



The Mediating Effect of Intellectual Capital on the Quality of Higher Education and Capital Wellness

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ABSTRACT

This study aimed to determine the mediating effect of intellectual capital on the quality of higher education and financial wellness. It is a quantitative research that made use of descriptive-correlation design with 403 respondent institutions from public and private HEIs in the East Africa Community. Data were analyzed using descriptive AND INFERENTIAL STATISTICS. Results showed that quality of higher education and intellectual capital was perceived to be high; the level of financial wellness was good, and intellectual capital partially mediated the relationship of quality higher education and financial wellness. The direct effect of quality higher education on financial wellness is 0.613 at p-value 0.05 and its indirect effect, which is the mediation effect of intellectual capital, is 0.266 (0.378 * 0.703). The total effect of quality higher education on financial wellness when mediated by intellectual capital is 0.879 (0.613+0.266). Higher Education Institutions need to create a system that will ensure the regular assessment of the quality of education that they offer and their intellectual capital to increase capital wellness.

Keywords: Quality of Higher Education, Financial Wellness, Intellectual Capital.

INTRODUCTION

The quality of higher education in Africa, particularly in East Africa, is currently undergoing a transformation due to massive expansion, which has implications for all aspects of the financial performance sector. What makes the growth of education in Africa so unique is that it has witnessed a wave of growth whose consequences range from quality to financing, from governance to employment. Ironically, despite this massive growth, the system remains the least in the world due to financial difficulties.

Globally, the failure of higher education institutions is estimated at 14.9% (Stephen, 2017), 10% of which are related to higher education unplanned and failing operational costs (Gary, 2015). Financial difficulties in higher educational institutions are also experienced in rich countries like the Organization for Economic Cooperation and Development (OECD) member

countries, US, New Zealand, Australia, and Canada. (Johnson, 2012; Lilford, 2013; OECD, 2016; Pricewaterhouse Coopers, 2014).

In East Africa, many of the private and public institutions are struggling with insufficient funds which hampered their ability to maintain quality education due to low level of employee satisfaction, low productivity, and lack of adequate financial wellness (Eshiwani, 2013).

The goal of financial wellness in the Higher Education Institutions is to make their programs one of the best in the country. Colleges and Universities must improve their services and processes and strive for excellence and quality. Institutional managers and supervisors must define their intellectual capital to achieve these goals. They must understand that institutions are competing for scarce resources. That is why, they have to plan for stakeholder participation and intellectual capital that can lead to a high level of financial wellness (Nganga, 2014).

The researcher is interested in determining the link between intellectual capital as a means to address the financial health challenges associated with higher quality education in order to achieve financial wellness in the tertiary sector of East Africa. Thus, the main purpose of this study is to determine the mediating effect of intellectual capital on the quality of higher education and financial wellness. More specifically, the sought to answer the following sub-problems:

1. How do the respondents perceive the quality of higher education in terms of:
 - 1) Faculty
 - 2) Research
 - 3) Curriculum Instruction
 - 4) Community Involvement
 - 5) Resources
2. How do the respondents perceive the intellectual capital of the higher education in terms of:
 - 1) Intellectual Property Ownership
 - 2) Human Resource Capital
 - 3) Market Capital
 - 4) Infrastructure Capital
3. What is the financial wellness of the higher education in terms of:
 - 1) Liquidity
 - 2) Solvency
 - 3) Profitability

4) Efficiency

4. Does intellectual capital mediate the relationship of quality of higher education and financial wellness?.

METHODS

The study used descriptive-correlation design. Descriptive method was used to describe the level of intellectual capital, financial wellness and the quality of higher education. Path analysis model using Partial Least Squares (PLS) was used to determine the mediating effect of intellectual capital on the relationship of quality of higher education and financial wellness.

The target population of the study were the 3,076 private and public higher educational institutions of East Africa countries (Kenya, Uganda, Tanzania, Rwanda, The Democratic Republic of Congo, and Burundi). The computed sample size was 400. However, to ensure that there will be enough samples to be used in the analysis, the researcher distributed 512 questionnaires using purposive sampling technique and the researcher was able to retrieve 403.

Data for the intellectual property and quality of higher education were collected using a self-constructed questionnaire which were validated by experts and then translated in to French, the commonly used language in East Africa. After validation, a pilot study was conducted and the results were used for reliability test. For the financial wellness, data were collected from institutions’ financial statements. Reliability test results are shown in table 1.

Table 1. **Reliability Test Results**

| Variables | Reliability Test | Variable | Reliability Test |
|-----------------------------|-------------------------|---------------------------------|-------------------------|
| Quality of Higher Education | | Intellectual Capital | |
| Faculty | 0.955 | Intellectual Property Ownership | 0.752 |
| Research | 0.922 | Human Resource Capital | 0.938 |
| Curriculum & Instruction | 0.938 | Market Capital | 0.806 |
| Community Involvement | 0.810 | Infrastructure Capital | 0.905 |
| Resources | 0.917 | | |

Scoring system in Table 2 was used to describe the level of Quality of Higher Education and Intellectual Capital of the respondent educational institutions in East Africa.

Table 2. Scoring System to Describe the Quality of Higher Education and Extent of Intellectual Capital

| Scale | Degree of Intensity | Verbal Interpretations | Mean Interval |
|-------|---------------------|------------------------|---------------|
| 5 | Very Great Extent | Very High | 4.50 – 5.00 |
| 4 | Great Extent | High | 3.50 – 4.49 |
| 3 | Moderately Extent | Fair | 2.50 – 3.49 |
| 2 | Little Extent | Low | 1.50 – 2.49 |
| 1 | No Extent at All | Very Low | 1.00 – 1.49 |

For the financial wellness, data were analyzed using financial ratios. Financial ratios are effective performance indicators for comparing results across multiple time periods (Pandey, 1979). The study used the ROI ratio for profitability, liquidity ratios, solvency ratio and efficiency ratios to assess the financial wellness of the higher educational institutions. Ratios were computed based on the formulas provided in the Generally Accepted Accounting Principles (Bringham & Ehrhardt, 2013) as follows:

Liquidity

Liquidity ratios measure the institution's ability to cover its expenses. The two most common liquidity ratios are current ratio and quick ratio.

$$\text{Quick Test} = (\text{Cash} + \text{Marketable Securities} + \text{Accounts Receivable}) / \text{Current Liabilities}$$

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$$

Profitability

Profitability was measured using Return on Investment (ROI). Positive ROI means that the total cost of the investment was recouped in addition to some residual profits. Negative return on the investment means that the income was not even sufficient to cover the total cost.

$$\text{ROI} = \text{Net Income} / \text{cost of investment} * 100$$

Solvency Ratio

It measures the capability of the institution to repay debt.

$$\text{Solvency Ratio} = (\text{Net after-tax Income} + \text{non-cash expense}) / (\text{short-term liabilities} + \text{long-term liabilities})$$

Efficiency Ratios

These ratios measure the institution’s ability to use its assets and manage its liability effectively.

Cash Turn Over = Net Sales / Cash

Sales to Working Capital = Net Sales / Average Working Capital

Total Asset Turnover = Net Sales / Average Total Sales

To measure and interpret the data for financial wellness and its sub-variables, the following scoring systems were used:

Table 3. Scoring System to Interpret Financial Wellness

| Scale | Degree of Intensity | Verbal Interpretation |
|---------------|---------------------|-------------------------------------|
| 3.5 and above | Very Good | Safe from bankruptcy |
| 2.7 – 3.4 | Good | Relatively safe from bankruptcy |
| 1.9 – 2.6 | Fair | Likely headed for bankruptcy |
| 1.8 and Below | Poor | Highly likely headed for bankruptcy |

Source: Altman Z-Score

Table 4. Scoring System for Solvency and Profitability Ratios

| Ratios | Interpretation | Ratios | Interpretation |
|-----------------|----------------|----------------------|----------------|
| Solvency | | Profitability | |
| 3.5 and above | Very Good | 31% and Above | Very Good |
| 2.7 – 3.4 | Good | 16% – 30% | Good |
| 1.9 – 2.6 | Fair | 5%– 15% | Fair |
| 1.8 and Below | Poor | Below 5% | Poor |

Table 5. Scoring System for Liquidity and Efficiency Ratios

| Ratios | Interpretation | Ratios | Interpretation |
|------------------|----------------|-------------------|----------------|
| Liquidity | | Efficiency | |
| 1.51 and above | Very High | 1.51 and Above | Very High |
| 1.01 – 1.50 | High | 1.01 – 1.50 | High |
| 0.51 – 1.00 | Low | 0.51 – 1.00 | Low |
| 0.50 and below | Very Low | 0.50 and below | Very Low |

RESULTS

Quality of Higher Education

The perceptions of the respondents about their quality of higher education in terms of faculty, research, curriculum and instruction, community involvement, and resources were summarized in Table 6. Results in Table 6 showed a grand mean of 3.53 which means that the quality of higher education of the respondent colleges and universities in East Africa is high.

Table 6. Perceptions of the Respondents on their Quality of Higher Education

| Sub Variables | Mean | Verbal Interpretation |
|----------------------------|------|-----------------------|
| Faculty | 3.82 | High |
| Research | 3.71 | High |
| Curriculum and Instruction | 3.60 | High |
| Community Involvement | 3.71 | High |
| Resources | 3.53 | High |
| Grand Mean | 3.67 | High |

Legend: 1.00 – 1.49 Very Poor 1.50 – 2.49 Poor 2.50 – 3.49 Fair 3.50 – 4.49 High
 4.50 – 5.00 Very High

Intellectual Capital of Higher Education

Table 7 summarizes the intellectual capital of the respondent institutions in terms of intellectual property ownership, human resource capital, market capital, and infrastructure capital.

Table 7. Perceptions of the Respondent Institutions About Their Intellectual Capital

| Sub Variables | Mean | Verbal Interpretation |
|---------------------------------|------|-----------------------|
| Intellectual Property Ownership | 3.65 | High |
| Human Resource Capital | 3.79 | High |
| Market Capital | 3.82 | High |
| Infrastructure Capital | 3.70 | High |
| Grand Mean | 3.74 | High |

Legend: 1.00 – 1.49 Very Poor 1.50 – 2.49 Poor 2.50 – 3.49 Fair 3.50 – 4.49 High
 4.50 – 5.00 Very High

Financial Wellness of Higher Education

The financial wellness of the respondent institutions, based from the financial statements in terms of their liquidity, solvency, profitability, and efficiency ratios, is summarized in Table 8.

Table 8. Financial Wellness of the Respondent Institutions

| Sub variables | Mean | Verbal Interpretation | Equivalent Score for Financial Wellness |
|---------------|--------|-----------------------|---|
| Liquidity | 2.36 | Very High | 4 |
| Solvency | 2.69 | Fair | 2 |
| Profitability | 40.48% | Very Good | 4 |
| Efficiency | 2.67 | High | 3 |
| Mean | | | 3.25 |

The verbal interpretations of the different ratios were translated into a scale score of 1-4 to compute the overall mean score of the financial wellness of the respondent institutions. The mean score of financial wellness is 3.25. Using the scoring system for financial wellness in Table 3, the overall financial wellness of the respondent institutions is good, which means that the respondent institutions are relatively safe from bankruptcy.

Mediating Effect of Intellectual Capital on Quality of Higher Education and Financial Wellness

The mediation analysis was done using the free SmartPLS application developed by Ringle, C. M., Wende, S., and Becker, J. M. (2015). Results of the mediation using SmartPLS 2.0 is shown in Figure 1.

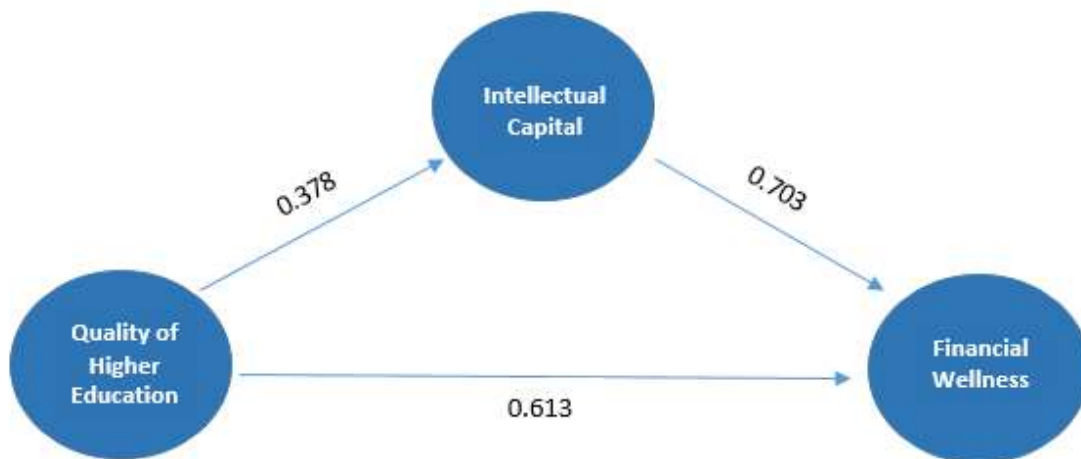


Figure 1. Path Analysis Model for Quality of Higher Education, Intellectual Capital and Financial Wellness Using PLS.

The coordinates in figure 1 shows that the relationship of Quality of Higher Education and Financial Wellness is partially mediated by Intellectual Capital. The mediation effect of Intellectual Capital on the relationship of Quality of Higher Education and Financial Wellness is 0.266 and the direct effect of Quality of Higher Education on Financial Wellness, as indicated by the direct line, is 0.613. So, the total effect of Quality of Higher Education on Financial Wellness, including the 0.266 mediation effect of Intellectual Capital, is 0.879 (0.613 + 0.266).

DISCUSSION

The main purpose of the study was to determine the mediating effect of intellectual capital on the relationship of quality of higher education and financial wellness. The model derived from the study using path analysis can be used as an additional literature in the body of knowledge in the study of financial wellness, quality of education and intellectual capital especially on the effect of quality education on financial wellness as mediated by intellectual capital.

The overall results of the study showed that the quality of education and intellectual capital of the respondent higher educational institutions were high and their financial wellness is good, which means that the respondent higher educational institutions are relatively safe from bankruptcy. The relationship of quality of higher education and financial wellness was mediated by the intellectual capital. This means that the effect of quality of higher education on financial wellness can be improved by the intellectual capital.

The situations of higher education in terms of financial wellness that was stated by Eshiwani in 2013 that a number of private institutions in East Africa were struggling with insufficient funds seemed to be different now compare to perceptions of higher educations that participated in the study. The difference could be attributed to the quality assurance systems being adopted now in higher education (Stensaker, 2004). The quality of good education that requires the quality of teachers with good qualification, research, good curriculum and instruction, involvement in community, quality resources are now in place and intellectual capital are now being developed (Jones, 2013; Yorke, 2015). Competition could have also increase the pressure on the part of higher educational institutions to adopt some measures to improve their quality of education. As a result, their financial wellness were improved because students now a days are looking for higher educational institutions that offer quality education (Telford & Masson, 2015).

Conclusion

This Study Concludes That The Quality Of Education And The Intellectual Capital Of The Respondent Educational Institutions Are High And Their Financial Wellness Is Good. Quality Of Higher Education Has A Significant Direct Effect On Financial Wellness And Can Be Mediated By Intellectual Capital. These Conclusions Were Based From The Perceptions Of Key Personnel From The Respondent Higher Institutions And From The Financial Statements Provided By Them Using Financial Ratios. Further Research Could Be Done In The Same Number Of Higher Educational Institutions Using The Faculty And Staff As Respondents.

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