Development of Moral Reasoning at a Higher Education Institution in Nigeria

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The growing number of Nigerian higher education institutions should improve development of moral reasoning in Nigeria, assuming these institutions have a similar impact as institutions have had in the United States. To test this hypothesis, this study completed a cross-sectional survey of a Christian higher education institution in Nigeria using the Defining Issues Test (DIT2), a proven tool for measuring moral reasoning. The survey confirms that moral reasoning improves during undergraduate studies when students have contact with their professors outside of class. Although DIT2 scores were lower than United States norms, results indicate that the DIT2 N2 index can be used to measure relative moral reasoning levels in Nigeria. Additional research is needed to determine whether the lower Nigerian DIT2 scores are due to lower moral reasoning or other factors such as cultural differences.

Nigeria has a history of corruption; however, since installing a civilian government in 1999, the country has seen some improvement (“Corruption Perceptions Index,” 2010). One group of Nigerian leaders has a vision for establishing a Christian university in Nigeria with the expectation that the institution will graduate students with highly-developed moral reasoning (ACU, 2006). Moral reasoning is defined by the Stanford Encyclopedia as “practical reasoning about what, morally, one ought to do” (Richardson, 2009). The expectation that moral reasoning will improve in Nigerian university students is based on the role higher-level education plays in the United States.

A significant body of empirical evidence is available regarding the development of moral reasoning; much of this evidence has been collected using of the Defining Issues Test (Rest, Narvaez, Bebeau, & Thoma, 1999a). Studies have found that university students have relatively higher growth in moral reasoning than non-university students do, as illustrated by United States DIT norms (Dong, 2010). A search of scholarly research found little to no data on moral reasoning levels in Nigerian university students. Therefore, it is hypothesized that moral reasoning of Nigerian students should improve while attending a Nigerian university.
Although the complexity of overlapping factors leading to moral development has yet to be fully investigated, research has identified various contributing factors (Sabin, 2006). Consistent with social learning theory, contact with professors has shown to be one of the factors associated with development of moral reasoning (McNeel, 1994). Research has also shown that development of moral reasoning in university students, as measured by the defining issues test (DIT), is common around the world, with the exception of third world countries with less demanding education systems and Arab cultures (including North Africa), where the DIT may not be a valid instrument (Gielen & Markoulis, 1994).

A key issue for those involved in education in Nigeria is whether it is appropriate to assume Nigerian institutions will develop students’ moral reasoning levels similar to what occurs in the United States. This leads to the question, how does development of moral reasoning in a higher-level education institution in Nigeria compare with moral development norms in the United States? This study is designed to address this question, using a research design similar to studies completed in the United States using the DIT (e.g., Quarry, 1997). Like the Quarry study, this study uses a cross-sectional survey of students attending a Nigerian Christian institution of higher education. The study (a) determines development of moral reasoning at each class level, (b) assesses the relationship of professor contact on development of moral reasoning, and (c) compares moral reasoning levels of Nigerian students to United States norms.

In summary, this study provides a review of literature on moral development theory, the DIT2 instrument, and summarizes prior empirical research results. This foundation, as well as Nigerian background information, provides the basis for a research question and hypotheses that are addressed with a cross-sectional DIT2 survey of students at a Nigerian higher education institution. Results are provided and discussed, and future research recommended.

**Key Terminology**

**Christian institutions of higher education** include Christian colleges and universities formally recognizing the Christian faith and having a curriculum that typically includes courses in Christian education and school-sponsored chapel services. Typically, school staff and faculty will be Christian. The institutions meet educational standards of an accreditation body.

**Moral reasoning** is defined as judging which actions are morally right or wrong (Rest, et al., 1999b, p. 101) and is sometimes referred to as moral judgment. Mensch (2009) provides a more detailed definition: “the specific aspect of moral development that focuses on the cognitive ability of the individual to understand morality in the context of the situation” (p. x). Moral reasoning is one of four elements that drive moral...
behavior, pursuant Rest’s, et al.’s four-component model (p. 101). In this study, moral reasoning is operationally defined as the N2 index of the DIT2 instrument.

**Development of moral reasoning** is the progressive improvement in moral reasoning in an individual. For this study, moral development will refer to the increase of moral reasoning as students advance from the freshman level through higher levels.

**Statement of the Problem**

Past Nigerian studies indicate that development of student moral reasoning is similar to that found in third world countries, although absolute values are low relative to Western norms. No study has been found in international journals regarding development of moral reasoning in a Christian higher education institution in Nigeria. This information gap leads to the following question: What is the development of moral reasoning of students at a Christian Nigerian institution and how does their development relate to US norms and other US research findings?

**Purpose of the Study**

The purpose of this study is test whether moral reasoning levels improve as Nigerian students attend a Christian University and to test the effect of professor contact on moral reasoning levels. To fulfill this purpose, data on moral reasoning and a variety of control variables has been collected and assessed. The study results provide insights and understanding of the development of moral reasoning in Nigerian Christian institutions.

**Literature Review**

This section (a) provides background information on Nigeria; (b) summarizes key Western moral reasoning development models, including the Kolhberg and neo-Kolberian models of moral development and the four-component model of morality; (c) reviews the Defining Issues Test (DIT2), a proven tool for measuring development of moral reasoning; and (d) identifies empirical evidence regarding development of moral reasoning of students attending higher level educational institutions in the United States, including United States norms. Based on this foundation, a research question and hypotheses addressing the research purpose are identified.

**Nigeria Background Information**

Nigeria, a country of over 155 million people in sub-Saharan Africa, is the most populous nation in Africa, the eighth most populated in the world; the country is estimated to be 40% Christian and 50% Muslim (Nigeria, 2011). In 1999, Transparency International reported that Nigeria was the most corrupt nation in the world, with a corruption index of 1.2 out of a possible score of 10 (“Corruption Perceptions Index,”

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Emerging Leadership Journeys, Vol. 5 Iss. 1, pp. 81-101.
© 2012 Regent University School of Global Leadership & Entrepreneurship
ISSN 1941-4684 | editorlj@regent.edu
1999). Since that time, the country has transitioned from military to civil rule and has worked to address corruption. The 2010 corruption index has been determined to be 2.4, moving Nigeria out of the bottom quintile of the 178 countries surveyed. Nevertheless, Nigeria is still well below average (“Corruption Perceptions Index,” 2010).

**Kohlberg**

Crain (1985) indicates that according to Kohlberg’s theory, moral reasoning is the basis for ethical behavior that goes beyond knowledge and consists of stages of qualitative changes in the way an individual thinks. Kohlberg identifies six identifiable moral developmental stages through which individuals progress, as summarized below:

**Preconventional morality, obedience stages.**

- **Stage 1 (S1)** - Obedience and punishment orientation: Black and white obedience to rules.
- **Stage 2 (S2)** - Individualism and exchange: Risked-based obedience from an individual’s perspective.

**Conventional morality, living up to expectations stages.**

- **Stage 3 (S3)** - Good interpersonal relationships: Living up to the expectations of those closest.
- **Stage 4 (S4)** - Maintaining the social order: Living up to expectations of society.

**Postconventional morality, doing what is best stages.**

- **Stage 5 (S5)** - Social contract and individual rights: Doing what is best for society from a democratic standpoint.
- **Stage 6 (S6)** - Universal principles: Doing what is best for society from a justice for all standpoint, whether popular or not (pp. 118-136).

**Neo-Kohlbergian Model**

The neo-Kohlbergian model is also based on progressive moral development and builds on Kohlberg’s stages (Rest, Navarez, Bebeau, and Thoma, 2000). The neo-Kohlbergian model uses three schemas that are related to five of Kohlberg’s six stages. It models a gradual transition of moral reasoning development from (a) personal interest (S2 & S3), (b) maintaining norms (S4), and (c) post-conventional (S5 & S6) levels. These schemas were developed based on research post-Kohlberg (Rest, et al., 1999a, p. 11).

**Four Component Model**

Rest, et al. (1999a), developed a four-component model of moral development and behavior that combines various models and approaches to the psychology of morality.
Moral reasoning is one of the four components. The four elements are psychological processes that drive moral behavior. They include:

- moral sensitivity: interpretation of the situation, being aware of possible lines of action, and how the action could affect others;
- moral reasoning or judgment: judging which action is morally right or wrong,
- moral motivation: prioritizing moral values ahead of other values, and
- moral character: the courage and strength to live one’s convictions (Rest, et al., 1999a, p. 101).

As indicated by this model, moral reasoning is one of several factors that drive moral behavior.

**Defining Issues Test (DIT) and the N2 Index**

The DIT is a quantitative instrument designed to measure an individual’s level of moral reasoning. Use of the DIT began in the 1970s as an alternative to Kohlberg's qualitative interview approach (Rest, et al., 1999a, pp. 4 & 46). The instrument collects information needed to provide a quantitative measure of a person’s stage of moral development.

An improved version of the survey, DIT2, was introduced in 1999. DIT2 has improved validity, enhanced input reliability checks, and yields better trends (Rest, et al., 1999a, p. 8). A new index (N2) for moral reasoning has also been introduced, replacing the prior index, P. The N2 index is based on (a) the extent the subject ranks post-conventional items (S56) above personal interest (S23) and maintaining norms (S4), and (b) the difference in ratings of personal interest (S23) from post-conventional (S56).

Researchers using the Defining Issues Tests have accumulated results for more than 500,000 participants (Rest, et al., 1999a, p.61) and extensive use of the instrument continues throughout the world. The scoring service of Center for the Study of Ethical Development processes an average of about 40 studies per year with about 50% being published (Rest, et al., 1999a, p.61; Dong, 2010).

**Research Findings - Development of moral reasoning in Higher Education**

Meta-analysis of studies measuring the development of moral reasoning of students indicates that participation in higher education accounts for between 28% and 53% of the variance of the development of moral reasoning during the college years. Specifically, Thoma and Rest (1986) assessed 56 studies (over 6,000 subjects) at various education levels (junior high, senior high, college, and graduate school) and found that education accounted for 53% of the variance (p. 116). McNeel’s (1994) meta-analysis of 13 cross-sectional and nine longitudinal studies of DIT scores from 12 colleges and universities found a variance of 28% (.77 SD). Bebeau and Thoma (2003) indicate that
Development of moral reasoning can show significant gains during the college years particularly in liberal arts colleges (.8 effect size, “high”). This increase in moral reasoning is attributed to students using more post-conventional moral reasoning.

**Moral reasoning and moral action.** As indicated by the four-component model, moral reasoning is just one component of moral development. Nevertheless, studies show that there is a correlation between moral reasoning and moral action. Blasi (1980) reviewed 12 studies and found “moral reasoning and moral action are statistically related” (pp. 12 & 37). A more recent study found that individuals with higher moral reasoning were less likely to engage in moral misconduct (Cummings, Dyas, & Maddus, 2001).

**United States Norms.** Sufficient Defining Issues Test data has been collected to allow calculation of United States norms regarding moral reasoning (N2) development for higher education students. A recent set of norms have been published based on data collected from 2005 to 2009 (Dong, 2010). Dong’s norms show that N2 statistically increases each year; the freshmen year mean value is 33.4 (SD=15.3, n=10,300), the senior value is 36.0 (SD=12.8, n=12,200).

**Moral reasoning and Christianity.** Rest’s (1986) analysis of 24 studies concerning Christians found significant development of moral reasoning during attendance at Christian universities. However, development scores at Christian universities have been found to be average to slightly below average relative to universities in general. Nevertheless, Rest (1986) concludes that these results support the use of the DIT with Christian populations. Despite Rest’s conclusion, debate has continued regarding the DIT survey and the Christian worldview. Some find it surprising that Christian universities have not typically been found to result in higher moral reasoning development than other institutions. Some writers have shown DIT trends indicating Christian education inhibits development of moral reasoning (Nelson, 2004, p. 43) while other studies have shown that higher levels of Christian maturity, such as Bible knowledge, can improve moral reasoning (Nelson, 2004). Richards (1991) and Nelson (2004) have determined that, although Christians frequently used Stage 6 reasoning, they often reject the social contract aspects of Stage 5 reasoning, leading to relatively lower moral reasoning scores. Sabin (2006) indicates Christians test low on Stage 5 because the DIT instrument assumes “God exists but exerts no influence” (p. 54).

Mensch (2009) also highlights philosophical issues with the neo-Kolbergian underpinnings of the DIT, from a Christian worldview perspective. However, Mensch indicates that throwing out neo-Kolbergian theory would be “misguided” in light of the plethora of research support (p. 16). Even if moral reasoning is similar in Christian institutions versus others, differences in moral behavior can still occur, driven by the other elements identified in the four-element model.
Development of moral reasoning across cultures. Gielen and Markoulis (1994) reviewed 15 cross-cultural research studies that used the DIT. These studies indicate that development of moral reasoning in students is generally universal with some identified exceptions. The study found moral reasoning development in universities in the industrialized Western and East Asian countries (those with demanding educational systems) grew significantly. On the other hand, development was lower in third-world less industrialized countries (those with less demanding educational systems) (p. 85). Although Nigeria has less industrialization than Western and East Asian countries, literacy rates of 68% are high relative to most third world countries (Nigeria, 2011). As such, for the purposes of this study, it is hypothesized that moral development in students in Nigeria will be more similar to Western and Asian societies than less industrialized countries.

The Gielen and Markoulis (1994) study identified that three North African countries (Egypt, Kuwait, and Sudan) did not portray clear moral reasoning developmental trends and concluded that “the DIT may not be a satisfactory test of moral reasoning in these societies” (p. 85). In a later study, Ahmed and Gielen (2002) identified poor consistency of DIT test results in some Arab/Muslim cultures (Kuwaiti and Sudanese), with many students finding the DIT’s moral arguments “strange” and difficult to understand. The Hausa ethnic groups in Northeastern Nigeria are typically Muslim and have cultural similarities to North African and Arab Muslims. Therefore, the DIT test may be an issue in higher education institutions with a significant portion of Hausa students. On the other hand, a Christian university in Nigeria is not anticipated to have many, if any, Muslim students.

In addition to cultural factors, research indicates that limited English proficiency can affect the validity of the test (Bebeau & Thoma, 2003, p. 10). Even though English is Nigeria’s official language, English proficiency can be an issue in Nigeria, as English is rarely considered a Nigerian’s first language. However, this is not anticipated to be an issue in the subject university as it conducts classes in English.

Research question. What is the development of moral reasoning of students at a Christian Nigerian institution and how does this development compare to United States norms?

Based on the empirical evidence regarding moral development in United States, Western and Asian university students, as well as the information discussed regarding culture and English proficiency, the following is hypothesized.

Hypothesis 1. At Nigerian Christian higher education institutions, there will be a statistically higher level of moral reasoning for each higher-level class, from entry level through to the senior level.
**Hypothesis 2.** Senior students who have attended a Nigerian Christian higher education institution will have development of moral reasoning statistically similar to United States norms.

**Nigerian moral reasoning pre-university.** There are a limited number of studies regarding Nigerian moral development; two studies have been found in international scholarly journals. Markoulis and Valindes (1997) used the DIT instrument to compare Greek to Nigerian students and found that 44 Nigerian students, aged 15 to 22, had significantly lower moral development than the Greek students. Seventy-five percent of the students are Muslim; unfortunately, no statistics are provided regarding Muslims versus other students. Ferguson, Willis, and Tilley (2001) used an alternative moral reasoning instrument, the social reflection measure of moral reasoning, with 10-year-old Nigerian and Irish students and found that the Nigerian students were morally less developed. Based on these two studies, Nigerian students are expected to have a lower degree of moral development than United States norms when entering a college or university.

**Hypothesis 3.** Nigerian freshman and sophomore students will have development of moral reasoning below United States norms.

**Factors leading to development of moral reasoning.** As has been demonstrated in earlier studies, a substantial factor contributing to the development of moral reasoning is university experience; however, the reasons for moral reasoning development are not clear. Sabin (2006) indicates different people grow in moral reasoning from different experiences just as people gain weight from different foods (p. 69). Nevertheless, some variables have been shown to influence development of moral reasoning and others have been shown to have no influence, as discussed in the next sections.

**Outside contact with professors.** A literature review by Pascarella and Terenzini (2005) found that development of moral reasoning has been shown to be related to exposure to individuals with advanced moral reasoning (p. 363). Bar-Yam, Kohlberg, and Naame (1980) indicate moral reasoning of teachers has a powerful influence on moral reasoning. McNeel (1994) found that even brief contact with professors outside the classroom had a statistical impact on moral development. These results are consistent with social learning theory which indicates social interactions, including role modeling, influence development (Sandy, Boardman, & Deutsch, 2006, pp. 340-341). Pursuant to Proverbs 27:17, whereby one man sharpens another, Christian professors should sharpen their students.

**Hypothesis 4.** Students that have some contact with their professors outside the classroom will have higher development of moral reasoning than those that do not have outside contact with their professors.
Moral reasoning and other variables. Studies have identified variables that were not found to have a significant impact on moral reasoning. Several studies have shown little evidence that academic major is associated with development of moral judgment (Pascarella & Terenzini, 2005). Gongre (1981) found no difference between three races: white, black and Native American. However, research regarding race is limited and no clear pattern has emerged (King & Mayhew, 2002, p. 251).

Method

Participants

A convenience sample of 68 students attending a Nigerian Christian higher-education institution were surveyed, along with eight professors teaching at the institution. The sample represents 56% of the student body and 28% of the professors. The females sampled provide an 18% quota sample, equivalent to the percentage of females within the school.

Student participants. Participants were active students attending classes at the selected Nigerian Christian higher-education institution. All available students were tested and were in one of five class levels: freshman, sophomore, junior, senior, and graduate level. Students were not paid or given credit for participation. All students are English literate as classes are in English and each student is required to pass an English proficiency test before enrollment.

The sample of 68 students includes five freshmen, 11 sophomores, 20 juniors, 16 seniors, and 16 master’s students and includes a total of 14 females. Ninety-five percent of the students are studying theology (BA or MA), 98% are Protestant (including Pentecostals), 94% have a Protestant family background, and 85% have been a Christian for over 10 years.

Professor as participants. The eight professors surveyed teach at the Nigerian institution. They are proficient in English, holding master or doctorate degrees. The professors are all Christian (protestant including Pentecostal); all but one has greater than 10 years teaching experience and teach 20 to 80 students. Six of eight professors indicate they have more than three student contacts per day. One teacher taught for only a year and has been removed since the study evaluates professor contact over the past four years.

Procedure

This quantitative study uses the DIT2 test, a proven survey instrument, to determine moral reasoning and test the study’s hypotheses. The DIT2 test is the most recent version of the Defining Issues Test and provides the study’s dependent variable, N2
(moral reasoning). Responses to a supplementary questionnaire provide information on other independent and control variables. The surveys were administered in groups and individuals completed the surveys at their own pace with no time limit (students typically completed both instruments in less than an hour). The DIT2 answer sheets were scored by the Center for the Study of Ethical Development. Summary statistics (mean and standard deviation) and inferential statistics (t-test, one-way and two-way analysis of variance, and covariance analysis) were calculated using SPSS and these results were analyzed. This research method and design is based on proven approaches successfully used in similar studies at United States universities. For example, Quarry (1997) used the DIT2 to conduct a cross-sectional survey of 272 undergraduate students attending a Christian liberal arts institution in California.

Instruments

DIT2. The DIT survey is the most frequently utilized instrument for measuring moral reasoning (Quarry, 1997, p. 5) with an average of 40 studies a year being scored by the Center for the Study of Ethical Development over the last three decades and an average of over 10,000 DIT2 tests/year in the last five years (Dong, 2010). The DIT2 survey is a paper and pencil instrument that includes 12 statements related to five moral dilemmas. An example dilemma and survey questions are shown in Appendix A; the example describes a famine and a father’s contemplation of stealing food for his family. Other dilemmas include (a) a reporter deciding whether to report a damaging story regarding a political candidate, (b) a school board member deciding if they should hold a contentious and potentially dangerous open meeting (c) a doctor deciding whether to provide an overdose of a painkiller to a patient, and (d) college students demonstrating against foreign policy. In each case, the participant is asked to rank items in terms of their importance regarding a decision and to select the top most important items. Five meaningless statements with fancy syntax are included throughout the survey to identify participants that are not carefully considering the questions.

The DIT2 instrument is believed to pose minimal privacy risks; nevertheless, permission for its use was secured from the institution’s leadership prior to conducting this research. In addition, Regent University’s Human Subject Review Board approved the program.

DIT2 validity. Rest, et al. (2000), provides evidence of DIT2 validity. Criterion group validity has been confirmed by showing that groups of respondents that should have higher scores (e.g., older groups) have been found to have higher scores. Longitudinal validity has been shown in that respondents show increases in moral reasoning as they mature. Lastly, DIT2 values of moral reasoning have been shown to predict moral behavior (p. 390).
DIT2 reliability. Equivalent form reliability of DIT2 was demonstrated by Rest, Navarez, Bebeau and Thoma (1999b), with a correlation of 0.79. A Cornbach alpha of 0.83 was found on 932 surveys in 1995 (Rest, et al., 1999a). Sabin (2006) indicates other instruments measuring moral reasoning have significantly lower reliability relative to DIT2 (p. 44).

High reliability of DIT2 is attributed to extensive reliability checks. The Center conducts four different reliability checks (Rest, et al., 1999b): (a) weighted rank consistency checks to identify random responses; (b) data checks to confirm at least 75% of the survey has been completed; (c) reviews for selection of meaningless items; and (d) non discrimination checks, to confirm no more than 11 items that should have different values are given the same value. These checks have been shown to improve Cornbach alpha values by more than 10% (Rest, et al., 1999b). Surveys that do not meet these reliability checks have been disregarded.

Questionnaire. Student and professor questionnaires are shown in Appendix B. The questionnaires were used to collect independent and control variable information. The independent variable data includes student class level and contact with the professor. Similar to McNeel’s approach (1994), contact is estimated by a self-assessment of the number of interactions with professors greater than 15 minutes, outside the classroom, during a typical week. The data collected was also used to ensure all students were Nigerian and to identify any students that are Muslim or have a Muslim family background since the DIT2 may not be a valid tool for Muslims (Ahmed & Gielen, 2002).

The questionnaire provides the following control variable data: eClass participation, fulltime or part-time status, English proficiency and age. Eclass involvement and fulltime versus part-time status have been selected as control variables as they could affect the extent of social interactions and influence the level of social learning. A self-assessment of English proficiency provides a confirmation check regarding English proficiency. Consistent with prior research, age data has been collected to confirm age does not have a significant effect on development of moral reasoning.

Results

The Center for the Study of Ethical Development ran the reliability checks mentioned above and identified many unreliable submittals: 16 undergraduates and one graduate. Forty–seven reliable submittals were available for this assessment (37 undergraduate, 10 masters). The DIT2 data, in combination with the questionnaire data, was loaded into SPSS’ statistical analysis software. A summary of the questionnaire responses can be found in Table 1.
Table 1

*Questionnaire Response Rate for Various Questions*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Responses</th>
<th>Key Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor Contact</td>
<td>55</td>
<td>29% &lt;1/wk, 38% 1-2 wks, 33% &gt;2/wk</td>
</tr>
<tr>
<td>eClass</td>
<td>54</td>
<td>25% participated in eClasses</td>
</tr>
<tr>
<td>English</td>
<td>65</td>
<td>11% fair, 89% good to excellent</td>
</tr>
<tr>
<td>Race</td>
<td>68</td>
<td>37% Igbo, 19% Yoruba, 31% other Nigerian, 14% Other</td>
</tr>
<tr>
<td>Fulltime or Part-time</td>
<td>40</td>
<td>52% fulltime, 48% part-time</td>
</tr>
</tbody>
</table>

Table 2 provides a summary of the DIT2 survey results. This table and Figure 2 show that the mean value of N2 improves from 18.2 to 22.5 for undergraduates. However, a two-way analysis of variance (ANOVA) assessment indicates that this trend is not significant \([F(2,34) = .29, p = .75]\). This is not surprising in light of the high SD and limited sample size. A t-test comparing the senior students to the freshman and sophomore students was also calculated and confirmed the difference in means to be insignificant \((t(19) = .81, p = .43)\). Surprisingly, the mean of master’s level graduate students is lower than both the senior and junior mean. However, a t-test indicates this difference is not significant due to the small sample size \([t(24) = .76, p = .46, seniors relative to master’s students]\).

Table 2

*N2 results for Study and United States Norms*

<table>
<thead>
<tr>
<th>Group</th>
<th>Survey Results</th>
<th>U.S. Norms</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Freshman/Sophomore</td>
<td>11</td>
<td>18.2</td>
<td>11.3</td>
</tr>
<tr>
<td>Junior</td>
<td>16</td>
<td>20.4</td>
<td>8.4</td>
</tr>
<tr>
<td>Senior</td>
<td>10</td>
<td>22.5</td>
<td>12.8</td>
</tr>
<tr>
<td>Master’s</td>
<td>10</td>
<td>18.7</td>
<td>9.3</td>
</tr>
</tbody>
</table>
Figure 1 plots the N2 Index means for the undergraduates tested relative to norms for the United States (Dong, 2010). As shown in Table 2, t-tests comparing each class mean with United States norms and were found to be significantly different (p<.001).

![Figure 1. DIT2 survey results and United States norms for undergraduate students.](image)

An ANOVA assessment was conducted on the data set, evaluating the impact of professor contact by class-level on the N2 index. Figure 2 and Table 3 indicate that there is a significant interaction between professor contact (two or more contacts of 15 minutes per week) and class level (p=.013), accounting for 32% of the variance (eta squared = .316). On their own, neither professor contact nor class level have a significant affect (p=.37 and p=.42 respectively). Of particular note is the N2 value for seniors with professor contact which essentially achieve the US norm value; however, a t-test indicates that the data set is too small to be significant, t(12206)=.27, p=.79.
Figure 2. DIT2 survey results, means and standard deviations of undergraduate students with and without professor contact. Note that sample size is limited (n=29 with n=7 for students with professor contact).

Table 3

Two-Way ANOVA for N2 Based on Class Level and Professor Contact

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
<th>ETA Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class (Under Grad.)</td>
<td>137</td>
<td>2</td>
<td>69</td>
<td>.894</td>
<td>.423</td>
<td>.072</td>
</tr>
<tr>
<td>Professor Contact</td>
<td>65</td>
<td>1</td>
<td>65</td>
<td>.850</td>
<td>.366</td>
<td>.036</td>
</tr>
<tr>
<td>Class * Professor Contact</td>
<td>815</td>
<td>2</td>
<td>407</td>
<td>5.32</td>
<td>.013*</td>
<td>.316</td>
</tr>
<tr>
<td>Error</td>
<td>1763</td>
<td>23</td>
<td>77</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16818</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>2887</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


* p < .05

To determine whether any control variables had an effect on the relationship between the professor contact and class groups on N2, an ANCOVA (analysis of covariance) was conducted. The first analysis evaluated eClass participation and fulltime student status as covariates. The covariates do not change the significant interaction between professor and class level [F(2,25)=4.56, p=.03], although the variance improves somewhat relative to the ANOVA results (R squared=.46, increased +.07). Neither covariate was significantly associated to N2 (eClass p=.73 and fulltime p=.81). The second analysis added age and English excellence (four covariates in all) and found similar results [F(2,24)=4.16, p=.04]; the variance improved somewhat with the additional covariates (R squared=.5, +.04). No covariate was found to be significantly associated to N2 (eClass: p=.96, fulltime: p=.6, age: p=.48, and English: p=.78).

A series of Shapiro-Wilk tests were run on the N2 dataset used in the t-tests and ANOVA analyses shown above. The tests showed no significant departure from normality for the Nigerian undergraduate data (p=.47) and for the class and professor contact subgroups [lowest p=.26 (juniors with no contact), highest p=.48 (seniors with no contact)]. A Levene test confirmed homogeneity of variances across the class and professor contact subgroups (p=.56).
Discussion

Due to the limited research data on development of moral reasoning in Nigeria, the applicability of Western theories and empirical results for improving development of moral reasoning is uncertain. This study begins addressing this gap and confirms Western-based research results can be applied to Nigerian education, at least in some cases. A key conclusion is that professor contact increases development of moral reasoning in undergraduate students. This is consistent with United States findings (McNeel, 1994) and validates hypothesis 4. Another interesting observation is that eClass and part-time student status, which likely reduces contact quality, appears to reduce the effect.

Hypothesis 2 has also been confirmed, as the Nigerian undergraduate students have N2 indexes significantly below United States norms. Hypothesis 1 was not confirmed; even though development of moral reasoning for undergraduates was found to improve, the sample size was insufficient to provide a statistically significant result. Results regarding hypothesis 3 are mixed. Despite improvement in moral development for undergraduates, seniors’ N2 index was found to be significantly lower than United States norms. On the other hand, seniors with professor contact had N2 values consistent with United States values; although, this finding has a weak basis in light of the small sample size (n=4).

In this study, the Defining Issues Test has provided results similar to those found in the United States when evaluating relative differences between Nigerian groups. However, with the possible exception of seniors with significant professor contact, the Nigerians tested well below United States norms, even after four years of university. A key question is the reason behind the lower scores. Is this due to lower development of moral reasoning? Alternatively, are the lower values a result of other factors, such as English proficiency or Christian values? Therefore, it is recommended that these questions be addressed in future research. To address the issue of English proficiency, an issue identified by Bebeau and Thoma (2003), future assessments could include an English proficiency test. To address the issue of Christian values, an issue identified by Nelson (2004), a study of secular Nigerian students could be conducted.

This study provides insights and understanding of the development of moral reasoning of students attending Nigerian Christian institutions. However, there are two delimitations. First, the study uses the N2 index to assess moral reasoning, only one of four factors associated to moral behavior (Rest, et al., 1999a, p. 101). Although moral reasoning has been shown to correlate to moral action, this study does not address other variables affecting moral behavior. Second, the study looks at development of moral reasoning of Christian students within a Christian institution; results are not generalizable to non-Christian students in non-Christian universities.
About the Author

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References


Appendix

Appendix A

DIT2 Survey Instrument - Sample Story from DIT2: The Famine

The small village in northern India has experienced shortages of food before, but this year’s famine is worse than ever. Some families are even trying to feed themselves by making soup from tree bark. Mustaq Singh’s family is near starvation. He has heard that a rich man in his village has supplies of food stored away and is hoarding food while its price goes higher so that he can sell the food later at a huge profit. Mustaq is desperate and thinks about stealing some food from the rich man’s warehouse. The small amount of food that he needs for his family probably would not even be missed.

What should Mustaq Singh do? Do you favor the action of taking the food? (Check one)

- Strongly Favor
- Favor
- Slightly Favor
- Neutral
- Slightly Disfavor
- Disfavor
- Strongly Disfavor

Rate the following issues in terms of importance (1=great, 2=much, 3=some, 4=little, 5=no). Please put a number from 1 to 5 alongside every item.

1. Is Mustaq Singh courageous enough to risk getting caught for stealing?
2. Isn't it only natural for a loving father to care so much for his family that he would steal?
3. Shouldn't the community's laws be upheld?
4. Does Mustaq Singh know a good recipe for preparing soup from tree bark?
5. Does the rich man have any legal right to store food when other people are starving?
6. Is the motive of Mustaq Singh to steal for himself or to steal for his family?
7. What values are going to be the basis for social cooperation?
8. Is the epitome of eating reconcilable with the culpability of stealing?
9. Does the rich man deserve to be robbed for being so greedy?
10. Isn't private property an institution to enable the rich to exploit the poor?
11. Would stealing bring about more total good for everybody concerned or not?
12. Are laws getting in the way of the most basic claim of any member of a society?

Which of these 12 issues is the 1st most important? (write in the number of the item)
Which of these 12 issues is the 2nd most important?
Which of these 12 issues is the 3rd most important?
Which of these 12 issues is the 4th most important?

(As presented in Rest, et al., 1999b.)
Appendix B

Student Questionnaire

Please tick the appropriate boxes and fill in the blanks.

Survey number: ______ Name: _______________________ (Optional)

Class level:
☐ Freshman (1st yr) ☐ Sophomore (2nd yr) ☐ Junior (3rd yr) ☐ Senior (4th yr) ☐ Grad student

Date began studies at this institution: ___/'__ (mth / yr). Current degree program: ___________

How much contact do you have with your professor outside of class (conversations >15 mins)?
- This school year: ☐ None ☐ < 1 / week ☐ 1 / week ☐ 2 / week ☐ > 2 / wk
- Previous school years: ☐ None ☐ < 1 / week ☐ 1 / week ☐ 2 / week ☐ > 2 / wk

(Leave line above blank if this is your first year at this institution.)

Are you a Christian? ☐ Yes ☐ No How long have you been a Christian? ____ (Years)

Of the list below, rank the areas that had the highest impact on your moral reasoning from 1 to 5:
☐ Family ☐ Religious Training ☐ Community Service/Ministry ☐ Friends ☐ Education / Prof

This past year:
- How much time did you spend in community service / ministry?
  ☐ < 1 hr / week ☐ 2 hr / week ☐ 4 hr / week ☐ > 6 / week
- How much time did you spend with your friends?
  ☐ < 1 hr / day ☐ 2 hr / day ☐ 3 hr / day ☐ > 4 hr / day

How good do you think your professors are at assessing right from wrong?
☐ Excellent ☐ Good ☐ Fair ☐ Not so good ☐ Poor

How good do you think you are at assessing right from wrong?
☐ Excellent ☐ Good ☐ Fair ☐ Not so good ☐ Poor

How good do you think you are at assessing moral dilemmas?
☐ Excellent ☐ Good ☐ Fair ☐ Not so good ☐ Poor

How good do you think your professors are at assessing moral dilemmas?
☐ Excellent ☐ Good ☐ Fair ☐ Not so good ☐ Poor

What type of student are you? ☐ Full-time ☐ Part-time ☐ Live on campus ☐ Off campus

Any e-classes this year (with little to no time spent in the classroom)? ☐ Yes ☐ No

English proficiency:
☐ Excellent ☐ Good ☐ Fair ☐ Not so good ☐ Poor

Religious affiliation: ☐ Protestant _______________ ☐ Catholic
☐ Other Christian _______________ ☐ Other _______________

Family religious affiliation: ☐ Protestant _______________ ☐ Catholic
☐ Other Christian _______________ ☐ Other _______________

What ethnic group/country are you from:
- If from Nigeria: ☐ Hausa/Fulani ☐ Youruba ☐ Igbo ☐ Other _______________
- If not Nigerian: ☐ West African _______________ ☐ Other _______________

Emerging Leadership Journeys, Vol. 5 Iss. 1, pp. 81-101.
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ISSN 1941-4684 | editorl@regent.edu
Professor Questionnaire
Please tick the appropriate box and fill in the blanks.

Survey number: _____ Name: _______________ (Optional)

Experience as professor: ____ (years), at current institution: ____ (years)

What is the primary subject area you teach? ________________________________

Religious affiliation: □ Protestant __________ □ Catholic □ Other Christian __________ □ Other ____________________________

How much contact do you have with your students outside of class? (a contact is a greater than 15-minute discussion face-to-face or over the phone)

□ < 1 / day □ 2 / day □ 3 / day □ > 4 / day

How many students do you currently have in your classes (total, all classes)?
□ < 20 □ 20 to 40 □ 40 to 80 □ >80 students

Are you teaching any classes with a significant portion of e-learning (not in the classroom)?
□ Yes □ No