock outs did occur. The differences in stock out frequencies were real considering that different medical departments at the same hospital had varying drug requirements. Thus, some respondents worked in departments where stock outs did occur more regularly compared to others. This implies that while hospitals did not experience institution wide stock outs of drugs, ensuring continuous availability of all drug types in all hospital departments remained a big challenge in public hospitals.

Additionally, other response options regarding the frequency of stock outs namely 'once every 3 months' and 'they never occur at all' had been completely ignored by respondents indicating full agreement to both the existence and frequency of drug stock outs at respective hospitals. Further analysis of results by respondent category revealed that 91.7% of managers put the frequency at 'once every month' as opposed to 8.3% who put the same at 'once every week'. Such a result is strongly reflective of the fact that managers had an aggregated view of the situation.

b) Effects of stock outs

i. *Effect 1: Stock outs cause death of patients*

The results below show strong agreement among patient care givers where 87.5% of respondents (strongly) agreed that stock outs of drugs caused death of patients; 10% of respondents were neutral while the remaining 2.5% disagreed. Among hospital managers, 75% agreed that stock outs caused death of patients while 25% remained neutral. Overall, the results indicated the enormity of the extent to which the procurement operations, which must ensure availability of drugs, affected healthcare delivery. However, as has been shown hereunder, the stock outs could not entirely be blamed on the function due to the contribution of other factors external to the function.

Table 1 : Effects of Stock outs

The stock outs of drugs and other medical supplies affect patients in the following ways:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Result in deaths of patients	0%	1.9%	11.5%	30.8%	55.8%
Bring overcrowding in hospitals	1.9%	5.7%	0%	26.9%	65.5%
Deterioration of conditions of patients	0%	5.9%	0%	41.2%	52.9%
Delay Medical surgery/ operations	0%	0%	10.6%	61.7%	27.7%

Although the 1.9% level of disagreement could be considered insignificant, it nevertheless represented reality because: i) some diseases have lower fatality rates; ii) more serious medical cases were often transferred to those hospitals that had inventory of the required drugs; and iii) some cases were usually treated as out-patients and were usually sent back in case of stock outs. Thus, owing to these factors, deaths did not usually occur in some hospital departments or wards in cases of stock outs.

ii. *Effect 2 : Stock outs bring overcrowding in hospitals*

Death of patients is perhaps the worst possible impact of stock outs of drugs (White and Mohdzain, 2009) but is surely not the only impact. The results revealed other effects such as deterioration of medical conditions of patients, overcrowding of patients in hospitals, delays in medical surgery, and the transfer of patients to other hospitals.

92.5% of patient care givers either agreed or strongly agreed that stock outs brought overcrowding in hospitals while the remaining 7.5% disagreed. This is in slight contrast to responses from managers where 83.3% (strongly) agreed while the remaining 16.7% expressed disagreement. The overwhelming level of agreement is not surprising because stock outs of drugs prolonged the stay of patients in hospitals resulting in overcrowding in hospital wards. Such prolonged stay was also feared to have psychological effects on both patients and guardians regarding the disease outcomes.

iii. *Effect 3: Stock outs deteriorate medical condition of patients*

94.8% of all respondents, (patient care givers and managers combined), (strongly) agreed that stock outs of drugs worsened the medical conditions of patients while the 5.2% disagreed. This result is not surprising because for most diseases, conditions of patients would deteriorate if their illnesses are left unattended to. Stock outs of drugs will in most cases entail total failure of healthcare delivery systems hence the deterioration. This result is also in line with (Mustaffa and Porter, 2009) regarding the impact of stock outs. This implies that, however caused, stock outs potentially increased human suffering both directly to the patient and indirectly to guardians and relations.

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iv. *Effect 4: Stock outs delay medical surgery*

83.3% of hospital managers and 92.5% of patient care givers (strongly) agreed that stock outs resulted in unplanned delays to medical surgery at their respective hospitals. The remaining 16.7% and 7.5% of managers and patient care givers respectively, which represent 8.6% of all respondents, expressed neutrality. Although such delays have not been empirically linked with other results in the study, it would be reasonable to suggest the link. The study found that prolonged delays eventually worsened medical conditions of patients and in worst case scenarios, patient deaths occurred. It is for such reasons that Kumar et al., (2008) ruled out the feasibility of inventory elimination in the healthcare sector arguing that medical supplies ought to be always available for immediate use by medical personnel.

The foregoing adequately proves the existence of a relationship between the procurement function and healthcare delivery. The results show how failure by the function (whether internally or externally initiated) to ensure availability of drugs and other medical supplies, affects not only the healthcare delivery system but most importantly, the patient.

c) Causes of stock outs

Analysis of the results revealed wide disparities in the reasons given by various respondent categories with regard to the causes of the stock outs. While there was such great disparity, the results showed that nurses and clinicians, who together make up 95% of patient care givers, represented 100% of respondents who were either neutral or did not know the causes of drug stock outs at their respective hospitals. This lack of knowledge might suggest the distance between the procurement function and the patient care givers.

i. *Cause 1: Delays by procurement staff*

As would naturally be expected, a majority 83.3% of procurement staff denied that stock outs were caused by delays on their part with the remaining 16.7% being neutral. This is in contrast to 63.6% of managers who cited delays by procuring units as one of the causes of stock outs, while 36.4% denied the existence of such a link between procurement delays and stock outs. Amongst patient care givers, 68.4% believed that stock outs arose from delays by procurement units as opposed to 21.1% that disagreed and the remaining 10.5% had no knowledge on the matter.

Table 2 : Causes of Stock outs

The following are the causes of stock outs of drugs at our hospital.

	Strongly Disagree	Disagree	Don't know	Agree	Strongly Agree
Delays by procurement staff in buying	10.7%	21.4%	7.2%	26.8%	33.9%
Withholding of funds by donor partners	5.5%	10.9%	34.5%	27.3%	21.8%
Lack of funds at the hospital	26.2%	13.1%	23.2%	25.3%	12.2%
Wrong demand forecasting	8.8%	15.8%	3.5%	40.3%	31.6%
Insufficient Inventory at Central Medical Stores (CMS)	5.5%	3.6%	30.9%	21.8%	38.2%
Unexpected disease outbreaks	22.4%	31.1%	17.3%	18.9%	10.3%
Poor communication between purchasing and pharmacy staff	23.2%	25%	21.4%	16.1%	14.3%
Poor inventory management by pharmacy staff	19.3%	43.9%	17.5%	3.5%	15.8%
Unavailability of drugs at the market	28.2%	20.4%	25.9%	14.4%	11.1%

However, within the patient caregivers, 57.1% of medical doctors expressed disagreement while the other 42.9% agreed. Such disparity in opinions might indicate the split in knowledge regarding the actual causes of stock outs given that some doctors, like some managers and all participating procurement staff were part of hospital internal procurement committees (IPCs). Alternatively, these IPC members could be deliberately concealing the truth. This is supported by evidence of a three- week long procurement cycle across the hospitals (as indicated by all participating procurement managers). Thus, it can be reasonably concluded that procurement delays were partially responsible for stock outs.

ii. *Cause 2 : Withholding of funds by donor partners*

In line with fears expressed in the Malawi Health Sector strategic Plan (Malawi Government, 2011), the results indicated that the donor partners who provide funds for the purchase of drugs were also partially responsible for the stock outs of drugs in public hospitals. This also supports newspaper reports that following irregularities in the procurement of drugs, donor partners had withheld funds meant for the purchase of drugs which resulted in acute drug shortages in the country's public hospitals (Mmana, 2011). This is an indication of how procurement practices have indirectly affected healthcare delivery.

From the analysis, 83.3% of procurement managers agreed that withholding of funds by donors caused stock outs while the other 16.7% disagreed. This is in contrast to responses from hospital managers where 66.7% agreed, and the remaining 33.33% disagreed. Among patient care givers, while 83.3% of doctors agreed and 16.7% disagreed that withholding of funds by donors caused stock outs, 33.3% and 53.3% of nurses and clinicians respectively agreed to the same.

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56.7% of nurses and 38.5% of clinicians expressed lack of knowledge; the remaining 10% of nurses and 11.5% of clinicians disagreed. Overall, the results indicate that withholding of funds was one of the important causes of stock outs in Malawi's public hospitals.

iii. *Cause 3 : Lack of funds at hospital level*

The foregoing findings contradict other results which deny that lack of funds was one of the causes of stock outs. 88.2% of both managers and medical doctors (both part of IPC), disagreed and the other 11.8% agreed that lack of funds at hospitals caused stock outs. 46.1% of clinicians, 20.8% of nurses, and 66.7% of procurement staff disagreed that stock outs arose from lack of funds at hospital level. This is in contrast to 41.7% of nurses, 38.5% of clinicians and 33.3% of procurement staff who agreed. 37.5% and 15.4% of nurses and clinicians respectively lacked knowledge on the matter. The overall picture is that lack of funds at respective hospitals was not a major cause of stock outs since 39.3% of all respondents disagreed, 37.5% agreed and 23.2% did not know the relationship between lack of funds and stock outs at respective hospitals.

The explanation given for these contradictory responses in the above two scenarios (cause 2 and cause 3) was that while individual hospitals could have sufficient funds for the purchase of drugs, they still experienced shortages due to non-availability of drugs at the CMS, the single supplier. The withholding of funds by donors directly affected the availability of drugs at CMS. This is further confirmed by the fact that 78.4% of all respondents agreed that insufficient inventory at CMS caused stock outs. On this aspect, only 5.9% disagreed whereas the remaining 15.7% lacked knowledge on the matter. Since public hospitals received funding directly from Malawi Government, they were only indirectly affected from resultant stock outs at their single source of drugs, the CMS.

iv. *Cause 4 : Wrong demand forecasting*

Challenges in forecasting demand for drugs at respective hospitals was also highly ranked as one important cause of stock outs. 72.7% of managers, 100% of procurement staff and 64.9% of 'patient care-givers' agreed that wrong demand forecasting caused stock outs of drugs. 27.3% of managers, 29.7% of patient care givers disagreed whereas the remaining 5.4% of the latter expressed ignorance. The results were further evidenced by recommendations that 'hospitals should procure huge quantities of drugs', suggesting that insufficient quantities were often procured.

Contrary to these suggestions, 83.3% of participating procurement staff collaborated that while larger orders were usually placed with the supplier, hospitals experienced random yield whereby random portions of order quantities are delivered by a supplier (Tomlin, 2009). The results indicate a supplier delivery failure rate of 35% which is quite high for any system and more disastrous for essential services such as healthcare delivery. The supplier ignored purchase orders and rationed available drugs to hospitals based on supplier's own inventory levels. This therefore suggests that wrong demand forecasting at hospital level was not among the significant causes of stock outs.

v. *Cause 5 : Insufficient Inventory at the Central Medical Stores (CMS)*

The role of the central medical stores in exacerbating the stock outs was also specifically considered. In addition to observations made under 'causes 3 and 4' above, there was an overwhelming level of agreement among all respondents that the unavailability of sufficient inventory at the CMS greatly contributed to the stock outs. 38.2% and 21.8% of respondents 'strongly agreed' and 'agreed' respectively, representing a 60% agreement level among all respondents. This is in contrast to 30.9% who that 'did not know' and a combined 9.1% that either (strongly) disagreed. These results imply that the single supplier is part of the problem of persistent stock outs in public hospitals.

vi. *Cause 6 : Expiry of drugs*

While stock outs have been shown to occur frequently at the respective hospitals under study, there are also cases of drug expiry prevalent at the hospitals. Although it is possible that the expiry of drugs could partly be responsible for the stock outs, the same does not reflect the case in Malawi's public hospitals. Results on the causes of expiry of drugs indicated that donations of drugs that were in excess of hospital requirements were the major cause of such expiry.

In responding to a question on the extent to which drug donations contributed to expiry, 100% of procurement staff, 90.9% of managers and 82.8% of patient care givers agreed that donations of drugs were the main cause of expiry. Most such donations were usually received (mostly from international cooperating partners) in huge quantities without regard to local demand. It was also revealed that some such donations involved drugs that were nearing expiry dates hence they sometimes expired before usage.

vii. *Other Causes*

A range of other factors namely disease out breaks, poor inventory management, poor communication and unavailability of drugs on the market, were also evaluated regarding their role in the persistent stock outs. Results show that these variables are not among the important causes of stock outs. For example, a combined 53.5% (strongly) disagreed, 29.2% (strongly) agreed that disease outbreaks caused stock outs. The remaining 17.3% did not know. Regarding the role of poor communication between purchasing and pharmacy staff in causing stock outs, a

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combined 48.2% and 30.4% (strongly) disagreed and (strongly) agreed respectively, and 21.4% indicated lack of knowledge. Poor inventory management is another factor considered insignificant in causing stock outs. A combined 63.2% of respondents disagreed compared to 19.3% that disagreed that stock outs emanated from poor inventory management. 25.9% did not know about the existence of such a relationship. Finally, 28.2% and 20.4% of all respondents strongly disagreed and disagreed while a combined 25.5% (strongly) agreed that stock outs originated from unavailability of drugs on the market. The remaining 25.9% did not know. This result is not surprising considering that CHAM hospitals had adequate supply of drugs from the same market

VI. Conclusion, Practical Implications and Limitations

The foregoing results have shown that factors both internal and external to procurement functions have contributed to the frequency of stock outs and consequently derailed healthcare delivery. The implication of such revelations is that management and policy makers should look both internally and externally in their attempt to arrest the occurrence of stock outs in public hospitals.

The study adds to existing literature on sourcing strategy by revealing that: i) single sourcing is not the right strategy for healthcare delivery systems because it exposes entire systems to the risk of supply failure (see also Khan and Barnes, 2007) that paralyses the whole healthcare delivery supply chain resulting in multiple undesirable effects the worst of which being death of patients. A dual sourcing strategy is therefore recommended because it ensures that non-delivery by one supplier is covered by another. Such a strategy would hedge public hospitals against the risk of stock outs arising from factors affecting one supplier (Tomlin, 2009). ii) Lengthy procurement cycles are not desirable for healthcare procurement because although such cycles encourage institutions to hold sufficient inventory (Hou et al., 2010; Tetteh and Pharm, 2009) the nature and significance of healthcare delivery call for flexibility and responsiveness to save lives (Mustaffa and Potter, 2009).

The major limitation of the study is that it was conducted at a time when stock outs of drugs were at crisis levels in Malawi's public hospitals. The results may therefore strongly represent the situation at that material point in time, other than the status under normal conditions of supply.

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An Empirical Assessment of Quality of Undergraduate Dissertation in the Polytechnics in Ghana: Evidence from the Business School of Takoradi Polytechnic

By Solomon Abekah Keelson, Isaac Theophilus Ampah & Jacob Odei Addo
Takoradi Polytechnic, Takoradi

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Descriptive statistics were used for the survey and review. The findings revealed that the HND dissertation is ineffective because it lacks the quality standard of an undergraduate dissertation.

Keywords : *undergraduate dissertation, learning experience, dissertation models, dissertation quality, dissertation effectiveness.*

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I. Introduction

One part of the student's academic work that prepares him or her to a critical thinking approach to life is student's dissertation writing. This is so because unlike other areas of the academic work, student's dissertation is conducted in such a way that the student is involved in applying the knowledge that has been acquired in the respective areas of study to identify a real life problem, source for information to the problem, and try to solve the problem (Sonya et al., 2011). According to Kolb (1984), the dissertation process exposes the student to experiential learning, and provides the student with real life experience as the student fully engages in the research process. This requires that, though a student is given a supervisor, the students should participate actively in doing the work, as the supervisor only serves as a guide. In this connection, the student can develop the necessary skills for identifying problems in life and be able to find alternative ways to solve those problems (Sonya et al., 2011).

Though HND dissertation is an undergraduate research, which means much is not expected by way of contribution to knowledge as it would for Masters or PhD theses, its originality should not be compromised (Reynolds and Thompson, 2011). This requires that the student do as much search as possible commensurate with their level to demonstrate a better understanding of the subject area so as to avoid copy work or doing what others have done already. To achieve this goal, HND dissertation should not cover a wide area as a Master's or PhD Thesis will cover; but it should involve extensive reading of the subject area. The work should normally be carried out under the guidance of a supervisor, whose duty it is to guide and motivate the student toward effective sourcing and analysis of data.

Research has shown that student improve their learning and analytical capability by writing a dissertation as part of the requirement to attain the HND certificate, aside of the normal course work they undertake. Nevertheless, this could be done if students have the opportunity to go through a reasonable amount of HND research training and experience (Reynolds and Thompson, 2011). Studies have also shown that the research training and experiences help students to develop critical-thinking skills and research methods (Lopatto, 2003; Seymour et al., 2004; Hunter et al., 2007). An undergraduate research may involve people with little or no research experience. On many occasions, Business Courses, unlike science programs are thought with no practical works, where students usually accumulate facts and sometimes engage in memorized learning, devoid of analytical and critical thinking (Songer and Linn, 1991; Linn and Hsi, 2000).

This common feature of undertaken business programs by memorizing facts to address examination questions and doing class assignments, can hardly prepare a student for a graduate's life. Thus, to prepare students more fully for the graduate's life ahead, undergraduate dissertation is critical to fill the vacuum created by memorized learning and writing of examinations. As students do research and write

Author α, σ, ρ : Lecturer, Takoradi Polytechnic, Takoradi.
E-mails : solkiilson@yahoo.com, Isaac.ampah@ymail.com, jacdo44@yahoo.com

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dissertation independently, with a supervisor's guidance he or she is able to appreciate not only how to do critical thinking, but also how to interpret and solve life's problems. This is because dissertation writing involves a process, including problem identification, setting of objectives and asking questions, synthesizes literature, select appropriate methods, evaluate data, and interpret results (Reynolds and Thompson, 2011). If students take the dissertation writing seriously and systematically go through the process, despite the fact that they may have little experience in research, HND dissertation could be original, and could contribute to knowledge. Such encouraging experiences should motivate and serve as a basis for future advanced dissertation at the Master and PhD levels.

Considerable attention has been paid to student experience and lecturer practices in relation to the master's dissertation and the doctoral thesis (Wright and Cochrane, 2000; Jackson and Tinkler, 2001; and Woolhouse, 2002; Anderson et al., 2006). However, despite the significance role of dissertation at the HND programs and its perceived educational value, little attention has been given to this subject matter within the published research literature (Todd et al., 2004). In the undergraduate dissertation literature the few focus have primarily been on staff marking practices (Webster et al., 2000) rather than on the student experience of this learning activity. An aspect that has received some level of research attention is student perceptions of the role of the supervisor (Stefani et al., 1997). The lack of sufficient attention to the quality of dissertation process at the undergraduate level of HND creates a gap in the academic literature. Thus, this article aimed at capturing the valuable knowledge and experience of both students and supervisors, and to make an empirical assessment of the quality of dissertation at the HND Business Programs to measure its effectiveness.

II. Literature

Researchers have used different dimensions to measure quality. Some of these different dimensions include Crosby (1979) defines quality as 'conformance to requirement; Gronoos (1884) measures quality as technical, functional, and reputational; Parasuraman et al. (1985) measured quality by nine key determinants including, reliability, responsiveness, competence, access, courtesy, communication, credibility, security and understanding. In the business literature efforts to define and measure quality has usually been limited to the study of products and services as most studies make reference to the SERVQUAL model (Parasuraman et al., 1985). However quality studies can also be extended to project management Juran (1988). Thus, this study applies the service quality model used in the service marketing to study project management, which is undergraduate dissertation writing.

In the sense of project management, Ireland (1991) defines quality as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. This requires that HND dissertation has the necessary features expected in undergraduate dissertation report. In order for HND dissertation to satisfy the implied needs the use of Parasuraman et al. (1985) nine quality dimension was justified.

The undergraduate dissertation is supposed to provide an opportunity to student to research and produce some sort of original work. This measures the credibility aspect of the project quality. Credibility and communication mean the research is designed to draw together all of the knowledge that the student has acquired on the three-year HND program and are to enable students to develop and demonstrate analytical, judgmental and communication skills. Understanding and access (Parasuraman et al., 1985) will require that on successfully completing the dissertation the student should be able to demonstrate skills in researching primary literature, and critically evaluating published information and develop argumentative skill to produce a structured critical assessment of a chosen topic (Hughes, 2002). In this connection, dissertation writing should enable students construct a synthesis of theory, published studies, methodological understanding and the selection and application of appropriate research methods, analysis and discussion (Hemmings, 2001).

Reliability and responsiveness (Parasuraman et al., 1985) will demand that student's dissertation should be reliable, in the sense of contributing something meaningful to knowledge; also findings of dissertation should help response to the needs of society. This suggests that effective undergraduate dissertation must have relevance to societal development; how much little that might be. Finally, Webster et al. (2000) argued that student's dissertation is a substantial and most independently worked upon piece of work student undertakes while in school. This means student's dissertation has the security dimension of Parasuraman et al. (1985) nine quality dimensions if the dissertation is as independent as possible and free from copying or plagiarism. Thus, it is suggested that dissertation is considered a quality piece of work to both students and supervisors if it has the security feature of independence (Kolb, 1984; Hughes, 2002; Silén, 2003).

From the students' point of view, dissertation is an independent learning project, and it constitutes a significant component of their final HND Certificate. To be original, credible and reliable, a student is expected to select an appropriate topic for the dissertation and to research the topic on an individual basis, seeking advice from the faculty supervisor where necessary. Through the collection and analysis of primary and secondary data the student is expected to research and produce a

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substantial piece of original work. The learning outcomes of the dissertation process, which is based on the student's understanding of the subject area create and develop a valuable learning experience for a student through his active participation and production of quality piece of work (Hughes, 2002; Silén, 2003; Sonya et al., 2011).

Reynolds and Thompson (2011) have identified a common model for how to work with undergraduate dissertation students to enhance quality. One model is for research supervisors to work one-on-one with students. It is assumed that this approach enhances the quality of the dissertation as supervisors will be in a better position to guide students on credibility, reliability, understanding, access and security (Parasuraman et al., 1985). The advantage of this approach is the personalized attention that students receive. A disadvantage of this approach is the possibility that overzealous supervisor might take over with extensive editing, in some cases rewriting students' work. Although the final draft may be better, the student might not make the writing choices and therefore the independence dimension of the quality of the dissertation might be affected. The other model of how to work with undergraduate dissertation is to offer a course to support student writings. The advantages of writing courses are that instructors explicitly teach the conventions of scientific writing, and the structured nature of a course helps students stay on track. Unfortunately, some Business programs might have to bring teachers from other faculties to teach such a course given that business lecturers are not often well versed in these courses. The danger is that teachers from other faculties may not apply their teaching to the subject area of the business students.

In this article, we present the one-on-one model with the personalized attention of working one-on-one with students. Instead of a traditional course in which the instructor provides most of the feedback on students' writing, in this model students get the majority of their feedback from personal reading and few from their supervisors (Reynolds and Thompson, 2011). To determine the quality of this approach, we assess the quality of dissertation written by students' in Business Programs who simply worked one-on-one with supervisors. The article assesses dissertation for the quality of the process, including, the students' research knowledge; effort put into writing dissertation, perception of dissertation writing, perception of supervisors knowledge and guidance, and quality of content (Scott, 2008). The article presents details of the findings and results from the study, and describes how the study benefits both students and faculty.

III. Research Objectives

The general objective of this study was to assess the effectiveness of undergraduate dissertation at the HND level. In order to measure the overall effectiveness of students' dissertation, the following specific research objectives were addressed:

1. To appreciate the level of research knowledge of Business students who write dissertation.
2. To determine the effort students put into writing dissertation.
3. To assess the perception of students' toward dissertation writing.
4. To determine students' perception of supervisor's quality.
5. To measure the quality of students' dissertation.

IV. Research Design

The purpose of this research was to evaluate and reflect upon the quality of the HND dissertation process in the Business Program at the Takoradi Polytechnic. To do this it was important to capture the experiences of the students involved in the HND dissertation module for the academic year 2011–2012.

Quantitative research was used in this article to collect primary data from the students involved in the HND dissertation module for the academic year 2011–2012 of the Business School of the Takoradi Polytechnic in Ghana. The population of the research comprised 1500 students. In order to ensure that all students of the Business Faculty were represented, they were grouped into four according to departments. The four departments included: Accountancy, Marketing and Purchasing/Supply and Management/Secretary ship.

Using quota sampling technique, respondents were selected from each of the departments on the basis of the numerical strengths of the departments. Drawing from the sampling method as prescribed by Krejcie and Morgan (1970) 500 students were selected for the study, representing 33% of the population. The sample size was appropriate because it was above the sample requirement suggested by Krejcie and Morgan (1970) in their sampling statistics table (p. 607). 150 students were selected each from Accountancy, Marketing and Purchasing/supply, while 50 were drawn from Management/secretary ship department.

Considering the aims for which the data was collected in relation with the strengths and weaknesses of the data collection modes, and the fact that the research undertaken was small in scale and exploratory as well as descriptive in nature, the study involved two main points of data collection. The first was Self-completion direct questionnaire to students. In order to address objectives 1, 2, 3 and 4, a self-completion questionnaire was designed and administered to 500 third year students, from the four departments of the Business School taken the dissertation module. The questionnaire consisted of multiple choice questions, and 5 Likert scales questions (strongly disagree, disagree, neutral, agree and strongly agree) covering a

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range of topics related to the dissertation. The second approach was practically reviewing selected dissertations of completed works; in order to address objectives 5. Hundred dissertations that had been completed under the supervision and approval of assigned lecturers were physically reviewed against the quality research requirement (theoretical framework, originality of research, and contribution to knowledge). In this practical review, different components of the dissertations (including - problem statement, research objectives/questions, findings and analysis, and the linkage between the research problems, research objectives/questions and research findings, as well as presentation of reports) were weighed in line with dissertation process.

The data from the survey questionnaire, as well as those from the practical review were evaluated and analyzed, using descriptive statistics, particularly, frequency distribution method. The aim of the analysis was to identify perceptions and experiences of students on dissertation writing and compare them to the final reports of dissertation. This was to assess whether HND dissertation reflected the quality of undergraduate dissertation.

V. Results

a) *Findings of the Quantitative Survey*

For the quantitative survey, 432 questionnaires were completed and returned in useable form out of the five hundred, constituting 86.4% response rate. The profile of respondents included student's program of study, gender of student, and gender of research supervisor. Respondents were made up of: Accountancy 28.5%; Marketing 33.8%; Purchasing/Supply 27.5%; and Management/Secretary ship 10.2%. Also 51.6% and 48.4% of males and female respectively participated in the survey, which gives a good gender balance. However, there were 81.5% male supervisors, against 18.5% female supervisors. This was justifiable as the ratio of male to female lecturers at the business school is very huge.

i. *Efforts Students Put in Research Writing*

Tables 1 to 4 show that students put a lot of effort into the writing of the dissertation. The efforts include spending months and hours to source for their own information, as well as meeting their supervisors. Others include the amount of money they spend to get the dissertation started and completed.

Table 1 : Month Used by Student on Dissertation

Table 1 represents the amount of time in months that students spend on writing one dissertation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 2 months	49	11.3	11.3	11.3
	2 - 4 months	245	56.7	56.7	68.1
	over 4 months	138	31.9	31.9	100.0
	Total	432	100.0	100.0	

The table 1 shows that an average of three months is spent on one dissertation (56.7%). This means that almost the whole of the second semester of a student's final year is devoted for dissertation work.

Table 2 : Hours Used Per Week

Table 2 below presents the number of hours that students spent per week on their dissertation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 2 hours	106	24.5	24.5	24.5
	3 - 6 hours	228	52.8	52.8	77.3
	Over 6 hours	98	22.7	22.7	100.0
	Total	432	100.0	100.0	

Table 2 reveals that about 75.5% of students spent over three hour every week to work on an aspect of their dissertation.

Table 3 : Hours Used to Meet with Supervisor

Table 3 shows the number of hours students used to meet their supervisors on their dissertations.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 2 hours	140	32.4	32.4	32.4
	2 - 3 hours	204	47.2	47.2	79.6
	Over 3 hours	88	20.4	20.4	100.0
	Total	432	100.0	100.0	

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As revealed by the table 3, an average of two hours is spent by students to interact with their supervisors on their research each week. The results show that 32.4% spent less than 2 hour; 47.2% spend between 2 to 3 hours; while 20.4% spent over 3 hours with their supervisor each week.

Table 4 : Amount Spend Per Dissertation

The amount of money spent on completing each dissertation is presented by table 4 below.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under GH¢300	234	54.2	54.2	54.2
	GH¢300 - 600	173	40.0	40.0	94.2
	Over GH¢600	25	5.8	5.8	100.0
	Total	432	100.0	100.0	

From the table four, it can be seen that an average of GH¢300 is spent on each project. While 54.2% spent under GH¢300, 40% and 5.8% spent between GH¢300 to GH¢ and above GH¢600 respectively.

From the tables 1 to 4 it can be suggested that students put in optimum efforts into writing their dissertation. This means that all things being equal, they should be able to produce quality research papers.

ii. *Students Level of Research Knowledge*

Students knowledge level in dissertation writing is measured by their previous research training, personal appreciation of research, ability to do independent work without copying, sufficient understanding of the research process and knowledge on how to source for research materials. Tables 5 to 8 present the findings on these variables.

Table 5 : Previous Research Training

Table 5 below presents the findings on the student's training prior to writing the dissertation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	84	19.4	19.4	19.4
	Disagree	160	37.0	37.0	56.5
	Neutral	61	14.1	14.1	70.6
	Agree	97	22.5	22.5	93.1
	Strongly Agree	30	6.9	6.9	100.0
	Total	432	100.0	100.0	

From the table 5 above, 56.5% of the students believe that they do not have sufficient previous training to enable them write good dissertation. On the other hand 43.5% of the students are either not sure or do see themselves as having sufficient training that could help them write good dissertation. The result suggests that students lack the requisite previous training needed to write good dissertation.

Table 6 : Understanding of Research

The level of students' appreciation of research is presented by table 6 below.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	120	27.8	27.8	27.8
	Disagree	214	49.5	49.5	77.3
	Neutral	49	11.3	11.3	88.7
	Agree	40	9.3	9.3	97.9
	Strongly Agree	9	2.1	2.1	100.0
	Total	432	100.0	100.0	

The table six indicates that students think they have insufficient knowledge in research. This is reflected in the views of 77.3% of the respondents who either disagreed or strongly disagreed to the assertion that they have sufficient research knowledge to enable them conduct good research. This means that students' appreciation of the research process is very low.

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Table 7 : Writing Good Research Independently

Presented on table 7 is the students' reaction to independent work done.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	122	28.2	28.2	28.2
	Disagree	172	39.8	39.8	68.1
	Neutral	45	10.4	10.4	78.5
	Agree	58	13.4	13.4	91.9
	Strongly Agree	35	8.1	8.1	100.0
	Total	432	100.0	100.0	

The table 7 reveals that as many as 68.1% confessed their inability to do independent work, while 31.9% were either not sure or could not guarantee that their work was not independent. This shows that by students own estimation they hardly do independent work.

Table 8 : Knowledge of Sourcing for Materials

Table 8 presents the extent of students' knowledge in sourcing for research materials.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	130	30.1	30.1	30.1
	Disagree	191	44.2	44.2	74.3
	Neutral	47	10.9	10.9	85.2
	Agree	53	12.3	12.3	97.5
	Strongly Agree	11	2.5	2.5	100.0
	Total	432	100.0	100.0	

As presented by table 8 above, 74.3% disagree that they have what it takes to source for research materials. Only 35.7% either believed that they have the ability to source for research materials or were not too sure of themselves. Thus, we can say that in students' estimation sourcing for research materials is a setback to writing quality dissertation.

iii. *Students Perception Toward Research Writing*

Hoe students perceive HND dissertation writing is presented by tables 9 to 12. These tables try to measure students' perception in terms of whether dissertation at this level is a necessity, formality, should be replaced with course work, or should done in groups.

Table 9 : Necessity of Dissertation

Table 9 presents findings on whether students perceive research at HND level to be necessary or not.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	170	39.4	39.4	39.4
	Disagree	166	38.4	38.4	77.8
	Neutral	37	8.6	8.6	86.3
	Agree	37	8.6	8.6	94.9
	Strongly Agree	22	5.1	5.1	100.0
	Total	432	100.0	100.0	

The table 9 above shows that about 77.8% do not share the idea that HND dissertation is unnecessary. Only 22.2% think it is either not necessary or are in different. This implies that students see HND dissertation as very necessary.

Table 10 : Dissertation Just a Formality

The perception of students regarding whether dissertation is just a formality is presented by table 10 below.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	96	22.2	22.2	22.2
	Disagree	164	38.0	38.0	60.2
	Neutral	54	12.5	12.5	72.7
	Agree	94	21.8	21.8	94.4
	Strongly Agree	24	5.6	5.6	100.0
	Total	432	100.0	100.0	

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From the table 10, it is learned that only 27.4% consider dissertation as a formality. 60.2% think HND dissertation should not be taken as just a formality. This means that student believe that HND dissertation is of value and must continue.

Table 11 : Replace Dissertation with Course Work

The study sought to find out how students feel about replacing dissertation with a course work. This result is presented by table 11.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	89	20.6	20.6	20.6
	Disagree	139	32.2	32.2	52.8
	Neutral	51	11.8	11.8	64.6
	Agree	109	25.2	25.2	89.8
	Strongly Agree	44	10.2	10.2	100.0
	Total	432	100.0	100.0	

From table 11 above students prefer dissertation to course work as 52.8% would not want dissertation to be replaced by course work. On the other hand 35.4% prefer course work to dissertation, and 11.8% cannot choose between the two. This means that students would still want dissertation to continue in the syllabus.

Table 12 : Do Dissertation in Groups

Table 12 presents the views of students on the form that dissertation should be writing, either by groups or by individual.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	52	12.0	12.0	12.0
	Disagree	77	17.8	17.8	29.9
	Neutral	19	4.4	4.4	34.3
	Agree	124	28.7	28.7	63.0
	Strongly Agree	160	37.0	37.0	100.0
	Total	432	100.0	100.0	

The findings as presented by table 12 suggest that students when given the option students would choose group work over individual work. While 29.9% will opt for individual work, 65.7% prefer group work; while 4.4% could not decide.

iv. *Students Perception of Supervisor's Quality*

How students perceive the quality of their supervisors and supervision in general is described by tables 13 to 16. These tables measure students' perception of the supervisor quality construct with supervisor's perceived knowledge of research, supervision style, supervisor's technical guidance and supervisor's perceived training needs.

Table 13 : Supervisor's Knowledge in Research

Table 13 below presents the findings on students' perception of their supervisors' knowledge in research.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	15	3.5	3.5	3.5
	Disagree	14	3.2	3.2	6.7
	Neutral	9	2.1	2.1	8.8
	Agree	126	29.2	29.2	38.0
	Strongly Agree	268	62.0	62.0	100.0
	Total	432	100.0	100.0	

From the table 13 above, the findings suggest that by students' own estimation, supervisors have adequate research knowledge to guide students in dissertation writing. While 91.2% of the respondents agreed that the supervisors are knowledgeable enough, only 6.7% suspects the level of knowledge of supervisors, with 2.1% unsure of supervisors' research knowledge level. This means that supervisor's research knowledge does not in any way affect the quality of dissertation.

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Table 14 : Supervisor Adds to Confusion

Table 14 presents the result of how students assess the manner with which dissertation supervisors contribute to reduce students' anxiety in producing effective dissertation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	120	27.8	27.8	27.8
	Disagree	160	37.0	37.0	64.8
	Neutral	50	11.6	11.6	76.4
	Agree	68	15.7	15.7	92.1
	Strongly Agree	34	7.9	7.9	100.0
	Total	432	100.0	100.0	

The finding of table 14 indicates that students perceive their supervisors as doing little to make things clearer for them. From the result, 64.8% of the respondents believe that supervisors do not do enough to minimize students' anxiety in research writing; but 23.6% think supervisors do their best to alleviate anxieties, while 11.6% remain indifferent. This suggests that research anxiety negatively influence the quality of students' dissertation.

Table 15 : Supervisor's Technical/Professional Guidance

The table 15 presents the results of how students assess the amount and quality of technical and professional guidance provided by supervisors.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	13	3.0	3.0	3.0
	Disagree	33	7.6	7.6	10.6
	Neutral	35	8.1	8.1	18.8
	Agree	162	37.5	37.5	56.3
	Strongly Agree	189	43.8	43.8	100.0
	Total	432	100.0	100.0	

The findings by table 15 show that 82.3% of the respondents admitted that the supervisors provide sufficient technical and professional guidance for the dissertation writing. 10.6% find the technical and professional advice provided by supervisors as inadequate; while 8.1% are indifferent about the issue. This means that supervisors provide the needed technical and professional guidance needed to produce quality dissertation.

Table 16 : Supervisor's Research Training Needs

Table 16 below presents the findings on students' expectation on supervisor's research training needs based on the overall assessment of supervisor's contribution toward the writing of dissertation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	213	49.3	49.3	49.3
	Disagree	143	33.1	33.1	82.4
	Neutral	35	8.1	8.1	90.5
	Agree	28	6.5	6.5	97.0
	Strongly Agree	13	3.0	3.0	100.0
	Total	432	100.0	100.0	

As indicated by table 16 above, 82.4% of respondents believe that supervisors are experience enough to need any research training. While 9.5% thought that supervisors may need some amount of research training, 8.1% were not too sure whether supervisors will need research training or not. This result suggests that supervisors' training is not a prerequisite for improving the quality of dissertation produced at HND level.

b) Findings of the Physical Review of Dissertation

Hundred completed and approved dissertations ere physically reviewed to assess the quality of HND dissertation on the basis of problem identification, setting of SMART objectives, having the right methodology, originality of work, some contribution to knowledge and whether the findings relate to the objectives set.

The findings revealed that only 38% of the works were able to identify a research problem, which

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indicates that problem identification and definition is a key set back affecting the quality of HND dissertation.

Similarly, 90% of the dissertations could not outlined appropriate research methodology to guide the work. In most cases, methods used were different from methods outlined in the methodology chapter. This lack of appropriate research methodology affects research quality. Again, only 14% of the dissertations were original, which means that about 86% were either copied work or does not have any ingenuity. Similarly, just 8% of the dissertations contributed in some ways to knowledge. This suggested that HND dissertation is not able to achieve an important objective of adding to knowledge since students do not do independent work but usually copy existing works.

An interesting finding was that as much as 64% of the students were able to set SMART objectives. However, objectives were found to have no relationship with findings of the studies. Thus, the findings revealed that 85% of dissertation set one objective, while the findings address something unrelated to the objectives. This suggests that HND dissertation does not solve problems.

It can be concluded that HND dissertation is not effective when we consider the actual dissertation presented and approved by respective supervisors. The quality of research work is very low and hardly meets undergraduate research standards.

VI. Concluding Comments

In other to measure the effectiveness of undergraduate dissertation at HND level, the Business School of Takoradi Polytechnic was used. Two methods were used for the assessment, which include collection of data from 500 third year students writing dissertation in the Business School, and also review of 100 completed and approved dissertation. The review was to confirm the outcome of the survey conducted.

The findings of the survey agreed with that of physical review of the dissertation. For instance the findings of the survey indicated that students lacked sufficient training and knowledge of the research process. Students also could not do independent work when it comes to writing research, and found it difficult to source for research materials on their own. Again, students agreed that HND dissertation is necessary and must continue without replacing it with course work.

They however conceded that dissertation should discontinue to be written on individual basis but rather be done in groups. Though students perceived their supervisors to have adequate research knowledge and may not need further training to supervise dissertations, they are perceived to do little to alleviate students' research anxiety. Similarly, students believed that their supervisors do not give them the adequate technical and professional guidance they need to write dissertation.

These findings are supported by the review of 100 selected dissertations. In assessing the quality of dissertation, only SMART objective was found to be something that students could outlined. The findings show that students had serious problems with defining research problem, setting the appropriate methodology, doing original research, contributing anything to knowledge and more importantly addressing the research objectives by the research findings and analysis.

Therefore, it can be concluded from the findings of both the survey and the review that undergraduate dissertation at HND level is not effective.

Thus, the polytechnic authorities should either scrap the HND dissertation from the syllabus or find a better way to improve it. Considering how students believe that dissertation is necessary, it would be necessary that the latter suggestion is given more attention. Teaching of research method could taken more seriously, and be practical enough to give student requisite research knowledge. Research methodology must be treated as 'scoring' subject if not so already so that students will attach seriousness to the study of the subject. Though students prefer writing dissertation individually, a consideration of group work could help since sharing of ideas and cost shall alleviate some of the challenges associated with dissertation writing. Furthermore, supervisors must be encouraged to improve their research skills as well as their guidance skills to make dissertation writing encouraging to students. Finally, introduction of best research award to students could go a long way to enhance the effectiveness to HND dissertation.

This study has two main limitations. Firstly, the paper is only quantitative, which makes it was difficult to measure opinion and reasons for the quantitative responses. Secondly, the study used only Business School of Takoradi Polytechnic, the results of which may not reflect the position of Polytechnics in Ghana. Thus future studies may consider using both quantitative and qualitative research, while including other faculties and Polytechnics in the population and sample selections.

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Appendix 1 : Quantitative Questionnaire Construction

Please **tick** one from the multiple answers below based on your frank opinion, for each question from 1 to 15.

From question 8 to 15, ***strongly disagree*** denotes total disagreement to the statement, while ***strongly agree*** denotes total agreement to the statement. ***Neutral*** means you are not sure of the statement.

a) Respondent Profile

1. Program offered:
   Accountancy [ ] Marketing [ ]
   Purchasing/Supply [ ] Mgt/Secretaryship [ ]
2. Gender: Male [ ] Female [ ]
3. Gender of Supervisor: Male [ ] Female [ ]

b) Efforts Students' put into dissertation writing

4. On the average how many months did you use to write your dissertation?
   Under 2 months **[ ]** 2 – 4 months **[ ]**
   Over 4 months **[ ]**
5. On the average how many hours per week did you spend on your project during the period of writing your dissertation?
   Under 3 hour per week **[ ]**
   3–6 hours per week **[ ]** Over 6 hours per week **[ ]**
6. On the average how many hours did you use to meet your supervisor per week during the period of writing your dissertation?
   Under 2 hour per week **[ ]** 2–3 hours per week **[ ]**
   Over 3 hours per week **[ ]**
7. On the average how much did you spend on your dissertation?
   Under GH¢300 **[ ]** GH¢300 – GH¢600 **[ ]**
   Over GH¢600 **[ ]**

c) Students Level of Research Knowledge

8. My previous training in research is sufficient to help me write HND dissertation easily
   Strongly disagree [ ] Disagree [ ] Neutral [ ]
   Agree [ ] Strongly Agree [ ]
9. My understanding of writing dissertation is good enough

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Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]

10. I can write good dissertation on my own without any copy work
    Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]
11. I have little knowledge if any, on how to source for research materials

d) Students' Perception toward Undergraduate (HND) Dissertation Writing

12. I do not think HND Dissertation is so necessary
    Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]
13. I see NHD dissertation as just a formality
    Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]
14. HND Dissertation could be better replaced by a Course Work
    Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]
15. For effective dissertation, I think it can be done in groups, rather than by individuals
    Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]

e) Students Perception of Supervisor's Quality

16. I would say my supervisor is knowledgeable in dissertation writing
    Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]
17. My supervisor sometimes does enough to alleviated my anxiety in writing dissertation
    Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]
18. My supervisor made the research work difficult through his technical and professional guidance
    Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]
19. From experience I think my supervisor needs some training in research to be able to better supervise HND dissertation.
    Strongly disagree [ ] Disagree [ ] Neutral [ ] Agree [ ] Strongly Agree [ ]

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1. Choosing the topic: In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

2. Evaluators are human: First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

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6. Use of computer is recommended: As you are doing research in the field of Computer Science, then this point is quite obvious.

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21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

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26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

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28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

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30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

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33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

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Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
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- Please note the criterion for grading the final paper by peer-reviewers.

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A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

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- Insertion a title at the foot of a page with the subsequent text on the next page
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- Submitting a manuscript with pages out of sequence

In every sections of your document

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· Keep on paying attention on the research topic of the paper

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· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

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- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

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Approach:

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- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

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- Describe the method entirely
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- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

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- Resources and methods are not a set of information.
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The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

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Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
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- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
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- Never confuse figures with tables - there is a difference.

Approach

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- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
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- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

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Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
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References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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