Why Some Undergraduate Students Are More Entrepreneurially Innovative than Others: Empirical Evidence from Nigeria

Bukar Ali Bularafa, Abdul Rashid Abdullah

Abstract University undergraduate students vary in the degree and nature of novelty that they bring to the business. Entrepreneurial innovativeness is very low among some undergraduate students despite undergone two semester course on entrepreneurship and other entrepreneurial activities on the campus. The purpose of this paper is to add to the entrepreneurial literature by providing some empirical insights that aid better understand the reasons behind the differences among undergraduate student on their entrepreneurial innovation. Hence, there is need to investigate why some undergraduate students are lagging behind in entrepreneurial innovation after undergone a course in entrepreneurship. This study provides empirical evidence on the emergence of entrepreneurial innovativeness among university undergraduates. The study is unique because, to the best of the researchers' knowledge, no study exists on entrepreneurial innovation among undergraduate in Nigeria. Data used originated from empirical analysis of a student population of 3,824, 2017 final year undergraduates, sampled 383 students selected from Abubakar Tafawa Balewa University Bauchi, Modibbo Adama University of Technology Yola, and University of Maiduguri, all in north-eastern, Nigeria. The data were analysed by means of descriptive, correlation, and regression analysis. The findings suggest that entrepreneurial innovativeness depends on cultural factors. In particular, the findings indicate a positive correlation between all the variables (low power distance, individualism, low uncertainty avoidance, masculinity, and long-term orientation) on entrepreneurial innovation. The findings further indicate all the variables except individualism have a significant positive relationship with entrepreneurial innovation. Therefore, based on findings of the study, the researchers suggest that the culture of low power distance, low uncertainty avoidance, masculinity, and long-term orientation should be emphasised in the curriculum by the universities.

Keywords: Entrepreneurship education, Innovative, Nigeria, Undergraduate students.

I. INTRODUCTION

Some university undergraduate students show a high degree of entrepreneurship innovation than others. Entrepreneurship is being taught in the first and the final year of undergraduate programme and it cut across all disciplines and compulsory in all Nigerian universities. During the programme students are exposed to many trades (such as cloth and textile dye-making, food processing and packaging, photography, farming, tailoring, interior decoration, animal husbandry, bricklaying, carpentry, plumbing, welding etc.) From which they are to choose and specialised. However, the reasons attributed to the differences are still very scanty [1]. This may be as a result of lack of appropriate empirical evidence adduced in investigating the problem. The findings from the empirical study is significant by providing some empirical insights that aid better understand the reasons behind the different types and the nature of entrepreneurial innovativeness, which can help the university, government and policymakers on how to improve entrepreneurial innovation among these students thereby leading to entrepreneurial intention to entrepreneurial behaviour. Debatably, there is still lack of common understanding of what entrepreneurship, innovation, and opportunity really mean [2-4]. The concepts entrepreneurship and innovation are generally viewed as a significant bases for competitive edge in a fast changing global business, improves abilities for continuous business and economic growth and development, and increases countries wealth [5, 6].

Entrepreneurship is link to the finding, assessment and utilisation of opportunities at the event of venture formation process, establishment and development, entrepreneurship enthusiasm is vital to business revitalisation [7, 8]. On the other hand innovation is link to growth, implementation and take advantage of value added activities in business and societal aspects, a main variable for effective development [5, 8].

Though, entrepreneurship and innovation the two together are concerned on ‘value’ but they basically vary in the sense that entrepreneurship concerns with the realisation of business and social whereas innovation basically concerns with formation. Hence, not every innovation that result to entrepreneurship and not every entrepreneurship that are built upon single or many innovations. Despite these inherent problems and with no claim of solving them, the aim of this study is to add new knowledge to entrepreneurship literature by providing some empirical insights that aid better understanding of the reasons behind the different types and the nature of entrepreneurial innovativeness. The analysis focuses on undergraduate student’s entrepreneurial innovativeness at the university rather than at the national level. Some of the likely factors which affect individual’s innovativeness include; power distance, individualism versus collectivism, uncertainty avoidance, masculinity versus femininity, and long-term orientation versus short-term orientation [9].

Power distance this is a cultural dimension that relate to inequality among people. It indicates the extent to which powerful people accept and expect that power is shared unevenly [9]. Individualism versus collectivism refers to the extent to which members of a given society identify themselves in terms of the
individual or group [10]. In individualism cultures, individual activities, actions, and achievements are independent of the conventional groups of society, dedication to social bonds is loose everyone looks after himself and the immediate family. While collectivism cultures people are incorporated into strong, unified in-groups right from their birth and continue to be protected in return for obedience and loyalty, individuals are identified with groups as collectives which are considered more important than the individual [11].

Uncertainty avoidance this type of culture is described as the feeling individuals have with regard to uncertain and ambiguous situations. Masculinity versus femininity cultural dimension refers to the differences in goals and division of emotional roles among people in a society, especially between men and women, which indicates the role of gender and the disparity that exists between men’s values and women’s values in a society. Finally, long-term orientation versus short-term orientation this involves the development of virtues oriented towards future rewards, in particular, perseverance and thrift. Thus, a long-term term orientation culture emphasises behaviour, such as thrift or perseverance that is used for securing future rewards.

Furthermore, students from societies that are accustomed with cultural factors such as low power distance, individualism, low uncertainty avoidance, masculinity and long-term orientation are more likely to engage in innovative ideas. Whereas, those from societies that are accustomed with cultural factors such as high power distance, collectivist, feminist, high uncertainty avoidance, and short-term orientation are more likely to show low in innovation. The empirical evidence generated from this study is unique because, to the best of the researcher’s knowledge, no studies exist on innovativeness among undergraduate students in Nigeria. The paper consists of five (5) sections; Section I is the Introduction, Section II Theoretical Framework and Hypotheses Development, Section III Methodology, Section IV Findings and Discussions, and finally, Section V is the Conclusion.

II. THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The knowledge that culture is a basis of economic growth and development dates back to Max Weber, as cited in [12], who claims in his classical work, ‘The Protestant Ethic and the Spirit of Capitalism,’ that the Protestant ethic of Calvinism was a powerful driving force behind the development of Capitalism in its early phases. The studies of [12] suggest both theoretical and empirical evidence signifying countries that are accustomed to culture such as individualism would have more innovation with greater output and greater long-term development ahead of countries that are accustomed more with culture such as collectivism. The above claim provides the basis for this study.

The study used [9] as a framework to explain cultural factors in analysing entrepreneurial innovativeness. Power distance is one of Hofstede’s cultural dimensions that relate to inequality among people. It indicates the extent to which powerful people accept and expect that power is shared unevenly. However, Shane Scott [13] indicates that the absence of power distance would bring about a high rate of innovation which will lead to greater levels of entrepreneurial intention among people in particular societies or nations. Furthermore, societies, regions, or nations having low power distance score higher on innovation thereby witnessing a high rate of entrepreneurial intention. Thus, the following hypothesis was formulated:

H1: Lower Power Distance has a significant positive relationship with innovation

Gorodnichenko and Roland [12] posit that individualism emphasises personal freedom and achievements [14]. Therefore, culture of individualism leads to social strata to individual achievements such as valuable inventions, creativities, or higher scholastic realisations. Hence, collectivist act can be highly impossible in cultures of individualism, because persons are more concerned to self-interest rather than group interest. On the other hand, collectivism makes collective action easier because individuals adopt group interest to some extent. It also encourages conformity and discourages individuals from standing out. Also promotes unity and prevent persons from being an independent. Therefore, this study shows that whereas culture of individualism should promote higher innovation, collectivist culture should play a great role in coordinating production processes and many forms of collective action. In this simple theoretical setting, though the increased coordination capacities of collectivism, result in higher efficiency in the economy, while the individualism on the other hand results in higher innovation. Hence, in an individualistic culture, apart from gaining monetary values, individuals also gain social status reward, and therefore, put more effort into innovative activities. Due to greater rate of innovation in individualism culture eventually drive to greater levels of production and result in the long-term than in culture of collectivism. Thus, the following hypothesis was formulated:

H2: Individualism has a significant positive relationship with innovation

A culture with low uncertainty avoidance is assumed to be the best in coping with uncertainty situations. However, in high uncertainty avoidance societies, structures are formed which reduce the level of uncertainty encountered by members of those societies. Hence, previous studies [15, 16] indicate that creativity and innovation are associated with a high tolerance for ambiguity for entrepreneurs. This indicates that societies with low uncertainty cultures are bound to have a high tolerance for risk-taking thereby leading to high innovation and vice versa. Thus, the following hypothesis was formulated:

H3: Low Uncertainty Avoidance has a significant positive relationship with innovation

The Masculinity Versus Femininity Cultural Dimension refers to the differences in the goals and divisions of emotional roles among people in a society, especially between men and women. This indicates the role of gender and the disparity that exists between men’s values and women’s values in a society. In a feminine-dominated culture, women have the same self-efficacy and morals as their male counterparts, while in masculine-dominated cultures women are to some extent are aggressive and forceful, though not as much as men and so a gap can be found between men’s values and women’s values. In such societies, there is the tendency to have a high need for achievement, internal locus of control and a high rate of
innovation which lead to a high entrepreneurial intention among university undergraduates. Thus, the following hypothesis was formulated:

**H4:** Masculinity has a significant positive relationship with innovation

Long-term versus short-term orientations involves the development of virtues oriented towards future rewards, in particular, perseverance and thrift. Future rewards are liable assets that are yet to be secured [17]. Thus, a long-term orientated culture emphasises behaviour, such as thrift or perseverance that is used for securing future rewards. According to Yoon [17] trust is mostly linked to risk, such as vulnerability and/or uncertainty, about a result. Individuals who belong to high long-term orientation cultures are known to have greater beliefs that permit them to take a risk in uncertain situations. Furthermore, long-term orientation cultures promote trust due to the fact that the importance attached to short-term gains as a result of dishonest actions are minimised [17]. Hence, long-term orientation is related to risk-taking, need for achievement and internal locus of control which are related to innovation. Thus, the following hypothesis was formulated:

**H5:** Long-term orientation has a significant positive relationship with innovation

### III. METHODOLOGY

The study was conducted in the north-eastern part of Nigeria from where three universities were selected for the study. They are Abubakar Tafawa Balewa University Bauchi, Modibbo Adama University of Technology Yola, and University of Maiduguri the researchers choose these universities for the study because the three universities are the oldest universities among the thirteen universities in the region. The University of Maiduguri was the first to be established in 1975, followed by Abubakar Tafawa Balewa University established in 1988 and Modibbo Adama University of Technology, Yola, established in 1981 [18]. In addition, the three universities have the highest enrolment of undergraduate students when compared to the other ten universities in the region, as at the 2016/2017 academic session. Furthermore, the three universities produce the highest number of graduates yearly. The study was based on the survey method of research design. Data was obtained through a questionnaire.

**A. Population and Sample Size**

The population for the study was 3,024 final year undergraduate students from which sample of 383 respondents was selected, this was determined using [19] method of calculating sample. In choosing the required sample the study adopted the probability method (systematic method). A systematic sampling is a probability type where sample elements are drawn from a larger population by means of a random, beginning point and a fixed time interval. Choosing a sample size through the systematic approach can be done quickly. Once a fixed starting point has been identified, a constant interval is selected to facilitate participant selection. In selecting the sample for the study the researchers obtained a list of all the final year undergraduate students from the faculties, since the researchers wanted to choose 383 samples from the population of 3,024. Every 7th person on the list was chosen as a participant beginning the count from the chosen point of beginning.

This was arrived at, population divided by the required sample (3024 ÷ 383 ≈ 7). In choosing the sample size the researchers used the list obtained from the faculties and re-arranged it to facilitate the process. The researchers started with the Faculty of Agriculture, University of Maiduguri, from 1 – 191; Faculty of Engineering from 192 – 249 and the Faculty of Management science from 250 – 1091. The second list, from Abubakar Tafawa Balewa University, Bauchi, Faculty of Agriculture started from 1092 – 1183, Faculty of Engineering from 1184 – 1521, and Faculty of Management Science from 1522 – 1789.

Finally, that of Modibbo Adama University of Technology, Yola, Faculty of Agriculture, started from 1790 – 1941, Faculty of Engineering from 1942 – 2126, and the Faculty of Management Science from 2127 – 3024. Thereafter, researchers randomly chosen from the re-arranged list who would be the first respondent and it happened to be the third person on the list. The second happened to be the 10th on the list, the third the 17th, the next the 24th, then the 31st and so on until the required sample of 383 was obtained.

**B. Procedure for Data Collection**

The survey instruments for the study were adopted from previous literature. The survey was conducted from May 2017 to August 2017. Thus, the survey was done in the second semester of the 2016/2017 academic session for the University of Maiduguri and MAUTECH Yola while ATBU Bauchi was in their first semester of the 2016/2017 academic session. The questionnaire was administered in a lecture hall immediately after a lecture session. This was done by one researcher and two research assistants. It took between 1 hour 30 minutes and 2 hours to administer the instruments and have the questions answered. This afforded the respondents enough time to critically respond to the questions on the instrument. Hence, conducting the survey in a lecture hall during a lecture session is an efficient and practical method of administering a questionnaire involving students such as university students. This procedure is often seen as convenient because it allows researchers a great deal of control over the data collection process [20].

The instruments for the study were divided into three sections. Section One was on the demographic information of the respondents while Section Two dealt with the independent variables. These variables were constituted of five parts, A-E, and respondents was required to respond on their cultural factors. Part A, on power distance, B on individualism versus collectivism, C on uncertainty avoidance, D on masculinity versus femininity and E on long-term versus short-term orientation. Lastly, Section Three was on the dependent variable – innovation. The instruments were prepared on the basis of the five -point Likert Scale, from 1: Strongly Disagree, to 5: Strongly Agree.

**C. Instrument**

The instrument for the study was adopted from previous empirical studies. The dependent variable Innovation six (6) items, example I can successfully identify new business opportunities’, ‘I am able to create new products/services/markets’ was adopted from Levenson [21]. The independent variables power distance five (5) items example ‘Less powerful people should be dependent on the more powerful people’, ‘To me, it is natural that there...
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exists inequality (in terms of education, income, status) among people” was adopted from Brockner, Ackerman [22]; Dunning and Kim [23]. Individualism five (5) items example ‘I am a unique person (different) from others in all respects, ‘when I succeed’, it is usually of my abilities’ adopted from Sinha and Verma [24]. Uncertainty avoidance five (5) items example ‘I always fear uncertainty about the future’, ‘I feel stressed when I cannot predict consequences’ adopted from Yoo, Donthu [25]. Masculinity five (5) items example ‘I always feel uncertain about the future’, ‘I can give up today’s fun for success in the future’, ‘I always work hard for success in the future’, ‘I always fear uncertainty about the future’, ‘I feel stressed when I cannot predict consequences’ adopted from Brockner, Ackerman [22]; Dunning and Kim [23].

Tools of Data Analysis

The results indicated that there is a positive correlation between all the variables on innovation. The findings indicate low power distance, individualism, low uncertainty avoidance, masculinity, and long-term orientation have a ‘strong positive correlation’ on innovation as shown in Table I.

### Table I Correlation

<table>
<thead>
<tr>
<th>Pearson correlation</th>
<th>X1</th>
<th>X2</th>
<th>X3</th>
<th>X4</th>
<th>X5</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Power distance</td>
<td>1</td>
<td>-814</td>
<td>.795</td>
<td>-.817</td>
<td>.764</td>
<td>.751</td>
</tr>
<tr>
<td>Individualism</td>
<td>1</td>
<td>-.844</td>
<td>.838</td>
<td>.800</td>
<td>.753</td>
<td></td>
</tr>
<tr>
<td>Low Uncertainty</td>
<td>1</td>
<td>-.842</td>
<td>-.828</td>
<td>.795</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masculinity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.834</td>
</tr>
<tr>
<td>Long-term orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.818</td>
</tr>
<tr>
<td>Innovation (Y)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

### Table II Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R sq.</th>
<th>Adjusted R</th>
<th>Std. Error of the estimate</th>
<th>Change statistics</th>
<th>F change</th>
<th>Sig. F change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.872</td>
<td>0.7</td>
<td>0.757</td>
<td>0.62576</td>
<td>239.061</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

### Table III ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>468.060</td>
<td>5</td>
<td>93.612</td>
<td>239.06</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>147.626</td>
<td>37</td>
<td>.392</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>615.686</td>
<td>42</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Long-term orientation, Power distance

Individualism, Uncertainty avoidance, Masculinity

### Table IV Regression

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstd. coefficients</th>
<th>Std. coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (constant)</td>
<td>1.809</td>
<td>.091</td>
<td>.394</td>
<td>4.590</td>
</tr>
<tr>
<td>Low Power Distance Individualism</td>
<td>-.037</td>
<td>.052</td>
<td>-.039</td>
<td>-2.10</td>
</tr>
<tr>
<td>Low Uncertainty Avoidance</td>
<td>-.142</td>
<td>.052</td>
<td>-.156</td>
<td>-2.74</td>
</tr>
<tr>
<td>Masculinity</td>
<td>.254</td>
<td>.054</td>
<td>.273</td>
<td>4.701</td>
</tr>
<tr>
<td>Long-term Orientation</td>
<td>.426</td>
<td>.050</td>
<td>.435</td>
<td>8.463</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Innovation

b. Predictors: (Constant), Long-term, Power Distance, Individualism, Uncertainty Avoidance, Masculinity

The significant effect of low power distance, individualism, low uncertainty avoidance, masculinity, long-term orientation and innovation was also analysed using Analysis of Variance (ANOVA) as indicated in Table III above. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multi-collinearity and homoscedasticity. After the entry of all the variables and innovation scale, the total variance explained by the model as a whole was 75.7%, $F = 239.061$, $<.000$ as indicated in Table II above. This shows that the variables low power distance, individualism, low uncertainty avoidance, masculinity, long-term orientation accounted for 75.7% of innovation, which means that there are other variables up to 24.3% which affect innovation. Therefore, it can be deduced that the above variables considered in the study have a strong positive significant effect on innovation in the study area.

### B. Hypotheses Testing

In Table IV below the analysis indicates that H1 ($β = -.143$, $p = .036$) rejects H0, meaning that there is a strong relationship between low power distance and innovation. On the other hand, H2 ($β = -.039$, $p = .485$) fail to reject H0 indicating no relationship between individualism and innovation while H3 ($β = -.156$, $p = .006$) reject H0 indicating there is a relationship between low uncertainty avoidance and innovation. Finally, H4 ($β = .273$, $p = .000$) rejects H0, meaning that there is a strong relationship between masculinity and innovation and H5 ($β = .435$, $p = .000$) rejects H0, showing a strong relationship between long-term orientation and innovation.
C. The Most Contributing Factor Variables that Influence Innovation.

The regression analysis of the study was conducted to determine the most significant variables in the study which influences innovation. The result presented in Table IV indicated that long-term orientation has the highest Beta value of 0.435, the second highest is masculinity with Beta value of 0.273, followed by low uncertainty avoidance which is 0.156, and finally low power distance with Beta value of 0.143. These higher values indicated positive significance on innovation. The findings emphasised the four variables mentioned above contributes to innovation in the study area. However, the most contributing factors are long-term orientation and masculinity as indicated in Table IV above.

V. CONCLUSION

This paper aimed to establish whether or not significant effects and contributions exist between low power distance, individualism, low uncertainty avoidance, masculinity, long-term orientation and innovation among undergraduate students of universities in north-eastern, Nigeria. The findings indicated that: low power distance, low uncertainty avoidance, masculinity and long-term orientation have a statistically significant relationship with innovation. The findings further reveal that in general, low uncertainty avoidance, masculinity and long-term orientation contribute very significantly to the total level of innovation. This implies that low uncertainty avoidance, masculinity and log-term orientation affect the level of innovation. This study therefore supports the work of Shane Scott [13] who found out that low power distance is related to innovation which indicates that low power distance leads to a high rate of innovation. It is recommended that stakeholders in education such as universities should lay emphasis on the culture of low power, low uncertainty avoidance, masculinity, and long-term orientation in their curriculum.

VI. LIMITATIONS OF THE STUDY

This study is not an exception it is face with some limitations. The scope of this study is limited to some selected factors that has an effect on university student’s level of innovation, which includes; low power distance, individualism, low uncertainty avoidance, masculinity and long-term orientation. There are other factors as well that can influence the university students level of innovation, that were not captured in this study such as education, experience, unemployment, self-confidence etc. this serves as the limitation for this study.

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