<table>
<thead>
<tr>
<th>Author Name</th>
<th>Paper #</th>
<th>Title (Click title to view paper)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akakpo, Gideon</td>
<td>108</td>
<td>The Effect Of Corruption On Military Spending: Evidence From Sub-Sahara Africa</td>
</tr>
<tr>
<td>Alvarado, Jessica</td>
<td>129</td>
<td>Leveraging E-Portfolios As A Professional In The Field Of Early Childhood Education: The Art Of Showcasing Ones Knowledge, Skills, And Dispositions For Hiring And Promotion Purposes</td>
</tr>
<tr>
<td>Bennett, Cassandra</td>
<td>121</td>
<td>Functional Expense Allocation Ratios To Predict Financial Condition At Public Higher Education Institutions</td>
</tr>
<tr>
<td>Bobbio, Tatiana Godoy</td>
<td>131</td>
<td>Implementation Of Virtual Assessments Of Clinical Skills In An Allied Health Program</td>
</tr>
<tr>
<td>Fox, Daniel E.</td>
<td>145</td>
<td>Small Business Still Missing The Boat On Social Media And Internet Advertising 2019</td>
</tr>
<tr>
<td>Grooms, Linda</td>
<td>125</td>
<td>Continuing The Look At Cross-Generational Communication Preferences Within Online Higher Education: One Year Later</td>
</tr>
<tr>
<td>Hidalgo, Leona</td>
<td>131</td>
<td>Implementation Of Virtual Assessments Of Clinical Skills In An Allied Health Program</td>
</tr>
<tr>
<td>Jacobs, Raymond</td>
<td>145</td>
<td>Small Business Still Missing The Boat On Social Media And Internet Advertising 2019</td>
</tr>
<tr>
<td>Juban, Rusty</td>
<td>135</td>
<td>Success in the Online Classroom: Lessons Learned</td>
</tr>
<tr>
<td>Juban, Rusty</td>
<td>134</td>
<td>The Perfect Storm in Higher Education</td>
</tr>
<tr>
<td>Keida, Elizabeth</td>
<td>111</td>
<td>Discover Wellness: Worksite Health Promotion In Higher Education</td>
</tr>
<tr>
<td>Kosicek, P. Michael</td>
<td>136</td>
<td>Teleconference Technology Will Be Transformative for Higher Education</td>
</tr>
<tr>
<td>Law, Mark</td>
<td>121</td>
<td>Functional Expense Allocation Ratios To Predict Financial Condition At Public Higher Education Institutions</td>
</tr>
<tr>
<td>Lee, Soonhui</td>
<td>141</td>
<td>Car-Sharing: Where And How Many Should Be Held?</td>
</tr>
<tr>
<td>Lee, Soonhui</td>
<td>140</td>
<td>Improving Internet Connectivity Through Mathematical Models</td>
</tr>
<tr>
<td>Lipinski, John</td>
<td>136</td>
<td>Teleconference Technology Will Be Transformative for Higher Education</td>
</tr>
<tr>
<td>Marinas, Rossniel</td>
<td>131</td>
<td>Implementation Of Virtual Assessments Of Clinical Skills In An Allied Health Program</td>
</tr>
<tr>
<td>McCabe, Ricky</td>
<td>111</td>
<td>Discover Wellness: Worksite Health Promotion In Higher Education</td>
</tr>
<tr>
<td>Meal, Sara</td>
<td>111</td>
<td>Discover Wellness: Worksite Health Promotion In Higher Education</td>
</tr>
<tr>
<td>Mottier, Ewa M.</td>
<td>149</td>
<td>Data Analytics Skills For The Hospitality Workforce: Managing Organizations Strategically</td>
</tr>
<tr>
<td>Owusu, Gideon</td>
<td>108</td>
<td>The Effect Of Corruption On Military Spending: Evidence From Sub-Sahara Africa</td>
</tr>
<tr>
<td>Pilgrim, Leiselle</td>
<td>131</td>
<td>Implementation Of Virtual Assessments Of Clinical Skills In An Allied Health Program</td>
</tr>
<tr>
<td>Salmon, Christine</td>
<td>131</td>
<td>Implementation Of Virtual Assessments Of Clinical Skills In An Allied Health Program</td>
</tr>
<tr>
<td>Stick-Mueller, Misty</td>
<td>119</td>
<td>The Associate Dean And Double Loop Learning</td>
</tr>
<tr>
<td>Stoll, Robert</td>
<td>145</td>
<td>Small Business Still Missing The Boat On Social Media And Internet Advertising 2019</td>
</tr>
<tr>
<td>Stone, Shannon</td>
<td>111</td>
<td>Discover Wellness: Worksite Health Promotion In Higher Education</td>
</tr>
<tr>
<td>Author Name</td>
<td>Paper #</td>
<td>Title (Click title to view paper)</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Sullivan, Daniel W.</td>
<td>145</td>
<td>Small Business Still Missing The Boat On Social Media And Internet Advertising 2019</td>
</tr>
<tr>
<td>Theodore, John Demetrios</td>
<td>118</td>
<td>Creating Economies Of Scale In Small Business Enterprises Through Mergers In Latin America: The Case Of Ecuador</td>
</tr>
<tr>
<td>Vicknair, Jamie</td>
<td>135</td>
<td>Success in the Online Classroom: Lessons Learned</td>
</tr>
<tr>
<td>Vicknair, Jamie</td>
<td>134</td>
<td>The Perfect Storm in Higher Education</td>
</tr>
<tr>
<td>Wallace, Dawn</td>
<td>135</td>
<td>Success in the Online Classroom: Lessons Learned</td>
</tr>
<tr>
<td>Wallace, Mariesol</td>
<td>131</td>
<td>Implementation Of Virtual Assessments Of Clinical Skills In An Allied Health Program</td>
</tr>
<tr>
<td>Wallace, Dawn</td>
<td>134</td>
<td>The Perfect Storm in Higher Education</td>
</tr>
<tr>
<td>Welch-Scalco, Rhonda</td>
<td>129</td>
<td>Leveraging E-Portfolios As A Professional In The Field Of Early Childhood Education: The Art Of Showcasing Ones Knowledge, Skills, And Dispositions For Hiring And Promotion Purposes</td>
</tr>
</tbody>
</table>
The Effect Of Corruption On Military Spending: Evidence From Sub-Sahara Africa
Gideon Owusu, Philipps-Universität-Marburg, Germany
Gideon Akakpo, Philipps-Universität-Marburg, Germany

ABSTRACT

Corruption has been cited to hamper economic development through various transmission channels. As one of the transmission channels through which corruption affects economic development; this paper investigates the effect of corruption on military spending in Sub-Sahara Africa. By employing Ols on a panel data for the period 1996 – 2016, the results show that an increase in the level of corruption leads to a significant positive increase in the military spending. Government consumption, number of military personnel, and population of a country were found to have a significant positive effect on military spending. Also, given that there is conflict in a country, an increase in the number of army personnel has a significant positive increase in military spending.

Keywords: Corruption, Military spending, Government consumption, Economic development, Institution.

1. INTRODUCTION

All Sub-Saharan Africa countries are classified as developing countries with averagely low military expenditure as compared to Europe and America (developed countries). The protection of citizens is a core constitutional responsibility and a public policy of governments as it fully bears all the financial burden of having a military. The adequate defence of a country is a sign of the national sovereignty and fosters the strategic interest of the country both domestically and abroad. The general macroeconomic overview of sub-Saharan Africa is improving as the region’s steadily recovery continued; however, it is bedevilled by inadequate infrastructure and diversification problems. Corruption is a major disease which has plague sub-Saharan African countries and hampered economic growth, development and increase inequality. Corruption is a multifaceted phenomenon with no clear definite definition; what some societies may define as corrupt practice may differ according to other societies.

In pursuant to a report of Transparency International (TI), corruption is one of the greatest challenges of the contemporary world. It undermines good governance, systematically distorts public policy, leads to a misallocation of resources, deteriorating the private and public-sector development and hurts the poor.1 The OECD elucidates corruption as “the abuse of public or private office for personal gains”. Sub-Saharan Africa has been classified by the TI as one of the most corrupt regions in the world with corruption undermining the development of the region. Fragile institutions and democracies make sub-Saharan countries easily susceptible to corrupt activities.2 Political instability in the 1990s in the region through military activities accounted for embezzlement of public assets of approximately $5 billion.3

Economists aim to find the indicative effects of corruption on country’s development and the magnitude of the variation across various regions. Various research have been undertaken with different criterion and information set which has clearly brought to light some interesting results of the determinant of corruption such as economies with political stability (Serra, 2006; Treisman, 2000) and robust institution (Damania, Fredriksson, & Mani, 2004; Herzfeld

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1 Transparency International. The global coalition against corruption. Available at www.reliefweb.int
2 The Organisation of Economic Cooperation and Development (OECD). Available at www.oecd.org
Corruption has become a web which entangles society and every sector of the economy. Mauro (1998) exhibits the reduction in education and health expenditure because of corruption. Corruption inhibits investment in education (Mauro, 1997) and proliferates inflation (Al-Marhubi, 2000). There are adverse effects of corruption on companies’ financial turn-out (van Vu, Tran, van Nguyen, & Lim, 2018) as well as crippling innovation and economic growth (LAU, YANG, ZHANG, & LEUNG, 2015). In this paper we analyse the effect of corruption on military expenditure as a share of GDP for sub-Saharan African countries. Section two is the literature review whereas section three focuses on the methodology employed for the empirical analysis. Section four presents the result and discussion of the empirical analysis. Section five is the conclusion.

2. LITERATURE REVIEW

The phenomenon of corruption dates far back as fourth B.C. where Kautilya, a Brahmin in his book “Arthashastra” stated “just as it is impossible not to taste the honey or the poison that finds itself at the tip of the tongue, so it is impossible for government servant not to eat up at least a bit of the Kings revenue”. This was re-echoing by Amartya Sen in text “Economics” where he expounds the multiplex nature of corruption. Previous proposition on corruption in developing countries was steered by individualistic self-seeking with cultures (norms and practices) in the informal system. The institutional economics elucidate corruption via the principal agent problem where the agent maximizes his utility by his corrupt activities and the principal takes cost minimizing welfare decisions. The neo-institutional approach uses transaction cost and game theory to determine the institutionalization of corruption.

Corruption influences public expenditures and the standard of public services. The military is viewed as a sensitive sector for governments as it portrays national sovereignty and help protect the interest of the country; however, threats of the military on democratic process and institutional stability may engender government to increase the budget allocation for military expenditure to the disadvantage of other sectors, hence weaken governmental budget (expenditure structure). Corruption has a positive correlation with military spending (Gupta, Mello, & Sharan, 2001). The military like any institution is susceptible to corrupt activities; cross sectional studies have clearly demonstrated similarities between military hierarchies and civil service personnel from government (Kieh & Agbese, 2004). Reports by TI classified defence as the second biggest scale corrupt sector; approximately, 15 percent of defence expenditure is spent in the form of commission given to top level public personnel.

Government decisions on allocation of resources on the budget are influenced by political system as well as the level of corruption in the country. Empirical studies revealed that corruption increase the amount of military expenditure as a percentage of GDP (Gupta et al., 2001). D’Agostino, Dunne, and Pieroni (2012) analysed the relationship between corruption, military expenditure and growth; they concluded that corruption and military expenditure negatively affects economic growth. Furthermore, their results depicted that corruption and high military liabilities with increasing current government spending can minimize economic growth. The authors finally deduced a worsening economic performance of African countries due to corruption and military spending.

Tangri and Mwenda (2010) presented detailed effects of corruption on military spending through the procurement process in Uganda during the late 1990s. They posited that corrupt activities commenced during the period of National Resistance Movement (NRM) government in their purchase of sophisticated military gadgetry and materials such as MI-24 helicopter, tanks, guns, food rations and other aircraft. Corruption in the military procurement resulted in approximately $12 billion loss. Corruption among high rank military commanders of Uganda in military operations in DR. Congo in 1998 was in-directly engendered by the political instability in NRM government and the abundance of natural resources in Eastern Congo led to increase in military expenditure through the deployment of Ugandan People Defence Force (UPDF).

Delavallade (2006) reckon the negative effect of corruption on public expenditure (decrease) on education, social protection and health as compared to the increase in public spending on defence, energy, culture and fuel. Estimation was done using 3SLS estimate on 64 countries over 1996-2001. Moreover, Gupta et al. (2001) substantiated corruption as leading to a corresponding increase in the share of spending on both military expenditure as a percentage of GDP and total government expenditure using panel data estimation for 120 countries in a period of 1985-98.
Panel data used for the study was extracted from the World Development Indicators (WDI) and Worldwide Governance Indicators (WGI) covering the period 1996 to 2016. Based on available literature and intuition, the dependent variable for the study was military expenditure as a share of GDP. The independent variables included control of corruption. The control variables were total number of armed force personnel; government final consumption expenditure; total population of a country; level of conflict in the country, growth of gross domestic product, gross domestic product per capital and development aids received.

As the model structure of Gupta et al. (2001) as well as Collier and Hoeffler (2002) were employed, the model used in the study relates the military expenditure (Milex) of a country to the level of corruption (Cor) controlling for the number of armed forces personnel (Arm), government final consumption expenditure (Gov), total population (Pop), the level of conflict (Con), growth of gross domestic product (Gdpg), gross domestic product per capital (Gdpc) and development aids received (Aid). Ordinary least square regression was used for the estimation partly because it is consistent and unbiased. The full empirical model for the effect of corruption on military expenditure as a share of GDP is explicitly expressed as:

\[ \text{Milex}_{it} = \beta_0 + \beta_1 \text{Cor}_{it-1} + \beta_2 \text{Arm}_{it-1} + \beta_3 \text{Gov}_{it-1} + \beta_4 \ln \text{Pop}_{it-1} + \beta_5 \text{Con}_{it-1} + \beta_6 \text{Con}_{it-1} \times \text{Arm}_{it-1} + \beta_7 \ln \text{Gdpg}_{it-1} + \beta_8 \ln \text{Gdpc}_{it-1} + \beta_9 \ln \text{Aid}_{it-1} + \epsilon_{it} \] (1)

The description and the expected signs of the variables used in the model are presented in table 1 below.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
<th>Expected Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military expenditure</td>
<td>Military expenditure as % of GDP</td>
<td>+</td>
</tr>
<tr>
<td>Corruption</td>
<td>Control of corruption multiplied by -1</td>
<td>+</td>
</tr>
<tr>
<td>Armed forces personnel</td>
<td>Percentage of total labour in the armed forces</td>
<td>+</td>
</tr>
<tr>
<td>Government consumption</td>
<td>Government consumption expenditure (% of GDP)</td>
<td>+</td>
</tr>
<tr>
<td>Total population</td>
<td>Total number of all residence in a country</td>
<td>+</td>
</tr>
<tr>
<td>Conflict</td>
<td>Residual of 1 less level of political stability</td>
<td>+</td>
</tr>
<tr>
<td>Gross domestic product growth</td>
<td>Annual percentage growth of GDP</td>
<td>+</td>
</tr>
<tr>
<td>Gross domestic product per capita</td>
<td>Gross domestic product divided by midyear  population</td>
<td>+</td>
</tr>
<tr>
<td>Development aids</td>
<td>Development assistance and of aid received</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 2 shows the descriptive statistics of the variables for the study. The mean value of the military expenditure as a share of GDP is approximately 2.1 whereas the mean of corruption is approximately 0.6. The mean number of armed forces personnel as a share of total labour force is approximately 0.9. Moreover, the final government consumption as a share of GDP has a mean value of approximately 15.6 whereas the mean value of the annual growth of GDP is approximately 4.9 percent.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Military expenditure</td>
<td>2.08239</td>
<td>.0000253</td>
<td>39.60652</td>
<td>2.951461</td>
</tr>
<tr>
<td>Corruption</td>
<td>.6382122</td>
<td>-1.216737</td>
<td>1.868714</td>
<td>.6408108</td>
</tr>
<tr>
<td>Armed forces personnel</td>
<td>.9462438</td>
<td>.0688706</td>
<td>13.60281</td>
<td>1.631513</td>
</tr>
<tr>
<td>Government consumption</td>
<td>15.58539</td>
<td>2.047122</td>
<td>69.54283</td>
<td>7.46908</td>
</tr>
<tr>
<td>Ln.Total population</td>
<td>15.70643</td>
<td>11.24396</td>
<td>19.0412</td>
<td>1.56387</td>
</tr>
<tr>
<td>Conflict</td>
<td>.3997611</td>
<td>5.96e-08</td>
<td>.9999999</td>
<td>.2052141</td>
</tr>
<tr>
<td>GDP growth</td>
<td>4.926615</td>
<td>-46.08</td>
<td>149.97</td>
<td>8.455981</td>
</tr>
<tr>
<td>Ln.GDP per capita</td>
<td>6.958809</td>
<td>4.811014</td>
<td>9.920047</td>
<td>1.061586</td>
</tr>
</tbody>
</table>

Source: Authors’ own calculation based extracted data from WDI and WGI (2018)

### 4. PRESENTATION AND DISCUSSION OF RESULT

Table 3 shows the results for regression of military expenditure on the independent variables. All the independent variables are lagged by one year. OLS 1 is the outcome of the regression of military expenditure on corruption, controlling for GDP per capita, GDP growth and development aid. Thus, a unit increase in corruption index was associated with a highly significant increase in the military expenditure by 0.387 percentage points; however, the r-squared shows that 2% of the variations in military expenditure were explained by the variation in corruption and the control variables. As it was expected, corruption has a positive influence on the military expenditure as a percentage of GDP.

<table>
<thead>
<tr>
<th>Variable</th>
<th>OLS 1 Military Expenditure</th>
<th>OLS 2 Military Expenditure</th>
<th>OLS 3 Military Expenditure</th>
<th>OLS 4 Military Expenditure</th>
<th>OLS 5 Military Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corruption_{t-1}</td>
<td>0.387***</td>
<td>1.156***</td>
<td>0.336***</td>
<td>0.318**</td>
<td>0.387***</td>
</tr>
<tr>
<td></td>
<td>(0.121)</td>
<td>(0.236)</td>
<td>(0.0923)</td>
<td>(0.149)</td>
<td>(0.146)</td>
</tr>
<tr>
<td>Army_{t-1}</td>
<td>1.883***</td>
<td>1.150***</td>
<td>0.0758***</td>
<td>0.0760***</td>
<td>0.150***</td>
</tr>
<tr>
<td></td>
<td>(0.151)</td>
<td>(0.214)</td>
<td>(0.0450)</td>
<td>(0.0175)</td>
<td>(0.0176)</td>
</tr>
<tr>
<td>Government Consumption_{t-1}</td>
<td>0.191***</td>
<td>0.324**</td>
<td>0.324**</td>
<td>0.317**</td>
<td>0.317**</td>
</tr>
<tr>
<td></td>
<td>(0.0450)</td>
<td>(0.148)</td>
<td>(0.148)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln Population_{t-1}</td>
<td>-0.607</td>
<td>0.261</td>
<td>0.261</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.495)</td>
<td>(0.406)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conflict_{t-1}</td>
<td>-0.0441</td>
<td>-0.0333</td>
<td>-0.00606</td>
<td>-0.00541</td>
<td>-0.00612</td>
</tr>
<tr>
<td></td>
<td>(0.0312)</td>
<td>(0.0237)</td>
<td>(0.0139)</td>
<td>(0.0150)</td>
<td>(0.0148)</td>
</tr>
<tr>
<td>GDP Growth_{t-1}</td>
<td>-0.758</td>
<td>-0.0245</td>
<td>-0.218**</td>
<td>-0.113</td>
<td>-0.133</td>
</tr>
<tr>
<td></td>
<td>(0.121)</td>
<td>(0.106)</td>
<td>(0.0906)</td>
<td>(0.0799)</td>
<td>(0.0827)</td>
</tr>
<tr>
<td>Ln GDP per capita_{t-1}</td>
<td>0.0543</td>
<td>0.150*</td>
<td>0.127***</td>
<td>-0.152</td>
<td>-0.131</td>
</tr>
<tr>
<td></td>
<td>(0.0815)</td>
<td>(0.0862)</td>
<td>(0.0471)</td>
<td>(0.132)</td>
<td>(0.129)</td>
</tr>
<tr>
<td>Ln Development Aid_{t-1}</td>
<td>1.465</td>
<td>-4.351**</td>
<td>-0.501</td>
<td>-1.743</td>
<td>-2.300**</td>
</tr>
<tr>
<td></td>
<td>(1.274)</td>
<td>(1.995)</td>
<td>(1.196)</td>
<td>(1.085)</td>
<td>(1.040)</td>
</tr>
<tr>
<td>Observations</td>
<td>717</td>
<td>664</td>
<td>656</td>
<td>605</td>
<td>605</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.020</td>
<td>0.270</td>
<td>0.595</td>
<td>0.649</td>
<td>0.646</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Source: Authors’ own calculation based extracted data from WDI and WGI (2018)
This result does not confirm the findings of Gupta et al. (2001); however, it confirms the findings of Hudson and Jones (2008). According to Hudson and Jones (2008) there exist a positive relationship between the level of corruption and the level of military expenditure as a percentage of GDP. Thus highly corrupt government tends to increase military expenditure at the expense of other sectors that will propel economic growth and development such as education and health (Delavallade, 2006).

Ols 2 shows that, by including government consumption expenditure as an explanatory variable; a unit increase in the level of corruption index was associated with 1.156 percentage point increase in military expenditure as a share of GDP. Theoretically, Gupta et al. (2001) showed that government consumption was composed of military and non-military spending. Based on their assertion, an increase in government expenditure should increase military and non-military spending; hence a unit increase in the government consumption as a share of GDP was associated with 0.191 percentage point increase in military expenditure as a share of GDP. In ols 1 and ols 2, growth of GDP was negatively related to military expenditure as a share of GDP; however, it was insignificant. GDP per capital was insignificant with a positive relation to military expenditure as a share of GDP in ols 1 and ols 2. Development aid was significant with a positive relationship to military expenditure as a share of GDP in ols 2.

After including armed forces personnel as a share of total labour force as an explanatory variable, the coefficient of corruption reduces to 0.336 at a significance level of 1%. Thus, one unit increase in the level of corruption index leads to an increase in military expenditure as a share of GDP by 0.336 percentage points. The number of armed forces personnel as a share of total labour force was highly significant with a positive relation to military expenditure as a share of GDP. Thus, one percentage point increase in the armed forces personnel was associated with an increase in the military expenditure as a share of GDP by 1.883 percentage point. Intuitively, an increase in the number of armed forces personnel implies that there will be an increase in the wage bill of armed forces personnel; hence leading to an increase of military expenditure.

The positive and significant coefficient of the armed forces personnel is in line with the findings of Gupta et al. (2001). By using military personnel per thousand population as a proxy for pressure on government wage bill, Gupta et al. (2001) found that larger armies increase the operating cost of government; hence, increase the military expenditure. Surprisingly, GDP per capita was significant with a negative sign. This implies that, an increase in military expenditure as a share of GDP is associated with lower level of GDP per capita; thus, a lower development indicator. This confirms the findings of earlier researchers such that corruption inhibits developmental investments (Mauro, 1997); distorts macroeconomic stability by increasing inflation (Al-Marhubi, 2000); negatively affects companies financial turn over and innovation (LAU et al., 2015); hence, inversely affect the GDP per capita of a country.

Ols 4 includes population, the level of conflict and an interaction of conflict and armed forces personnel as a share of total labour force as additional explanatory variables. The inclusions of these variables led to a significant increase in the r squared. The coefficient of corruption remained significant and positive; however, there was a significant decrease in the coefficient of corruption. Thus, a unit increase in corruption index was associated with 0.318 percentage point increase in the military expenditure as a share of GDP. GDP per capita was insignificant with a positive sign; thus, 1 percentage increase in population is associated with an increase in military expenditure as a share of GDP by 0.324 percentage points. Intuitively, a country with larger population will need more military personnel to protect its citizens from external forces. Increase population demands more investment in military, thus increase in military expenditure.

Conflict was insignificant with a negative sign. This is in line with the findings of Ali and Abdellatif (2014), who showed that conflict did not have significant influence on military expenditure for Middle East and North Africa (MENA) countries. However, the interaction of conflict and armed forces personnel was significant with a positive sign; given a high level of conflict, an increase in the armed forces personnel as a percentage of total labour force increases the military expenditure by 1.231 percentage points. In ols 5, the interaction of conflict and share of armed forces personnel was dropped; however, there was no significant decrease in the r squared. Corruption remained significant with a higher coefficient. In summary, by controlling for several other factors that may affect the military expenditure as a share of GDP, corruption remained to be significant with a positive coefficient. An increase in the level of corruption leads to an increase in the military expenditure as a share of GDP.
5. CONCLUSION

In general, the phenomenon of corruption is ambiguous characterised by pros and cons. The adverse effects of corruption have consequences for citizens and the economy at large. Most researchers sought to explain how corruption negatively impacts the economy through various channels. The discussions in the previous sections highlight the fact that corruption leads to an increase in the military expenditure of various countries in the Sub Saharan African region. The increase in military expenditure because of corruption implies that, military spending serves as a channel via which corruption negatively affects the economy due to diversion of resources form other productive sectors to the military. This was evidential by the negative significant effect of GDP per capita; thus, an increase in GDP per capita implies a decrease in military expenditure. Implicitly an increase in military expenditure implies a decrease in GDP per capital.

In this respect, if corruption increases military expenditure, there will be a decrease in other developmental expenditures such as investment, education, and health. A reduction of expenditure in productive enhancing sectors implies a reduction in GDP per capita. Increase in military expenditure could occur via shady or corrupt procurement deals. This study confirms the findings of other researchers that indeed corruption leads to an increase in military expenditure. To recommend policy actions that can curtail corruption in the military, an extensive study should be made to analyse the laws that govern military spending. Most military in various countries do not publicly declare their expenditure citing security threat as the reason to keep military spending away from public enquiry. As a result, the military remains to be one of the sectors with high incidence of corruption.

REFERENCES


Discover Wellness: Worksite Health Promotion In Higher Education

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ABSTRACT

Background: Sixty percent of US adults suffer from a chronic disease (1). Worksite wellness programs are ideal for targeting populations at risk for such diseases and have been shown to have positive health benefits (2). College campuses are the optimal locations to target a large number of employees to improve health and decrease rates of chronic disease.

Purpose: Discover Wellness: Find a Healthier You (DW) is a worksite wellness program that targets employees in higher education.

Methods: DW is a seven-week program developed to address the specific needs and desires of the employees of a New York State college to improve health behaviors and decrease the risks of chronic diseases: nutrition, physical activity, stress, and sleep. Each 55-minute session consisted of a 10-minute mini-lecture followed by 45-minutes of hands-on activities to implement the information learned in the lecture. Participants were asked to complete a pre- and post-evaluation of the program to assess their self-efficacy and health behaviors.

Outcomes: Overall, there was a significant mean difference between pre- and post-scores for stress ($t_{23} = 31.602$, $p < 0.001$), physical activity ($t_{22} = 34.380$, $p < 0.001$), sleep ($t_{23} = 18.450$, $p < 0.001$) and nutrition ($t_{21} = 36.313$, $p < 0.001$). Additionally, anecdotal data provided evidence that participants benefited from the comradery and reflection of their health behaviors.

Conclusion: Providing an opportunity for participants to learn and practice healthy behaviors may be the key to behavior change. Increasing these opportunities in populations, such as university employees, may reduce rates of chronic diseases.

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Creating Economies Of Scale In Small Business Enterprises Through Mergers In Latin America: The Case Of Ecuador

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ABSTRACT

The purpose of this presentation is to demonstrate the importance of mergers of small and medium size private business organizations (PYMES) in attaining economies of scale in Ecuador two decades of the current century. Well prepared mergers create larger business enterprises which allow the appearance, sustenance, and development of the principles of organization and precipitate the need for commensurate managerial education for their management and ownership. It was determined that only a very limited number of mergers have taken place during the past ten years and that the entrepreneurial mindset of business owners and their managers is not favoring mergers. The ownership and management of small and medium size Ecuadorian business organizations do not understand the benefits derived from mergers. Ecuador’s business owners and their managers are traditionally accustomed to operating with obsolete management methods and controls that suppress opportunities leading to organizational development.
The Associate Dean
And Double Loop Learning
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ABSTRACT

The role of the associate dean is complex due to the wide range of people and topics that an associate dean must manage daily. Considered to be a lower-level administrator, the associate dean is tasked with implementing decisions made by senior level administration, as seen in single loop learning management.

Double loop learning adds another layer to the decision-making process. Managing through double loop learning allows for decisions to be made at all levels of the organization and moves away from top-down level management. During the COVID-19 pandemic, where schools were forced to move to online education, associate deans were given more freedom to make decisions that were of daily impact, since senior administration was inundated with large-scale policy and safety decisions. Implementing a double loop style of management can help institutions of higher learning operate more effectively by enlarging the responsibilities of the associate deans within the management plan.

INTRODUCTION

Higher education today is very different than it was 100 years ago, and it continues to evolve. The hallowed halls of education no longer are confined to sitting within classrooms as technology continues to develop and online education becomes more popular. Students have more choices for degrees and more choices for where they want to attend, an impactful situation for college administration. Students play a key role in how the school operates and if they are unhappy, the environment suffers (Killam & Heerschap, 2013), a fact that is well-known by college educators.

Numerous other issues can affect higher education as well. Tuition and financial aid, curriculum and accreditation agencies, and hiring the best faculty and administration for the school are all additional components to address and monitor. With all these factors in abundance, plus managing the daily operations of the school, college administrators have a lot to keep them occupied. In a school where clinical education is offered, the continuum of confusion then becomes amplified as these organizations add in the additional facets of managing clinical staff, patients and healthcare policies.

Many organizations have managed to remain successful because they have been able to adhere to steadfast policies, a process referred to a single loop learning (Morgan, 1997). By sticking to the rules, they have in place, they have been able to solve many obstacles that have surfaced over time. However, with the ever-evolving landscape of education, senior level administration needs to find new avenues of governing to include others in management decisions to help offset their workload. Deans and associate deans are well situated to assist in these matters.

Deanship positions are often viewed as those that execute ideas that have been handed down, but their decision-making abilities are much more limited. With their position as the middle point of contact between students, faculty and senior administration, these administrators are well poised to make those decisions that affect daily operations. Associate deans are those most well suited for many decisions because the deans, at their higher level, are typically more concerned with the larger picture, such as determining how to implement directives from senior level administrators (Mabrouk, 2018). In clinical education, the clinic dean is responsible for both academic pursuits and clinical operations, creating a large demand for oversight. The use of an associate dean as a decision maker keep daily operations running smoothly.

Because of the considerable amount of politics and decisions that affect operations, college administration may be better suited to using a double loop learning system. Double loop learning allows for normal activities and processes
that were established with a single loop system to be evaluated to see if a better system exists (Morgan, 1997). This leads to the question:

Can double loop learning integrate into a higher learning system to satisfy the needs of the stakeholders while remaining focused on the primary educational goals of the program by increasing associate dean influence?

**The Associate Dean Position**

The associate dean position can have numerous responsibilities. While many are tasked with overseeing education, the overall role may include oversight of research, finances, faculty supervision and more (Mabrouk, 2018). Even with oversight of these areas, the breadth of the decisions that these individuals can make may be limited. The role of an associate dean is viewed more as the one to carry out the vision of the dean or senior leadership once those decisions have been made and less of a primary decision maker.

The associate dean role is difficult and complex since most of the training comes as on-the-job training. As such, it may be difficult to trust the associate dean to make important decisions (Preston & Floyd, 2016). Yedida (1998) found that overall, the dean position is not well-defined as there is a confusing range of governance which leads to confusion of where to focus. With this lack of structure in place, it becomes easier for senior administration to continue to push directives downhill and limit the decision-making abilities for those at lower administrative levels. With the unique tie-in to students and faculty, some decisions are best made at the associate dean level with the person who is most knowledgeable of those operations due to their proximity to those interactions.

In clinical education, the associate dean may come into daily and frequent interactions with students, faculty, patients, and staff as well as members of senior level administration. Few others on the organizational chart are faced with such numerous and varied connections. In a single loop learning system, this can be problematic, as decisions to be made must push up the ladder, resolve and then roll back down. This process creates increased lags in time that create the illusion to the stakeholder with the problem that the issue is not worthy of administration’s time. This misunderstanding could lead to anger and discontent, affecting both current and future enrollments.

**Single vs. Double Loop Learning**

Organizations have success using either single or double loop learning methods, but there are times that one is more suited than the other. Single loop learning requires fewer people to make decisions but provides less opportunity for input. Several differences exist between the two methods.

**Single Loop Learning**

Single loop learning is a relatable strategy for most individuals to follow. It is common practice for people to act out of habit. If the consequences are good, the system is considered operational and it is easy to repeat this method in the future (Tagg, 2007). In an organizations’ single loop learning system, the management team acts similarly, making decisions based on results that they achieved from previous actions and familiar methodologies (Kim, MacDonald, & Anderson, 2013; Morgan, 1997). If these solutions fail, it is common to blame the lack of success on others or the environment, not the process used to make the decision (Putnam, 2014).

**Double Loop Learning**

Double loop learning evaluates the typical processes to see if better systems exist (Morgan, 1997). In this style, the current actions that are in place are modified from their norms by examining current questions, processes and assumptions to find new means to achieve goals (Kim, MacDonald, Andersen, 2013; Farrell and Mavondo, 2004). Simple examples of double loop learning are bringing in consultants to view policies, increasing transparency of decisions or hiring new management to come in and make sweeping changes to the establishment, but these strategies may be considered severe to those within the organization (Putnam, 2014). Double looping allows for administrators to identify and question current methods while inviting in new perspectives (Putnam, 2014). “Double loop learning is
what allows organizations to be proactive or generative in their decision making” (Kim, MacDonald & Anderson, 2013, 291).

**Single Loop Organizational Structure in Higher Education**

College administration in a single loop system consists of a top down management style. It is important, with all the decisions to be made, that senior administration is in control of the decision-making processes to ensure that the varying departments under their management are operated similarly and fairly. As demands placed on educational organizations consistently evolve, senior administration is more engaged in managing the politics and bureaucratic demands placed on the school (Bolden, Petrov & Gosling, 2008). Solutions to managing all these increased demands involve either hiring more senior level administration, which typically comes at a hefty financial cost, or allowing more decisions to come from lower levels of management.

Middle management individuals, such as the deans, are tasked with designing procedures to reflect the decisions made by senior administration. If needed, they can make decisions regarding daily operations, but require continuous reporting to senior management for approvals or long-term outcomes. In this middle management position, deans use their time to blend managerial conflicts with academic oversight (DeBoer, Geodegbuure, 2009).

Associate deans are situated to report to the deans. These individuals are tasked with the execution of the design proffered by the deans. Situated between the faculty and the deans, the associate deans work closely with the faculty and students to bring ideas to fruition. As the “front line” workers, the associate dean is among the first to notice if decisions are implausible or difficult. With limited decision-making capabilities, the associate deans are often placed in the position of trying to tweak operations within the guidelines that have been set forth.

**Implementing Double Loop Learning in Higher Education**

Implementation of double loop learning in higher education is feasible. In any higher education organization, curriculum development is potentially the most important aspect facing the school. Tagg (2007) considered how curriculum is affected using a double loop system. With single loop learning, senior administration determines what topics the faculty covers within the courses, focusing on content and coverage of the topic. Faculty are tasked with teaching, but must adhere to the curricular objectives, sometimes in a fashion that may not work well for student knowledge retention. Single loop directives may allow faculty to rearrange their course sequences or slightly alter an objective, but double loop learning provides more solutions. In this manner, the viewpoint shifts. Educators can now concentrate on students’ learning activities, and what the college hopes that students can achieve in their courses. With this method, input can come from students and faculty who are the most directly impacted, to request shifts in curricular objectives to have new meaning or to situate topics better in other classes. An associate dean is well placed to gather this feedback, provide input for changes and report back the need for change, based on evidence, to senior administration, who are farther removed from the trenches.

Bringing lower level administration in to make changes is possible. A nursing school in the Midwest, facing challenges of increased enrollment and student demands, and decreasing faculty numbers in view of an out of control budget, took up the charge to make changes to their organizational chart and decision making process from the ground up (Schriner, Deckelman, Kubat & Lenkay, 2010). A group of faculty, along with lower level administration, determined the needs of the program and devised a well-developed plan to consider how organizational restructuring could take place by considering all aspects of faculty desires, budgeting and impact on the school. Through this double loop model, this group made changes to the organization that senior administration failed to make. This faculty and lower level administrative group realized that downsizing the organization was not effective due to the lost information and knowledge that comes from dismissing faculty (Farrell & Mavondo, 2003), and instead used thinking from outside the norms to make effective changes to the school.

Double loop learning allows for the capacity to enlarge responsibilities, while constructing and testing new ideas to replace old rules (Yeo, 2006). As such, this method can allow those within the organization, whose values align with the organizational vision, to share their own vision and improve processes.
COVID-19 Impact

While a disastrous event caused the overall operations of most schools to change drastically from the norms, this crisis has shown where double loop learning is beneficial. As schools were forced to close their doors to keep students out, learning still needed to occur. Without double looping, this was not possible.

As the pandemic hit, senior management in many colleges became immediately affected with the politics that came with the online conversion. Students were demanding refunds, allowances, and answers to many questions, to the extent that senior administration had difficulty handling all the sudden changes. Faced with a breaking point, senior administrators began to allow lower level administration, specifically the academic deans, to formulate and execute the new look of pandemic education. The deans were busy assisting the higher administration with strategies and long-term effects that result from the crisis, from how to implement social distancing to what modifications could be made to still comply with graduation requirements.

Faced with this difficult undertaking, at a college in the Midwest, associate deans had the opportunity to begin brainstorming ideas immediately. Plans formulated and developed to allow students to continue to learn in an online environment while also keeping faculty and staff working. Ideas were presented to senior administration and accepted at a remarkable pace and the associate deans showcased their ability to make swift and impactful decisions keeping within the values and mission of the organization.

Moving into the Future

The COVID-19 crisis will someday end, but the previously unknown benefits that have come from it will endure. The work and the sacrifice from the crisis should not be wasted. This crisis shows that there is more than one way to learn and administer, opposing the single loop learning method previously in place. More importantly, it also shows that those in the associate dean position have the knowledge and power to lead.

Moving forward, large-scale decisions still need to be addressed at the senior administration level, but smaller scale decisions, those affecting the daily activities of the organization’s stakeholders, can be trusted to the administration that is most affected by those activities. Giving associate deans more power to make decisions that affect students and faculty without having to endure long term decision protocols saves time and energy. Oftentimes, finding and putting out these small fires can lead to increased student and faculty satisfaction and retention, improving the school overall. The precedent set from the COVID-19 crisis supports that more responsibilities and ownership can be trusted to the associate deans.

Conclusion

Many schools have operated under the same style of management since their existence, but as times change, operations need to change as well. By implementing as double loop style of management, learning institutions can operate more effectively by enlarging the responsibilities of those in the position to make positive changes. Relying on lower level administration, such as the associate dean, results in better decision making by those who are most affected by the problem, which improves student, faculty, and staff morale. Colleges today face numerous politics and other issues that affect the school’s operations. An “all hands on deck” management style is a plausible solution, if all involved are also given the latitude to voice their ideas as they affect the mission.

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Functional Expense Allocation Ratios To Predict Financial Condition At Public Higher Education Institutions
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ABSTRACT

The higher education industry has faced increased competition in recent years from new institutions and learning platforms entering the marketplace. Public higher education institutions, in particular, have been forced to develop strategic plans due to limited state funding in recent years. These colleges and universities face the challenge of allocating their limited financial resources in a manner that will optimize financial strength and ensure long-term sustainability. Institutions classify their operating expenses into several different functional expense categories, including instruction, academic support, student services and operations and maintenance of plant. This paper analyzed the relationship between allocation ratios of functional expenses and an institution's financial condition. Multiple regression analysis was performed to determine how fluctuations in financial allocation ratios impact an institution's financial condition. The research could aide higher education institutions in strategically allocating resources to improve their financial position.
Continuing The Look At Cross-Generational Communication Preferences Within Online Higher Education: One Year Later

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ABSTRACT

Building upon the researcher’s ongoing research concerning the rapidly changing landscape of online higher education learners’ personal and professional communication preferences, one year later, the number of post-master’s respondents has grown to 300+. Surveying the ever-changing graduate population of one School of Education in the Southeast U.S., the programmatic implications continue to evolve. Offering programmatic implications, this researcher not only seeks to provide a glimpse into student perspectives but also challenges the audience to examine their practices in relating to those within their organizations as we are now in the second decade of the 21st century.
Leveraging E-Portfolios As A Professional In The Field Of Early Childhood Education: The Art Of Showcasing Ones Knowledge, Skills, And Dispositions For Hiring And Promotion Purposes

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ABSTRACT

This brief practice-based paper discusses the use of e-portfolios as a professional in the field of early childhood education, specifically for hiring and promotion purposes. Long gone are the days of huge 3-ring binders and stacks of paper with job and promotion applications. In this paper, the discussion of the practice of utilizing e-portfolios as a means to showcase ones’ knowledge, skills, and dispositions will be covered. Both the perspective of the applicant and the employer/administrator will be covered, as well as real practice-based examples. Specific focus on early childhood knowledge, skills, and dispositions will be the primary showcase. Detailed examples of job applicant vs. current employee seeking promotion will be showcased, as well as some basic technology elements.

Keywords: e-Portfolios, Technology, Knowledge, Skills, Dispositions, Employment, Promotion, Technology, Cloud, Collaborative
Implementation Of Virtual Assessments Of Clinical Skills In An Allied Health Program

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ABSTRACT

Background: Allied health programs are revered for producing healthcare professionals utilizing a curriculum focused on attaining clinical skills in a face-to-face format. In response to the Covid-19 pandemic, the Doctor of Physical Therapy (DPT) program transitioned course lecture and laboratory components including testing, to a remote format using an online learning management system. The transition highlighted the emerging need for research surrounding virtual examination of clinical technical skills and faculty rating consistency utilizing remote testing formats.

Purpose: This study seeks to explore trends related to faculty rater consistency and virtual practical assessment method on student performance during implementation of virtual assessments of clinical skills in the DPT curriculum.

Methods: The two virtual practical assessment methods used were: (1) Virtual Skills Performance Assessments (VSPA) which required the students to simulate a case-based face-to-face patient encounter, or (2) Virtual Oral Skills Assessment (VOSA) which simulated a case-based scenario with the student providing only verbal responses. Faculty utilized check-list rubrics based on Miller’s Pyramid of Assessment to evaluate students’ virtual practical performances synchronously. Assigned faculty tester was identified by number to allow a check of consistency in grading. A convenience sample of 623 individual student scores from DPT students across the curriculum, (VSPA n = 421 and VOSA n = 202). Quantitative data for student virtual practical scores, previous semester traditional practical scores, assigned faculty tester and method of practical assessment were analyzed using Independent T test and One Way Anova.

Results: Data analysis showed that there was no difference between student scores for virtual practical assessments when comparing VSPA (M=94.5, SD=6.1) to VOSA (M=96.4, SD=4.8), p>.001, Cohen’s d=0.3. When comparing virtual practical assessments (M =94.0, SD = 8.6) to traditional face to face skills assessment (M=94.1, SD=2.3), there was no difference in student performance (p=0.79). Overall, the students’ scores earned from the faculty raters were consistent when compared to traditional face to face practicals. Faculty rating consistency analysis revealed some differences in rating the students’ virtual practical skills for 6 of the 13 courses. One course in the first year and five courses in the second-year of the curriculum had significant differences in faculty rating of student virtual skills performances (p=0.018, p=0.001, p=0.045, p=0.013, p=0.004, p=0.001).

Conclusion: Student performance during virtual practical assessments appears to be consistent irrespective of the method selected. Faculty rating of students’ virtual skills performance was more consistent in the first year of the DPT curriculum, with more variability in rating for the program’s second-year courses. Even with the differences in faculty rating, student scores were consistent when compared to face-to-face scores, indicating that, virtual skills practicals may be an acceptable option for the DPT and other allied health programs.

Implications: The recent Coronavirus 2019 (COVID-19) pandemic has increased the need for innovative remote methods for testing technical skills taught in allied health programs. Knowing that virtual practical exams are valid, educators will be armed with evidence to support the use of virtual assessments as an alternative to face-to-face testing. This study will be significant in helping to show that effective faculty rating and students’ performance of clinical skills in the digital environment is possible.
The Perfect Storm In Higher Education

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ABSTRACT

Higher education has always faced challenges, but what happens when colleges and universities are facing a ‘perfect storm?’ One of the victims of a pandemic, rising tuition costs, and less funding could be the traditional classroom or worse still a dramatic decrease in student enrollment. In this paper, we explore some of the elements that could make it more difficult to fulfill the American dream of attending a university for the campus life and what might lie in the future for students post COVID-19.

Keyword: Higher Education, Online Education, Digital Natives, COVID-19
Success In The Online Classroom: Lessons Learned

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ABSTRACT

In the early 2000s, we embarked on research to study online education. At the time, online courses offered by traditional institutions was in its’ infancy. Through our research, we learned that increasing students’ intrinsic motivation could lead to more successful learning environments. Today’s online learning environments are afforded many more technological advances that were not available 20 years ago. In addition, the Covid19 Pandemic has forced the creation online learning environment. Therefore, we believe that revisiting the elements that lead to successful online learning is timely and necessary.

Keyword: Higher Education, Online Education, Intrinsic Motivation
Teleconference Technology Will Be Transformative For Higher Education

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ABSTRACT

Distance education has given faculty a new skill set. This past year has forced faculty to experiment with various techniques to improve their teaching via teleconference in virtual classrooms. This paper argues that this forced use of teleconference technology is a blessing in disguise. Many schools have dedicated teleconference technology classrooms that have largely sat empty or been used primarily as a traditional classroom and the technology is rarely engaged. We argue that even after a return to traditional teaching, teleconference technology should be seen as a transformative technology for university education. Teleconference technology can transform a university classroom into the Magic School Bus and transport a classroom anywhere in the world with an internet connection on the other end. As universities seek opportunities to engage with alumni, thought leaders, and the professional community, by using teleconference technology, these connections can be easily facilitated while only asking for a nominal time commitment from guests who can join from anywhere in the world.
Improving Internet Connectivity Through Mathematical Models
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1. INTRODUCTION

The constant reliance on high-speed internet, has led to a 40 percent increase in its usage during the pandemic COVID 19. New possibilities could be created for communities when Internet connectivity is available; it will help not only promoting economic development but also enabling remote health care and providing learning experiences. According to a report by OECD, operators from many countries reported huge increases in Internet traffic; for example, there was 13% increase in Korea reaching up to 60% of their assigned capacity and in Japan there was up to 40% increase in data usage. There was 30 to 60% increase in broadband usage in the United Kingdom and more than 60% increases in Italy, and so on (Beech (2020) and OECD Policy Reponses to Coronavirus (2020)). Therefore, it becomes more important to improve our community’s Internet connectivity when we have limited resources. This study shows mathematical models to determine how to locate a device that increases wifi coverage such as a wireless router in the private sector; specifically, by distributing Internet access points evenly in a single building first, which can later be extended to more general settings.

2. MATHEMATICAL MODEL

We propose a mixed integer linear model to determine where a wireless router should be located to maximize the Internet coverage (Wolsey & Nemhauser (1999)). We first introduce notations and define the decision variables as follows.

We introduce notations and variables used in the model considered in this paper. We consider a rectangular space only in our problem where the length A and the width B should be defined as input parameters. We assume that any routers can only be installed within this space with the area of A*B. Let i denote the index of potential wireless internet users with I the set consisting of the total users and ‘m denote the index of the potential locations for installation with M the total set of potential locations; i ∈ I, m ∈ M. Let (a_i, b_i) denote a point location where each user is located for all i and (x_m, y_m) denote a point location of potential places where the wireless wi-fi routers can be installed for all m in the x-y coordinates. Let k denote the required number of routers that should be installed in a certain location; this will be determined by a service provider based on the quality specifications.

C_m is a decision variable of binary type representing whether a router at ‘(x_m,y_m)’ is installed or not. When the point location (x_m,y_m) is selected as an installation spot, C_m becomes ‘1’; otherwise, it becomes ‘0’. We first propose the basic model in the following.

The basic model deals with the case that a single spot is available; that is, k=1. Then the mixed integer linear programming model can be presented as follows.

\[
\text{Max } \sum Z_i \\
\text{s.t.} \\
\sum C_m = 1 \text{ where } C_m = \begin{cases} 1 & \text{if a router at } (x_m, y_m) \text{is determined to be installed} \\ 0 & \text{otherwise} \end{cases} \tag{1} \\
Z_i = \begin{cases} 1 & \text{if } (x_m-a_i)^2 - (y_m-b_i)^2 \leq D^2 \forall i,m \\ 0 & \text{otherwise} \end{cases} \tag{2}
\]
The objective function maximizes the wireless coverage. The constraint (1) counts the total number of installed routers meeting the required number of routers. The constraint (2) makes each user covered by the installed spot when it is within a certain distance from the router.

We now generalize the model above to the case of two spots and more. We consider the situation when there are a certain number of routers already installed but if the value of \( k \) is 2 or more and the space already has one router installed, we would like to choose the optimal spot for those customers not covered by the first installation. Therefore, we sequentially solve the problem by updating the value of \( k \), \( I \), and \( M \). For example, if two routers are required and when the first router was already installed by solving the problem with \( k=1 \), the second optimized spot will be chosen by solving the problem after removing users covered by the model with \( k=1 \). We now generalize the model by considering when there are \( I \) routers installed in the space first but \( k \) routers in total are required to be installed later. Then the model with the multiple spots can be presented below. Assume we have \( 0<l<k \).

**Phase 1**

\[
\begin{align*}
\text{Max} & \sum Z_i \\
\text{s.t} & \sum C_m = l \\
& C_m = \begin{cases} 1 & \text{if a router at } (x_m, y_m) \text{ is determined to be installed} \\ 0 & \text{otherwise} \end{cases} \\
& Z_i = \begin{cases} 1 & (x_m - a_i)^2 - (y_m - b_i)^2 \leq D^2 \forall i, m \\
0 & (x_m - a_i)^2 - (y_m - b_i)^2 > D^2 \forall i, m \end{cases} \\
\end{align*}
\]

**Phase 2**

\[
\begin{align*}
\text{Max} & \sum Z_i \\
\text{s.t} & \sum C_m = k-l \\
& C_m = \begin{cases} 1 & \text{if a router at } (x_m, y_m) \text{ is determined to be installed} \\ 0 & \text{otherwise} \end{cases} \\
& Z_i = \begin{cases} 1 & (x_m - a_i)^2 - (y_m - b_i)^2 \leq D^2 \text{ for } i \in I \setminus U, m \in M \setminus R \\
0 & (x_m - a_i)^2 - (y_m - b_i)^2 > D^2 \text{ for } i \in I \setminus U, m \in M \setminus R \end{cases} \\
\end{align*}
\]

where \( U \) and \( R \) are the set of indices of users covered by the optimal solution and the set of indices of the locations selected from the Phase 1 model, respectively.

3. **NUMERICAL EXPERIMENTS**

To run numerical experiments, we randomly simulate point locations of the internet users who should be covered by wireless routers. The experiment settings are as follows:

- We focus on the rectangular space with 500 meters (length) and 300 meters (width).
- Candidate spots for installation are prefixed by equal intervals.
- We randomly generated locations where users are located.
- The distance each router can reach is predefined as 50 meters.
Input parameter

<table>
<thead>
<tr>
<th>Category</th>
<th>Notation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectangle space</td>
<td>((A) = (500)), ((B) = (300))</td>
</tr>
<tr>
<td>Coverage distance</td>
<td>(D = 50)</td>
</tr>
<tr>
<td>Number of users (customers)</td>
<td>(i = 1, 2, 3, ..., 250)</td>
</tr>
<tr>
<td>Number of routers to be installed</td>
<td>(m = 1, 2, 3, ..., 25)</td>
</tr>
</tbody>
</table>

\[
X = \begin{bmatrix}
x_1 & x_2 & x_3 & x_4 & x_5 \\
x_6 & x_7 & x_8 & x_9 & x_{10} \\
x_{11} & x_{12} & x_{13} & x_{14} & x_{15} \\
x_{16} & x_{17} & x_{18} & x_{19} & x_{20} \\
x_{21} & x_{22} & x_{23} & x_{24} & x_{25}
\end{bmatrix}
\]

\[
Y = \begin{bmatrix}
y_1 & y_2 & y_3 & y_4 & y_5 \\
y_6 & y_7 & y_8 & y_9 & y_{10} \\
y_{11} & y_{12} & y_{13} & y_{14} & y_{15} \\
y_{16} & y_{17} & y_{18} & y_{19} & y_{20} \\
y_{21} & y_{22} & y_{23} & y_{24} & y_{25}
\end{bmatrix}
\]

Where \(\forall x_m \in X, \forall y_m \in Y\)

Based on the given mathematical model, the numerical results are obtained as follows,

\[
Z = \begin{bmatrix}
15 & 11 & 14 & 15 & 15 \\
8 & 9 & 12 & 15 & 19 \\
9 & 5 & 9 & 18 & 25 \\
13 & 13 & 11 & 10 & 12 \\
13 & 13 & 17 & 20 & 15
\end{bmatrix}
\]

The results show 25 users can use the wireless internet when the router is installed in the spot \((x_{15}, y_{15})\). Figure 1 shows where users are located and the router should be installed when \(k=1\) to maximize the coverage; the red dots indicate the potential spots where routers can be installed and X-marks represent locations of users. In this paper, we set the objective function to be the maximization of the coverage subject to the limited number of routers available. However, the problem can be formulated differently; for example, we can minimize the number of routers installed in the objective function subject to a certain level of coverage guaranteed (See Daskin (2011)).
REFERENCES

Car-Sharing: Where And How Many Should Be Held?
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ABSTRACT

The shared car industry is increasing rapidly. Now it's easy to see shared cars parked in community areas around us. This study aims to present a decision-making tool for carsharing companies to use to determine how many shared cars should be held in a certain location maximizing their profit. To do this, we build a mixed-integer model for the case of a college campus and present optimal solutions for how many shared cars should be held in a certain location meeting customers' needs.
Business Still Missing The Boat On Social Media And Internet Advertising 2019

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Robert Stoll, Ashland, University, USA
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ABSTRACT

The United States economy is heavily dependent on the success of its 30.2 million small businesses. These businesses typically operate in local markets. Constrained by the limitations of local markets, many small business owners struggle daily to keep their businesses afloat. The pressure of maintaining and operating a small business leaves little time for engaging in marketing activities. In this age of digital media and online retailing, many small businesses resist embracing the internet and social media as platforms for growing their firms and increasing their customer base. This three-year study examines the reasons small businesses fail to embrace digital media and continue to hold onto traditional marketing and advertising models.

Keywords: Small Business, Social Media, Internet Advertising, Digital Marketing
Data Analytics Skills For The Hospitality Workforce: Managing Organizations Strategically
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ABSTRACT

Purpose: This study aims to evaluate the importance of big data and of analytical competencies of the hospitality industry workforce. The relevance of the topic is supported by literature confirming the business impact of analytical skills; whereas top-performing companies are three times more likely than lower performers to be sophisticated users of analytics and are two times more likely to say that their analytics ability is a competitive differentiator (LaValle et al., 2011). “Analytics continues to play an increasingly significant role in decision-making at all levels within the hospitality industry and demands the future workforce to be better equipped to analyze, understand and take action on data” (Tsu-Hong et al., 2014). Where the literature is lacking is in its examination of the value of analytical skills in the hospitality industry, and it is our objective to show how current and future managers view today’s mass digitalization of data and how it is to be best leveraged for the success of the business. In particular, big data and analytics skills are compared with employee perspectives in order to reveal their value in managing hospitality organizations strategically.

Design/Methodology/Approach: Questionnaires containing importance scales and open-ended questions were returned by 72 employees from the hospitality industry. Likert scales provided numerical values for perceived significance. The summated rating used in the questionnaire included a range of replies from ‘not important’ to ‘extremely important’. Findings were evaluated according to skewness, based on mean, median and mode. In addition, open-ended questions were analyzed to capture employees’ learning requirements related to managing big data and applying analytics skills.

Findings: The results of the research reveal the perceived importance of analytics skills in the strategic management of hospitality organizations. The particular organizational competencies associated were identified as: financial management, resource planning, and teamwork. The relevance of big data and analytics in today’s ‘new culture of decision making’ are clearly recognized in the responses of the employees.

Originality/value: This study contributes to understand value of data analytics skills for the hospitality workforce in managing organizations strategically.

This research is quite well suited for the hospitality educational sector, contributing to a better understanding of the importance of analytics skills for employees, especially in strategic management.

Keywords: Big Data, Analytics Skills, Hospitality Industry Workforce, Strategic Management

REFERENCES
