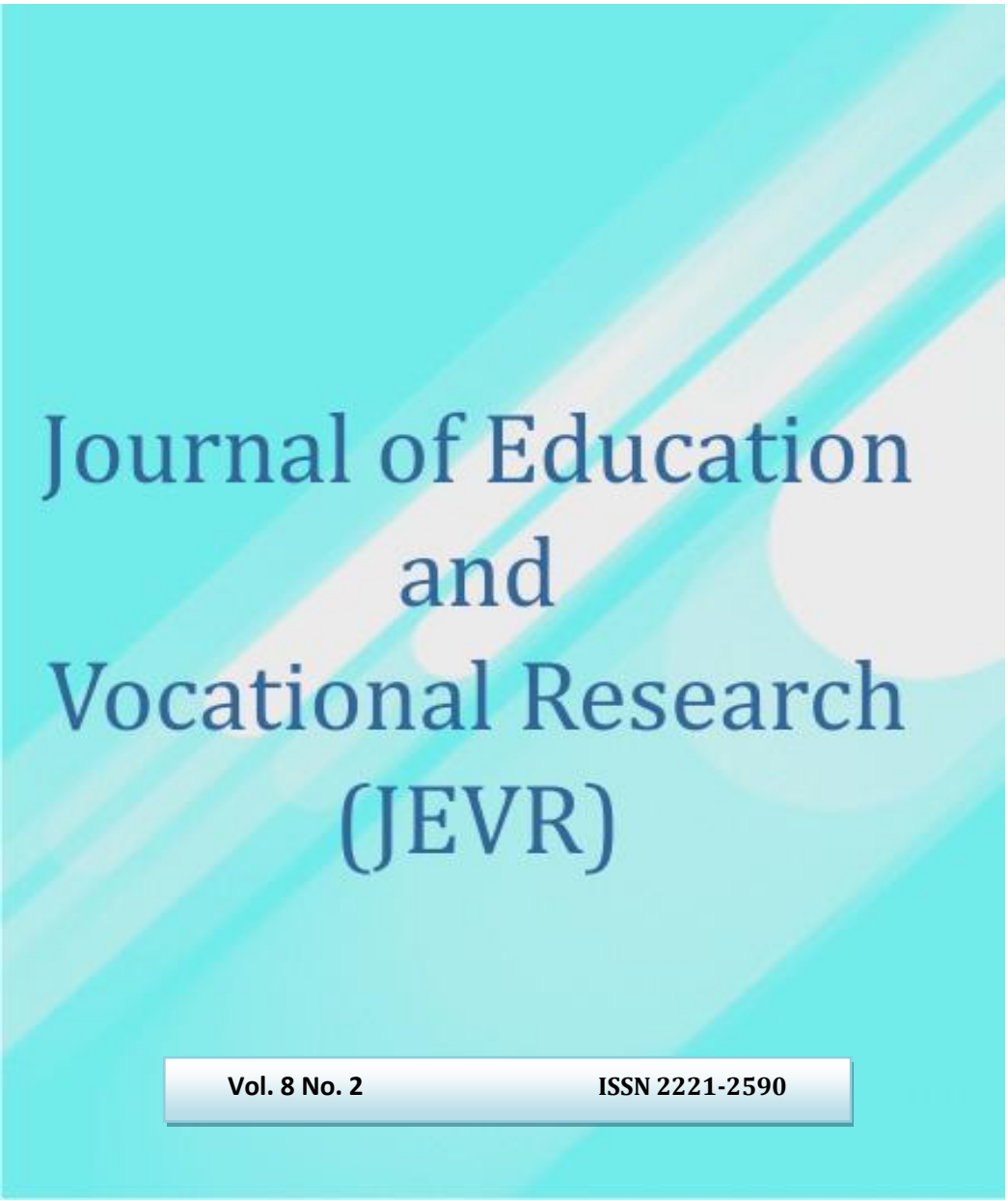

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Editorial

Journal of Education and Vocational Research (JEVR) provides avenue for quality research in the ever-changing fields of Education and Vocational Research and related disciplines. Work submitted for publication consideration should not be limited by any narrow conceptualisation of educaton and vocational research, but comprises interdisciplinary and multi-facet approaches to education and vocational theories and practices as well as general transformations in the fileds. Scope of the JEVR includes: subjects of educational technology, educational administration, educational planning, measurement and evaluation in education, developmental psychology, special education, distance learning, vocational education, technology-based learning, environmental education, business education, educational psychology, physical education, innovation, vocational training, knowledge management. Author(s) should declare that work submitted to the journal is original, not under consideration for publication by another journal, and that all listed authors approve its submission to JEVR. It is JEVR policy to welcome submissions for consideration, which are original, and not under consideration for publication by another journal at the same time. Author (s) can submit: Research Paper, Conceptual Paper, Case Studies and Book Review. The current issue of JEVR comprises of papers of scholars from Zambia, Scotland, Pakistan, South Africa and Indonesia. Competitive positioning of higher education institution, environmental education: role of physical environment in students' learning, disaggregated analysis of performances of grade 12 learners, public perception towards the impact of people activities in sand and stone mining on economy & environment and the effect of locus of control, time budget pressure & professional commitment on dysfunctional audit behaviour are some of the major practices and concepts examined in these studies. Journal received research submission related to all aspects of major themes and tracks. All the submitted papers were first assessed by the editorial team for relevance and originality of the work and blindly peer reviewed by the external reviewers depending on the subject matter of the paper. After the rigorous peer-review process, the submitted papers were selected based on originality, significance, and clarity for the purpose. Current issue will therefore be a unique offer, where scholars will be able to appreciate the latest results in their field of expertise, and to acquire additional knowledge in other relevant fields.

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PAPERS

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Competitive Positioning of a Higher Education Institution in Zambia: The Case of ZCAS

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Abstract: This study was the second phase of a larger research project that was designed to identify and measure a higher education institution's brand in Zambia in order to ascertain areas for strengthening the brand's competitive position. The objectives of this conjoint study were twofold: firstly, to identify the current position of the ZCAS brand as a case study and secondly, to establish the current position of the ZCAS brand relative to its higher education (HE) competitors in Zambia. This quantitative study involved administering a conjoint questionnaire to 110 first year students in ZCAS and 280 first year students in seven universities in the country. The 19 branding elements identified in the initial qualitative stage of the project were aggregated into five principal branding factors using Atlas.ti's co-occurrence tools to facilitate this conjoint study. These five principal branding attributes are teaching quality, fees, course availability, learning environment and employability. The study revealed that ZCAS has a fairly strong brand position in the Zambian HE sector because the most important elements in its brand model, i.e. course availability, teaching quality and facilities are also the premier brand dimensions in the market. The study also revealed that ZCAS needs to reposition itself away from the competition in order to occupy a more favorable position in the minds of its prospective and existing customers. Accordingly, the study recommends that ZCAS increases its course offerings and collaborates with universities in the region. ZCAS should also consider setting up a quality assurance unit to foster quality in the institution. This study adds to the increasing body of knowledge on HE branding, particularly in developing countries, by developing and then testing a brand orientation model for the Zambian HE market.

Keywords: *Competitive positioning, brand, higher education, conjoint analysis, Zambia*

1. Introduction

There is no doubt that the global competition for university students has been on the rise in recent times (UNESCO-UIS, 2016a). According to UNESCO-UIS (2012a), the worldwide increase in competition for students has been spurred by globalization of the higher education marketplace and reduction in state funding to the sector. Bryman and Bell (2011), therefore suggests that to be more competitive, universities must become more brand oriented to increase their visibility, differentiation and market share. The growth in global competition in the HE sector can be seen from the increase in mobility of students globally, regionally and even at national level. For example, between 2000 and 2014 the outbound internationally mobile tertiary students studying abroad more than doubled from 1.8 million to 3.8 million (UNESCO-UIS, 2016b). UNESCO-UIS (2012b) shows that in Zambia the number of students studying abroad, even though relatively small, has almost doubled from 2,535 in 1998 to 4,991 in 2010. In the case of Zambia, no published empirical research has yet been carried out on competitive positioning of higher education institutions; hence the country's HEIs may be ill-equipped to compete successfully both regionally and internationally. The design, location and contextual culture of this study are tailored to the Zambian higher education (HE) sector, making it more relevant and justifiable in addressing competitive positioning in the country's HEIs. The research question posed for this study was therefore: '*How can a higher education brand be measured and used for competitive positioning in Zambia?*'

2. Literature Review

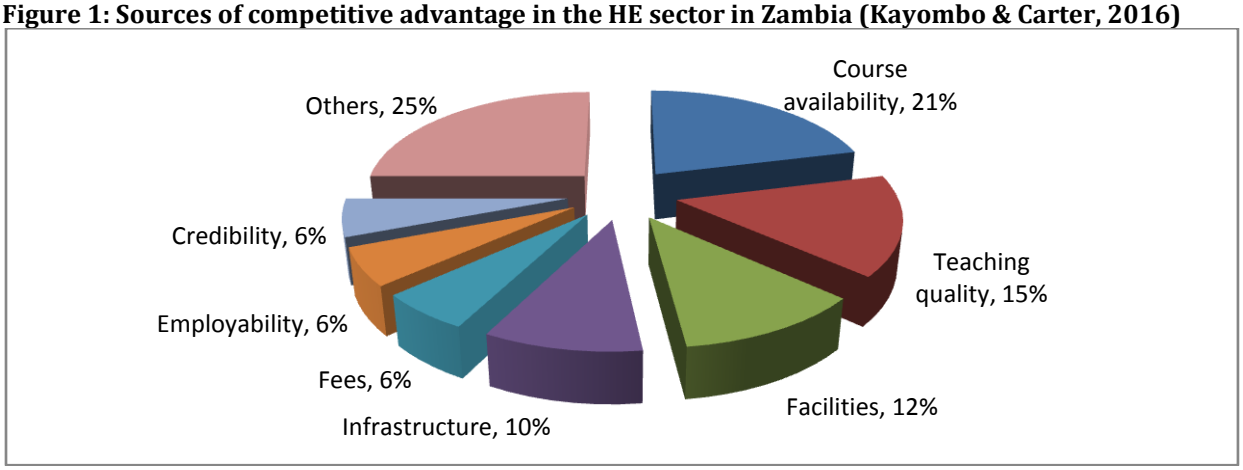
This literature review focuses on competitive positioning in higher education. It covers the sources of competitive advantage, the application of positioning to higher education institutions and the use of perceptual mapping in positioning. A discussion of sources of competitive advantage that can be used in positioning HEIs in Zambia is also provided.

Sources of competitive advantage: A brand's competitive advantage arises from two sources, namely cost leadership and differentiation (De Chernatony, McDonald & Wallace, 2011, pp.324-329; Dibb, Simkin, Pride, & Ferrell, 2006, pp.49-50; Porter, 1985, p.3). These two sources are not mutually exclusive and can be applied to entire markets or focused on market niches. De Chernatony et al. (2011, pp.324-329) posit that cost leadership creates value for consumers because it costs them less to buy the brand than competing brands offering similar benefits ('cost-driven' brands e.g. EasyJet, McDonald's, Aldi, Lidl and Travelodge), while differentiation creates unique benefits for consumers ('value-driven' brands e.g. Apple Mac, Porsche and Harrods' Food Hall). Kotler and Keller (2012, p. 312) suggest that differentiating a brand from competing brands can be achieved in several ways. These include employee differentiation, channel differentiation, image differentiation and service differentiation. On the other hand, cost leadership can be achieved through selecting cheaper sources of raw materials, volume discounts, economies of scale, use of technology in production, dealing with large order customers only, rationalizing the product/service range, gaining experience faster than competitors and reducing service levels (De Chernatony et al., 2011, pp.323-324).

In order to compete effectively, a firm should understand its micro and macro competitive environments (Kotler & Keller, 2012, pp.298-301; De Chernatony et al., 2011, pp.324-329; Dibb et al., 2006, pp.50-52). Porter's Five Forces model (with competitors, suppliers, buyers, substitute products and new entrants as the forces) or similar adaptations such as Interbrand Five Forces (competitors, distributors, consumers, corporation and macro-environment) that influence brand potential can be used to analyze the competitive environment (De Chernatony et al., 2011, pp.58-63; Dibb et al., 2006, pp.51-52; Porter, 1985, pp.4-5). Originally designed for commercial organizations, these models can be applied to higher education because of the competitive environment in which HEIs are now operating and their increased commercialization and marketisation. Porter's model for example, has been used in studies in higher education such as Huang's (2012) and Mazzarol and Soutar's (1999) research on competitive advantage in Taiwanese and international HE respectively.

Sources of competitive advantage in Zambian HEIs: Kayombo and Carter (2016) identified course availability, teaching quality, facilities and infrastructure as the top four sources of competitive advantage in the Zambia HE marketplace (see Figure 1 below). Credibility, fees, and employability were tied in fifth place. These findings were similar to other research findings such as Huang (2012), and Lynch and Baines (2004), although the degree of importance of the factors was different due the differing economic environments in which the studies were carried out. These factors form the basis for the competitive positioning study between ZCAS and its competitors in Zambia.

Figure 1: Sources of competitive advantage in the HE sector in Zambia (Kayombo & Carter, 2016)



Competitive positioning: Dibb et al. (2006) and Ries and Trout (2001) view positioning as the act of designing a company's offering and image to occupy a distinctive place in the mind of the prospect (target market). Positioning can be done to anything or anyone e.g. a product, organization or CEO (Kotler & Keller, 2012; Ries & Trout, 2001). It follows therefore that in the context of universities and colleges, it should be possible to brand or position the institution as a whole (e.g. Harvard or Cambridge or Oxford), a school within

the university (e.g. Stanford Graduate School of Business, Harvard Business School or London Business School) or the programs offered (e.g. Global MBA). Furthermore, positioning could be done to key employees such as the vice chancellor or CEO or even to a specific campus location.

Kotler and Keller (2012) assert that 'positioning requires that marketers define and communicate similarities and differences between their brand and its competitors'. They recommend three stages, namely:

- Determine target market and competitive environment;
- Identify optimal points of difference (PODs) (unique and superior brand attributes or benefits perceived desirable, deliverable and differentiating by consumers) and points of parity (POPs) (essential brand attributes or benefits shared by other brands). Choice of specific PODs and POPs can be done using perceptual maps – visual depictions of consumer perceptions and preferences to identify 'holes' or 'openings' of unmet consumer needs and marketing opportunities.
- Create a brand mantra ('brand essence', 'core brand promise' or articulation of the heart and soul of the brand) to summaries the positioning and essence of the brand.

Kotler and Armstrong (2005) assert that product/service and corporate brands can be positioned based on three levels. They illustrate these levels using toothpaste. At the lowest level, positioning can be based on attributes (e.g. toothpaste's innovative ingredients and good taste). Secondly, positioning could be based on desirable benefits (e.g. the toothpaste's cavity prevention and teeth whitening benefits). Finally, product/service and corporate brands can be positioned based on beliefs and values (e.g. emotions such as 'healthy, beautiful smiles for life'). Various competitive positions can also be adopted in different market segments, for example, as market leader, market challenger, fast mover, market follower or market nicher (Dibb et al., 2006).

University brand positioning: Most university brand positioning studies have required research participants to rank/rate individual brand factors that attract/attracted them to the HEI (Afful-Broni & Noi-Okwei, 2010; Ali-Choudhury et al., 2009; Carter & Yeo, 2009; Krampf & Heinlein, 1981; Songan et al., 2010). Although these studies succeeded in identifying the important branding factors that attracted the students to the universities, simply rating/ranking the university choice criteria does not reflect the actual decision process of consumers who are faced with multiple attributes. As Hooley and Lynch (1981) observe, consumers faced with multiple attributes consider personal constraints and trade off preferable factors for less attractive ones in making university choices. In order to overcome this deficiency, other studies have used conjoint analysis principles by asking participants to rank bundles of factors in a tradeoff situation (Hagel & Shaw, 2008; Hooley & Lynch, 1981; Kusumawati, 2011; Moogan, Baron, & Bainbridge, 2001; Soutar & Turner, 2002). Conjoint analysis reveals the relative importance of each attribute in the decision process and therefore mimics the actual thought processes of consumers. However, the technique fails to identify the consumer's perception of the importance of individual attributes.

The current study combined both approaches. The first section of the data collection instrument elicited research participants to rank the university choice criteria, while the conjoint experiment was carried out in the second section of the questionnaire. By combining both approaches, the current study does not only reveal the branding factors that students perceive to be important, but also those elements' relative significance in the actual decision process. In the context of this study, the research objectives are therefore as follows:

- *to identify the current position of the ZCAS brand as a case study; and*
- *to establish the current position of the ZCAS brand relative to its higher education competitors in Zambia.*

Perceptual mapping: To achieve the research objectives above, perceptual maps based on students' perception of their respective HEIs were constructed. Kotler and Keller (2012, p.305) define perceptual maps as 'visual representations of consumer perceptions and preferences'. By depicting consumers' views on products/services using various attributes, marketers can identify consumer needs that are yet to be met and marketing opportunities yet to be exploited. Kotler and Armstrong (2005) refer to perceptual maps as positioning maps or perceptual positioning maps. These maps can be used in planning positioning strategies because they depict consumers' views of an organization's brands versus competing brands on principal

buying dimensions. The company's offerings can therefore be more appropriately positioned or repositioned. According to Fill (2006, pp.378-379) brand maps can serve several roles including:

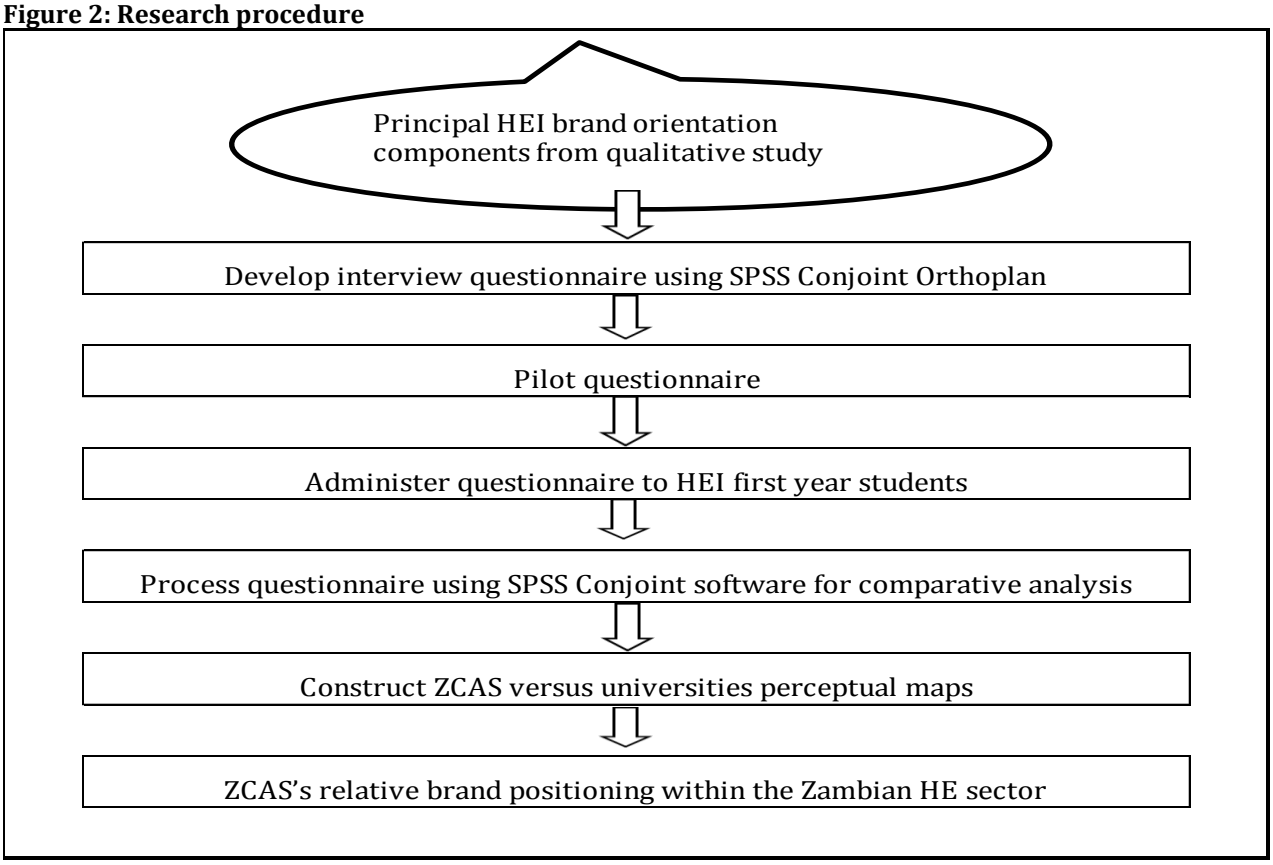
- Determining the level of competition in a market (the closer the brands are clustered together, the greater the competition).
- Identifying substitute products – substitute products are normally close to each other on the map.
- Identifying ideal brands i.e. the most preferred combination of brand attributes in a market. The ideal brand's position can be used to position or reposition an organization's brands.
- Developing and evaluating the effectiveness of marketing strategies in affecting consumer perceptions.

3. Methodology

This section outlines the methodology that was adopted to implement the study. The study was quantitative in approach. The survey strategy, utilizing a conjoint questionnaire, was chosen for the research. The conjoint analysis technique in SPSS was used in data analysis. These methodological choices are discussed in detail below.

Conjoint survey: A survey utilizing a conjoint questionnaire based on the HE branding components identified by Kayombo and Carter (2016) was used to measure the extent of brand positioning among a sample of HEIs in Zambia. Hooley and Lynch (1981) define conjoint analysis as 'a de-compositional approach to modeling the relative importance of individual attribute components in creating overall preference for multi-attribute alternatives'. Conjoint analysis seems to mimic the actual decision making process because of the assumptions inherent in the technique such as people evaluating a limited number of options as bundles of attributes rather than as whole products; and compensating good performance on one attribute for poor performance on others (Kusumawati, 2011). In order to ensure credibility of the conjoint study, the experiment was based on the seven stage process in Hair, Black, Babin, and Anderson (2010). The research procedure for this study is illustrated in Figure 2 below.

Figure 2: Research procedure



Attributes and attribute levels for conjoint study: The qualitative study reported by Kayombo and Carter (2016), which was the first phase of the current research, identified 19 branding factors that students consider when choosing Zambian HEIs. Such a large number of attributes would be impossible to manage in a conjoint experiment. Therefore, Atlas.ti's co-occurrence tools were used to derive five factors from the 19 to facilitate the conjoint study. These were academic reputation, fees, course availability, employability and learning environment. These factors and their respective levels are described in Table 1 below.

Table 1: Attributes and attribute levels

No	Attribute	Description	Attribute level	Adapted from
1	Academic reputation or teaching quality	This refers to the fame of the HEI and the esteem in which it is held by the public. Many factors affect academic reputation, including, age of institution; attitude, qualifications and experience of staff.	a) Outstanding b) Average c) Poor	Hooley & Lynch, 1981; Kusumawati, 2011; Moogan *et al.*, 2001; Soutar & Turner, 2002
2	Total expenses	Total fees payable for entire program as well as flexibility in payment methods. Also included are discounts, availability of scholarships and bursaries.	a) Low or inexpensive b) Average or affordable c) High or expensive	Hagel & Shaw, 2008; Kusumawati, 2011
3	Course availability	This refers to the number of programs and courses a HEI offers. It also refers to whether the courses are available on full time, part time, distance learning, e-learning and block release.	a) Just what I want b) More or less what I want c) Not really what I want	Hooley & Lynch, 1981; Moogan et al., 2001; Soutar & Turner, 2002
4	Employability (job prospects)	This refers to the availability of employment opportunities upon graduating from the HEI.	a) Good b) Average c) Poor	Kusumawati, 2011; Soutar & Turner, 2002
5	Learning environment	This is the aura, climate and general feel of the university including its location, infrastructure and facilities (e.g. libraries, learning materials and IT facilities); also includes physical aspects of environment such as cleanliness, hygiene, greens and architecture.	a) Conducive b) Average c) Poor	Kusumawati, 2011; Soutar & Turner, 2002

Sampling frame and sample size: The sampling frame for this study comprised a list of first year students in all the 20 HE institutions that were considered for the study. Such a list was impracticable to obtain as some of the universities were reluctant to provide detailed information about their students. Consequently, probability sampling was not used due to the absence of a sampling frame (Saunders, Thornhill, & Lewis, 2009). Instead, non-probability sampling, and in particular, quota sampling techniques were employed in selection of the sample, with quotas being determined by the geographical location of the universities. Even though quota sampling is non-random, it is assumed that the sample represents characteristics of the population because of the quotas selected (Bryman & Bell, 2011; Saunders et al., 2009).

Samples selected other than by probability sampling (except quota sampling as argued by some researchers) are generally considered to be unrepresentative of the population, hence results might not be generalizable to the population. However, Bryman and Bell (2011, pp.187-188) and Saunders et al. (2009, pp.217-218) assert that the error of generalizing to the population reduces as the absolute sample size increases because the distribution of a large sample is closer to the normal distribution. It is therefore envisaged that the large sample of 390 respondents in this phase of the study, albeit selected non-randomly, facilitates statistical

inferences to be made about the population. In the case of ZCAS where there are several tuition delivery methods (e.g. full time and evening/part time classes), sample representativeness was enhanced because the quota system ensured that most aspects of the population were considered; for example, part time students, full time students, students undertaking degree programs and those on professional courses were included in the sample (Bryman & Bell, 2011, p.193; Saunders et al., 2009, p.235). It is envisaged that this procedure also assisted in minimizing systematic error that could result from quota sampling.

Conjoint questionnaire design and administration: The conjoint procedure in IBM SPSS Statistics 20 was used to generate an orthogonal array of 22 attribute combinations (i.e. 18 experimental attribute bundles and four holdout cases). Hair et al. (2010) strongly recommend that in order to ascertain the validity or prediction power of the conjoint model, holdout cases should be included in the conjoint profile list. Holdout cases are factor-level combinations similar to the orthogonal array generated for the study. They are rated by survey participants but are not used in building the preference model. In line with similar conjoint studies such as Hagel and Shaw (2008), Hooley and Lynch (1981), and Kusumawati (2011), four holdout cases were included among the 22 stimulus cards. The questionnaire designed for the study (see Appendix 1) was pre-coded and pilot tested to enhance its reliability, validity and practicability (Bryman & Bell, 2011; Saunders et al., 2009). 20 pilot 'cards' or questionnaires were printed to elicit a sample of first year students' views on the practicability of this data collection instrument. Following the pilot study, adjustments were made, including a change in design and administration of the questionnaire. An example of the resultant full profile card is shown in Table 2 below.

Table 2: An example of a Full Profile Card and rating criteria

Bundle Number 3										
Card ID	Academic reputation or teaching quality of institution	Total expenses for entire program until completion	Job prospects	Learning environment and facilities	Availability of course	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
3	Poor	High	Good	Average	Just what I wanted					

A questionnaire survey was conducted in ZCAS, the main case study organization, and seven universities. Of these eight HEIs, two represented six public HEIs (about 33%) while the rest represented 14 of the private universities in the country (about 43%). In terms of geographical spread two were from seven of the HEIs in the north of the country (about 29%), five were from 11 of those in Lusaka or central Zambia (about 45%) and one was from the two in the south (50%). The sample size of 390 students from eight out of 20 HEIs was considered large enough to enable statistical inferences to be made about the population. Many similar studies have been conducted in a much smaller number of universities (Afful-Broni & Noi-Okwei, 2010; Hagel & Shaw, 2008; Wiese et al., 2009). First year students were considered suitable because they had just gone through the HE decision making process and were therefore more likely to have fresher memories of the branding dimensions considered than final year students, for example. Many similar studies have focused on first year undergraduate students to elicit HE branding dimensions (Afful-Broni & Noi-Okwei, 2010; Carter & Yeo, 2009; Kusumawati, 2010).

390 questionnaires were administered to students during classes, thereby assuring a high response rate. Given that the response rate was 100%, this sample was quite large for a conjoint study and helped in controlling measurement error. The use of a conjoint questionnaire survey in this research project was reinforced by other branding studies in a university context (Hooley & Lynch, 1981; Kusumawati, 2011; Soutar & Turner, 2002). All questionnaires were cross-checked for errors and incomplete sections. Erroneously completed and incomplete questionnaires were discarded before further processing. IBM SPSS 20 was used to process and analyze the questionnaire data, with student perceptions of their HEI brand attributes being the unit of measurement.

Credibility of research findings: Saunders et al. (2009) assert that reliability in survey research employing a questionnaire largely depends on questionnaire design, structure and rigor of pilot testing. In the context of

this study, the conjoint questionnaire was generated using SPSS Conjoint Orthoplan and Plancards software and was pilot-tested within ZCAS, thereby enhancing its reliability, validity and practicability. Reliability of the actual questionnaire results was measured using Cronbach's alpha, α, which is a very common measure of internal reliability (Bryman & Bell, 2011). Having processed the conjoint questionnaire results in SPSS, the reliability statistics generated indicated Cronbach's alpha of .779 and Cronbach's alpha based on standardized items of .795. Both values were above 0.7, indicating that the questionnaire measured what it intended to measure; hence the results could be taken as reliable. Validity of the findings was established in two ways. Firstly, by using triangulation (Bryman & Bell, 2011; Saunders et al., 2009), the findings from this study (i.e. students' perceptions of their HEI brands) were compared to the research findings from the first research reported by Kayombo and Carter (2016). Secondly, goodness-of-fit measures (i.e. Pearson's R and Kendall's tau) were calculated for the estimation and hold-out samples in the conjoint experiment (Hair *et al*., 2010; IBM, 2011).

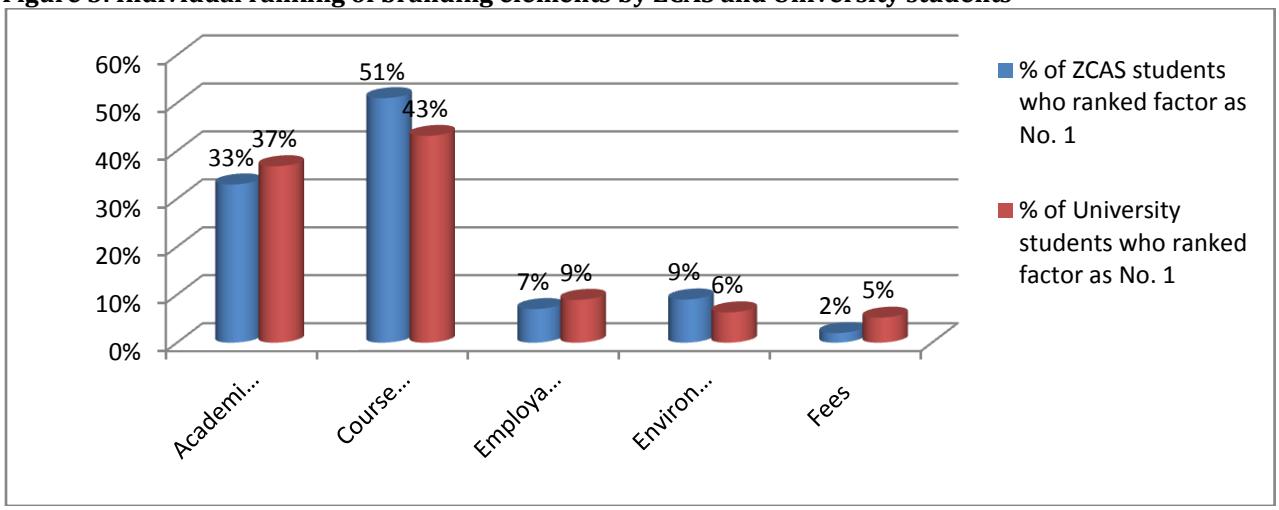
4. Findings and Discussion

This section is an outline and analysis of the research findings. As stated above, the objectives of this conjoint study were twofold: firstly, to identify the current position of the ZCAS brand as a case study; and secondly, to establish the current position of the ZCAS brand relative to its higher education competitors in Zambia. The research findings and analysis are presented on the basis of these objectives.

ZCAS' brand position in the Zambian higher education sector: In order to identify the current position of the ZCAS brand, a conjoint questionnaire was administered to a sample of 110 first year students in ZCAS. The questionnaire required the research participants to rate factor profiles based on the principal branding elements that attracted them to the institution. Their ratings for choosing ZCAS were then compared to the principal branding elements in Zambia as ascertained in the first research reported by Kayombo and Carter (2016). Of the 110 questionnaires administered at ZCAS, 6 were found unusable due to missing data, leaving a total of 104 that were used in the analysis. 70% of the respondents were female while the rest were male. In terms of age 58% were aged 25 or lower, 24% were aged between 26 and 35 years while 18% were over 35 years old. The demographic data were as expected. For example, more females are entering higher education in Zambia due to calls by the government and civil society organizations to educate the girl-child. Similar recent studies have also found more female than male respondents in African HEIs (Afful-Broni & Noi-Okwei, 2010; Wiese et al., 2009).

Ranking of the five main branding elements by ZCAS students: The first part of the questionnaire required respondents to rank the five main branding factors from number 1 to 5, with the most important factor that attracted the student to ZCAS being ranked number 1 and the least important as number 5. As shown in Figure 3 below, half of the sampled ZCAS students ranked course availability as their greatest attraction to ZCAS. Academic reputation was ranked second (by 33%), followed by learning environment (by 9%) and employability (by 7%) in third and fourth places respectively. ZCAS fees were not considered attractive. In the case of ZCAS, the ranking of course availability as the number 1 attraction could be because the institution offers tuition for world renowned professional qualifications such as ACCA, CIMA, CIM and CIPS). Additionally, the institution offers undergraduate and post graduate degree programs in collaboration with highly rated world class partners such as the London School of Economics and Political Science. ZCAS therefore seems to benefit from these strong brands as the courses offered are highly reputed and very attractive to potential students. With regard to teaching quality, ZCAS maintains stringent quality controls over lecturers. For example, whereas punctuality and absenteeism from class may be a common challenge for lecturers in public universities in Zambia, ZCAS lecturers are strictly monitored to ensure that learning is not disrupted. Coupled with a student-centered organizational culture, ZCAS seems to have created a favorable perception of the institution's academic reputation.

Figure 3: Individual ranking of branding elements by ZCAS and University students



Similarly, it is not surprising that the learning environment at ZCAS came third in the ranking. ZCAS boasts of relatively good facilities; and from the researcher's visits to most HEIs, very few can compare with ZCAS' infrastructure and facilities in the country. Fees charged by ZCAS were ranked as the least attractive factor. This is understandable too, given that, unlike most other students in government HEIs, ZCAS students do not have access to government bursaries and therefore have to pay the full commercial fees the institution charges. The findings from the direct ranking of the factors by ZCAS students are similar to those for other studies in an African context. For example, Afful-Broni & Noi-Okwei (2010) found that academic reputation, availability of desired program and quality of teaching had the most influence on students' choice of a Ghanaian university, while Wiese *et al*. (2009) concluded that teaching quality exerted the most influence on HE choice in a sample of South African universities. Similarly, these studies found that fees were not of much concern to students.

ZCAS conjoint analysis: The conjoint module in IBM SPSS 20 software was used to analyze the data. Reliability of the questionnaire results was measured using Cronbach's α, which at 0.779 indicated that the results could be taken as reliable. A description of the conjoint model is given in Table 3 below. The model assumes that potential students consider branding elements as a bundle or set, not as individual factors. A deficiency in one factor can therefore be traded off or off-set by other factors when choosing a particular HEI. The model also assumes that the relationship between the factors and scores is linear i.e. for reputation, employability, environment and course availability, the higher the respondent's score, the greater the preference or utility for that factor. On the other hand, the presumed preference structure for fees has an inverse linear relationship between scores and preference, i.e. the higher the level of fees, the lower the preference.

Table 3: Conjoint Model Description

Factor	Number of Levels	Relation to Scores
Reputation	3	Linear (more)
Fees	3	Linear (less)
Employability	3	Linear (more)
Environment	3	Linear (more)
Course	3	Linear (more)

All factors are orthogonal.

Three goodness-of-fit measures were provided by the analysis software i.e. Pearson's correlation and Kendall's tau for the estimation sample as well as Kendall's tau for the validation sample. These measures are as shown in Table 4 below. Hair et al. (2010) assert that for an estimation process involving 18 profiles and five attributes (as was the case in this conjoint study), the minimum correlation should be .55, while a correlation of .707 would be required if the estimation process was to explain at least 50% of the variation. The high correlation statistics for the estimation sample (i.e. Pearson's *r* of .936 and Kendall's tau τ of .708) indicates strong fit between the model and the obtained data and strongly suggests that the conjoint analysis was valid. Similarly, the Kendall's tau for hold-outs of 1.000 indicates strong correlation between the predicted model and the validation sample. Given that the hold-out set had only four profiles, a high Kendall's tau suggests overall suitability of the main effects model (Hair et al., 2010; Kusumawati, 2011).

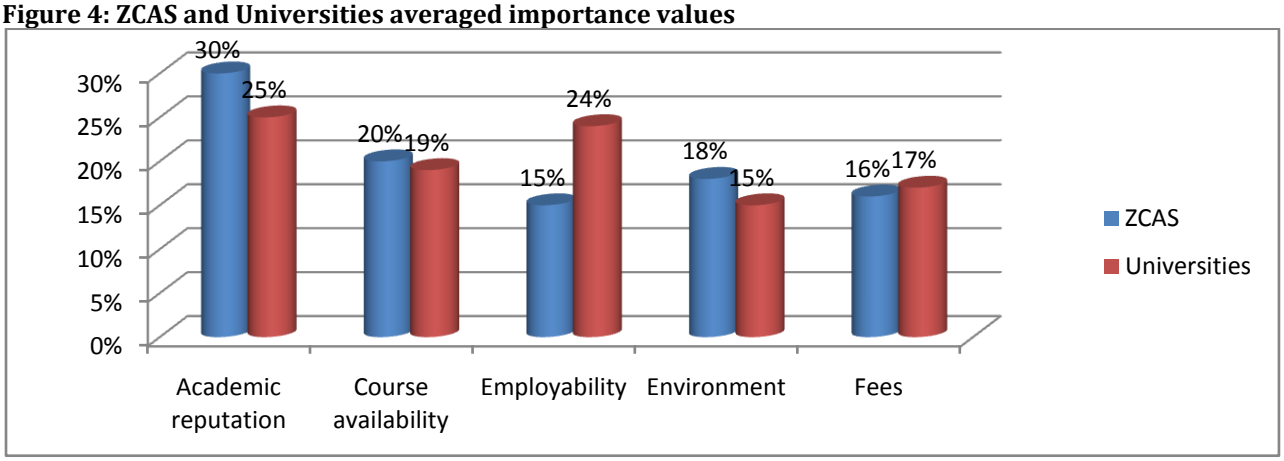
Table 4: Goodness-of-fit measures for ZCAS and Universities Conjoint, Correlations[a]

	Value		Sig.	
	ZCAS	Universities	ZCAS	Universities
Pearson's R	.936	.883	.000	.000
Kendall's tau	.708	.638	.000	.000
Kendall's tau for Holdouts	1.000	.667	.021	.087

a. Correlations between observed and estimated preferences

The conjoint analysis results revealed that ZCAS' academic reputation/teaching quality (30%) was the most important attribute in attracting students to the institution. This was followed by course availability (20%), learning environment (18%), fees (16%) and lastly employability (15%). The results are as shown in Figure 4 below.

Figure 4: ZCAS and Universities averaged importance values



As shown in Table 5 below, further analysis of the conjoint results suggests that ZCAS students had high preference for outstanding teaching quality (with mean utility of 1.370). The preference level declined as the teaching quality deteriorated. Similar attribute level results were also observed for employment prospects, learning environment and course availability. Surprisingly, the results suggest that ZCAS students prefer high fees (mean utility = .459) to average fees (mean utility .306) and worse still low fees (mean utility = .153). This could be because:

- As suggested by some of the interviewees during the qualitative phase of the study, low fees signal poor quality of service; hence students and their sponsors found comfort in higher fees.
- Since most of the first year students are sponsored by their parents, guardians or employers (who did not take part in the survey), fees may not pre-occupy them so much because they may not directly experience the impact of high fees.

- Research participants were already enrolled in the institution, implying that they could afford the fees. The impact of fees on the HE choice decision might have been different if the survey had been conducted among prospective students.

The ZCAS conjoint analysis results are similar to those from other studies. For example, Hooley and Lynch (1981), and Soutar and Turner (2002) identified course suitability and academic reputation as top three preference factors. However, the results are not entirely congruent with those for the direct ranking of the branding factors shown in Figure 3 above. For example, whereas ZCAS students ranked course availability (51%) and teaching quality (33%) as their respective number 1 and number 2 major attractions to the institution, the conjoint experiment suggests that teaching quality (30%) plays a more important role than course availability (20%) when it comes to making actual choices in a tradeoff situation. Therefore, the model assumption that potential students consider personal constraints and perceive HE choice criteria as bundles of factors when choosing higher education institutions is upheld. In other words, even though potential ZCAS students think that course availability is their major attraction to ZCAS, this factor is traded-off against the other factors, particularly teaching quality, in the final choice of HEI. Similarly, even though employability was ranked above fees in the direct ranking, fees play a slightly more important role in the final HEI choice decision.

Table 5: ZCAS and Universities conjoint attribute level utilities

Attribute	Attribute level	Utility Estimate		Std. Error	
		ZCAS	Universities	ZCAS	Universities
Reputation	Poor	.457	.395	.068	.090
	Average	.913	.790	.136	.180
	Outstanding	1.370	1.185	.203	.270
Fees	Low	.153	.041	.068	.090
	Average	.306	.082	.136	.180
	High	.459	.124	.203	.270
Employability	Poor	.140	.374	.068	.090
	Average	.280	.747	.136	.180
	Good	.421	1.121	.203	.270
Environment	Poor	.264	.078	.068	.090
	Average	.527	.156	.136	.180
	Conducive	.791	.234	.203	.270
Course	Not really what I wanted	.258	.199	.068	.090
	More or less what I wanted	.516	.397	.136	.180
	Just what I wanted	.774	.596	.203	.270
(Constant)		-.019	.396	.396	.409

The research objective applicable to this phase of the study is: *To identify the current position of the ZCAS brand as a case study*. In order to establish this research objective, students' perceptions about the ZCAS brand from both the direct ranking and conjoint analysis in the current research were compared to the Zambian principal branding factors identified in the earlier qualitative stage of the project. The results from the direct ranking and conjoint analysis discussed above indicate that teaching quality and course availability play a crucial role in students' perception and choice of ZCAS. These two brand factors are also very important branding elements in the Zambian HE market because the content analysis carried out in the qualitative stages of the research project identified teaching quality as the most important branding factor in

Zambia, while course availability was seen as the most significant source of competitive advantage by Zambian university marketing executives (Kayombo & Carter, 2016). It can therefore be concluded that ZCAS has a strong brand position in the Zambian HE market because its premier brand factors i.e. teaching quality and course availability are also the most important in the country as a whole.

ZCAS' comparative brand position in the Zambian higher education sector: In order to investigate the second research objective regarding the current position of the ZCAS brand relative to its HE competitors in Zambia, the conjoint questionnaire was also administered to 280 first year students in seven universities. 269 questionnaires were found usable for the analysis. 94% of the respondents were aged 25 and below while 54% were female. Unlike the ZCAS sample that comprised full time and evening students, all university respondents were full time students as most such institutions do not offer evening classes. This explains why most of the respondents were aged 25 and below.

Ranking of the five main branding elements by university students: As shown in Figure 3 above, course availability (43%) and academic reputation (37%) were ranked as the two most important factors in student choice of university. Like other studies in an African context such as Afful-Broni and Noi-Okwei (2010) and Wiese et al. (2009), the other factors played a limited role (employability 9%; environment 6% and fees 5%). Except for environment and employability (ranked third and fourth respectively by ZCAS students), the positions of the other factors are identical to ZCAS. Employability seems to be of greater concern to university students than ZCAS students. This could be because students in private universities were concerned about the recognition of these institutions. Qualifications obtained from private universities might therefore be perceived to be less attractive on the job market, hence this factor having a greater bearing on the choice decision.

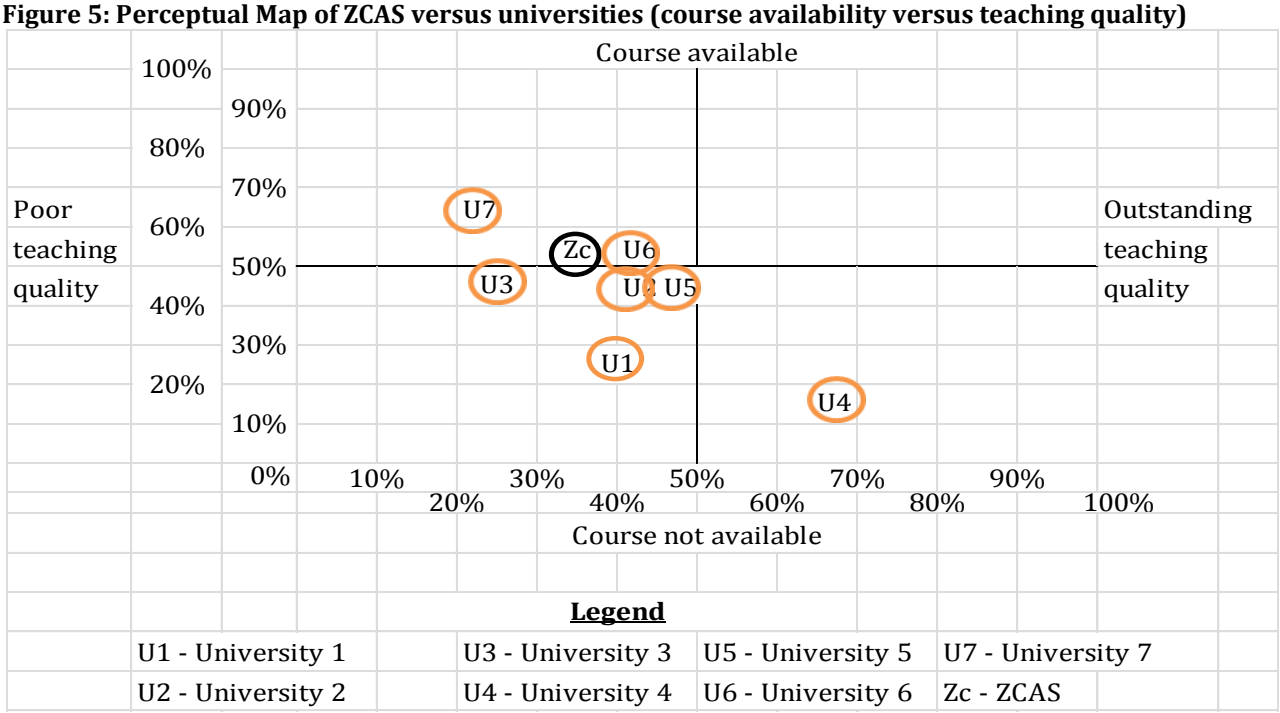
Universities conjoint analysis: The conjoint analysis results presented in Figure 4 above revealed that academic reputation (25%) had the most influence on choice of university. This was closely followed by job prospects (24%). Course availability (19%), fees (17%) and learning environment (15%) had less impact on university choice decision. Further analysis of the conjoint results suggests that university students had high preference for outstanding teaching quality with mean utility of 1.185 (see Table 5 above). The preference level declined as the teaching quality deteriorated. Similar attribute level results were also observed for employment prospects, learning environment and course availability. Surprisingly, university students, just like their ZCAS counterparts, do not mind higher fees. Similar reasons as to why fees are not a significant influence on ZCAS students' choice decision may also be at play here i.e. low fees signaling poor quality and fees not being an issue because the students themselves not actually being the ones paying the fees, for example. Additionally, for students in public universities, Government bursaries help to cushion the impact of high fees, resulting in this factor having a reduced bearing on university choice decision.

The conjoint analysis results for university students are not entirely congruent with those for the direct ranking of the branding factors shown in Figure 3 above. As for ZCAS students, it is interesting to note that even though university students ranked course availability as their greatest attraction to their universities, this was not reflected in the actual choice decision. When confronted with practical situations in which they had to consider all factors and make some trade-offs, academic reputation and employability had a more significant bearing on the choice of university than course availability. Teaching quality and employability seem to weigh heavily on the university choice decision probably because of Zambia's poor economic situation. For instance, many university lecturers in both private and public universities engage in consultancy work to earn extra income to supplement their wages. This means that there is a reduced level of commitment to their teaching obligations, resulting in poor teaching quality. With regards to employability, Zambia has a very high rate of unemployment, particularly among the youth where it stands at 31% (Zambia Institute for Policy Analysis and Research, 2015); this makes students consider the reputation of a university's qualifications on the job market.

The research objective applicable to this phase of the study is: *to establish the current position of the ZCAS brand relative to its higher education competitors in Zambia.* To establish this research objective, university students' individual ranking and conjoint factor profile ratings of their universities were compared firstly with those for ZCAS students' rating of ZCAS and secondly against the principal HE branding elements in

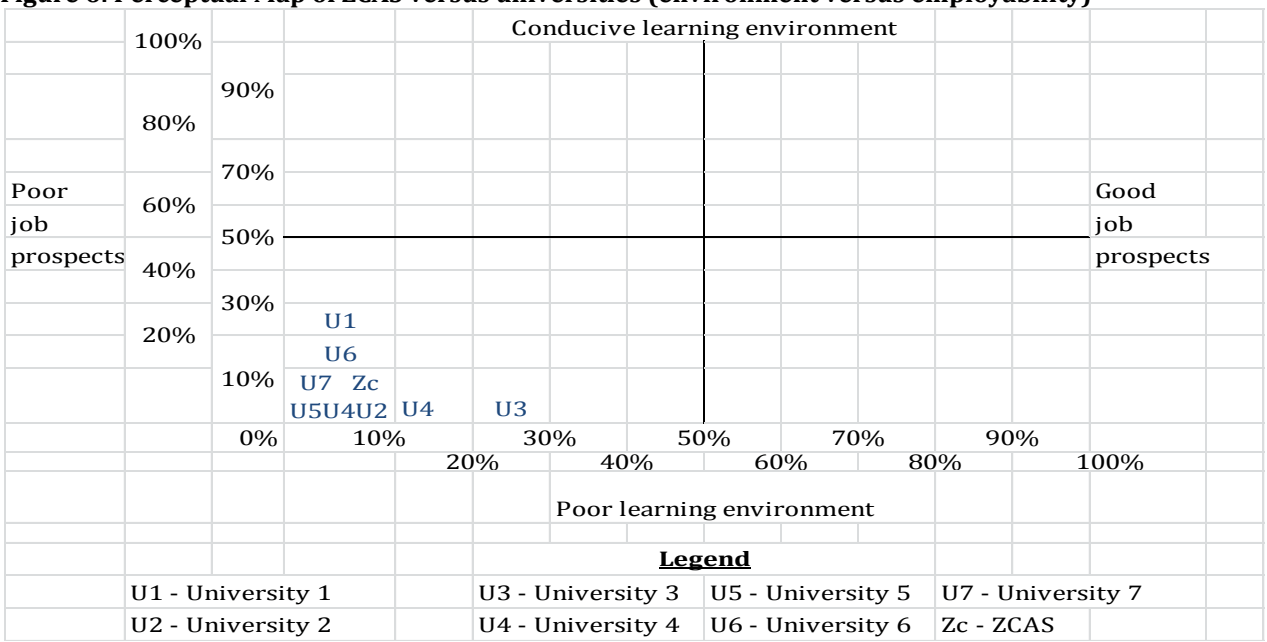
Zambia. Figures 5 and 6 below are simple manual graphic comparisons of ZCAS and sampled university students' perceptions of their HEIs on several brand attributes based on their individual ranking results. Both diagrams suggest that there is strong competition within the HE sector in Zambia because most of the universities are clustered together (Fill, 2006, p.378). ZCAS, in particular, has not positioned itself in a distinctive position in the market and has too many direct competitors. As can be seen from Figure 5 below, ZCAS has a fairly strong competitive position in terms of course availability; however, its competitive position in terms of teaching quality is relatively weak. According to the content analysis carried out in the initial stages of the research project, the five most considered HE branding factors in Zambia in order of importance were teaching quality, fees, course availability, facilities and employability; while course availability, teaching quality, facilities and infrastructure were perceived to be the most significant sources of competitive advantage (Kayombo & Carter, 2016). From these findings, it can be argued, by using content analysis principles, that teaching quality, course availability and facilities are the most important higher education brand elements in Zambia.

Figure 5: Perceptual Map of ZCAS versus universities (course availability versus teaching quality)



Zambian university students value teaching quality, employment prospects and course availability more than the other factors when confronted with practical situations in which they have to consider all factors and make some trade-offs in the choice of a university (see Figure 4 above). Their ZCAS counterparts chose the institution because of teaching quality, course availability and environment (which includes facilities). With regard to learning environment and job prospects, ZCAS has a slight competitive edge over some of its competitors (see Figure 6 below).

Figure 6: Perceptual Map of ZCAS versus universities (environment versus employability)



ZCAS therefore seems to be competing fairly well not only in terms of how it is perceived by students in the Zambian HE market but also when it comes to student choice of HEIs. This is because the reasons for choosing ZCAS are in line with the most important brand perceptions in the country and similar to those for university students. However, ZCAS needs to reposition itself away from the competition in order to gain a more distinct position in the minds of customers and prospects.

5. Managerial implications of the study: This section suggests steps that ZCAS can take to become more competitive in the Zambian HE market. As discussed above, students seem to be attracted to ZCAS because of its outstanding teaching quality, highly reputed courses and conducive learning environment. These factors are also the most important branding elements and sources of competitive advantage in the Zambian HE environment. Recommendations on how ZCAS can become more competitive are based largely on these factors.

Course availability: As discussed above, course availability was ranked as the number 1 attraction for ZCAS students because the institution does not only provide tuition for world renowned professional qualifications but also offers undergraduate and postgraduate degree programs in collaboration with highly ranked world class HEIs. However, ZCAS' position on the perceptual map on course availability (see Figure 5) suggests that the institution needs to do more to get ahead of the competition. ZCAS needs to introduce more programs of its own as well as in collaboration with renowned HEIs. However, the current collaborations the institution has with UK universities are very expensive to maintain mainly due to high costs of quality assurance requirements. The relatively high student fees charged by these universities coupled with a weak local currency also make the programs very expensive for the majority of interested candidates to afford.

Recommendations:

- In addition to introducing its own programs, ZCAS should try to enter into collaborations with top HEIs in the Southern African region, particularly with South African universities such as the University of Cape Town and the University of South Africa that are highly ranked (4ICU, 2016; Times Higher Education, 2016) to possibly cut down on collaboration franchise costs. According to UNESCO-UIS (2012), South African universities attract more students from the sub-Saharan region than any other country because South Africa has one of the most extensive tertiary education systems in Africa. ZCAS can therefore benefit from these universities' strong brands. The close

proximity to South Africa, compared to Europe, for example, implies that quality assurance costs are likely to be much lower.

- The Director Academic Studies, who has overall responsibility for introducing new degree programs, could contact top South African universities with a view to entering into a collaboration agreement to offer a number of their programs at ZCAS. Considering that this process is quite long, any new programs should be earmarked for introduction in 2018-19 to enable ZCAS adequately prepare for the launch.

Teaching quality: As discussed above ZCAS students identified teaching quality as a major source of competitive advantage in the country. ZCAS' comparative position on teaching quality indicates that the institution is behind its competitors on this attribute (see the perceptual map at Figure 5). Even though the institution has stringent quality control standards, there is need to strengthen its quality control framework to become more competitive. An increase in the number of teaching staff with higher academic qualifications, especially doctorate degrees, might also help improve students' perception of the institution's teaching quality.

Recommendations:

- Even though ZCAS has a quality assurance policy, there is currently no specific person or group of people solely responsible for quality assurance. In order to ensure that a more holistic approach to quality assurance (not just teaching quality) is adopted, the CEO should appoint a quality officer to implement and enforce the quality assurance policy and procedures.
- In the meantime, the CEO should consider setting up a budget line for establishing a fully-fledged unit or department of properly trained staff in the 2018 or 2019 annual budget. The quality assurance unit or department could be in place to design, implement and monitor quality control within the institution in the next two years or so.
- With regard to qualifications of teaching staff, ZCAS must continue supporting its employees who are pursuing doctorate studies. However, the benefits from this exercise are likely to be realized in the medium to long term as doctorate studies take a long time to complete. In the short term, the institution should engage teaching staff with doctorate degrees, especially on its postgraduate programs, in order to boost students' perception of the institution's teaching quality. Such lecturing staff could be engaged on part-time basis to reduce staff costs. The Director Academic Studies, who has overall responsibility for running undergraduate and postgraduate degree programs, should engage more staff with doctorate degrees to teach on postgraduate programs. Given that the institution is planning to introduce more postgraduate programs during the academic year 2017/2018, three more lecturing staff with doctorate degrees should be targeted for part time employment to add to the existing complement.

Learning environment: The learning environment was ranked third among the five factors that attract students to ZCAS and was also the third most influential factor on student choice decision in the conjoint experiment. ZCAS has a very good learning environment; from the researcher's observations during visits to most universities in the country, very few have as good infrastructure and facilities as ZCAS. However, this competitive advantage is not sustainable because it can easily be copied as long as one has financial resources. In fact several HEIs are currently developing new infrastructure and improving their facilities. The perceptual map at Figure 6 above suggests that ZCAS needs to do more to improve students' perception of its learning environment.

Recommendations:

- ZCAS should continue maintaining its infrastructure and facilities in top operational condition. The Registrar, who has overall responsibility for maintenance of the institution's infrastructure, should provide for an adequate annual budget line for maintenance purposes. This should include expenditure on re-painting the buildings, cleaning of classrooms, offices and the surroundings, replacement of broken classroom and office furniture, landscaping and refuse collection.
- ZCAS started offering its services on the Copperbelt (about 400km north of Lusaka) in order to bring education closer to this market. However, the institution has no infrastructure of its own and uses rented accommodation to run its operations there. ZCAS should consider setting up permanent

infrastructure and facilities in order to maintain a high standard of service delivery and cut down on renting costs. The institution should consider providing a budget line for acquisition of land and/or buildings in Kitwe in the next five years.

Limitations of the study and directions for future research: There are a number of shortcomings to the current study which restrict generalizing its findings to the entire HE sector in Zambia. These limitations provide opportunities for further research. Firstly, only students that had already made the decision to choose particular HEIs were involved in the conjoint study. This excluded many of the school leavers who considered higher education but failed to achieve their objective. Targeting school leavers who are in the process of making the HE choice decision could have identified factors that potential students consider. Many researchers such as Moogan et al. (2001) and Souter and Turner (2002) adopted this approach. Marketing strategists could then devise more relevant strategies on how to attract these potential students to their institutions. Secondly, the university sample was considered to be homogenous and no cluster analysis was carried out. It is possible that within the Zambian HE sector, different groups of candidates, perhaps based on their socio-economic status, have different preference structures when it comes to choice of university. For example, some conjoint studies such as Kusumawati (2011) and Hooley and Lynch (1981) identified clusters of students with different attribute preferences within the same HE market. Future studies could therefore carry out cluster analysis to identify market segments, if any, for whom specific branding elements are more important than others. This could help market nichers develop more relevant marketing strategies, plans and tactics.

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References

4ICU. (2016). 2016 University Web Rankings | Africa: Top 200 Universities and Colleges in Africa [Online]. Retrieved from: http://www.4icu.org/top-universities-africa/ . Accessed on 25th April 2016.

Afful-Broni, A. & Noi-Okwei, C. (2010).Factors Influencing the Choice of Tertiary Education in a Sub-Saharan African University. *Academic Leadership*, 8(2).

Ali-Choudhury, R., Bennet, R. & Savani, S. (2009) University marketing directors' views on the components of a university brand. *Int Rev Public Nonprofit Mark,* 6, 11–33.

Bryman, A. & Bell, E. (2011). *Business Research Methods*(3rd ed), New York: Oxford University Press.

Carter, S. & Yeo, A. (2009). My place or yours? Perceptions of, and selection choice criteria for, higher education institutions: the case of UK and Malaysian students. *International Journal of Economics and Business Research*, 1(2), 65-190.

De Chernatony, L., McDonald, M. & Wallace, E. (2011). *Creating Powerful Brands*, 4th Edition. Oxford: Taylor & Francis Ltd.

Dibb, S., Simkin, L., Pride, W. M. & Ferrell, O. C. (2006). *Marketing Concepts and Strategies* (5th ed). European Edition. Boston: Houghton Mifflin.

Fill, C. (2006). *Simply Marketing Communications,* Essex: FT Prentice Hall.

Hagel, P. & Shaw, R. (2008). The Influence of Delivery Mode on Consumer Choice of University. *European Advances in Consumer Research,* 8(2).

Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. (2010). *Multivariate Data Analysis* (7thed), New Jersey: Pearson Education.

Hooley, G. J. & Lynch, J. E. (1981). Modeling the Student University Choice Process Through the Use of Conjoint Measurement Techniques. *European Research*, 9(4), 158-170.

Huang, H. (2012). An empirical analysis of the strategic management of competitive advantage: a case study of higher technical and vocational education in Taiwan. PhD Thesis, Victoria University.

IBM. (2011). *IBM SPSS Conjoint 20* [Online] Retrieved from: http://www-01.ibm.com/software/analytics/spss/products/statistics/library.html.Accessed on 27 November 2011.

Kayombo, K. M. & Carter, S. (2016). Understanding student preferences for university choice in Zambia. *Journal of Education Policy, Planning & Administration,* 6(3), 1-21. Retrieved from: http://www.jeppa.org.

Kotler, P. & Keller, K. L. (2012). *Marketing Management* (14thed), Essex: Pearson Education.

Kotler, P. & Armstrong, G. (2005). *Principles of Marketing* (11thed), New Delhi: Prentice Hall.

Krampf, R. F. & Heinlein, A. C. (1981). Developing Marketing Strategies and Tactics in Higher Education Through target Market Research. *Decision Sciences,* 12(2), 175-193.

Kusumawati, A. (2010). Privatization and marketisation of Indonesian public universities: a systematic review of student choice criteria literature. Paper presented at the Indonesian Student International Conference, Melbourne, Australia.

Kusumawati, A. (2011). Understanding Student Choice Criteria for Selecting an Indonesian Public University: A Conjoint Analysis Approach. Paper presented at SBS HDR Student Conference, University of Wollongong.

Mazzarol, T. & Soutar, G. N. (1999). Sustainable competitive advantage for educational institutions: a suggested model. *The International Journal of Educational Management,* 13(6), 287-300.

Moogan, Y. J., Baron, S. & Bainbridge, S. (2001). Timings and trade-offs in the marketing of higher education courses: a conjoint approach. *Marketing Intelligence & Planning*, 19(3), 179-187.

Lynch, R. & Baines, P. (2004) Strategy Development in UK Higher Education: Towards resource-based competitive advantages. *Journal of Higher Education Policy and Management,* 26(2).

Porter, M. E. (1985) Competitive Advantage: Creating and Sustaining Superior Performance, New York: Free Press.

Ries, A. & Trout, J. (2001). *Positioning: The Battle for Your Mind* (20thed), New York: McGraw-Hill.

Saunders, N. K. M., Thornhill, A. & Lewis, P. (2009). *Research Methods for Business Students* (5thed),London: Apprentice Hall.

Songan, P., Sam, H. K., Tonga, G., Rahman, M. A. & Wah, T. K. (2010). Factors Influencing Student Choice: A Study of a Malaysian Public University. *Asian Journal of University Education*, 6(1), 75-89.

Soutar, G. N. & Turner, J. P. (2002). Students' preferences for university: A conjoint analysis. *The International Journal of Educational Management*, 16(1), 40-45.

Times Higher Education. (2016). World University Rankings 2015-2016 [Online].Retrieved from: https://www.timeshighereducation.com/world-university-rankings/2016/world-ranking#!/page/0/length/25/country/165/sort_by/rank_label/sort_order/asc/cols/rank_only. Accessed on 25th April 2016.

UNESCO-UIS. (2016a). Higher Education [Online].Retrieved from:http://uis.unesco.org/en/topic/higher-education.Accessed on 9 January 2017.

UNESCO-UIS. (2016b). Outbound Internationally Mobile Students by Host Region (Online).Retrieved from:http://data.uis.unesco.org/Index.aspx?DataSetCode=EDULIT_DS&popupcustomise=true&lang=en.Accessed on 9 January 2017.

UNESCO-UIS. (2012a). New patterns in student mobility in the Southern African Development Community: UIS Information Bulletin No. 7 [Online]. Retrieved from: http://www.uis.unesco.org/FactSheets/Pages/default.aspx?SPSLanguage=EN.Accessed on 25 April 2016.

UNESCO-UIS. (2012b). Table 14: Tertiary Indicators [Online] Retrieved from: http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx?ReportId=167&IF_Language=eng. Accessed on 8th April, 2012.

Wiese, M., van Heerden, N., Jordaan, Y. & North, E. (2009). A marketing perspective on choice factors considered by South African first-year students in selecting a higher education institution. *Southern African Business Review*, 13(1), 39-60.

Zambia Institute for Policy Analysis and Research. (2015). ZIPAR launches ground breaking 'More and Better Jobs' flagship project [Online]. Retrieved from: http://zipar.org.zm/8-newsroom/33-zipar-launches-ground-breaking-more-and-better-jobs-flagship-project.Accessed on 27 June 2015.

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Environmental Education: Role of Physical Environment in Students' Learning in Gilgit-Baltistan, Pakistan

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Abstract: This study describes an action research report carried out in one of the community-managed schools in Gilgit-Baltistan of Pakistan. The purpose of the study is to explore the effects of the activities to create environmental awareness by paying prime focus on physical environmental conditions. It was observed that school-based smaller activities show a greater change among students, teachers and community members. These include celebration of environmental day, plantation day; quiz competitions, sharing information through notice boards and awareness campaigns to adjacent communities. These smaller activities helped them to realize the importance of environmental education particularly in learning process. The attitudinal change among students, teachers and community members was quite evident. They have shown a natural attachment with the school and its surrounding. Since the success and sustainability of such small-scale interventions are directly associated with active involvement of all the stakeholders of a school community, therefore, the study recommends that this important aspect must be given considerate attention to further augment the natural environment and to maximize the learning processes in schools.

Keywords: *Environmental Education, Sustainability, Content Knowledge, Students' Learning, Positive Attitude*

1. Introduction

The drastic changes in the environment has made Environmental Education (EE) as one of the most debatable and appealing themes now days. The main objective of such important education is to develop environmentally-friendly attitudes and behaviors to sustain the life on earth. Palmer (1998) describes the importance of EE as: Environmental education is a process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelationship and interrelatedness among man, his culture and his biophysical surroundings. Environment also entails practice in decision-making and self-formulation of a code of behavior about issues concerning environmental quality (p.7).Traditionally, the prime focus was given to develop knowledge and enhance attitudes assuming that there is a linear relationship between improved environmental knowledge and positive environmental behavior (Darner, 2009). For instance, if individuals acquire environmental knowledge, the end result would be their appropriate behavior. The latest studies in this regard showed that change in environmental behavior is not solely being developed by acquiring improved knowledge (Ajzen, 2002; Ballentyne, Fien, & Packer, 2000). These propositions invite rethinking towards certain other aspects to facilitate behavior along with environmental knowledge.

The debate about EE within general masses has been a continuous practice in various electronic and print media. Today newspapers, bulletins, and other media are doing their best to create awareness among masses. But the most important individuals, students reside in schools need greater focus in this regard. Though EE has been integrated in various syllabi, specifically the science and social studies but this content does not fully equip the students to acquire environmental behavior. As Bashiruddin (2002) found out that teachers find it challenging to teach environmental concepts as they were taught. Similarly, the teachers are assigned subjects without seeking their expertise and interests, so the weaker environmental attitudes of teachers and students could not meet the objectives of adding EE in various syllabi. Highlighting the implications for teachers, Alam (2012) studies suggest that success of various initiatives are achieved when the principal applies participatory approach and assigns the tasks to teachers after their willingness to participate in different activities. My long-lasting experiences in schools show that various reasons cause underachievement of the objectives pertaining to environmental education. Some of the major causes include the teachers lacking content-based understanding about EE, the limited practices of environmental concepts' integration with real world and the teachers limited relevant professional expertise to relate knowledge with their surroundings.

The important role of EE in curriculum has been described widely, but there seems a general consensus that it impacts on attitudes and ultimately behaviors. In this connection, Clayton and Myers (2009) utter that environmental education seeks to affect worldviews, attitude, and behavior. So, a curriculum with new approaches towards EE can create a successful educational programs for both teachers and students, ultimately beneficial for maintaining a beautiful environment and sustainable future. In school curriculum, the EE provides the platform for the students to know about their environment and develop certain skills to resolve environmental issues in their surroundings. The most important aspect of such learning is developing attitudes towards the care and aptitudes to protect it from external factors which cause deterioration to naturally-built environment. Here the role of teachers becomes very vital as they are the leading bodies to develop certain strategies and design activities to foster students' knowledge and aptitudes. In view of Deemer (2004) teachers' beliefs and perceptions are crucial to develop such attitudes. Besides content knowledge regarding EE, the role of physical environment plays a vital role in developing learning aptitudes among students. This may include the inside and outside physical conditions including attractive arrangements of various items, the cleanliness, the attractive walls and other units reflecting inviting atmosphere for the learners. The research studies by Berry (2002) showed improvements in attitude among all users after a school was physically improved. It was pointed out that the physical changes to the environment contribute to the overall learning environment experienced by everybody.

The Gilgit-Baltistan context of Pakistan depicts out the similar picture and practices regarding EE, practiced in overall curricular practices in Pakistan. The EE does not seem to be a separate subject just like Science, Mathematics or any other language subjects. Various environmentally-related themes have been added in different subjects particularly in Science and Social Studies subjects. The content in the primary level is very thin compared to upper level subjects. Ironically, being integrated subject matter; little effort is being made by the teachers to integrate the content with the real physical world. A knowledge-driven approach is being applied to create awareness, knowledge and skills among the students in the field. There is dire need of the context to pay serious attention towards revisiting the old practices within schools, teachers and overall general mass about their effective roles in maintaining the environment. This can be achieved if the teachers and students are equipped with EE through various applicable activities. There is need to pay special concentration towards improving the physical structure and improved teaching practices in line with the modern approaches. To address the highlighted gaps, this study intends to create environmental awareness and improvements in physical conditions within schools and communities to meet the objectives of improved learning and environmental sustainability. For that an action research approach has been carried out in a three-tiered cyclic approach. The first cycle was based on facilitating the teachers to analyze the curriculum and improve their content knowledge. In the second cycle, the physical environment of the school was focused with deeper involvement of the students. During the third cycle, community awareness campaigns were carried out to sustain the physical structure of the environment within communities reside around the school premises.

Purpose and Research Questions: The purpose of the research study is to enhance the students learning by paying special focus on improving the physical structure of the school. Hence the study was guided by the following main and subsidiary questions:

Main Question: How the physical environment of the school play its' role in improving the learning outcomes of the students?

Subsidiary Questions

- How classroom physical environment contribute to students' learning?
- In what ways the teachers environmental content knowledge affect students' learning?
- What is the effect of external school environment in students' learning?
- In what ways the beautification inside school premises motivates students towards learning processes?

2. Literature Review

Various connotations have been widely used in the literature pertaining to environmental awareness and sustained learning. Some of the research studies highlight physical environment of the schools as important aspect in learning processes but there are few other thoughts which advocate the content and teachers competencies to improve students' learning. There seemed a general consensus that Environmental Education for Sustainable Development (EESD) is emerging as an essential tool to change student's commitment, motivation, stewardship, behavior and attitudes (UNESCO, 2011).Certain propositions consider teachers' role as prime progression for improved learning. Advocating the role of teachers in developing environmental education and improved learning among the students, Fink (2003) pointed out that the traditional classroom lecture-based teaching learning approach have limited effectiveness in helping students to retain information, become self-learners, and develop skills in transferring knowledge and solving problems. He is of the view that lecture method seemed ineffective in developing the skills among learners as it did not provide enough practical opportunities for the students to relate the content with the actual situation of the environment. There is dire need that experiential learning approach is applied to inculcate scientific outlook food behavior, positive social and environmental attitudes (Blair, 2009). Experiential learning in the natural areas enhancing students' meta-cognitive abilities, their capacity to apply newly acquired skills and knowledge to real-life situations, and the ability to become self-directed learners (Kolb & Kolb, 2006).

Referring towards alternative teaching approaches, Sarkar & Frazier (2008) suggest play-based approaches to teach environmental education. They utter that such teaching approach in EE provides students with numerous opportunities for learning in real situations. Applying the play-based approaches and their outcomes within classrooms, Mackenzie and Edwards (2013) emphasized that play-based teaching approaches in education must be integrated into environmental education. Drama, one of the important play-based approaches particularly among middle school students aged 12 to 14, is one of the inviting strategies to develop students' understanding of basic environmental and ecological concepts (Whitty, 2006; Stone, 1989).There are other school of thoughts providing additional dimensions of teaching approaches and their impact on students' learning. In this regard, Deemer (2004) considered the teachers aptitudes as important ingredient, saying that teachers' beliefs and perceptions are crucial showing direct impact on students' learning. There are some other factors which could affect the beliefs of the teachers. In one of the research studies, Cooper (1985) asked primary school teachers about their school buildings and argues that 'whether physical environments are themselves capable of disabling education, teachers' belief in their capacity to do so could prove self-fulfilling. For it could act to lower their morale and motivation, so eroding their commitment to teaching" (p.267). In later studies, he proposed that the teachers and staff morale needs to be of key importance to enhance teaching commitment among teachers (Cooper, 2000). Similar results were also gathered by Berry (2002) that improvement in physical structure is directly linked with the improvements in attitude among all users in schools. Such improvements can be seen as resulting from the physical changes to the environment which then contributes to the overall learning environment experienced by everybody.

The literature advocates physical structure as another dimension, considering its important role in improving the learning outcomes of the students. Horne-Martin (2002) studied the role of classroom in developing learning aptitudes among students and found that the style of teaching and room organization are linked with each other. Here, the studies conducted by Ahrentzen and Evans (1984) confirmed that more open classrooms do have some direct effect on how teachers teach. Canter and Donald (1987) also endorse the role of physical element but they add another element as educational philosophy presenting that "the essential element was the school's educational philosophy and physical layout, not merely the physical layout on its own" (p.1292). There are other studies highlight the inner arrangements of classrooms as imperative features for improved learning. They mainly focus on seating arrangements, lighting and color of the classroom insides. For instance, Earthman (2004) rates temperature, heating and air quality as the most important individual elements for student achievement. Knez (1995) found evidence that lighting conditions induce negative effect, reduce performance, and concluded that improved lighting conditions develop positive affect by improving learners' performance. While assessing the needs of classrooms in US states' schools, two studies (Young et al, 2003; Buckley et al, 2004) also demonstrate the importance of these issues in students'

learning processes. Similarly, Fisher (2001) endorses such propositions considering their role in affecting students' behavior and outcomes.

Khattar et al, (2003) consider ventilation within classrooms as important ingredient to maximize learning processes. The indoor air is directly linked with students' health (Ahman et al, 2000). In this connection, Smedje and Norback (2001) argue that since irritants and allergens collect in dust, it might be advisable to avoid particular sorts of 'fleecy' furnishings and open shelving and to increase the frequency of cleaning. Rosen and Richardson (1999) went further by linking poor air quality to absenteeism. They found that reducing the number of particles in the air, and so improving air quality, in a schools particularly in nursery classes resulted in reduced child absence. They concluded that air quality has serious implications for learning and academic achievement. The overall literature presents various forms of environment and its impact on students' learning outcomes. It seems that various factors within and outside school environment contribute towards learning processes. An analysis of the literature perspectives show that the physical environment of the school has a direct relation with the students learning. It is important to consider the improved physical improvement to improve ultimate learners' academic performance. Such improvements can be brought in and around the school by creating an inviting atmosphere. If schools pay their concentration on improving the physical conditions of the school, the overall objectives of the improving students' learning outcomes can be further improved.

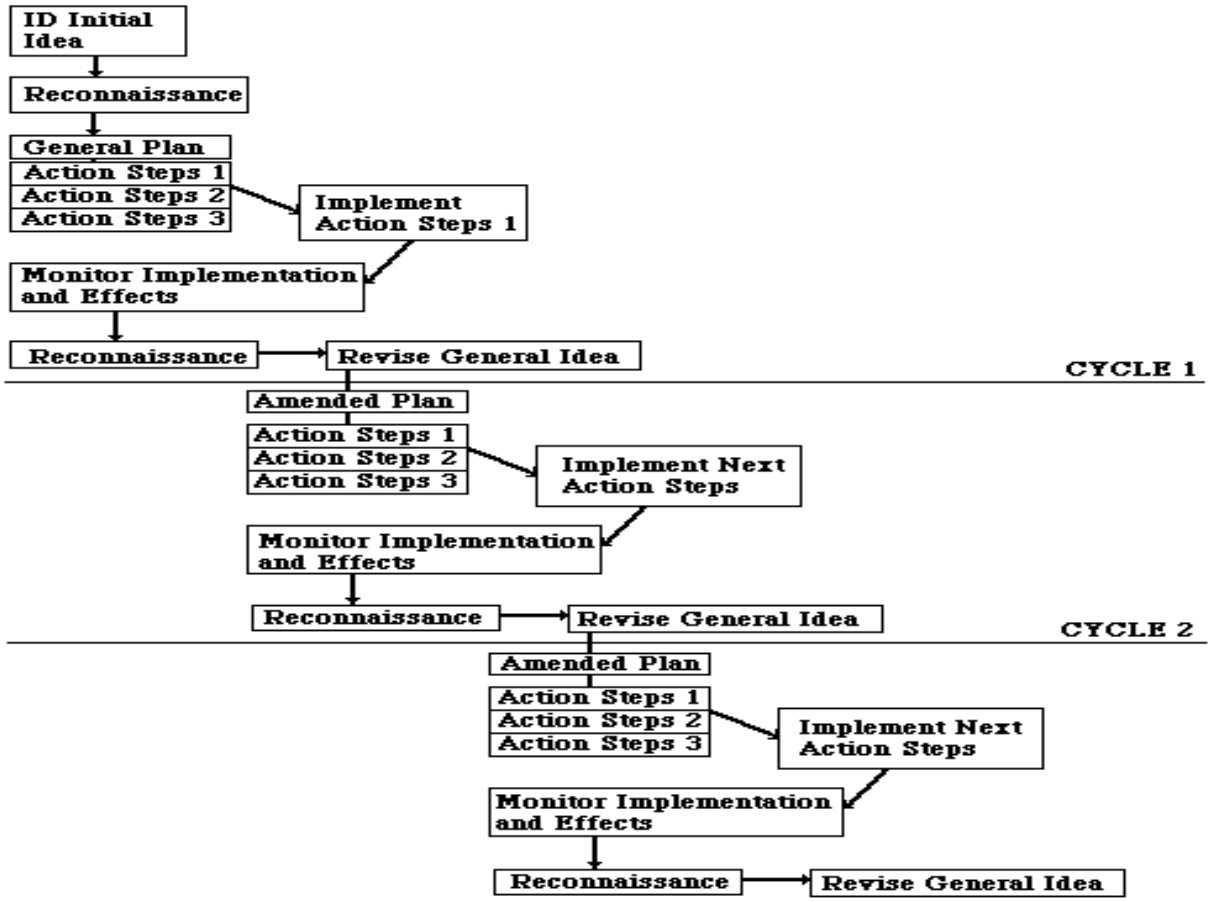
3. Methodology

Reconnaissance: Before assessing the real situation of the school, a general plan was developed. The plan considered improving the physical conditions, teacher content knowledge and involvement of students to maintain improved environmental conditions assuming that these conditions need paying concentration. Based upon the general plan, the assessment of the school and formal meetings with principal and teachers were carried out to explore the real situation. It was found that the general plan was quite matched with the real situations; hence various activities in the general plan were adjusted in various cycles to implement the planned activities effectively.

Research Design: The study focused on improving the physical conditions of the school and its' effect on students' learning. Therefore, it was important for the researcher to be part of implementation team. Hence, action research under qualitative research paradigm seemed more applicable approach as such approach is being carried out to improve the rationality and justice for practices, understanding of practices and the situation in which practices are carried out (Elliot, 1992). Under these thoughts, the whole research process was carried out in six months in three cycles. More specifically, the study applied the action research after Elliott (cited in Hopkins, 1985) model is given below. Semi-structure interviews from the school principal and selective teachers were conducted to gather the data. This tool allowed the researcher to get feelings and opinions (Hitchcock & Huges, 1995) of the participants who were directly involved in the implementation stages. Additionally, personal observations, which took place at the research site and important information about the "social setting" (Robson, 1998) were also documented throughout the research process. The researcher also maintained a reflective journal to analyze the successes of planned activities. This helped in personal thoughts and insights about an action, response, event, issue, personal feelings, opinion about a social setting and learning (Kember, 2000).

Data Analysis: Glesne (1998) posits that analyzing the data must continue simultaneously with the gathered data to focus and shape the study as it proceeds. Considering this guideline, analysis of data continued once the data was gathered. This process was carried out in an organized way. For instance, after data collection, it was read thoroughly, summaries were developed and key ideas developed. These ideas were further grouped into similar categories which were further interpreted into cycle-wise research findings under the theme, "The story of my action research".

Figure 1: Research design



Context of the Study and Selection of Participant: The study was carried out in one of the community-based secondary schools in Gilgit[1] town. The school offers co-education to 450 students. This research involved principal, teachers and students' representatives from grade 6-10. A pre-determined criteria was developed to select appropriate school as:

- It must have increased number of students
- It is functioning around densely populated area
- The staff show their willingness to participate in the study
- The principal and teacher will support the pre-determined action plan

Based upon the given criteria, pre-entry negotiations were carried out with the Board of Governors (BoGs). These negotiations were followed by three meetings with the principal and teachers. The focus was paid to inform about the nature of research study, their roles in whole research processes and creating motivation towards proposed study.

Ethical Considerations: Being a professional working under a prestigious university, the prime responsibility was to pay higher concentration to maintain research ethics. For that ethical codes and policies governing interactions with research participants and the collection of data (Glesne, 2006) was strictly maintained. For instance, the research participants were informed about the purpose of the study, its nature and the interval of the whole research study. Additionally, their volunteer involvement was ensured by providing greater freedom to discontinue their participation at any stages. The school name and participants identity was kept confidential by using pseudonyms where applicable.

[1]Gilgit town is the capital of district Gilgit and administrative headquarter of Gilgit-Baltistan province.

Limitations of the Study: Just like many qualitative studies, this study was not limitation-free. First, the study being qualitative action research approach limits the generalizability of the findings. Secondly, these findings may not be truly applicable to other schools in the context due to varied contextual conditions.

4. Results

Cycle One and its Outcomes: This cycle was carried out in two months period and focused on three of the planned following activities:

- Conducting teachers' workshops
- Reducing water pollution (lectures to classes/demonstrations)
- Cleanliness of the school (inside and surroundings)
- Creating environmental club by involving few students from higher classes
- Sharing information regarding Environmental Education

The formal observations and informal discussions with the teachers and principal revealed that the first activity in this cycle was highly motivating for the teachers. My personal observations within classrooms showed that teachers have improved their content knowledge and developed understanding towards environmental issues prevailing in their context. They have been trying to integrate various environment themes to their context and designed certain smaller activities to convey the message of environmental education. One of the teachers shared her experiences:
Before the session I did not pay special attention towards this important theme. This theme is very much relevant to our area. Now I am sensitized and worried if we did not pay attention towards our beautiful areas, if we will through garbage continuously, one day we will lose our natural beauty. Now, besides teaching environmental themes, I also take few minutes to create more awareness about environment in my classes. (Teacher one Interview)

The outcomes of teachers' workshops were also seen through improved their content knowledge. Generally, being an integrated subject, teachers lack knowledge and understanding regarding environment education. This ultimately showed a lacking knowledge among students about the subject matter. Hence, the teacher's workshop not only served a tool to boost environmental content knowledge within teachers but it also remain fruitful for the entire students as, based upon the gained learning during two workshops, teachers modified their lessons. It was quite evident through classroom observations and demonstrations by the students. During a visit to grade 9, few of the questions were asked about the increasing temperature and its causes, the students were trying to link it with the environmental issues. (Reflective Journal)

The second activity focused on cleanliness of the school and surrounding, and the role of personal hygiene to maintain a healthy atmosphere and body. This activity involved students from grade 6 to 10. For that various areas from within and outside the school were allocated for each grades under the supervision of their class teachers. It was observed that the students involved in the activity with full of zeal and zest. They collected the garbage, dumped in the allocated areas, and cleaned their classrooms. The students from grade 10 cleaned the surroundings of the school. During the next day assembly proceedings, lectures were given by the principal and the researcher to highlight the importance of personal hygiene to develop a healthy body and effects of unprocessed garbage in their learning processes. It was observed that the students followed the given instructions and applying the gained learning to maintain personal hygiene and reverted the practices of throwing garbage here and there. During school visits, few of the informal questions were asked from selective students regarding cleanliness. It was depicted out that the students were using precautionary measures to maintain their personal hygiene. (Classroom Observation 2)

The classroom visits to highlight the importance of safe water seemed to have a positive impact on students' aptitudes. During the visits, special concentration was made to inform the students about how water is being made clean. The main focus was given on boiling of water up to a certain temperature to make it germ free. To assess the outcomes of this activity, few of the sample students were selected to explore how they make water clean for drinking purposes. One of the students responded that: My mother do water clean for all my family members. Responding towards the process of cleaning water, he told that his father has bought a big

pot where her mother puts lot of water. She boils it for longer time when it becomes cool; she puts it in water cooler. I bring that water to my school (Student's Interview).

This activity in the first cycle focused on sustaining the environmental awareness and learning activities. For that a school-wide environmental club was made through consultation with the principal and teachers. A team of ten members, two from each classes from grades 6-10 were nominated in this club under the direct supervision of grade 10 class teacher. A formal meeting was arranged with club members and their predefined roles were shared to maintain the healthy physical environment in and around the school. This activity brought a visible change in the school and it was observed that this committee was functioning according to the set objectives. The overall, school environment was improving day by day, and the students were affectionate in attending their school regularly. After one month of this intervention, the supervisor teacher was asked to share her learning during the one month period. Her remarks were quite encouraging, she shared that:
I am highly impressed the way students pay their concentration to maintain the beauty of the school. I observed that the club members regularly visit to all the classrooms, see the cleanliness inside and outside the classrooms. They also guide their fellows and lower classes to make their classes clean. I see that this has greatly affected the students, and the come to school with smiling faces. (Supervisor Teacher Interview)

A reflective session with the principal were quite matched with supervisor's expressions. He uttered that due to maintaining the physical environment of the school, the absenteeism ratio has been dropped drastically. He added that in the earlier month, when he was observing attendance record, 15-20 students remain absent in single days. Now this ratio has dropped down and currently 4-5 students, on average remain absent. The last activity in the first cycle was based upon sharing information about environmental education. For that the teachers and students were encouraged to search the literature and share the news to all the students through notice board. This activity was highly motivating for the students and teachers as well. The daily-based observations showed that at routine basis, they were remain in search of getting new information regarding environmental education and continuously updating the notice board. Hence, this activity remained productive in added new knowledge about environment education within school and ultimately parents and other surrounded communities.

Cycle Two and its Outcomes: The second cycle also spread over two months. After involving the school in general awareness activities about environmental education, this phase focused on certain initiatives within school premises to sustain the efforts and creating a welcoming environment for the learners. More specifically, the following activities were carried out during this phase:

- Celebrating plantation days
- Planting a class garden
- Recycling process (by creating a site for collection of recyclable items)
- Arranging a small site for composting
- Improving physical conditions of classrooms

Through consultation with the school principal and environmental club members, two days were allocated for the plantation days' celebration and planting a class garden. For that various proportions of the school garden and playground were allotted to each class to improve the physical structure with planting new plants. They were encouraged to bring their home-based plants. The researcher also enhanced the motivation of the students by being deeply involved in the activity and bringing certain non-indigenized plants. This activity involved the teachers and students deeply into the activity. A competitive atmosphere was developed as each class tried their best to revamp their allotted area differently. It was observed that each student actively participated in the 2-day activity. They showed keenness towards improving the physical conditions within the school premises. Their deeper involvement in the activity, besides adding towards beauty of the school motivated towards natural resources conservation too. Refereeing towards success of this activity one of the class teachers responded that, "we have been celebrating this event every year but this year remained very special as the students worked in a competitive environment. This approach motivated students and the results are quite evident" (Class teacher interview).

My deeper reflections also show eye-catching pictures towards the 2-day activities. It reflects that providing motivational tools boost inner feelings of the students. They show sense of belongingness towards motivational tasks and apply their best to produce greater outcomes. The subsequent observations in this regard depicted out that students pay greater care to maintain the beauty of their class gardens by removing any garbage and watering the plants timely. Additionally, similar activities remain fruitful in searching the nature, the concept of ecosystem and searching for applicable solutions to maintain the natural balance. The next activities were based upon creating understanding about the recycling and non-recycling objects in and around the school. Based upon the initial sessions with the teachers, the focus was given to involve the students in practical situations regarding various items. For that the science and social studies teachers were guided to develop the conceptual understanding regards both the concepts. The teachers improved students' understanding through demonstrations as well. The next day, the researcher presented the activity during the assembly proceedings to reiterate the previous activity carried out by the teachers. Additionally, four of the bigger containers were bought and tags were mentioned namely recycling items and non-recycling items. These containers were fixed in four different corners of the school boundaries. The students were asked to put both of the items in their respective containers.

The activity was inspirational for the students as the students developed their understanding regarding recyclable and non-recyclable items. Their engagement in this task was closely monitored, and it was found that students showing an improved practice towards using the containers by putting the items in both the containers. Such practice gradually improved the beauty of the school and by re-using the items, the teachers also developed low-cost and no-cost items, integrated them in their lesson plans and ultimately improved the learning outcomes of the students. A composting area was located at the corner of school playground. For that a smaller ditch was created to put the non-recyclable material and compost them. The watchman was provided with special instructions to empty the containers after school hours. Initially, few of the challenges were observed in applying this practice, but gradually the practice showed improved results and after two weeks, an in-built culture was developed within school and every students and teachers became habitual of this practice. This resulted in creation of an inviting atmosphere within the school and added towards learning opportunities for the students.

The last activity in the second cycle was based upon improving the physical conditions of the classrooms. For that the teachers, students' representatives and environmental club members were involved to improve the physical structure of the classrooms. This activity was quite inviting for the students as based upon the size of the classrooms the focus was given to amend the seating arrangements of chairs and desks, earlier the chairs and desks were fixed. The teachers were encouraged to routinely change the arrangement according to the nature of the subjects and planned activities. Additionally, special attention was given to re-align the displays inside the classrooms. For that subject areas were defined and respective displays were fixed at the allocated areas. The teachers were further informed to change the displays routinely by adding the latest students-driven displays. These activities, especially the changing the seating arrangements was quite inspiring for the students. During the classroom observations, it was found that students show deeper involvement in the activities. Here, the semi-circle arrangement was seen quite productive as it involved students to communicate frequently with each other as well as provide opportunity to improve their social skills. Moreover, the students were highly motivated to develop new displays and eager to show their work by fixing it at the allotted subject-wise display areas.

Cycle Three and its Outcomes: This cycle mainly focused on certain activities related to sustainability of physical environment in and around the school. The following activities were carried out during this 2-month cycle:

- Designing environmental competitions among various classes
- Involving students in some project works
- Arranging sessions for the parents and communities
- Arranging Environmental Walk

The first activity focused on deepen the understanding of the participants. For that two of the sub-activities were designed through mutual consensus with the principal and teachers; environmental competition and involving project works. The teachers were encouraged to involve their respective classes in developing

certain projects, based upon the levels and understanding of the students. For instance, students in pre-primary levels were involved in drawing various themes while the upper class students developed certain models, simulations, role plays and presentations. To encourage the students and continuing such project in future, two competitive sessions were arranged. The first competition was held for primary sections while the second one involved the upper primary and secondary classes. To further boost the students' motivation, certificates were developed to all the participants while trophies and prizes were allocated to winners.

The overall participation and deeper involvement in the project worked showed that it was one of the most exciting activities being carried out during this research work. Here, the students and teachers pay special concentration to develop beautiful models, collected raw materials from homes, searched the literature and school-based text books and worked keenly to represent their classes. Moreover, the teachers showed their higher concentration towards adding updated content, guided the students to collect appealing data and design attractive models. These activities, besides adding towards the content knowledge enhanced the psychomotor skills of the students as they were being involved in art and craft work too. Pointing towards the success of these activities, the principal uttered:
I see similar activity very first time. We have been arranging sessions on different topic but we observed environmental education competition first time in school history. I was deeply fascinated the way teachers and students were doing their best to win the competition. I saw few parents visiting school and discussing about various items lying at homes. This will create a healthy environment in the school. (Principal Interview)
My reflections were quite similar to the experiences shared by school principal. I found that teachers were engaged even in after-school hours to develop attractive models. A mobile working environment was seen around the whole school (Ref. Journal). The teachers were discussing about the environmental education during their break times, and a healthy competitive environment was flourished around the school.

The second activity in the third cycle considered parents and communities as major partners in sustaining the efforts. For that one day was allocated during weekend. A formal invitation was sent to parents through their children and announcements were sent to attend the day-long session. For that an interactive discussion and speeches were arranged to highlight the importance of environmental education in child' learning and parents/communities role in developing an attractive environment. Besides, presentations and interactions by researcher, principal and few teachers, the communities were involved in observing the project work performed by their children. This activity remained highly instrumental in reflecting about the existing inappropriate and unpleasant environmental practices around the school vicinity and inviting them to re-visit such practices. The community members, after observing the students activities and improved physical environment of the school came to realize the importance of managing the physical environment to balance the life. They showed their willingness to spread the message of environmental education within their surroundings and will contribute to revitalize the environment which was being degraded by their practices. Additionally, a mutually-agreed plan was discussed where school and communities can play their separate roles to maintain their surroundings. Later on my frequent visits and observations revealed that the community has owned this practice, for instance, the garbage which was being dumped around their homes has been reduced drastically, and the water channel has rare scratched items. Similarly, the road connected with school also presents an improved outlook day by day and the school' surrounding was totally clear from garbage and other items (dumped earlier).

At the end of the action research cycle an environmental walk was arranged within the communities surrounded to school. This activity was planned to improve the efforts to sustain the action research project. For that the students and boy scouts were involved in development of placards, posters and pictures with written slogans and sayings to spread the messages of environmental education and effective learning. This walk was being highlighted in local newspapers which served as a tool to spread the message to wider communities. This activity sensitized the general public regarding the role of improved environmental conditions to develop students' learning. They came to realize the importance of improving their surrounding physical structure. Their practices showed an improved progression towards maintenance of their surroundings. An overall informal concluding visits in these areas depict out that the activities being carried out during the action research phase produced a profound impact on overall stakeholders, in and outside of the school. (Ref. Journal)

5. Conclusion and Discussion

The analysis of findings revealed that six-month action research to assess the role of physical environment in students' learning seemed important learning episodes for the project school. It remained instrumental in developing learning aptitudes among the teachers and students. The rigorous involvement of students and teachers under various activities showed that the activities have revitalized their aptitudes and they are keen to maintain a balanced environment. For that they showed their deeper involvement to understand environment and integrated themes. For example, the concepts waste management, improving physical structure, water and its pollution and caring about other biodiversity were matched with their contexts, hence improved motivation towards contextual needs. These findings endorsed earlier studies conducted by Louis and Jordan (2012) that the pertinent content knowledge adds to the motivation of learners. The study also produced greater outcomes through improved knowledge, skills and attitudes among the communities regarding the environmental issues pertaining to their local environment. For example, they became more sensitized towards improving the physical conditions of their surroundings. Additionally, various environment-related activities carried out within and outside the classrooms provided with the opportunities for the students to re-visit their practices and beliefs about their surrounding and enhanced their content knowledge (Moore & Lackney, 1993). These findings further confirmed Fink (2003) studies that the traditional classroom lecture-based teaching learning approach have limited effectiveness in helping students to retain information, become self-learners, and develop skills in transferring knowledge and solving problems.

Providing opportunities to search the content and explore beyond the text create positive image among the learners. The data revealed that involving students in surfing various sources for information create positive attitudes towards environment, ultimately building their capacities towards improved environmental actions. Pooley and Connor (2000) present that similar activities develop better cognitive and emotional skills amongst the students to respond environmental issues more meaningfully. This study showed similar results that when students and teachers were involved in multiple activities to search content, their competencies in the subject areas show improved progression. The study showed that physical environment of the school enhance the students' attitudes towards learning. In particular, a well-balanced classroom, attractive outlook with managed boundary walls, corridors and greenery seemed to have apparent effects on teachers and learners. So, this study seemed consistent with the earlier studies by Berry (2002) that improvement in physical structure is directly linked with the improvements in attitude among all users in schools. Additionally, the seating arrangements inside classrooms showed to have a very positive effect on students' inclination towards learning. It was found that students pay keen interest when their seats are being changed with regard to activities. The students' were also changed according their competency levels, i.e. they were provided with the opportunities to work with different fellows routinely. It was evident that such reforms show improved social skills among the students as they prefer to work with different fellows in multiple tasks in a day. Interestingly, these findings seemed to challenge the previous studies carried out by Millard and Stimpson (1980) saying that a change in seating location (whether the students chose their own seats, or were randomly assigned) did not have a significant effect on enjoyment, interest, inclusion, or motivation.

Based upon the findings of the current study, few suggestions have been proposed. First, this study has focused a single school, there is need to conduct empirical investigations of similar kind to explore the effects of various environmental activities in relation to students learning. Moreover, the study has shown a positive effect on students, teachers and communities regarding their rigorous involvement in the activities pertaining to improve the physical structure of the school. These results can further be improved if such practices are being employed in some of the public and private schools within various contexts of Gilgit-Baltistan. This study also has certain implications for policy makers. The findings of this study may be summarized and can be used to enrich the environmental education content in various syllabi. Additionally, environmental education can be embedded in various training programs for the teachers to convey the meaning of EE to pool of the students, particularly in the Gilgit-Baltistan contexts. For that there is need to upgrade EE through locally-driven and applicable to context approaches.

References

Ahman, M. Lundin, A. Musabasic, V. & Soderman, E. (2000). Improved Health after Intervention in a School with Moisture Problems, Indoor Air, 10 (1) 57–62. Retrieved November 20, 2016 from https://www.ncbi.nlm.nih.gov/pubmed/10842461

Ahrentzen, S. &Evans, G.W. (1984). Distraction, Privacy and Classroom Design. *Environment and Behavior*, 16(4), 437-454.

Ajzen, I. (2002). Residual effects of past on later behavior: Habituation and reasoned action perspectives. *Personality and Social Psychology Review*, 6(2), 107–122.

Alam, S. (2012). Crafting Leaders for Educational Change: Head teacher's Perspectives about a Tailor-made Professional Development Program. International Journal of Social Science and Education, 2(1), 1–18.

Ballentyne, R., Fien, J. & Packer, J. (2000). Program effectiveness in facilitating intergenerational influence in environmental education: lessons from the field. *The Journal of Environmental Education*, 32(4), 8–15.

Bashiruddin, A. (2002). Seasons of my learning. In J. Edge (Ed), Constructing professional development (pp.104-115). Britain, Eysham: Information Press.

Berry, M.A. (2002). Healthy School Environment and Enhanced Educational Performance: The case of Charles Young elementary school, Carpet and Rug Institute. Retrieved December 8, 2016 from http://files.eric.ed.gov/fulltext/ED473985.pdf

Blair, D. (2009): The Child in the Garden: An Evaluative Review of the Benefits of School Gardening. *The Journal of Environmental Education*, 40(2), 15-38.

Buckley, J. Schneider, M. & Shang, Y. (2004). LAUSD School Facilities and Academic Performance, Retrieved November 17, 2016 from http://www.edfacilities.org

Canter, D. V. and Donald, I. (1987). Environmental Psychology in the United Kingdom, in D. Stokols and I. Altman (Eds) Handbook of Environmental Psychology, Vol. 2, Chichester, Wiley.

Clayton, S. & Myers, G. (2009). Conservation Psychology. Understanding and promoting human care for nature. Wiley-Blackwell.

Cooper, I. (1985). Teachers' Assessments of Primary School Buildings: the role of the physical environment in education. British Educational Research Journal, 11 (3), 253–269.

Coopers, P.W. (2000). Building Performance: An empirical assessment of the relationship between schools capital investment and pupil performance, Department for Education and Employment. Retrieved December 15, 2016 from http://s3.amazonaws.com/zanran_storage/www.dcsf.gov.uk/ContentPages/82174737.pdf

Darner, R. (2009). Self-determination theory as a guide to fostering environmental motivation. *Journal of Experiential Education*, 40(2), 39–49.

Deemer, S.A. (2004). Classroom Goal Orientation in High School Classrooms: Revealing links between teacher beliefs and classroom environments. *Educational Research*, 46(1), 73-90.

Earthman, G.I. (2004). Prioritization of 31 Criteria for School Building Adequacy. Retrieved December 15, 2016 from http://www.aclu-md.org/facilities_report.pdf

Elliot, J. (1992). *Action Research for Educational Change*. UK: Open University Press.

Fink, S. (2003). Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses. San Francisco, California: Jossey-Bass.

Fisher, K. (2001). Building Better Outcomes: The impact of school infrastructure on student outcomes and behavior, Department of Education, Training and Youth Affairs (Australia). Retrieved December 20, 2016 from http://files.eric.ed.gov/fulltext/ED455672.pdf

Glesne, C. (2006). *Becoming qualitative researchers*: *An introduction* (3rd Ed.). Boston, MA: Pearson Education, Inc.

Glesne, C. (1998). *Becoming qualitative researchers*. New York: Longman.

Hitchcock, G. & Hughes, D. (1995). Research and the Teacher. (2nd Ed.) London: Routledge.

Hopkins, D. (1985). A teacher's guide to classroom research. Philadelphia: Open University Press.

Horne-Martin, S. (2002). The Classroom Environment and its Effects on the Practice of Teachers. *Journal of Environmental Psychology*, 22 (2), 139-156.

Kember, D. (2000). *Inquiry Strategies for Science and Mathematics Learning*. Portland: Northwest Education Laboratory.

Khattar, M., Shirey, D. & Raustad, R. (2003). Cool & Dry - Dual-path approach for a Florida school. *Ashrae Journal,* 45(5), 58-60.

Knez, I. (1995). Effects of Indoor Lighting on Mood and Cognition. *Journal of Environmental Psychology*, 15 (1), 39-51.

Kolb, A. Y., & Kolb, D. A. (2006). Learning styles and learning spaces: A review of interdisciplinary application of experiential learning in higher education. In R. Sims and S. Sims (Eds.), Learning styles and learning: A key to meeting the accountability demands in education. Hauppauge, NY: Nova.

Louis, N. & Jordan, J. R. (2012). Student Attitudes Toward and Recall of Outside Day: An Environmental Science Field Trip. *Journal of Educational Research*, 105(3), 220-231.

Mackenzie, C., & Edwards, S. (2013). Pedagogical play-types: what do they suggest for learning about sustainability in early childhood education? International Journal of Early Childhood, 43(3), 327-346.

Marcinkowskit, T. (1991). The Relationship Between Environmental Literacy and Responsible Environmental Behavior in Environmental Education (in) MALDAGUE, M (ed) Methods and Techniques for Evaluating Environmental Education Paris: UNESCO.

Millard, R. J., &Stimpson, D. V. (1980). Enjoyment and productivity as a function of classroom seating location. Perceptual and Motor Skills. Portland: Northwest Education Laboratory.

Moore, G.T. & Lackney, J.A. (1993). School Design: Crisis, educational performance and design applications, Children's Environments, 10 (2), 99-112.

Palmer, J.A. (1998). Environmental education in the 21 century: Theory, practice, progress and promise. London: Routledge.

Pooley, J.A. & Connor, M. O. (2000). Environmental Education and Attitudes: Emotions and Beliefs are what is needed. *Environment and Behavior*, 32 (5), 711-723.

Robson, C. (1998). *Real World Research*. Oxford and Cambridge: Blackwell Publishers.

Rosen, K, G. &Richardson, G. (1999). Would Removing Indoor Air Particulates in Children's Environments Reduce the Rate of Absenteeism? A hypothesis. *The Science of the Total Environment*, 234 (1), 87-93.

Sarkar, S.& Frazier, R. (2008). Place-based investigations and authentic inquiry. *Science Teacher*, 75(2), 29–33.

Smedje, G. &Norback, D. (2001). Irritants and Allergens at School in Relation to Furnishings and Cleaning, Indoor Air, 11(2), 127–133.

Stone, C. A. (1989). Improving the Effectiveness of Strategy Training for Learning Disabled Students. The role of Communicational Dynamics. *Remedial and Special Education*, 10(1), 35-42.

Whitty, G. (2006). Teacher Professionalism in a new era. Retrieved April 5, 2016 from http://www.gtcni.org.uk/publications/uploads/document/annual%20lecture%20paper.pdf.

Young, E., Green, H. A., Roehrich-Patrick, L., Joseph, L. &Gibson, T. (2003). Do K-12 School Facilities Affect Education Outcomes? The Tennessee Advisory Commission on Intergovernmental Relations.

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Disaggregated Analysis of Performances of Grade 12 Learners in Gauteng Province, Republic of South Africa

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Abstract: This paper presents the researchers' interpretive analysis of data from the main study that was aimed at proposing the method that will plausibly be used to analyse the Grade 12 results and to compare performances of learners between provinces of South Africa. This cross-sectional, quantitative, and ex-post-facto designed study used secondary and clustered data, as supplied by Department of Basic Education through Umalusi council, to compare the likelihood of passing Grade 12 between male and female learners in the Gauteng Province, even after adjusting for school quintile. Thus, this work attempted to model the relation between school resources inputs and school outcomes called educational achievements or academic performances. The dataset contained a total of 98894 (45.44% male and 54.56% female) learners who set for Grade 12 examinations in 2008 academic. The crude estimates indicated that female learners than male learners were significantly 1.035 more likely to pass Grade 12 (OR = 1.035, p = 0.016, 95% CI: 1.006 - 1.065). Also, the school quintile adjusted model indicated that female learners than their male counterparts were significantly 1.040 more likely to pass Grade 12 (OR = 1.040, p = 0.010, 95% CI: 1.009 - 1.072). The significant effect of school quintile favoured female learners ($p < 0.001$). These results, from disaggregated analysis, indicated that there was sufficient evidence that female than male learners had better chances of passing Grade 12 in Gauteng Province. Therefore, authorities may consider the issue of learner-gender when allocating resources to different school In Gauteng Province.

Keywords: *Academic performance, disaggregated analysis, Grade 12, odds ratio, school quintile*

1. Introduction

Academic performances of learners, described as the scholastic standing of a learner at a given moment (Adeyemi, 2008) – referring to how an individual is able to demonstrate his or her intellectual abilities, come from cognitive and non-cognitive factors. Cognitive factors are memory, verbal abilities and aptitudes for reasoning; and these can be measured using performance and achievement tasks, where the answer given can be grouped as correct or incorrect, or acceptable and not acceptable. For decades and even now a lot of non-cognitive factors have affected performance (Dee, 2005; Kyei & Maboko, 2016). In other words, as highlighted by Fan and Chen (Fan & Chen, 2001), the educating community's focus is now on non-cognitive factors because the realisation of these factors is evidenced. Studies have been conducted to determine factors that have effect on learners' academic performances. Rich (2000) found that family structure has a significant effect on learner performance. In particular, the findings by Rich (2000) indicated that learners from single-headed families or sole parent families performed significantly lower. Lacour and Tissington (2011) reported that poverty significantly affect learners' academic achievement; for poverty affect learners' available resources. Class attendance has been reported as a factor that is associated with learner performance. Learners who miss classes are more likely to perform poorly (Schmidt, 1983). The other factor that has effect on performance is learning preference, which refers to a person's "natural, habitat and preferred way" of assimilating new information (Reid, 1995). The positive effect of learning preferences is observed when there is a good match between learners' learning preference and educator's teaching approach (Mlambo, 2011).Therefore, the importance of analysing factors that influence learners' academic performances is their effect on academic motivation and their use for improving academic success (Ghazvini & Khajehpour, 2011).

2. Literature Review

Disparities between male and female learners in academic performances, especially reading and mathematics achievement, have been a concern among educators for several decades (Letsoalo, Maoto, Masha, & Lesaoana, 2016).For example, Ghazvini and Khajehpour(2011) reported that female learners have shown internal locus

of control, using attitude, motivation, time management, anxiety, and self-testing strategies more extensively, and getting better marks in Literature. With male learners using concentration, information processing and selecting main ideas strategies more, and getting better marks in mathematics. Asante (2010) reported that high school males outperformed females in mathematics. In their investigation of whether higher school achievement by female learners in comparison to male learners can be explained by self-regulation; Weis, Heikamp and Trommsdorff (2013) showed that female learners outperformed their male counterparts in German achievement and behaviour regulation. Generally, males tend to do better at certain spatial and visual tasks while females tend to excel verbally (Dee, 2005; Guiso, Monte, Sapienza, & Zingales, 2008).

Studies on the effect of gender of educator on learners' performances have reported mixed findings. Dee (2007) and Warwick and Jatoi (1994)found for US data that female teachers performed worse in mathematics and significant negative effects of female teachers on Grades 4 and 5 students' mathematics achievements for Pakistan were observed, respectively. Francis (2007)reported that educators' gender has significant effect on achievement mean scores of learners in science; male educators were more effective than their female counterparts. There are studies that provided evidence that female educators outperformed their male counterparts; of course under different conditions, e.g. Neugebauer, Helbig and Landmann (2011) and Spilt, Koomen and Jak (2012). However, Hogue, Razak, Mosa and Islam (2010), in their study of the effect of gender of educator on learner performance, found no (strong) evidence to claim whether students have to be taught by teachers of same or alternative gender. Also, Kolawole and Popoola (2011) in their study maintained that academic achievement is free of gender influence. The effect of educator-gender is significant on male learners or female learners, but conditionally. Therefore, differences between male and female learners in academic performances remain an important factor for education authorities, researchers and practitioners (Letsoalo et al., 2016).Learners' academic performance and achievement occupies a very important place in education as well as in the learning process; and learners' academic gain and learning performance is affected by various factors. Some are inherent such as mental and physical abilities, while others are outside-the-learner such as family social economic status, residential area of students, medium of instructions in schools and daily study hour.

According to Rogers (1997) as quoted byFaize and Dahar (2011), at the school level, socioeconomic status (SES) is by far the single most important factor accounting for the variance in student performance. Socioeconomic status, commonly conceptualised as the social standing or class of an individual or group, is an economic and sociological combined total measure of a person's work experience and of an individual's or family's economic and social position relative to others, based on income, education, and occupation (Saifi & Mehmood , 2011; Letsoalo, Maoto, Masha, & Lesaoana, 2017). Educational research practitioners, especially in South Africa, use wealth or SES measures as surrogates for well-being. Families with high SES often have more resources to utilise for preparing and supporting their children for formal education. The spin-off is evidenced by better performance of their children at school. Arguably, SES is an important factor for academic performance (Sui-Chu & Willms, 1996). Having inadequate resources and limited access to available resources can negatively affect families' decisions regarding their children's development and learning. As a result, learners from low SES families are more likely to underperform at school, and are at greater risk of dropping out of schooling system. Rowen, Cohen and Raudenbush (2004) found that in the United States, the gaps in learner achievement among poor and advantaged learners are substantial. For example, Sum and Fogg (1991) found that learners from lower SES are ranked in the 19th percentile on assessments while learners from a mid to upper SES are ranked in the 66th percentile on assessments. Whilst SES measures give insight into some aspects of lifestyle, they fall short in truly understanding how people live - the realm of the broader concept of ''well-being'' of which wealth is just a part (Higgs, 2007). Socioeconomic status is not without controversy as it remains a latent construct. The fact that SES is assessed by a variety of different combinations of covariates has created an ambiguity in interpreting research findings (Sirin, 2005).

In addition to the effect of SES, studies revealed that parental involvement in school related activities has significant effect on their children's performances. That is, parental involvement is a significant variable that positively influences learners' education (Khajehpour & Ghazvini, 2011). In other words, one important factor in socioeconomic background is the parental education. As highlighted by Fan and Chen (2001), parental involvement has been operationally defined as parental aspirations for their children's academic achievement and parents' conveyance of such aspirations to their children, as parents' communication with children about

school, as parents' participation in school activities, as parents' communication with teachers about their children, and as the rules parents impose at home which are considered to be school-related. This somewhat chaotic state in the definition of the main construct not only makes it difficult to draw any general conclusion across the studies, but also may have contributed to the inconsistent findings in this area. The researcher acknowledges that parental involvement in school-related activities vary according to three conceptual approaches, as used by researchers to explain parental involvement along social-class lines: the culture of poverty, the institutional approach, and the cultural-capital approach(Lareau, 1987; Sui-Chu & Willms, 1996). This paper does not intend to explicitly dwell into these conceptual approaches. Parents' education attainment has an effect on learners' performances. In other words, there is a profound impact of parent's education on their children's performance (Armstrong, Henson, & Tom, 1981).

Among others, Rauf (1984) indicated that learners having educated parents are more likely to get good grades in their examinations than students having uneducated parents. Similar findings were found by Houtenville and Conway (2007) when they concluded that learners' achievements are positively related to parents' education and family income, and negatively related to the number of siblings. However, they did not establish how much was the relationship between students' performance and the level of mother's education as was done by Peters and Mullis in 1997. To be precise, Peters and Mullis (1997) found that parental education level had a significant effect on academic achievement of their children. They further quantified the effect of mothers' education to be 20% higher than the fathers' education level on the outcome of adolescents. The performance of science students is affected by the education level of their mother. Faize and Dahar (2011) concluded that science students having illiterate mothers performed significantly lower than students having educated mothers; and as the level of mothers' education increased, the performance of students also improved.

Research on educational production functions attempts to model the relation between resource inputs and school outcomes such as educational achievements or academic performances (Hedges, Laine, & Greenwald, 1994). Many studies have been conducted on the effect of school resources on learner achievement, but the question is far from settled (Hakkinen, Kirjavainen, & Uusitalo, 2003). South African schools are categorised into five groups, called quintiles, largely for purposes of allocation of financial resources. The poorest schools are in quintile 1 while the well-resources schools are in quintile 5. Schools in quintile 1, 2 and 3 have been declared no-fee schools, while schools in quintiles 4 and 5 are fee-paying schools. The idea of free schooling is primarily about removing the financial barriers to education. The quintile category of a school is a variable that is under the control of policy makers to alleviate the poverty status in schools, and therefore is a proxy for SES or community characteristics. The policy context of this variable is viewed as the amount of money given to schools per learner, provision of nutrition programmes and no-payment of fees by parents. School resources are usually measured at different levels(Hanushek, 1997), which include a) the real resources of the classroom (teacher education, educator experience and educator-learner ratios), b) financial aggregates of resources (expenditure per learner and educator salary), and c) measure of other resources in schools (specific educator attributes, administrative inputs, and facilities). Although school resources is often simplistically considered as a single construct, in reality, this construct be conceptualised as being multifaceted in nature.

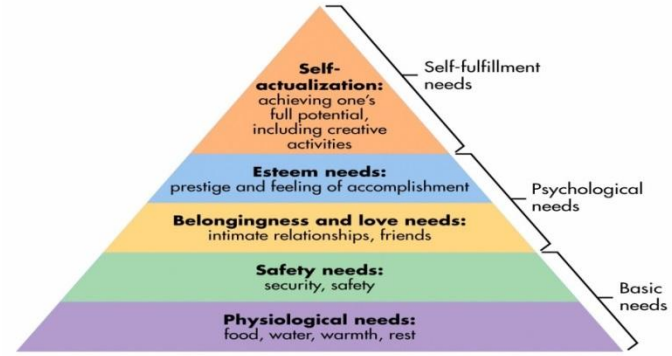
In this paper, the researcher treats all these levels under one variable called school quintile. A basic problem in analysing the effect of school resources on learner achievement is that resources are likely to be correlated with unobserved characteristics that affect achievement. This lead to the studies giving inconclusive evidence that more resources allocated to schools would improve teaching and student learning, then eventually learners' performances (Hakkinenet al., 2003). For example, Hakkinen et al. (2003) found that school resources had no significant effects on any of the exam results. On the other hand, van der Berg (2007) showed that Grade 12 pass rates of schools were associated with, among others, teaching resources. Grade 12 is a final and 12thyear of basic education band in South Africa – a Grade or state before a learner can enrol for post-school qualification in institutions of higher learning such as university and (technical and vocational education and training) college. Also, Pan, Rudo and Smith-Hansen (2003) reported that results from analysis of fiscal and staffing data showed that high performing districts spent more money and employed more staff in certain instructional categories when compared to low-performing districts. This is the same assertion held by Considine and Zappala (2002)that schools in quintiles 4 and 5 (specifically, private schools) are more

likely to have greater number of learners from high SES families, select learners with stronger academic abilities and have greater financial resources. However, Hedges et al. (1994) in their meta-analysis study caution that the statistical results of such studies depend entirely on the statistical approach used, and the power of statistical techniques adopted. In other words, the reliability of the all scientific studies lies in the methods used for data analyses. While the idea that providing more resources to schools would improve the performance of their learners has considerable popular appeal, it is not always supported by the evidence. In other words, policy makers believed that the provision of more resources to teaching and learning processes would directly improve learners' outcomes. Unfortunately, resources may be necessary but they are not entirely sufficient; for resources themselves are not self-enacting. The effect of resources depends entirely on how they are used. Therefore, resources matter only conditionally.

Theoretical Framework: The following theories were used to form the basis for this study:

The theory of human motivation: The theory of human motivation, also known as the Maslow's hierarchy of needs (Maslow, 1943), emphasises the need for human motivation in order to bring out the best possible potentials in human efforts. According to this theory, human is constantly preoccupied with need that must be met at a point in time and which in response gives birth to another need which are mostly insatiable in the long run. This theory, which derives its motivation form the Maslow theory of motivation, postulates that the satisfaction of a stage of need automatically gives rise to the next level of need (Maslow, 1943). In other words, humans are fuelled by a desire to achieve goals. Attaining goals helps humans satisfy specific needs and desires. Needs are categorised into a hierarchy, in which certain needs must be met before others (Maslow, 1943). Lower needs must be satisfied before higher-order needs can be reached. When learners are concerned about certain needs, their behaviour is centred on meeting those needs. Other concerns will then take precedence over learning and achievement. Therefore, if there is a deficiency in the needs or any are neglected it can result in hindering a learner's performance and behaviour in school. This theory guides in the understanding why learners behave the way that they do and it assists in determining how learning may be affected by some factors such as physiological or safety deficiencies. Therefore, this study was underpinned by theory of human motivation. Figure 1 is a schematic representation of Maslow's hierarchy of needs model.

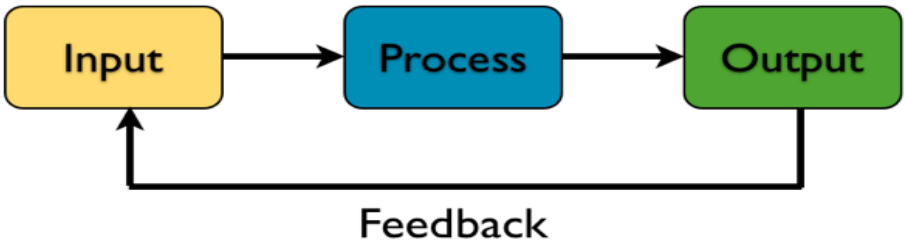
Figure 1: Maslow's hierarchy of needs



The system's theory input-output model: The system's theory input-output model advanced by LudwigVon Bertalanffy in the early 1950s;which postulates that an organised enterprise does not exist in vacuum or in isolation, is dependent on its environment in which it is established (Koontz & Weihrich, 1988). They added that the inputs from the environment are received by the organisation which then transforms them into output after processing such inputs. Figure 2 makes this explanation more explicit. As adapted by this study, the learners (input) are admitted into the school with different inherent attributes, family and educational background; when they get into the school system, the school through its resources (both human and capital) process such learners through the learning process which is aided or made easier through the resources or variables attributed to such school. The effectiveness of such variables is measured through the output of the learners which is measured in term of their academic performances. All the component of the model (system) must function in harmony in order to achieve the envisaged outcome. Therefore, the inter relationship among

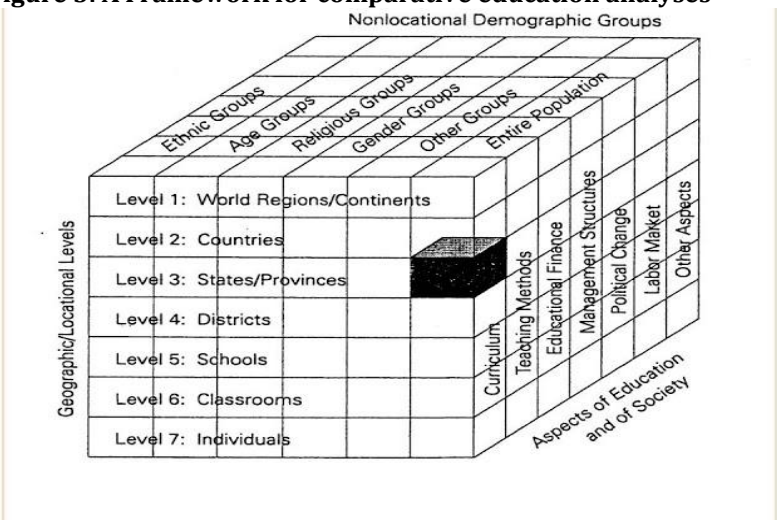
the parts of a system have to be understood by all parties to ensure their inter-dependent nature of the parts(Oso & Onen, 2005).

Figure 2: Input-Output model in education



Bray and Thomas Cube: Bray and Thomas (1995)advocate for multilevel approach, and criticise studies that consider univariate and bivariate data analyses only; and they consider multilevel approaches to be more comprehensive and that the approach allows for integration of insights gleaned from single-level approaches (Letsoalo, Maoto, Masha, & Lesaoana, 2017). Bray and Thomas represented the multilevel approach by the Bray-Thomas Cube, as given by Figure 3.

Figure 3: A Framework for comparative education analyses



The vertical dimension of the cube comprises geographical levels (world regions, country, states/provinces, districts, school, classroom, and individual), the first horizontal dimension comprises seven aspects of education and society (curriculum, teaching methods, education finance, management structures, political change, labour markets and other aspects), and the second horizontal dimension comprises seven non-locational demographic groups (ethical groups, age groups, regional groups, gender groups, other groups and the whole population). Whilst this study does not fully exploit the different aspects of the Bray-Thomas Cube, it is within this framework that the researcher pursued this comparative study.

Purpose of the Study: The purpose of this study was to investigate the influence of school variable on male and female academic performances. Specifically, the study sought to determine the extent to which school quintile influenced academic performances of learners in Gauteng Province. This study was aimed at comparing the overall performances of Grade 12 learners in Gauteng province. To achieve the mentioned objective, the null hypothesis that male and female Grade 12 learners did not perform significantly differently was tested at $\alpha = 0.05$ (2-sided). The guiding question was: Do male and female Grade 12 learners have differing chances of passing Grade 12, even after adjusting for school quintile? Therefore, the researcher intended to draw inference at the gender-level, the unit of analysis. This is the first study to be conducted that compares the overall performances of Grade 12 learners in Gauteng Province, wherein the study end-point is

binary or dichotomous (pass or not pass), using disaggregated approach, hierarchical model or multilevel modelling.

3. Methodology

This cross-section quantitative study(Creswell, 2003), which followed an ex-post-facto design(Cohen, Manion, & Morison, 2000), used secondary data called Grade 12 dataset as supplied by the Department of Basic Education through Umalusi, the Council for Quality Assurance (CQA) in General and Further Education and Training (FET) in South Africa. Umalusi council is responsible for quality assuring Senior Certificate (SC) and National Senior Certificate (NSC), amongst other responsibilities. The Grade 12 dataset contains correlated and clustered data. Such data requires statistical techniques such as disaggregated analysis or multilevel models that account for clustering. Multilevel models are a more advanced form of simple and multiple linear regression models (Letsoalo et al., 2016). The classical regression models, adopted for investigate the relationships between one or more independent variables and a dependent one, are based on the hypothesis of non-correlation between observations. The analysis of the individuals as non-correlated leads to distortions: underestimation of standard error of the model or the attribution of non-existing statistical effects between variables (Ivanović & Baldigara, 2006; Letsoalo & Lesaoana, 2010).

Data were received in excel format and comprised of pseudo-learner identifiers, learning area (school subjects) per learner, final outcome, final score (%), province (Gauteng Province), learner gender (male or female), school quintile and examination centre (school identifier). Data management was accomplished by the use of the combination of software packages Excel and Stata (StataCorp, 2015). The variables of interest were transferred directly into the Stata V14 (StataCorp, 2015)environment wherein statistical analysis was performed. Summary statistics for all categorical variables were presented as frequencies and proportions (expressed as percentages). The study end-point was whether or not a learner passed Grade 12 (pass or not pass). Therefore, the outcome variable was binary. Disaggregated data analysis for binary end-point, also called multilevel modelling for dichotomous outcome or hierarchical logistic regression modelling, as advocated by Letsoalo and Lesaoana(2012), was used to compare the overall performances of male and female learners, and to determine the effect of school quintile on the overall performances between male and female learners. The interpretation of the results was performed at 95% confidence limit or 0.05 error rate.

4. Results and Interpretation

The results are presented in tabular formats and are given at two levels, descriptive analysis and inferential statistics. All summary statistics are given as frequencies and proportions (expressed in percentages) since all variables are categorical. Pearson chi-square test was used to test for association between binary endpoint, which indicates whether or not a learner passed or did not pass Grade 12 and gender, which indicates whether or not a learner was a male or female learner. Disaggregated analysis or hierarchical logistic regression models, both crude (null) and adjusted models, were used to determine the likelihood of observing the result "pass" between male and female learners. The parameter of interest was odds ratio (OR), which is used to compare the relative odds of the occurrence of the outcome of interest, given exposure to the variable of interest (Szumilas, 2010). Possible interpretation of OR is presented by Table 1 (Szumilas, 2010):

Table 1: Interpretations of odds ratios

Odds Ratio (OR)	Interpretation
Less than 1 (OR < 1)	Exposure associated with lower odds of outcome
Equals 1 (OR = 1)	Exposure does not affect odds of outcome
Greater than 1 (OR > 1)	Exposure associated with higher odds of outcome

Descriptive statistics: The participants in the study consisted of 98894 Grade 12 learners, (44940 [45.44%] males and 53954 [54.56%] females) who sat for Grade 12 examination in 2008 academic year in Gauteng Province. Therefore, females were marginally more than male learners. Table 2 presents within gender distribution of results, and indicates that the proportion of females learners were marginally higher than

those of male learners only in the category of Bachelor. Otherwise, the proportions of males were marginally higher in all other categories of results. Specifically, the proportion of male learners who failed Grade 12 examinations in 2008 academic year was marginally higher than that of female learners (26.03% versus 25.36%). The categories of Bachelor, Diploma, Higher certificate and National senior certificates indicated that a learner had passed Grade 12.

Table 2: The within-gender distribution of results

Results	Male Learners		Female Learners	
	Count	Percent	Count	Percent
Bachelor	12427	27.65	16708	30.97
Diploma	12953	28.82	14270	26.45
Higher Certificate	7834	17.43	9284	17.21
National Senior Certificate	29	0.06	8	0.01
Failed	*11697*	*26.03*	*13684*	*25.36*
Total	44940	100.00	53954	100.00

Table 3 presents this information in terms of whether or not a learner had passed Grade 12. The proportion of female learners who passed Grade 12 was marginally higher than that of male learners. Also, the frequency of female learners who passed Grade 12 was marginally higher than that of male learners. Although the frequency of female learners who did not pass Grade 12was marginally higher than that of males; the proportion of those who did not pass favoured females; for 25.36% female learners did not pass Grade 12 as compared to 26.03% of their male counterparts.

Table 3: Distribution of learner gender according to whether or not a learner has passed

Binary End-Point	Male Learners		Female Learners	
	Count	Percent	Count	Percent
Not Passed	11697	26.03	13684	25.36
Passed	33243	73.97	40270	74.64
Total	44940	100.00	53954	100.00

Inferential Statistics (Disaggregated Analysis): Table 4 indicates that learners who passed Grade 12 were marginally more than those who did not pass [n = 73512 (74.33%) versus n = 25381 (25.63%)]. As presented by Table 4, of all learners who did pass Grade 12 in 2008 academic year; 40269 (54.78%)and 33243 (45.22%) were female and male learners, respectively. Likewise, of all learners who did not pass; 13684 (53.91%)and 11697 (46.09%) were female and male learners, respectively. The proportion of female learners who passed was higher than the proportion of male learners.

Table 4: Test for association between gender of a learner and binary end-point

Binary End-Point	Male Learners		Female Learners		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Not Passed	11697	46.09	13684	53.91	25381	100.00
Passed	33243	45.22	40269	54.78	73512	100.00
Total	**44940**	**45.44**	**53953**	**54.56**	**98893**	**100.00**
	Pearson $\chi^2_{(1)} = 5.6870$		*Pr = 0.017*			

A chi-square test for association, as shown in Table 4, was performed to examine the relation between gender of a learner and binary end-point (passed or not passed). The association between these variables was

significant, $\chi^2_{(1)} = 5.687$, p = 0.017. Male learners than female learners were less likely to pass Grade 12. In other words, there was sufficient evidence that the proportion of male learners to the proportion of female learners in the levels of binary end-point was significantly different. Therefore, Male learners and female learners performed significantly differently in 2008 academic year.

The unadjusted model or crude estimates, as depicted by Table 5, indicated that female learners were significantly 1.035 more likely to pass Grade 12 than their male counterparts (p = 0.016, OR = 1.035, 95% CI: 1.006 – 1.065). The odds of passing Grade 12 increased significantly by factor of about 1.035for female learners over that of male learners. This implies that hypothesis that the odds of passing Grade 12 between male and female learners are the same cannot be accepted. Therefore, there is sufficient evidence that female learners were significantly more likely than male learners to pass Grade 12 in 2008 academic year.

Table 5: Crude estimates

Covariate	OR	Std. Err.	P>|z|	95% Confidence Interval
Gender				
Male[a]				
Female	1.035	0.015	0.016	(1.006000 - 1.065000)
Constant	2.843	0.304	< 0.001	(2.784000 -2.903000)

[a]*Baseline category*

Table 6 indicates that school quintile is a significant predictor of the binary outcome, pass or not pass (p < 0.0001). The result from adjusted model indicates that female learners were significantly 1.04more likely to pass Grade 12 than male learners (p = 0.01, OR = 1.04, 95% CI: 1.0095 – 1.0716). There is sufficient evidence that, after controlling for school quintile, female learners than male learners were significantly more likely to pass Grade 12.

Table 6: Model estimates after adjusting for school quintile

Covariate		OR	Std. Err.	P>|z|	95% Confidence Interval
Gender					
	Male[b]				
	Female	1.040	0.016	0.01	(1.009512 - 1.071560)
School Quintile					
	1[b]				
	2	0.859	0.031	0.028	(0.801086 - 0.921010)
	3	1.072	0.340	< 0.001	(1.007340 - 1.140600)
	4	1.437	0.453	< 0.001	(1.351104 - 1.528653)
	5	5.858	0.197	< 0.001	(5.485779 - 6.254520)
Constant		1.553	0.046	< 0.001	(1.465532 - 1.645980)

[b]*Baseline category*

Therefore, if school quintile was constant (i.e. if all schools were resourced equally) then female learners would have been expected to have significantly better chances of passing Grade 12. The chance of passing Grade 12 was 1.04 more likely for female learners than that of male learners after controlling for school quintile.

5. Conclusion

The findings in this paper indicate that female learners than male learners had better chances of passing Grade 12 in Gauteng Province. Both adjusted and unadjusted hierarchical models indicate that female learners were significantly more likely to pass Grade 12.Hierarchical models are more powerful as they are able to account for correlation between clustered or correlated observations, and are able to adjust for individual covariates so as to quantify the effect of each covariate. Therefore, they give reliable estimates (Letsoalo & Lesaoana, 2010).The researcher believes that this study represents a significant contribution on the question of whether or not school resources and learners' achievement are related. The general conclusion of the disaggregated analysis presented in this article is that school quintiles are systematically related to learner achievement and that these relations are large enough to be educationally important. In addition, authorities will appreciate that as they allocate resources to the schools - the issue of learner-gender is taken into consideration. While the findings of this research should provide a clear direction for policymakers - that resources are positively related to learners' achievements - the practitioners should be aware that the impact of the resources lies in how the resources are used in line with advocated policies. Therefore, the relationship between school resources and learner achievement has been controversial, in large part because it calls into question a variety of *traditional* policy approaches. The findings in this study are limited to the performances of learners in Gauteng Province. Any inference or extrapolation of results has to be plausible in situations and setup similar to Gauteng Province. Further, it is recommended that similar studies be conducted for all other years, all other provinces and that all other covariates which were found to be significantly associated with learners' performances, as determined by other studies, be included, controlled for or adjusted for in the analyses.

Challenges: The Grade 12 dataset did not contain all predictor variables such as parents' attributes, family attributes, educators' attributes, learners' backgrounds and learners' ages. It has been shown from other studies that these factors (or covariates) important predictors of learners' performances. It would have been very useful to test if these covariates would yield similar results in the South African setting, especially in Gauteng Province. Therefore, Umalusi council is encouraged to collect all possible covariates for further studies and analyses.

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References

Adeyemi, T. (2008). Predicting students' performance in senior secondary certificate examinations from performance in junior secondary certificate examinations in Ondo State, Nigeria. *Middle-East Jpurnal of Scientific Research,* 3(2), 144 - 161.

Armstrong, D., Henson, K. T.& Tom, V. S. (1981). Education: An Introduction. Macmillan Publishing, Inc.

Asante, O. A. (2010). Sex differences in mathematics performance among senior high students in Ghana. *Gender & Behaviour*, 3279 - 3289.

Bray, M.& Thomas, R. M. (1995). Levels of comparison in educational studies: Different insights from different literatures and the value of multilevel analyses. *Harvard Educational Review,* 65(3), 472 - 491.

Cohen, L., Manion, L.& Morison, K. (2000). Research methods in education. London: Routledge Falmer.

Considine, G.& Zappala, G. (2002). Factors influencing the educational performance of students from disadvantaged backgrounds. In T. Eardley, & B. Bradbury, Competing visions: Refereed proceedings of the National Social Policy Conference 2001 (pp. 91 - 107). Sydney: Social Policy Research Cetre, University of New South Wales.

Creswell, J. (2003). *Research design:Qualitative, quantitative and mixed methods approaches* (2nd ed.). Thousand Oaks: SAGE.

Dee, T. S. (2005). Teachers and gender gaps in student achievement: Working paper #11660. Retrieved August 29, 2017, from http://www.nber.org/papers/w11660

Dee, T. S. (2007). Teacher and the gender gap in student achievement. *Journal of Human Resources, 42*(3), 528 - 554.

Faize, F. A.& Dahar, M. A. (2011). Effect of mother's level of education on secondary grade science students in Pakistan. *Research Journal of Internatıonal Studıes,* (9), 13 9 19.

Fan, X.& Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review,* 13(1), 1 - 22.

Francis, A. A. (2007). Student and teacher related variables as determinants of secondary school students academic achievement in chemistry. *Journal of Pendidikan,* 32, 3 - 18.

Ghazvini, S. D.& Khajehpour, M. (2011). Gender differences in factors affecting academic performance of high school students. *Procedia Social and Behavioral Sciences,* 15, 1040 - 1045.

Guiso, L., Monte, F., Sapienza, P.& Zingales, L. (2008). Culture, gender and math. *Science,* 320(5880), 1164 - 1165.

Hakkinen, I., Kirjavainen, T.& Uusitalo, R. (2003). School resources and student achievement revisited: new evidence from panel data. *Economics of Education Review,* 22, 329-335.

Hanushek, E. A. (1997). Assessing the effect of school resources on students performance: An update. *Educational Evaluation and Policy Analysis,* 19(2), 141 - 164.

Hedges, L. V., Laine, R. D.& Greenwald, R. (1994). Does money matter? A meta-analysis of studies of the effects of differential school inputs on student outcomes. *Educational Researcher,* 23(3), 5 - 14.

Higgs, N. T. (2007). Measuring and understanding the well-being of Soth Africans: Everyday quality of life in South Africans. *Social Indicators Research,* 81, 331 - 356.

Hoque, K., Razak, A., Mosa, F.& Islam, R. (2010). Impact of teacher gender on primary students' achievement: A study at Malaysian standpoint. *Journal of Sociological Research,* 4(1), 124 - 144.

Houtenville, A. J.& Conway, K. S. (2007). Parental effort, school resources and student achievement . American Economic Association Meetings.

Ivanović, Z.& Baldigara, T. (2006). Multilevel models in education process performance evaluation. *Tourism and Hospitality Management,* 12(2), 25 - 36.

Khajehpour, M.& Ghazvini, S. D. (2011). The role of parental involvement affect in children's academic performance. Procedia-Social and Behavioral Sciences, 15, 1204-1208. *Procedia-Social and Behavioral Sciences*, 15, 1204 - 1208.

Kolawole, E. B. & Popoola, A. A. (2011). Four Ability Process Dimension (4APD) as a as a function of improving teaching and learning of Basic Mathematics in Ekiti State Secondary schools. ABACUS. *Journal of Mathematics Association of Nigeria,* 36(1), 113 - 118.

Koontz, H.& Weihrich, H. (1988). *Management.* New York: McGraw-Hill, INC.

Kyei, K. A.& Maboko, T. (2016). Performance of high school students in Vhembe district. *Journal of Economics and Behavioral Studies,* 8(1), 50 - 58.

Lacour, M.& Tissington, L. D. (2011). The effect of poverty on academic achievement. *Educational Research and Reviews,* 6(7), 522 - 527.

Lareau, A. (1987). Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education,* 60, 73 - 85.

Letsoalo, M. E.& Lesaoana, M. (2010). Analysis of clustered measurements: A comparison of the comparison of the performance of foundation year students, 1994 cohort with those of direct students, 1995 cohort, at the University of Limpopo, South Africa. In C. Reading (Ed.), Proceedings of the eighth international conference on teaching statistics. ICOTS.

Letsoalo, M. E.& Lesaoana, M. A. (2012). Determination of causal effect in observational studies: Analysis of correlated data with binary end-points. *Journal of Mathematics and System Sciences,* 2, 119 - 125.

Letsoalo, M. E., Maoto, R. S., Masha, J. K.& Lesaoana, M. (2017). The effect of gender on learner achievement in Gauteng and the Western Cape Provinces of South Africa. *Gender & Behaviour,* 15(2), 9177 -9184.

Letsoalo, M. E., Maoto, R. S., Masha, J. K.& Lesaoana, M. A. (2016). Gender as a unit of analysis: performance of male and female learners in Gauteng and Western Cape Provinces of South Africa. *Gender and Behaviour,* 14(2), 7504 - 7512.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review,* 50, 370 - 396.

Mlambo, V. (2011). An analysis of some factors affecting student academic performance in an introductory biochemistry course at the University of West Indies. *Caribbean Teaching Scholar,* 1(2), 79 - 92.

Neugebauer, M., Helbig, M.& Landmann, A. (2011). Unmasking the myth of the same-sex teacher advantage. *European Sociological Review,* 27(5), 669 - 89.

Oso, W. Y.& Onen, D. (2005). *A general guide to writing research proposal and reports: A book for beginning researchers* (2nd ed.). Kampala, Uganda: Makerere University Press.

Pan, D., Rudo, Z.& Smith-Hansen, L. (2003). Resource allocation does Matter in improving student performance. Conference of the American Education Finance Association. Orlando.

Peters, H. E.& Mullis, N. C. (1997). The role of family income and sources of income in adolescent achievement. In G. Duncan, & J. Brooks-Gunn, Consequences of growing up poor (pp. 340 - 381). Russell Sage Foundation Press.

Rauf, A. (1984).Dynamic Educational Psychology. Lahore: Pakistan: Caravan Book House.

Reid, J. M. (1995). Learning styles in the ESL/EFL classroom. Boston: Heinle & Heile Publishers.

Rich, A. (2000). Beyond the classroom: How parents influence their children's education. CIS Policy Monograph 48, Centre for Independent Studies, Sydney.

Rogers, W. T. (1997). Socio-economic status strong predictor of performance. *Alberta Teachers' Association Publication,* 32(3).

Rowan, B., Cohen, D. K.& Raudenbush, S. W. (2004). Improving the educational outcomes of students in poverty through multidisciplinary researcg and development. Retrieved August 25, 2017, from http://www.isr.umich.edu/carss/about/Prospectus.pdf

Saifi , S.& Mehmood , T. (2011). Effect of socioeconomic status on student achievement. *International Journal of Social Sciences and Education,* 1(2), 119 - 128.

Schmidt, R. (1983). Who maximizes what? A study in student time allocation. *American Economic Review,* 73(2), 23 - 28.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research,* 75(3), 417 - 453.

Spilt, J. L., Koomen, H. M.& Jak, S. (2012). Are boys better off with male and girls with female teachers? A multilevel investigation of measurement invariance and gender match in teacher-student relationship quality. *Journal of School Psychology,* 50(3), 363 - 378.

StataCorp. (2015). *Stata statistical software* (Version 14). College Station, TX: StataCorp LP.

Sui-Chu, E. H.& Willms, J. D. (1996, April). Effects of parental involvement on eighth-grade achievement. *Sociology of Education,* 69(2), 126 - 141. doi: 168.172.0.247

Sum, A. M. & Fogg, W. N. (1991). The adolescent poor and the transitionto early childhood. In P. Edelman, & J. Ladner,Adolescence & poverty: Challenge for the 1990s (pp. 37 - 110). Lanham, MD: Center for National Policy Press.

Szumilas, M. (2010). Explaining Odds Ratios. *J Can Acad Child Adolesc Psychiatry,* 19(3), 227 - 229.

van der Berg, S. (2007). Apartheid's enduring legacy: Inequalities in education. *Journal of African Economies,* 16(5), 849 - 880.

Warwick, D. P.& Jatoi, H. (1994). Teacher gender and student achievement in Pakistan. *Comparative Education Review,* 38(3), 377 -399.

Weis, M., Heikamp, T.& Trommsdorff, G. (2013). Gender differences in school achievement: The role of self-regulation. *Frontiers in Psychology,* 4, 442. doi:10.3389/fpsyg.2013.00442.

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Public Perception toward the Impact of People Activities in Sand and Stone Mining on Economy and Environment in Nulokla Village Jayapura

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Abstract: This research is aimed to determine the public perception towards the impact of people activities in sand and stone mining in Nolokla village, Jayapura, determine the people income levels of sand and stone mining in Nolokla village Jayapura, and the impact which is felt by the miners in terms of the surrounding environment. This research is a survey with descriptive analysis method. The positive impact in term of economics, sand and stone mining in Nolokla is increasing the income of the miners. The gross income of sand miners per day is Rp. 1.037.500, while for stone miners is Rp. 1.365.000. However, the negative impact of the activity is environmental degradation, water flow decrease and critical land.

Keywords: *Perception, miners, sand, stone, income and environment*

1. Introduction

Mining activities sometimes cause problems. It is not just a matter of the mine, but also the environmental issues. In environmental management based on preservation capability, the relationship between human and the environment is always in optimum condition, human can utilize the resources under control and the environment is able to create a source for cultivating. Environmental management aims to achieve harmonious relationship between human and the environment as the goal of a complete Indonesian development, controlled use of resources wisely, the realization of Indonesian as the trustees of the environment, the implementation of sustainable development for the importance of present and future generations, sheltered State against the impact activities outside the territory which causes damage and environmental pollution (Subagya, 2000; Binns & Nel, 2003). It requires serious knowledge (steady), both in terms of juridical and technical aspects of mining are required. Indonesian government has issued Law No. 11/1967 about the regulation of Mining Basic Provisions. According to the law, the extractive minerals of group C is not strategic and vital, it is managed by the Local Government by issuing a license of regional mining (Campbell & Williams, 1999; Costa & Scoble, 2006).

The regional income of Jayapura in 2009 is about 36.360.278.665 with the target of 23.901.131.398 (152%) (Dispeda, 2010). The income of 36 billion is derived from a variety of sectors, including the tax of hotel, restaurants, entertainment venues, billboards, street lights and minerals group C. Up until now, material group C is an idol in giving the largest contribution than other sectors. Jayapura district has some location in excavating materials category C such as East Sentani, West Sentani, Sentani Hawaii, Nimboran, Unurumguai, Kemtuk, and Nimbokrang. Nolokla is one of the villages located in East Sentani. The people consist of local or natives and settlers. Nolokla village potential in terms of natural resources, especially the crops such as sand, stone and gravel called class C mining materials can be regarded as a source of livelihood for most villagers in Nolokla (Drasch et al., 2001; Foli, 2004). The location of C exists along the edge of one of the rivers, as well as around some of the mountain foot in the village. The characteristics of the people's activities of C mining, especially sand and rock, and mining techniques are relatively easy with open-pit mining system, the simple equipment, requires no special expertise, simply done by labor-intensive and low costs. The motives for miners are different, anyone doing this job as a main job and some are doing as a side job. The objective of this research is to know the public perception towards the impact of people activities in sand and stone mining in Nolokla village, Jayapura, to analyze the factors that affect the income of sand and stones mining in Nolokla Jayapura and analyze the constraints and opportunities in sand and stones mining activities in Nolokla, Jayapura (Mosley & Sharp, 2004; Horowitz, 2006).

2. Methodology

This research focuses on Nolokla Village, East Sentani District , Jayapura, precisely along the river of Yabawi with a length of 1,500 meters. The total sample is 21 respondents of 210 sands and stones miners in this

location (Nazir, 2005:279). The data was collected by the primary data, the data obtained from direct observation to the research location and interviews the miners. To calculate how many revenue day of mining sand and stone used analysis tools that the average value quoted Yuwono (Budi-Yuwono, 1996:144). The data was analyzed using descriptive analysis.

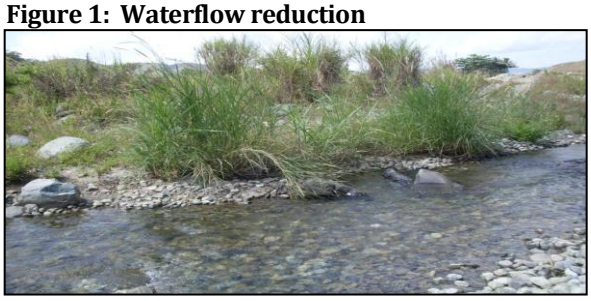
3. Findings and Discussion

Description of the sand miners is the people who do the activities in indigenous rights land (70%), land without a ruler (20%), and the land with work status (10%). The longest period time is 1-5 years (50%), 6-10 years (40%) and 10% is 10-15 years. Working hours per day is for 1-5 hours (50%) or 5-10 hours per day (50%), so the average time is about 5-6 hours per day. The sand mining crop was about 1-5 ret per day (85%) or an average of 4 per day at a price per ret is 250,000, -. Then, the sand miner description is the pople who do the activities in indigenous rights land (65%), land without a ruler (15%), and the land with work status (20%). The longest period time is 1-5 years (50%), 6-10 years (40%) and 10% is10-15 years. Working hours per day is for 1-5 hours (50%) or 5-10 hours per day (50%), so the average time is about 5-6 hours per day. The stone mining crop is about 1-5 ret per day (75%) or an average of 4 per day at a price per ret is 300,000.

Income analysis: In order to fulfill life need, people should have enough income. From the income, they can get the goods and services required. In order to get the income, they have to work. The sand and stones miners get the income from their activities in producing and selling the sands and stones. They have a various income, from 2-10 ret depends on their works. Based on the analysis and interviews to 20 respondents as the sample, the gross income each day is about Rp. 1.037.500,00 with the lowest income, Rp 500.000 (2 rets of sands) and the highest one is Rp 2.000.000 (8 rets of sands). While the gross income of stones miners each day is 1.365.000,000 with the lowest income, Rp 600.00 (2 rets of sands) and the highest one Rp 3.000.000 (10 rets of stones)

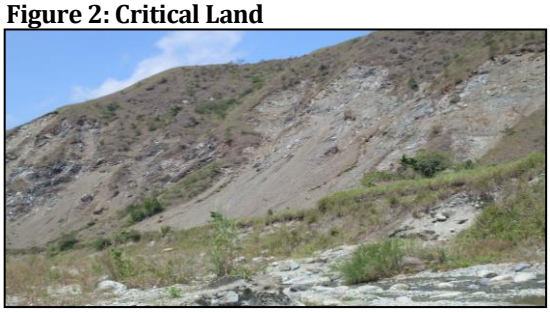
Physical condition in Nolokla village, Jayapura: Figure 1 shows an environment physical condition that occurs because of the sand and stones mining along Yabawi River, Nolokla village Jayapura.

Figure 1: Waterflow reduction



Water is a very important need for human survival. If water is used for drinking, cooking, washing and bathing to be reduced and turbid due to the sand and stones mining were seen in figure 5.1, the survival will automatically be disrupted. Then, the people who live around have to spend money to buy water to meet their daily needs.

Figure 2: Critical Land



Lahan Kritis: Figure 2 shows the occurrence of critical land. The areas before mining activities commonly planted various plants, vegetables, plant cover and the protective ground, because of the activity, it became degraded land. As a result, the people have to buy vegetables for their daily needs. Also the green land becomes barren. Moreover, it can cause air pollution as a result of degraded land that is not good for the health. Because the dust sucked inside the body in long period can lead to quite dangerous disease.

Figure 3: Land damage

Degradasi lingkungan: Damage that occurs at this time is quite alarming, it can be seen in the image above. This is as a result of the use of land as sand and stones land excavation that do not pay attention to the techniques of conservation of soil and water, which causes soil erosion process that exceeds the rate of formation of the soil (erosion exceeding the limit). If the erosion process is allowed prolonged, there will be floods and landslides. This damage also affects the balance and damages the ecosystems in order watersheds as well as the disruption people life.

The impact of mining activities towards social relationship, lifestyle, and social change

The period the activity	Social ofrelationship		lifestyle,		social change		
	Not exist	exist	exist (Ada)	Not exist	Enmity	Jelousy	Not exist
3	2	1	1	2		1	2
4	1		1			1	
5	2	4	4	2	1	4	1
7	1			1			1
8	1			1			1
10	5	1	1	5	1		5
15	1	1	1	1		1	1

The research results for the impact of sand stone mining towards social relationships is 65% no impact, 25% small effect, jealousy or lack of harmony among the miners. Lifestyle, and social changes have no impact. While the impact of mining on the environment is 80% erosion, especially on a rainy day that 25% occurred during 2 days and consequently also pollute water. Impact on the house, the garden, the main work and additional work does not give a great impact. The impact of mining on the health is 35% moderate pain and 35% severe pain. The miners with terminally ill, 27% of people who were vomiting blood due to the work hard. Place of treatment is an alternative treatment (45%) or taking the medication leaves from nature (Drug village) by 55%.

Kesimpulan: After the analysis done, the positive impact of sand and stones mining operations in Nolokla jayapura is in economic terms because it can increase the income of the miners of sand and stone. It can be seen from the average gross daily income of sand miners is about Rp. 1.037.500,00 with the lowest income, Rp 500.000 (2 rets of sands) and the highest one is Rp 2.000.000 (8 rets of sands). While the gross income of stones miners each day is 1.365.000,000 with the lowest income, Rp 600.00 (2 rets of sands) and the highest one Rp 3.000.000 (10 rets of stones). In terms of the environment, sand and stone mining around the village

gives negative impact because of the occurrence of environmental degradation, reduction in water flow and the critical lands.

Saran: The impact of sand and stone mining has positive impact in economic because it can increase the income of the miners while in terms of environmental impact, it gives negative ones. It requires serious attention from the miners in doing the activities, so that the environment is maintained from erosion, water flow. The need of keeping the health is also important so they can stay doing healthy in their activities.

References

Binns, T. & Nel, E. (2003). The village in a game park: Local response to the demise of coal mining in KwaZulu-Natal, South Africa. *Economic Geography,* 79(1), 41-66.

Budi-Yuwono, N. (1996). Pengantar Statistic Economic dan Perusahaan, Jilid II, UPP AMP YKPN, Yogjakarta.

Campbell, C. & Williams, B. (1999). Beyond the biomedical and behavioral: towards an integrated approach to HIV prevention in the southern African mining industry. *Social Science and Medicine*, 48(11), 1625-39.

Costa, S. & Scoble, M. (2006). An interdisciplinary approach to integrating sustainability into mining engineering education and research. *Journal of Cleaner Production,* 14, 366-373.

Dinas Pendapatan Daerah Kabupaten Jayapura, 2010.

Drasch, G., Bose-O'Reilly, S., Beinhoff, C., Roider, G. & Maydl, S. (2001). The Mt. Diwata study on the Philippines 1999-- assessing mercury intoxication of the population by small scale gold mining. *Science of Total Environment*, 267(1-3), 151-68.

Foli, G. (2004). Physio-Chemical Evaluation of Some Mining Impacted Water Bodies within the Obuasi Environment, Department of Geology, University of Ghana, Legon.

Horowitz, L. (2006). Mining and sustainable development. *Journal of Cleaner Production,* 14(3-4), 307-308.

Nazir, M. (2005). Metode Peneltian cetakan keenam, penerbit ghalia Indonesia.

Mosley, L. M. & Sharp, D. S. (2004). The hydrogen sulfide (H2S) paper-strip test: A simple test for monitoring drinking water quality in the Pacific Islands (No. 373).

Suva, Fiji: South Pacific Applied Geoscience Commission (SOPAC).

Subagya, P. (2000). Dasar-dasar operations research, BPFE, Jogjakarta.

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The Effect of Locus of Control, Time Budget Pressure, and Professional Commitment on Dysfunctional Audit Behaviour

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Abstrac: This study aims to determine the effect of locus of control, time budget pressure, and professional commitment on dysfunctional audit behaviour. The data used in this research is the primary data. Data was collected by using a survey method by distributing questionnaires to the auditors of Representative Supreme Audit Board in South Sulawesi Province. The method of analysis that was used to test the hypothesis is multiple linear regression with software Statistical Package for Social Science (SPSS) version 23. The analysis is based on data from 55 respondents who have completed all the statements and questionnaires. The results of this study show that (1) external locus of control and time budget pressure has a positive effect on dysfunctional audit behaviour and (2) professional commitment has a negative effect on dysfunctional audit behaviour.

Keywords: *Dysfunctional audit behaviour, external locus of control, time budget pressure, professional commitment*

1. Introduction

The examination under Law No. 15 of 2004 is a process of identifying problems, analyzes, and evaluations conducted directly, objectively and professionally based on audit standards, to assess the truth, accuracy, credibility, and information on the management and accountability of state finances. One institution responsible for state finance is the Supreme Audit Board of the Republic of Indonesia (as known BPK RI) in Constitution of the Republic of Indonesia in 1945 article 23E. As an external auditor of the government, BPK's auditors should conduct an audit under the State Auditing Standards (SPKN), as set forth in article 1 clause 1 of Law no. 15 of 2004 so that the results of BPK's audit can be more qualified. This State Audit Standards is stipulated by BPK's Regulation Number 01 of 2007 as mandated by the existing Law, such as Article 5 of Law Number 15 of 2004 regarding Audit of State Financial Management and Accountability and Article 9 clause 1 letter e of Law Number 15 of 2006 about the State Audit Board. The State Auditing Standards contain the professional requirements of the auditor, the quality of audit execution and the professional inspection reporting that requirements for inspectors and their organizations in carrying out the audit of state financial management and accountability (the Supreme Audit Board of the Republic of Indonesia, 2007). In carrying out its duties, BPK's auditors always uphold the basic values (independence, integrity and professionalism) that have been stated in the Strategic Plan as known Renstra BPK 2016-2020. And then, These three basic values are set forth in the BPK mission for 2016-2020, which are (1) examine the management and responsibility of state finances independently and (2) implement an integrity, independent and professional organizational governance. Thus, it is expected that the BPK audit report can be trusted and free from the interests of certain parties.

In the fact, BPK's auditors often make deviations to the basic values of BPK, which cause the quality of audit reports to be less trusted by the public. This behavior is thought to be the result of bad personal characteristics that an auditor has. The disclosure of several corruption cases that have dragged several BPK's auditors are evidence that BPK's auditors in performing their duties are particularly vulnerable to dysfunctional behavior. Based on the news from Tempo.co November 21st, 2005 edition, it is known that there are four auditors of BPK who are designated as suspects of corruption case of eternal funds in the Ministry of Religious Affairs. They are Khairiansyah Salman; Hariyanto; Tohari Sawanto; And Mukrom A'sad. In 2010, Tempo.co September 20th, 2010 edition also reported on Suharto and Enang Hernawan (both of them are auditors of Representative Supreme Audit Board in West Java) who were charged with taking a bribe of 400 million rupiah from Bekasi City Government employees to provide unqualified opinion for the financial statements of Bekasi in 2009. In addition, in Tempo.co edition of June 14th, 2016 it was reported that the Corruption Eradication Commission stated there is no evidence to suggest that the purchase of

Sumber Waras Foundation leads to corruption. This is in contrast to the results of audits that have been conducted by the BPK to the transaction which states that the Government of DKI Jakarta has cost the state of 191.3 billion rupiah. Chairman of the Legal Commission of the House of people's Representatives, Bambang Soesatyo, in Tempo.co June 15th, 2016 edition firmly questioned the independence of BPK in conducting audits of Sumber Waras investigation, so he suggested replacement of the Chairman of BPK. From these cases, it can be concluded that unprofessional and unindependent attitudes of some BPK's auditors resulted in poor quality of audit. Irawati et al. (2005) states that any form of manipulation or dishonesty in the audit, will eventually lead to behavioral aberrations.

Dysfunctional audit behavior is a distorted behavior performed by an auditor in the form of manipulation, fraud or irregularity to audit standards (Sampetoding, 2014). Dysfunctional behavior that will be discussed in this study consists of two things, namely audit quality reduction which is a dysfunctional behavior that is considered to reduce the quality of audit directly, and underreporting of time that is considered to reduce audit quality indirectly. This study focuses on auditor dysfunctional behavior (audit quality reduction behavior and underreporting of time) which is influenced by dispositional attributions and internal attributions. Internal causes tended to refer to aspects of individual behavior, that is something that has existed in a person such as a personal nature, self-perception, ability, and motivation. While external causes more refers to the environment that affects one's behavior, such as social conditions, social values, and views of society. Internal factors affecting auditor dysfunctional behavior are locus of control and professional commitment (Silaban, 2009; Alkautsar, 2014). While external factors that influence the dysfunctional behavior of auditors are time budget pressures (Hardyan, 2013; Silaban, 2009; Sososutikno, 2003). The initial concept of a locus of control was introduced by Rotter which outlines that every individual has control over the various factors that occur in his or her life. This locus of control can be both internal and external. The internal locus of control is a personality in which a person believes that he or she controls what happens to him or her. Individuals who have internal locus of control have a high work ethic, resilient to face all kinds of difficulties both in their lives and in their work (Damanik, 2015: 57). In contrast, the external locus of control is a belief that what happens to his or her life is controlled by external forces such as luck and fortune. If individuals with external locus of contol make something wrong, so they tend to blame the surrounding environment that causes it (Damanik, 2015: 59). Several previous studies predicted that external locus of control can affect positively to dysfunctional audit behavior (Sampetoding, 2014; Alkautsar, 2014; Silaban, 2009; Donnelly et al., 2003).

Budget pressure is an obstacle to the auditor in the performance of its duties, where resources such as the time allocated for the implementation of the duty of an auditor is limited (Marfuah, 2011). When the auditor faces time budget pressures, he will try in any way to achieve a predetermined time budget, one way is to do dysfunctional behavior. Previous studies have predicted that time budget pressures have a positive relationship to dysfunctional behavior of auditors (Sari et al., 2016; Silaban, 2009; Sososutikno, 2003). Professional commitment is a personal characteristic of the individual where there is loyalty to the profession so he or she receives and upholds the values and goals of the profession (Silaban, 2009). Professional commitment has now developed into a multidimensional professional commitment, which consists of affective professional commitment, continuous professional commitment, and normative professional commitment. Previous research predicts that the commitment will negatively affect the auditor dysfunctional behavior (Sampetoding, 2014; Wijayanti, 2007; Donnelly et al., 2003).

This research is a replication of the research of Silaban (2009) and Sampetoding (2014) on dysfunctional behavior of auditors where the difference things are the independent variables and the object of research that used. Sampetoding (2014) in her research using unidimensional variable organizational commitment, while in this study using multidimensional professional commitment (affective, continuous, and normative). Another difference is in the object of research used, where the previous research used the Public Accounting Firm (Silaban, 2009) and the State Development Audit Board (Sampetoding, 2014), while the object in this study is the Supreme Audit Board. The reason why researchers are interested in conducting research whose population focuses on auditors working for the Supreme Audit Board because auditors at the Supreme Audit Board have an important role in examining the management and responsibility of the state finances, and in performing those duties the Supreme Audit Board is required to uphold Three basic values of independence, integrity, and professionalism. In addition to these reasons, the disclosure of cases involving auditors of the

Supreme Audit Board indicates that auditors of the Supreme Audit Board are highly vulnerable to dysfunctional behavior and this is contrary to the three basic values held by the auditors of the Supreme Audit Board of the Republic of Indonesia. Therefore, the researcher will try to study "The Effect of Locus of Control, Time Budget Pressure, and Professional Commitment on Dysfunctional Audit Behaviour (Survey on the Representative Supreme Audit Board in South Sulawesi Province".

2. Literature Review

Theory of Change of Attitude: This theory of attitude change was introduced by Carl Hovland in the early 1950s. This theory provides an explanation of how a person's attitude is formed and how that attitude can change through the communication process and how that attitude can affect one's actions or behavior. The theory of change in attitude, among others, states that a person will experience discomfort in him when he is faced with new information that is contrary to his belief (Kamil, 2013). Based on this theory, the auditor will experience discomfort in himself when having a mismatch of demands against a pressure or conflicting circumstances (demands on the completion of the work when the resources are very limited). In such circumstances, the auditor will attempt to eliminate any such discrepancies possible by prioritizing and eliminating something that is considered less important (Fatimah, 2012).

Motivation Theory X and Y: Motivation talks about the direction of behavior, the level of how much effort the individual takes after a certain action. In addition, motivation also talks about the survival of a person's behavior or how long he or she behaves in a certain way (Hehanusa, 2013). Theory X and Y is a theory developed by McGregor, in which he classifies human beings into two types: human beings tend to behave negatively called human type X, and humans tend to behave positively called human type Y (Siagian, 2004). In the X and Y motivation theories found by Mc Gregor, individuals of type X are individuals who have an external locus of control. Such individuals do not like responsibility and must be compelled to excel, and must be motivated by their environment, whereas individuals of type Y are individuals with internal locus of control. Individuals like these love their work, creative, try to be responsible, and can direct theirselves with a specific target. Researchers use this theory because an auditor will accept and then perform dysfunctional behavior of the auditor, mainly due to internal factors such as personal characteristics (X or Y).

Attribution Theory: Attribution theory studies the process by which a person interprets an event, reason, or cause of its behavior. This theory was developed by Fritz Heider, he stated that one's behavior is determined by a combination of internal forces, ie factors that come from within a person, such as ability or effort, and external force, factors that come from outside, such as difficulties in work and luck (Lubis, 2010). The causes of behavior in social perception are known as dispositional attribution and situational attribution or internal and external causes (Robbins et al., 2014). Disposition attribution refers to a behavior that is believed to be influenced by an individual's personal control. Situational attribution or external causes refers to the behavior of external causes, ie the individual is perceived to have been forced to behave thus by the situation.

Locus of Control: One of the personal characteristics that distinguish individuals with one another is the control center called locus of control. Locus of control is a concept developed by Julian B. Rotter where it is expressed that each individual builds expectations about their success depending on their behavior or on things outside themselves (Alkautsar, 2014: 35-36). Gitosudarmo & Sudita (2008: 21) suggests that the locus of control relates to the extent to which a person has a belief that what they do will affect the reward he or she will receive. Damanik (2015: 56) explains that there are four basic concepts of Julian B. Rotter regarding locus of control as follows

- Potential behavior that is every possibility that relative appear in certain situations related to desired outcome in one's life.
- Expectation is a possibility of events occurring and experiencing by a person.
- The value of the reinforcing element, which is the choice of possible reinforcement of the results of several other amplifiers that appear in similar situations
- Psychological atmosphere, namely the form of stimuli both internally and externally that increase or decrease expectations of the emergence of results that are expected.

The locus of control is divided into two: the internal locus of control and the external locus of control. Rotter (1990: 489) defines an internal locus of control as "degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics". An internal control personality is a personality in which a person believes that he controls what happens to him. Internal locus of control reflects the level of confidence that the good and bad events that occur are caused by his own actions. while the external locus of control is defined as "the degree to which persons expect that the reinforcement or outcome is a function of chance, luck, or fate, is under the control of the powerful others, or is simply unpredictable" (Rotter, 1990: 489) . The personality of external control is one's belief that what happens to it is controlled by external forces such as luck and fortune. If individuals with external locus of contol experience failure, then they tend to blame the surrounding environment that causes it. They feel inadequate and less fortunate that they have no hope of correcting the failure (Damanik, 2015: 59). The locus of control used in this study is an external locus of control measured by an instrument consisting of sixteen (16) question items with the following indicators: (1) the individual belief that the power of others, destiny and opportunity are the main factors affect what is experienced, and this indicator; (2) have poor control over their own behaviors; (3) tend to be influenced by others elaborated; (4) are often not convinced that the work they do can be successfully; and (5) less actively seeking information and knowledge related to the situation faced.

Time Budget Pressure: Time budget pressure is a condition in which the auditor is required to perform the efficiency on time budget that has been prepared and there are restrictions on time in a very tight budget. Audit time budget pressure is actually a normal situation in the auditor's work environment (Sari et al., 2016: 8). Margheim et al. (2005: 24) explains that "Budget related time pressure can only occur when the budgeted amount of time is less than the total available time and the auditor has the ability to respond to the pressure by completing the work on their personal time and underreporting the amount of time spent on the audit task ". Budget audit time becomes one of the main factors that determine the success of auditors in carrying out the audit assignment. Hardyan (2013: 19) explains that "the audit time budget also becomes a benchmark in the evaluation of the auditor staff, each auditor has a target time budget to be met and if there is a budget overtime then the evaluation of the auditor is negative. When faced with time budget pressure, the auditor will respond in two ways: functional responses and dysfunctional responses. The functional type is the behavior of the auditor to work better and to use the time as well as possible. Meanwhile, the dysfunctional type is the behavior of the auditor which makes the quality of audit decrease (Setyorini, 2011: 15).

Time budget pressure consistently associated with dysfunctional behavior is a direct and serious threat to audit quality. Time pressure is a condition in which the auditor is required to consider the economic factor (time and cost) in determining the amount and compliance of audit evidence collected. Thus, the auditor feels pressured in completing the audit process because of unbalance between task, time, and cost received. This resulted in auditors tend to choose dysfunctional behavior in completing the audit process in order to complete the task on time (Hartati, 2012). The timely completion of the audit in addition to meeting client demand is also one of the keys to successful auditor careers in the future. Therefore, there is always pressure for the auditor to complete the audit within the budgeted time. Auditors who complete the task beyond the normal time that has been budgeted tend to be judged to have poor performance by superiors or difficult to get promotion. The criteria for obtaining good rankings are the achievement of the time budget (Lestari, 2010: 17). In order to keep the time budget set, it is possible for the auditor to commit such deviant acts as a waiver of audit procedures and even termination of audit procedures. The greater the time budget pressure perceived, the greater the deviation will be done. Time budget pressure is measured by an instrument consisting of six (6) question items, with the following indicators: (1) the tightness of the time budget and (2) the time budget constraint.

Professional Commitment: Auditor commitment to his profession is one of the determining factors or has a strong influence on his conduct in conducting the audit. Professional commitment is a development of a more established concept of organizational commitment. Professional Commitment is based on the premise that individuals form a loyalty to the profession during the socialization process when the profession instills professional values and norms (Silaban, 2009). Alkautsar (2014) states that "the commitment to the profession auditor is an individual auditor characterized by loyalty and fidelity of individual auditors on the purpose and values of the profession." Aranya et al. (1981: 271) states that Profesional commitment is the

relative strenght of their identification with, and involvement in, their profession. Commitment may indicate (1) the belief in, and acceptance of, the goals and values of the profession, (2) a willingness to exert considerable effort on behalf of the profession, and (3) a definite desire to maintain membership in the profession. Commitment has become one of the important elements in the world of work. One of the factors that can affect one's success and performance in work is commitment. The underlying reason for high commitment to every profession is the need for public confidence in the quality of services provided by the profession regardless of the individual. Public confidence in the quality of professional services will increase, if the profession embodies high standards of work and behavior and meets all needs. Understanding this professional commitment is essential to create a conducive working environment so that the company can run efficiently and effectively (Damanik, 2015: 66-67).
Professional commitment is initially seen as a concept that is unidimensional or has a single dimension. However, in line with the development of research results, the concept of professional commitment has also evolved into a multidimensional concept. There are three conceptual component models of commitment introduced by Meyer and Allen (Luthans, 2011: 148; Meyer et al., 1991) consisting of affective professional commitment, continuance professional commitment, and commitment professional normative (normative professional commitment). Affective professional commitment relates to the extent to which individuals "want to be in a profession" (Meyer et al., 1991; Silaban, 2009). "Affective professional commitment refers to identification with, involvement in, and emotional attachment to the profession" (Bagraim, 2003). Affective professional commitment is an individual's emotional attachment to his profession based on the identification of professional values and goals and a desire to help the profession achieve those goals (Meyer et al., 1991; Silaban 2009). For example those with strong affective professional commitment will follow developments in their profession, subscribe to journals, attend professional meetings, and participate in their professional associations (Bagraim, 2003).

Continuous professional commitment relates to the extent to which individuals "remain" in a profession (Meyer et al., 1991). Continuous professional commitment is a form of one's commitment to the profession based on consideration of the costs incurred if one leaves the profession (Bagraim, 2003; Silaban, 2009). Employees with strong continuous commitment try to stay in their profession because they realize they will have a big loss when they get out of the profession (Bagraim, 2003). Normative professional commitment relates to the interrelationship of individuals with a profession because it feels an obligation or responsibility to remain in a profession. Employees with strong normative professional commitment will retain their membership in the profession because they feel that it must be done. Normative professional commitment may develop due to socialization in its effective profession or because of its sacrifices to engage in the profession (Bagraim, 2003). Professional commitment is measured by an instrument consisting of eighteen (18) question items with the following indicators: (1) affective professional commitment; (2) continuous professional commitment; and (3) normative professional commitment.

Auditor Dysfunctional Behavior: Dysfunctional behavior is an unethical action because it will reduce the quality of audit directly or indirectly. Donnelly et al. (2003: 4) says that "In an auditing context, manipulation or deception will manifest itself in the form of behavioral dysfunctioal audit. These behaviors are means for the auditors to manipulate the audit process in order to achieve the individual's performance objective. While according to Sari et al. (2016: 8) "Audit dysfunctional behavior is the behavior of auditors in the audit process that is not in accordance with the audit program that has been established or deviate from established standards". The implications of this dysfunctional behavior are that auditors tend to produce poorly qualified audits and may mislead the users of the report (Sitanggang, 2007). From the above explanation can be concluded that the dysfunctional behavior of auditors is a deviant act done by the auditor by manipulating or cheating on the audit process to achieve his personal goals. In outline, the dysfunctional behavior of auditors is divided into 2 ie, audit quality reduction behavior and underreporting of time. Both of these behaviors are categorized as unethical conductors because the auditor manipulates the performance reports imposed on them by reducing the work that should be done and reporting the audit time shorter than the actual time used (Silaban, 2009). Auditor dysfunctional behavior is measured by an instrument consisting of thirteen (13) question items with the following indicators: (1) the audit quality reduction behavior and (2) underreporting of time.

Locus of External Control and Dysfunctional Audit Behavior: Locus of control is a personal characteristic in which each individual will build expectations about how certain he or she is capable of controlling what will happen to him (Tanjung, 2013). Individuals who have external locus of control will perceive success or failure from luck and fate. Theory of X and Y it is explained that an individual possessing an external locus of control (type X) will have less effort to seek information in problem solving because it considers that external factors are the main cause of success or failure, so that when he experiences work stress, It will strengthen the likelihood of the occurrence of dysfunctional behavior. Previous research has proven that external locus of control will positively affect the auditor's dysfunctional behavior (Donnelly et al., 2003). Another study conducted by Silaban (2009) shows a positive and significant influence of external locus of control on dysfunctional audit behavior (audit quality reduction and underreporting of time). In addition Alkautsar's study (2014) proved a positive relationship of locus of control to dysfunctional audit behavior. Research conducted by Sampetoding (2014) also proves a positive influence of the locus of control externally on dysfunctional behavior of auditors.
H1: The external locus of control positively affects the dysfunctional audit behavior.

Budget Time Pressure and Dysfunctional Audit Behavior: Audit time budget as a benchmark for the evaluation of the auditor's staff. If they can work within a given time budget, it will have a positive impact on their future career prospects. A tight time budget will cause the auditor to be under pressure in the conduct of their audit. According to the theory of attitude change, the auditor will experience the discomfort of being required to complete the job, while the existing resources such as the time is very limited. Such circumstances will force the auditor to perform deviant (dysfunctional) actions in order to reach the prescribed time budget (Hardyan, 2013). This is in accordance with the explanation of situational attribution which states that the auditor is considered to have dysfunctional behaviour caused by the situation that is the demand for the achievement of the time budget. Previous research has shown that time budget pressure has a positive relationship to dysfunctional audit behavior (Sososutikno: 2003). Research conducted by Sari et al. (2016) also proved that time budget pressure has a positive and significant effect on dysfunctional audit behavior. In addition, according to Silaban's study (2009) there has been a positive and significant impact of perceived time budget pressure on dysfunctional audit behavior (audit quality reduction and underreporting of time).
H2: Time budget pressure positively affects dysfunctional audit behavior.

Professional Commitment and Auditor Dysfunctional Behavior: Professional commitment is a development of a more established concept of organizational commitment. Professional commitment can be interpreted as an individual characteristic related to loyalty to the purpose and values of his profession (Alkautsar, 2014). In attribution theory, professional commitment can be classified as a disposition attribution that is the internal cause which causes a person's behavior. A high professional commitment will lead to the auditor toward behavior in the public interest as well as away from the potentially damaging behavior of the profession. Whereas, auditors with lower professional commitment will tend to behave dysfunctionally (Lord and Dezoort, 2001: 220). Previous research has shown that there is a negative relationship between commitment to dysfunctional behavior (Donnelly et al., 2003). Research conducted by Sampetoding (2014) shows that commitment is negatively related to dysfunctional behavior of auditing. In addition, research conducted by Wijayanti (2007) shows a negative influence of commitment to dysfunctional behavior of auditors.
H3: Professional commitment negatively affects dysfunctional audit behavior.

3. Methodology

Participants and Data Collection Procedure: The population in this study is BPK's Auditors of Representative Supreme Audit Board in South Sulawesi Province. Auditors are divided by the work area of the entity, consisting of Sub-Auditorat Sulsel I as many as 34 people, Sub-Auditorate South Sulawesi II as many as 29 people and Sub Auditorat South Sulawesi III as many as 30 people. Thus, the aggregate amount of auditors of the Representative Supreme Audit Board in South Sulawesi Province as the population in this study is 93 people. Data colletion techniques conducted in this study is using questionnaires that were delivered to auditors of the Representative Supreme Audit Board in South Sulawesi Province.

Hypothesis Testing: The hypothesis is a basically proportion or response that is often used as a basis for making decisions or solutions to problems. Before tested, the data must first be quantized. Testing statistical hypotheses is a procedure that allows decisions to be made which is to reject or accept hypotheses from data being tested (Sunyoto, 2011: 93). In this study, the analysis to be used is the analysis with multiple linear regression. The equation is as follows.

$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \acute{\varepsilon}$
Description: Y= auditor dysfunctional behavior
A = constants
X1= external locus of control
X2= time budget pressure
X3= professional commitment
B1, β2, β3= regression coefficients to be calculated
E= error factor or error term

The hypothesis test is done by statistic test about the affect of locus of control, time budget pressure and professional commitment to dysfunctional behavior of auditor in BPK Representative of south sulawesi province. This tatistic test used two forms of hypothesis testing that is partial with t test (to see the partially influence of each variable to Dysfunctional behavior of auditor in BPK Representative of South Sulawesi) and simultaneously with F test (to see the overall effect of external locus of control, time budget pressure, and professional commitment to dysfunctional audit behavior in BPK Representative of South Sulawesi).

Individual Parameter Significance Test (t test): The t test basically indicates how far the influence of an individual explanatory/independent variable in explaining the dependent variable. The zero hypothesis (Ho) to be tested is whether a parameter is equal to zero, or:
Ho: $\beta 1\beta 2\beta 3 = 0$
That is, whether an independent variable is not a significant explanation of the dependent variable. The alternative hypothesis (Ha) parameter of a variable is not equal to zero, or
Ha: $\beta 1\beta 2\beta 3 \neq 0$
That is, the variable is a significant explanation of the dependent variable.

Simultaneous Significance Test (F Test): This test involves the three independent variables (external locus of control, time budget pressure, and professional commitment) on the dependent variable (dysfunctional behavior of the auditor) in examining the presence or absence of influence simultaneously. Testing simultaneously using F distribution, that is comparing between F arithmetic with F table.

- Ho: $\beta 1\beta 2\beta 3= 0$, meaning external locus of control, time budget pressure and professional commitment are insignificant or have no effect simultaneously on dysfunctional behavior of auditor BPK Representative of South Sulawesi province.
- Ha: $\beta 1\beta 2\beta 3\neq 0$, meaning external locus of control, time budget pressure and professional commitment affect simultaneously to dysfunctional behavior of auditor BPK Representative of South Sulawesi Province.

4. Results

Assumptions Of The Classical Model Test

Normality Test: Normality test aims to determine whether each variable, whether the independent variable or the dependent variable is normally distributed or not. A good regression model is data that has a normal or near normal distribution. Normality test in this research using approach of Normal Probability Plot (P-Plot). Based on the normal probability plot, it can be concluded that the regression model is feasible to use because it meets the assumption of normality. This is evidenced by the occurrence of the spread of data (dots) around the regression line (diagonal line).

Multicollinearity Test: This classical assumption test is used for multiple regression analysis at least consisting of two independent variables, association level (closeness) or (r) relationship. This test aims to

determine whether in a multiple linear regression model there is correlation between variables. A good multiple linear regression model is one that does not have multicollinearity. One way to test multicollinearity is looking at the tolerance and variance inflation factor (VIF). The common cut-off value used to indicate the presence of multicollonierity is the tolerance value <0.10 or equal to the VIF value> 10. Based on the multicollinearity test, it was found that no independent variable has a tolerance value of less than 0.10, as well as with VIF value in each independent variable no more than 10. Thus, it can be concluded that there is no multicollinearity in this study, so one of the requirements of multiple regression tests have been fulfilled.

Heteroscedasticity test: Heteroscedasticity test is performed to see the same or not of the variance of the residual from one observation with another observation. If the residual has the same variance, it is called homoscedasticity but there is heteroscedasticity if the variance is not same. A good regression equation is homoscedasticity or no heteroscedasticity. It is said that there is no heteroscedasticity if the points of data processing on scatterplot are spreading below or above the orgin point (zero) on the Y axis and are not having a regular pattern. Based on the scatterplot, it can be seen that the pattern of the dot's spreading is above and below the point orgin (zero) on the Y axis and does not have a regular pattern. Therefore, it can be concluded that there is no heteroscedasticity in the regression model used. Thus the assumption of non heteroscedasticity is fulfilled.

Hypothesis Testing Results: Data analysis used in this research is multiple linear regression analysis. Multiple linear regression model in this research is used to test independent variable that is external locus of control (X1), time budget pressure (X2), and professional commitment (X3) to dependent variable that is dysfunctional audit behavior (Y).

The general equation of multiple linear regression is as follows.
Y = a + b1X1 + b2X2 + b3X3 + e
In the form of multiple linear regression equation, the following results are obtained.
Y = 8,998 + 0,322X1 + 1,147X2 - 0,098X3 + e

Based on regression model and table 4.7 above, the result of multiple linear regression can be described as follows.

- The multiple linear equations above show the constant value of 8.998. This shows that if the external locus of control variable, time budget pressure, and professional commitment are considered constant, then the dysfunctional audit behavior will increase by 8.998 units.
- The regression coefficient on the external locus of control variable X1 has a constant value of 0.322, this means that if the independent variable increases one unit then the dysfunctional audit behavior variable will increase by 0.322 assuming another variable remains.
- The regression coefficient on the time budget pressure variable (X2) has a constant value of 1.147 this means that when the time budget pressure variable increases one unit then the dysfunctional audit behavior variable will increase by 1.147 with the assumption that other variables remain.
- Regression coefficient on professional commitment variable (X3) has a constant value of -0.098 this means that if the professional commitment variable increased by one unit then the dysfunctional audit behavior variable will decrease by 0.098 assuming other variables remain.

Individual Parameter Significance Test (t test): T test is used to determine the influence of each independent variable to the dependent variable (Ghozali, 2016: 171). The following is the result of the test of the significance of individual parameters (t test).

Table 1: Test Results Statistics t Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	8,998	4,108		2,190	,033		
	External Locus of Control	,322	,042	,462	7,596	,000	,685	1,460
	Time Budget Pressure	1,147	,137	,535	8,349	,000	,618	1,619
	Professional Commitment	-,098	,043	-,123	-2,250	,029	,847	1,181

Dependent Variable: Dysfunctional Audit Behaviour
Source: Processed primary data, 2016

Based on the table of test statistical t above, it can be drawn some conclusions related to the results of hypothesis testing, namely.

- External locus of control has a positive and significant effect on dysfunctional audit behavior. This is evidenced from the value of external locus of control (X1) of 7.596 which is greater than t table value of 2.006 and has a significant value of 0.000 smaller than 0.05. These results suggest that the first hypothesis (H1) which states that the external locus of control positively affects the dysfunctional audit behavior is accepted.
- Time budget pressure has a positive and significant impact on dysfunctional audit behavior. This is evidenced from the value of time budget (X2) computed of 8.349 which is greater than the t table value of 2.006 and has a significant value of 0.000 smaller than 0.05. These results indicate that the second hypothesis (H2) which states that time budget pressure has a positive effect on dysfunctional audit behavior is accepted.
- Professional commitment has a negative and significant influence on dysfunctional audit behavior. This is evidenced from the value of t count of professional commitment variable (X3) by -2,250 which is bigger than t table value equal to 2,006 and has significant value equal to 0,029 smaller than 0,05. These results indicate that the second hypothesis (H3) which states that professional commitment has a negative effect on dysfunctional audit behavior is accepted.

Simultaneous Significance Test (F Test): The F statistic test is used to find out whether the independent variables simultaneously affect the dependent variable (Ghozali, 2016: 171). The results of simultaneous influence test (F test) can be seen in the following table.

Table 2: F Test Result

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1316,317	3	438,772	114,504	,000[b]
	Residual	195,429	51	3,832		
	Total	1511,745	54			

a. Dependent Variable: Dysfunctional Audit Behaviour
Predictors: (Constant) External Locus of Control, Time Budget Pressure, Professional Commitment
Source: Processed primary data, 2016

The result of ANOVA or F test as shown in the table above, obtained the value of F count of 114,504 and the significance value of 0.000 which is much smaller than 0,05. Because the significance value is less than 0.05 then all independent variables of external locus of control, time budget pressure, and professional commitment simultaneously affect the dysfunctional audit behavior.

The Effect of External Locus of Control (X1) on Dysfunctional Audit Behaviour (Y): The result of t test between the external locus of control variable and the dysfunctional audit behavior variable shows that the result of t calculate is 7,596 and the regression coefficient is 0,322 which means that the direction is positive to dysfunctional audit behavior and the level of significance indicates the value of 0,000 which means that the

value is significant because Smaller than 0.05. Because the level of significance is less than 0.05 or 5% and the regression coefficient is positive, then the external locus of control positively affects the dysfunctional audit behavior, and it means that the first hypothesis is accepted. The results of this study support the research conducted by Donnelly et al. (2003), Wijayanti (2007), Silaban (2009), Gustati (2012), Hartati (2012), Alkautsar (2014), and Sampetoding (2014). The results of the seven studies show that partially the external locus of control variable positively affects the dysfunctional audit behavior. Positive influence indicates that the external locus of control is in line with the dysfunctional audit behavior, where the higher level of an auditor's external locus of control will increase the auditor's dysfunctional behavior level, and vice versa, if the external locus of control level is low then the auditor's dysfunctional behavior level will also low. The results of this study are supporting the motivational theory of X and Y developed by McGroger. Individuals of type X or individuals with external locus of control are individuals who do not like responsibility (challenge). The mentality of these individuals is not a problem-ready mentality, so when they encounter a problem, they will quickly become irritable, nervous, and dizzy person, and this probrem will reinforce the possibility of dysfunctional behavior.

The Influence of Time Budget Pressure (X2) on Dysfunctional Audit Behavior (Y): The result of t test between time budget pressure with dysfunctional audit behavior shows t count result of 8,349 and regression coefficient yield equal to 1,147. It's meaning that its direction is positive to dysfunctional audit behavior and its significance level indicates value 0.000 which mean this value significant due to smaller than 0.05. Because the level of significance is less than 0.05 or 5% and the regression coefficient is positive, then in this case the time budget pressure has a positive effect on the auditor's dysfunctional behavior, so the second hypothesis is accepted. The results of this study are in accordance with research conducted by Silaban (2009), Suprianto (2009), Sososutikno (2003), Tanjung (2013), Sampetoding (2014), and Sari et al. (2016). The result of the those studies stated that partially time budget pressure positively influence to dysfunctional audit behavior. Positive influence shows that time budget pressure is in line with dysfunctional audit behavior. When the level of time budget pressure increase, the level of dysfunctional audit behavior is also increase, and vice versa, if the level of time budget pressure is low, then the level of dysfunctional audit behavior will also be low. This research is also in line with the theory of attitude change developed by Carl Hovland. This theory provides an explanation of how a person's attitude is formed and how that attitude can affect one's behavior or actions. When the auditor is faced with a pressure (the demand for the settlement of work with a very limited time), then the auditor will experience discomfort in him. Such circumstances will compel the auditor to perform dysfunctional behaviors in order to reach a predetermined time budget.

The Influence of Professional Commitment (X3) on Dysfunctional Audit Behavior (Y): The result of t statistic test between professional commitment variable and dysfunctional audit behavior variable shows that the result of t calculation is -2,250 and the result of regression coefficient equal to -0,098 meaning that its direction is negative to dysfunctional audit behavior and its significance level show value equal to 0,029 which mean value is significant because it's smaller than 0.05. Since the regression coefficient is negative, then professional commitment negatively affects the auditor's dysfunctional behavior, so the third hypothesis is accepted. The results of this study are in accordance with research conducted by Donnely et al. (2003), Wijayanti (2007), and Sampetoding (2014). The results of these three studies suggest that partially commitment has a negative effect on the detection of fraud. Negative influence indicates that professional commitment is contrary to dysfunctional audit behavior, where the higher commitment of an auditor to his profession will decrease the dysfunctional audit behavior. On the contrary, when the commitment professional is lower, then the dysfunctional audit behavior is higher. This research is also in line with the attribution theory developed by Fritz Heider. Commitment in this theory can be classified as a disposition attribution or an internal factor that causes a person's behavior. Auditors who are highly committed to their profession, will direct him to behave in the public interest and away from deviant acts that are potentially damaging to the profession.

5. Conclusion

Based on the results of the analyzes that have been described above, It was concluded that this study succeeded in supporting all the hypotheses filed, the detailed description as follows:

- The results of this study support the first hypothesis that the external locus of control variable positively affects the dysfunctional audit behavior. This indicates that the auditor who has an external locus of control will see the success or failure of the luck and fate. In X and Y theories developed by McGroger explains that individuals of type X (individuals with external locus of control) do not like the responsibility (challenge) so that the mentality is not a risk-ready mentality. Therefore, an auditor with an external locus of control will have less effort in finding information in problem solving so that when he / she experiences the stress, it will reinforce the possibility of dysfunctional behavior.
- The results of this study also support the second hypothesis. In this study, time budget pressure variables have a positive effect on dysfunctional audit behavior. The theory of attitude change developed by Carl Hovland explained that the auditor who is experiencing pressure on the time budget will experience discomfort because he is required to reach the budget time set. This circumstance will compel the auditor to perform dysfunctional behaviors in order to reach a predetermined time budget.
- The results of this study support the third hypothesis, that professional commitment variables have a negative effect on dysfunctional audit behavior. In attribution theory, professional commitment can be classified as a disposition attribution or an internal factor that determines a person's behavior. When the auditor has a high professional commitment it will lead the auditor to the behavior with the aim for the public interest and away from deviant behavior that has the potential to damage the profession.

Research Recommendations: In this research still need some repair items to be done on the next research which still have related with the object of similar research, so it can make this research more plenary. As for some suggestions for further research that the sample of respondents should be further expanded to obtain greater representation of the study population under study. This extension can be either the addition of the geographical scope of the respondent and the addition of the quantity of respondents. Further research should also try other instruments besides the questionnaires so that the data obtained can better describe the overall research object. The addition of several other variables used in measuring factors affecting auditor dysfunctional behavior is also recommended.

Reference

Alkautsar, M. (2014). Locus of Control, Commitment Professional, and Dysfunctional Audit Behaviour. *International Journal of Humanities and Management Sciences (IJHMS)*, 2(3).

Aranya, N., Pollock, J. & Amernic, J. (1981). An Aximination of Professional Commitment in Public Accounting. *Accounting, Organizations and Society,* 6(4), 271-280.

Bagraim, J. J. (2003). The Dimensionality of Professional Commitment. *SA Journal of Industrial Psychology,* 29(2), 6-9.

Constitution of the Republic of Indonesia Year 1945 Article 23 of the BPK. (2002). Jakarta: The Plenary Session of the People's Consultative Assembly of the Republic of Indonesia.

Damanik, D. (2015). The Influence of Spiritual Emotional Quotieny (SEQ), Locus of Control (LOC), Time Budget Pressure, Morality Auditor, and Professional Commitment to Audit (Case Study in The Regional Goverment on The Inspectorate Dairi. Essay. Medan: Accounting Department of Economic and Business Faculty In University of Northern Sumatra

Donnelly, D. P., Quirin, J. J. & O'Bryan, D. (2003). Attitudes Toward Dysfunctional Audit Behavior: The Effects *of Locus of* Control, Organizational Commitment, and Position. *The Journal of Applied Business Research*, 19(1).

Fahmi, I. (2011). *Theory Management, Cases, and Solutions.* Bandung: Publisher of alfabeta

Fatimah, A. (2012). Characteristics of Personal Auditors As Anteseden Discoverable Auditor Behavior and Its Effect on Audit Quality Result. *Jurnal Manajemen dan Akuntansi,* 1(1).

Gitosudarmo, I. & Sudita, I. N. (2008). Organizational Behavior. Yogyakarta: BPFE-Yogyakarta.

Ghozali, I. (2016). Application of Multivariete Analysis with IBM SPSS Program 23. Semarang: Diponegoro University Publishing Agency.

Gustati. (2012). Perceptions of the Auditor about the Influence of Locus of Control on the Acceptance of Dysfunctional Audit Behavior (Survey on Auditor BPKP Representative of West Sumatera Province*). Jurnal Akuntansi & Manajemen*, 7(2).

Hardyan, B. C. (2013). Dysfunctional Audit Behavior: The Effects of Time Budget Pressure, Leadership Style, and Organizational Commitment. Essay. Semarang: Faculty of Economic and Business, Diponegoro University.

Hartati, N. L. (2012). Effect of Internal and External Characteristics of Auditors on the Acceptance of Dysfunctional Behavior on Audit Procedures. *Accounting Analysis Journal*, 1(2).

Hehanusa, M. (2013). The Influence of Locus of Control on the Acceptance of Dysfunctional Audit Behavior with Auditor Performance as a Mediation Variable. *Cita Ekonomika Jurnal Ekonomi*, VII(2).

Irawati, Y., Petronila, T. A. & Mukhlasin. (2005). Relationship of Characteristics of Personal Auditor To The Level Of Acceptance Of Behavior In Audit. Eighth National Symposium on Accounting page 929-940.

Jatnika, I. (2015). Influence of Burnout Auditor, Organizational Commitment, Moving Intention and Employee Performance on Tolerance of Dysfunctional Behavior of BPK RI Auditor. Thesis. Yogyakarta: Gadjah Mada University.

Kamil, E. N. (2013). Reporting Violence Against Indonesian Journalists and Student Attitudes (Correlational Studies on Relationship Between Violence Against Indonesian Journalists On Metro TV Against Student Attitudes Stik-P). Essay. Medan: Faculty of Social Science and Political Science University of Northern Sumatra.

Lestari, A. P. (2010). Factors Affecting Auditor Behavior In Premature Termination of Audit Procedures. Essay. Semarang: Faculty of Economic, Diponegoro University.

Lord, A. T. & Dezoort, F. T. (2001). The Impact of Commitment and Moral Reasoning on Auditor's Respons to Social Influence Pressure. *Accounting Organizations and Society*, 26, 215-235.

Lubis, A. I. (2010). *Behavioral Accounting (Edisi 2).* Jakarta: Salemba Empat.

Luthans, F. (2011). *Organizational Behavior: An Evidence-Based Approach, Twelfth Edition.* New York: McGraw-Hill Company.

Marfuah, S. (2011). The Influence of Time Budget Pressure against Auditor Dysfunctional Behavior in Work Stress Theory Perspective. Essay. Semarang: Faculty of Economic Diponegoro University.

Margheim, L., Kelly, T. & Pattison, D. (2005). An Empirical Analysis of The Effects of Auditor Time Budget Pressure And Time Deadline Pressure. *The Journal Of Applied Business ResFearch*, 21(1).

Meyer, J. P. & Allen, N. J. (1991). A Three-Component Conceptualization Of Organizational Commitment. *Human Resource Management Review*, 1(1), 61-89

Robbins, S. P. & Judge, T. A. (2014). *Organization Behaviour Edition 12 Book 1.* Jakarta: Salemba Empat.

Rotter, J. B. (1990). Internal Versus External Control of Reinforcement. *The American Psychological Association*, 45(4).

Sampetoding, P. R. (2014). Relation of Time Budget Pressure, Locus of Control and Organizational Commitment to Dysfunctional Audit Behavior, and How The Dysfunctional Audit Behavior Influence the Audit Quality (Survey on Representative BPKP Government in South Sulawesi Province). Skripsi. Makassar: Faculty of Economic and Business, Hasanuddin University.

Sari, R., Tenriwaru., M. & Agung, P. (2016). Effect of Time Budget Pressure and Locus of Control of Auditor Dysfunctional Behaviors. *Journal of Education and Vocational Research*, 7(1).

Setyorini, A. I. (2011). The Influence of Audit Complexity, Time Budget Pressure, and Auditor Experience on Audit Quality with Moderating Variables on Information Systems (Empirical Study of KAP's Auditors in Semarang). Essay. Semarang: Faculty of Economic, Diponegoro University.

Siagian, S. P. (2004). Motivation Theory and Its Application. Jakarta: PT Rineka Cipta.

Silaban, A. (2009). Auditor Dysfunctional Behavior In Implementation of Audit Program. Dissertation. Semarang: Doctoral Program of Economics Diponegoro University..

Sitanggang, A. (2007). Auditor's Acceptance of Dysfunctional Auditing Behavior: A Model Explanation Using the Personal Auditor's Characteristics. Thesis. Semarang: Postgraduate Program in Diponegoro University.

Sososutikno, C. (2003). Time Budget Pressure Relationship With Dysfunctional Behavior And Its Effect on Quality Audit. Sixth National Symposium on Accounting page 1116-1128.

Sugiyono. (2012). Quantitative Research Methods, Qualitative, and R & D. Bandung: Publisher Alfabeta.

Sunyoto, D. (2013). Accounting Research Methodology. Bandung: Refika Aditama.

Suprianto, E. (2009). Effect of Time Budget Pressure on Auditor Dysfunctional Behavior. *JAI*, 5(1), 57-65.

Tanjung, R. (2013). Effect of Personal Auditor's Characteristics and Time Budget Pressure on Auditor Dysfunctional Behavior. Essay. Padang: Faculty of Economic, Padang State University.

Tempo.co. (2005). Khairiansyah Suspects of the Eternal Funders. (online)(http://www.tempo.co/read/news/2005/11/21/05569507/Khairiansyah-Tersangka-Penerima-Dana-Abadi-Umat, Accessed on June 21, 2016).

Tempo.co. (2010). Dua Auditor BPK Didakwa Terima Suap. (online)(http://www.tempo.co/read/news/2010/09/20/063279194/Dua-Auditor-BPK-Didakwa-Terima-Suap, Accessed on June 21, 2016).

Tempo.co. (2016). KPK: Tidak Ada Korupsi di Pembelian RS Sumber Waras. (online) (https://m.tempo.co/read/news/2016/06/14/063779724/kpk-tidak-ada-korupsi-di-pembelian-rs-sumber-waras, Accessed on July 26, 2016)

Tempo.co. (2016). Sumber Waras Bebas Korupsi, Bambang Soesatyo: BPK yang Brengsek. (online)(https://m.tempo.co/read/news/2016/06/15/063780034/sumber-waras-bebas-korupsi-bambang-soesatyo-bpk-yang-brengsek, Accessed on July 26, 2016).

The examination under Law No. 15 of 2004 regarding Audit of Management and Responsibility of State Finances. (2004). Jakarta: Deputy Cabinet for Legal Affairs and Legislation.

The Supreme Audit Board of the Republic of Indonesia. (2007). State Auditing Standards. (Online)(http://www.bpk.go.id/assets/files/storage/2013/12/file_storage_1386233856.pdf, Accessed on June 22, 2016)

The Supreme Audit Board of the Republic of Indonesia. (2016). The strategic plan of 2016-2020. (Online) (http://www.bpk.go.id/page/rencana-strategis, Accessed on June 22, 2016).

The Supreme Audit Board of the Republic of Indonesia. (Without year). Legal Basis. (Online) (http://www.bpk.go.id/page/dasar-hukum, Accessed on June 22, 2016).

Wijayanti, P. (2007). Effect of Personal Auditor's Characteristics on Acceptance of Dysfunctional Audit Behavior. Thesis. Semarang: Postgraduate Program in Diponegoro University.