INFLUENCE OF PERSONALITY CHARACTERISTICS ON ARCHITECTURE STUDENTS' CREATIVITY: THE DIDACTIC ROLES OF EDUCATORS IN SELECTED NIGERIAN SCHOOLS

Aderonmu P.A, Chuku Ovunda, Fasae Oluwatosin and Ahmed Zainab
Department of Architecture, College of Science and Technology, P.M.B 1023,
Covenant University, Km10, Idiroko Road, Ota, Ogun State.

ABSTRACT

Accounts of the influence of personality characteristics on architecture students' creativity has largely been pedagogical in 'modus operandi'. While only few records have been documented on the didactic roles of studio Teachers in nurturing and cultivating creativity among students. Creativity, as a phenomenon, has also been engaged in diverse fields of human endeavours, namely, jurisdictions of arts, philosophy, psychology, law, medical sciences, liberal arts and architecture and other liberal arts. This study investigated the polar influences of extroversion-introversion personality characteristics on students' creativity in design studio course in order to evaluate the Teachers' didactic roles in schools. The research was carried out in a survey of architecture students(n=225) in three selected schools of architecture in the Southwest Nigeria. The findings suggested that in spite of polar differences of extroverson and introversion, with the engagement of didactic tools by the design studio Teachers and Instructors, there are lots of merger benefits and synergic associations of attributes in the tutelage process of a well-seasoned professional architects. From these findings, this study suggested that there is urgent need for stakeholders, especially the studio Teachers, parents and guardians of architecture school to understand typical personality attributes of students in order to orchestrate the Gestalt applications in the desirable directions of career developments. This would also assist the Architectural design studio Instructors and Teachers to emphasize the pedagogical Tenets needed on the contents of the syllabi, the relevant indices in the curricula grains and the specifics projects needed by individuals to study optimize the latent potentials in the simile of personality attributes. This would lead to professional competency in didactic handling of Architecture programmes with high-stake achievements.

Key words: Creativity, Design Studio, Didactic influence, Extroversion-Introversion.

1. INTRODUCTION

The influence of personality characteristics on architecture students' creativity can be described from the cradle of higher education as pedagogical; in the modus operandi of educational training, curricular spectrum and professional practices. Personality means a set of psychological traits and mechanisms within the individual, organised and enduring and influence interactions with, and adaptations to, the intrapsychic, physical and social environments (Mitchell, 2016) (21). In any Gestalt setting and group dynamics, every learner has individual personality expressed in the portraits and traits of their characteristics. In psycho-gestalt world, these personalities are ethically bound to be respected and be given a viable environment to germinate, flourish and grow by the cross fertilization of artilleries and weaponry of creative activities-creativities. According to the communique emanated from a recent personality *project,* personality is described as the coherent pattern of affect, cognition, and desired goals as they lead to behaviour" (Revelle, 2013)(25); as such behavior manifests in form of "individual differences need be identified, categorized and be given due respect. During pedagogic experiences of teaching and learning, a Didactic Teacher takes cognizance of these characteristic patterns in form of thinking, feeling, and behaving" (APA, 2017)(6). Architecture as a creative education optimizes the emergence of these individual personality characteristics and reflective on them by both the Teachers and Students; as self-reflective practicum (Bubnys, 2019; Cubero-Pérez, Cubero, and Bascón, 2019)(8)(9) enables personal discovery and its pragmatic Orchestrations to design well. Therefore, characteristics of such are expressed in a particular pattern as specific to different creative-activities (creativities), self-reflections on characteristics.

This investigation for this study adopted the Myers-Briggs Type Indicator (MBTI) developed by MBTI personality types; currently as the most accepted, widespread and continued popularity (Swan, & Stein, 2019)(27) personality type theories. MBTI Instruments identifies four cognitive functions, namely: Extraverted (E) and Introverts (I), Sensation (S), Intuition (N), Feeling (F) and Thinking (T), and Judging (J) and Perceiving P (Jung, 1971,1989, 2009 ; Swan, &Stein, 2019)(14)(15)(16);(27). Up till now, there is little or no empirical research on creativity and personality characteristics in the specifics of architectural design studio domain. Some psychological research studies have provided insights to architects' individual and group creativity; knowledge development of Students designers' creativity and personality types (Olander, 2016) (23); designers' awareness and exploration of their personality types. In the same vein, other studies have found correlation between personality characteristics and conditions relevant to the health-related quality of life outcomes in order to improve the quality of life of patients or gestalt patients (Kretchy, Acheampong, Laryea, Osafo, Asampong, & Dickson, 2019)(18) to identify the creativity level in variance with personality types in students creativity tests (Guilford, 1971)(12). In this study, personality characteristics are seen as pedagogical in nature when individual learners are tutored by the Teachers to understand epistemological concepts as high-sounding goals, scope of a project, curriculum context-contents and pedagogical tools needed in handling a particular subject matter. These are also considered along with the students' innate tendencies and personality characteristics. On the other hand, it becomes *didactic* when a didactic subject matter is deeply taught and learners are allowed to respond to stimuli in line with their area of

interest per useful creative- activities (*creativity*). The learners respond to the Teachers' stimuli with simple natural-instinct void of ambiguities. Therefore, stimuli-response activities are creative in nature and have before now been investigated in the jurisdictions of arts, philosophy, sociology, law, medical sciences, psychology, architecture and other liberal arts. In architecture, design is the melting point of all other courses; and the popular theory has been learning-by-doing. In this theory, the didactic Teachers teaches by attending to different individual learners by one-on-one and table-to-table mentoring; while the learners are *given problem-based design* projects to work on.

Through these tasks, the individual learners solve design problems based on their individual differences in skills, talents, gifts and personalities. This investigation is premised around the didactic roles of architectural educators; as engaged optimally beyond-call-to duty *modus operandi* of the architectural design studio courses. It aimed maximally on the influence of extroversion-introversion characteristics on the creativity levels of architecture students in Design Studio courses with a search light on the Didactic roles of *Architectural Educators* otherwise known as *Design studio Teachers.*

2. LITERATURE REVIEW

2.1. Research Reports on MBTI Personality and Characteristics

The statistical currencies of evidence-based research recently reported on extroversion-introversion personality spectrum. In the united states of America, the first sample asserted (introverts-50.7%; extroverts 49.3%) of the United States total population. While (Myers & Briggs Foundation 2018; in McCaulley, Quenk, & Hammer 1998)(22) also found in another experimental gender samples of individuals who were extroverted (male-45.9% and female-52.5%) and (men-54.1%; women-47.5%) introverted. Furthermore, in American Trends Panel (ATP,2014)(6) used a five-point scale with which 3,243 participants was found 12% very extroverted, 5% very introverted. 77% of respondents between the two extremes. The remaining 6% were unsure and not included in the results.

Another investigation was carried out on '*the Influence of extroversion and introversion on decision making ability'-a form of creative acts.* It was asserted that 50% extroverts were observed with characteristic snap-quick decisions. Nine out of ten (9/10) extroverts double-checked their information sources before making decisions; but more than half (64%) of the respondents delay relevantly urgent decisions as thinking takes a lot of time to resurface relevant ideas. As extroverts have are observed to have good quality of cross-checking twice their data before making up their minds in reaching a specific decision; they still need a didactic expert to assist them in orchestrating the engagements of personality the right direction when they face important decisions (Khalil, 2016)(17). This form of engagements could be in terms of design studio charrette, group works and individual assignments.

2.2. Extroversion-Introversion Personality Characteristics and Design Creativity

Previous researches (Aderonmu, P. A and Omonijo, Dare Ojo and Anyaegbunam, Michael Chibuzor and Amole, Bayo 2016)(1) have worked on the influence of personality characteristics on Teachers and Students. Also, Mitchell, (2016)(21) carried out the Extrovert-Introverts personality spectrum of MBTI personality types; who described introverts as set of individuals who are easily drawn away from social interaction and need to recharge privately; inwardly stimulated. They also have strong liking for quieter activities, need time alone, smaller intimate group of friends. While Extroverts are described as individuals who are sociable, dominant, lively, need to have social stimulation and desire to be recharged by people through interaction and external stimulation (Mitchell, 2016)(21).

Aderonmu, Geshinde, Adewale, Erebor, and Sholanke, (2017)(3) have also examined the influence of Architects' Sensing-Intuitive Personality Characteristics on Design Morphology in Selected Nigerian Universities. In another developments, researchers have asserted that 'highly creative individuals in irrespective of jurisdictions (i.e arts, philosophy, sociology, law, medical sciences, psychology, architecture and other liberal arts) have been characterized by independence, confidence, assertiveness. At this point, one is prompted to ask the following questions of: *"what, how, where and when* of didactic teachings affects the personality characteristics of students via architectural design studio creativity.

2.3. Teachers' Pedagogic Roles in Architectural Education

Pedagogy is the art and science of teaching, study of teaching methods, including the aims of education and how goals may be achieved (encyclopedia Britannica); the field depends greatly on psychology of education; theories of science perquisites to learning, and education; determining the aims and value of education perspective. Pedagogy set the goals and the high-sounding educational objectives while Didactics canonize the tenets of its strategies and practicum implementations into high-stake achievements.

2.4. Didactic Roles of Architectural Educators

The subject on Didacts is traditional but revolutionary. Its canonized relevance has caused a shift in paradigm; from pedagogic phenomena (Melissinopoulos, 2013, Aderonmu,2017)(20)(3). Didactics could also be described as objectifier tool which works out the educational strategies and execution formats. In a lucid manner, for the sake of the intertwining nature of didactic with pedagogic tools; Didactics can further be clarified as the name of a *practical activity* or *art the of teaching along with a practical* knowledge in teaching; also involving theoretical knowledge (scientific and non-scientific) about teaching, learning, and their conditions. In 'modus operandi', didactics treats the mastery of *"what, how, where and when* regional episteme of teachings. Thus, didactics elucidates *what*-region as concerned with the content of teaching, the *how*-region as concerned with the method of teaching and *why*-region as justifications of curricular choices (Melissinopoulos, 2013)(20). These regions call for reflective practicum that would assist in self-reflections and practicum realizations of personality characteristics' skills and talents.

Pedagogic tenets of instructions mean just "the representative *relationship* between teaching, learning and interdependency between them". While didactic tenets of instructions mandate the Teachers' deeper choices of *content and methods* in teaching a particular aspect of curricular grains; as it is connected with too much teaching or systematic instructions to a kind of specified learning achievement analytics in school and practice. In true life applications, in Gestalt capacity development programmes, the Instructor-Teacher guides and teaches students a way of engaging the problems-solving techniques and adopting this learning analytic experience throughout life (Popoola S.I, Atayero, Badejo, Odukoya, Omole D.O, 2018)(24). For Architecture as a profession, such experience spans from a period of educational training to professional field practices.

2.5. Didactics and High-Stake Achievements in Architectural Education-Practice

The issue of competency is critical to both architecture and medical professions, therefore, the procedural forms of training have commonalities in the years spent in schools. This is deemed necessary for the trained individuals(students) to be able to meet up with the demands of professional practice practices awaiting them. A recent development in the clinical school investigated and compared the results of the old traditional didactics (chalk and talk) to the problem-based learning (PBL-considered new) method of training. It was asserted that the

PBL should be recommended for all medical schools for clinical skills, superior performance and professional competencies (Zahid, Varghes, Mohammed, & Ayed, 2016)(28).

In Architectural education in Nigeria, as a means of enhancing teaching and learning, Covenant University in line with vision 10:2022 has embarked on different strategies to improve learning analytics (Atayero, Alao, Odukoya, 2014)(7) and the teaching process (Popoola, Atayero, Badejo, Odukoya, Omole, 2018)(24) students are trained as problem solvers, the didactic studio teachers engage the synergy of traditional didactic to explain the underpinning theories, preliminaries case studies and PBL together. During architectural design studio classes, the Didactics teaching method both helps the Teacher engage the students in a dialogic discussion for students to understand the precepts behind every design concept developed. In this method, it advanced its episteme by drawing from the vocabularies of the Masters i.e. by analogic, iconic and pragmatic methods. In a PBL setting, brainstorming sessions are created, the large studio classes are broken into smaller groups (group dynamics) where real-life design problems are given to each group to solve pragmatically. In this sense, the extroverts are given the whole field to play with their ingenuities of personality characteristics; while the Introverts are given the opportunities to recess during PBL break (duration of 30 minutes to 1 hour) to recharge their own batteries through critical thinking on the issues just discussed within the group dynamics. It is most likely that during brainstorming, the extroverts who makes quick-snappy decisions have reached a consensus, but after break, observation from such groups recorded that the introverts came back with different perspectives against the earlier agreed decisions. In the design studio context, both extroversion and introversion personality characteristics are useful to architectural design studio dynamics. But the didactic control is needed by the Teachers to know how, when and why certain assignments or design problems should be given to a particular individual of group of students. This place a high demand on the didactic competency of architectural educators to understand different individual personality characteristics and accord respect for such in order to orchestrate teachings in the right directions. The ultimate goal of any Architect or designer is to discharge his/her duties in a way to satisfy the clients and have personality domain in satisfaction with professionally work life (Loewe, N., Bagherzadeh, M., Araya-Castillo, L., Thieme, C., & Batista-Foguet, J. M.,2014;Ali, 2019)(19)(5).

3. RESEARCH METHOD

3.1. Objectives of the Investigations

The primary aim of this study investigated the influence of extroversion-introversion characteristics on the creativity levels of architecture students in order to evaluate the Didactic roles of Teachers in architectural design studio courses. The research focused on the extraversion-introversion characteristics of MBTI among students in selected architecture schools from three (3) Universities in Southwest Nigeria. The prominent and cohort personality type of architecture students was determined which shed light on the selection of design projects and didactic tools that can be engaged by the studio Teachers to identify individual personality types needed to stimulate Architecture students' creativity. This would further assist the Teachers and Instructors to didactically guide the pupilage formation of architecture students to deal with design problems more effectively during educational training and be fully prepared to meet with professional competency requirements in the nearest future. The outcomes from this study suggested to architectural educators, monitoring and evaluation bodies i.e (National University Commisions-NUC, Architects Registration Council of Nigeria-ARCON, Nigerian Institute of Architects-NIA and other stakeholders) to better understand architecture students' personality type-characteristics as relates to creativity

and assist in the Gestalt therapy applications and engagements of specific students improving the curricula for the future.

3.2. Participants

The participants were architecture students in 2016/2017 sessions from the three (3) selected schools of Architecture in Southwest Nigeria.

Table 1 The Selected schools of Architecture in Southwest Nigeria

Serial number	Name of university	Year established	Ownership
1	Covenant University, Ota	2002	Private
2	University of Lagos	1970	Federal
3	Bells University of Technology, Ota	2004	Private

3.3. Instrument

The questionnaire used for this project is made up of a mixture of closed ended as well as open ended structured questions which took a short time to administer; while scoring was relatively easy and quick. The study engaged the Myers-Briggs Type Indicator instrument and theories of psychological type as described by Carl Jung, Isabel Myers. This study has been designed in line with survey research using data collected from both primary and secondary sources. The secondary sources comprise of mainly text books, journals and periodicals, while primary source is only from questionnaires. A total of 225 questionnaires were administered to the three selected (3) schools. Also, a total of 189 questionnaires were retrieved from the respondents. While SPSS software tool was used for analysis. More questionnaires were collected from Covenant University and the University of Lagos than in Bells University with the least sample size.

3.4. Procedure

The questionnaire was administered and collected by the researchers. A representative fraction of the students in each school were picked hence a number of 75 questionnaires was administered in each of the three schools making a total of 225 questionnaires. The data from the questionnaire was analyzed through SPSS analytic tools to make relevant interpretations, assertions and conclusions.

3.5. Ethical Consideration

The study purpose was well stated on the questionnaire and informed the targeted respondents in the three (3) selected schools, consent was willingly obtained from all of the participants. Confidentiality of the participants was maintained while the data gathered was well protected and secured into a research file.

4. RESULTS, FINDINGS AND DISCUSSION

4.1. Gender Distribution among Schools

Fig 1 shows the gender distribution among the three selected schools where the questionnaires were distributed.

Influence of Personality Characteristics on Architecture Students' Creativity: The Didactic Roles of Educators in Selected Nigerian Schools
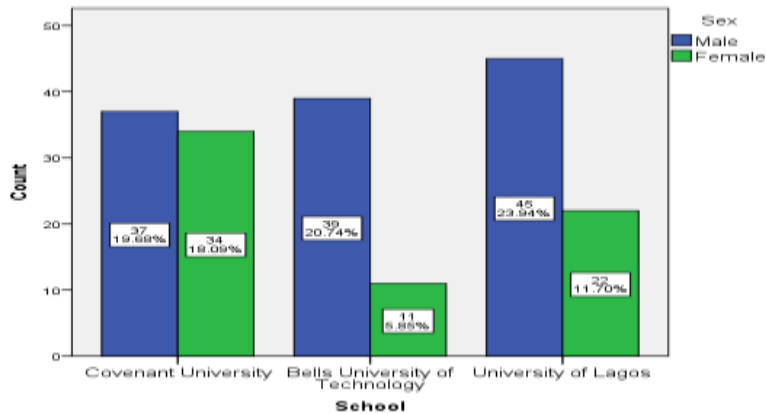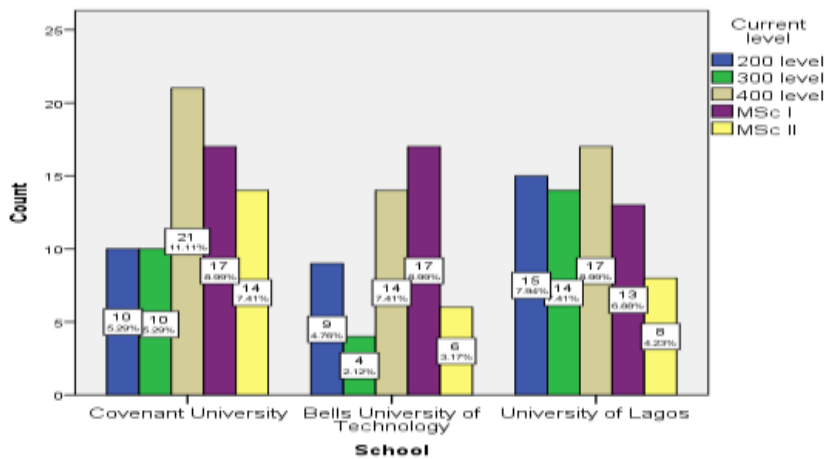

Figure 1 Gender Distribution in the Three Schools

4.2. Architectural Design Studio Level Distribution in the Selected Schools

In Fig. 2 below, we see the distribution of the respondents across their levels in their various schools. The chosen levels ranged from 200 level undergraduate students up until the final year of their master's education which is MSc 2.

Figure 2: Architectural Design Studio Level Distribution in the Selected Schools

Fig. 3 below shows the age distribution of the respondents among their various schools. The ages are grouped into ages 16 – 21years, 22 – 25 years and Above 25 years. The bar chart is seen below.
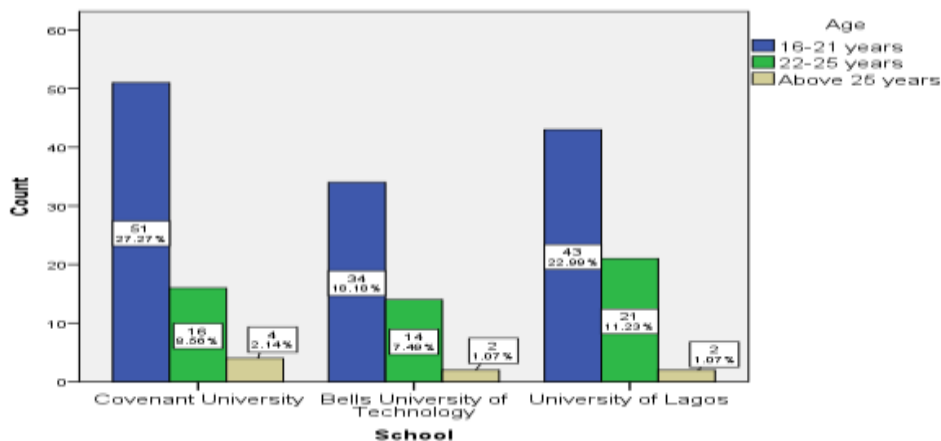

Figure 3: Age Distribution

Fig. 4 below shows the current CGPA of students (respondents) in the three Universities chosen which were chosen. Ranges of CGPA from 1.5 – 2.49, 2.5- 3.49, 3.5- 4.49 and finally 4.5 and above.
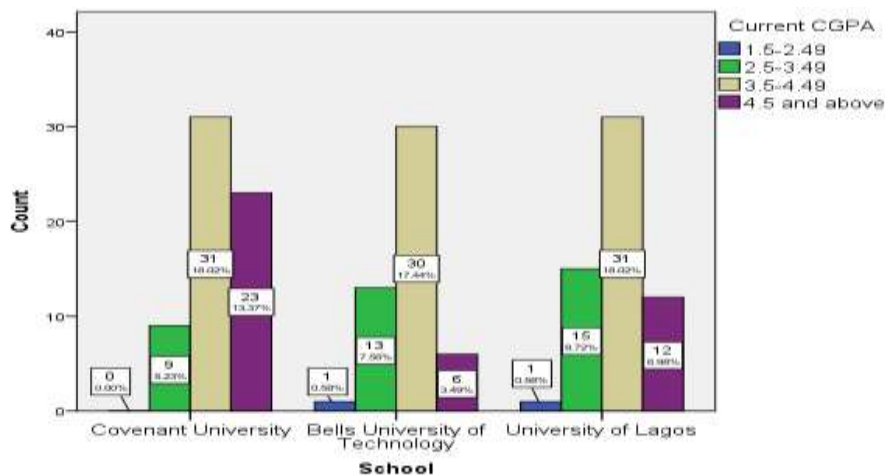

Figure Error! No text of specified style in document.: CGPA's In the Various Schools

4.3. Creativity of Architecture Students

Creativity, is a key index of intelligence in humans, highly imperative in problem-solving, products designing and novel innovations (Csikszentmihalyi, 2009)(10). In assessing creativity, novelty is also a key component criterion. In tandem with researchers' opinions (Aderonmu, Adewale, Babalola, Fulani, Ediae and Izobo-Martins, 2018)(4); that arts of creativity and differed personalities in Architects spontaneously made them beautifiers of the planet earth, with "creative strata" working through their creative minds (Csikszentmihalyi, 2009)(10). They are set of Intelligentsias who design skyscrapers and plazas, churches and museums, our schools and our homes. All these rests on arts tradition as old as history; spanning from one generation of architects to the next with a common bond among veterans and novices alike (Spreckelmeyer and Stein, 1999)(26).

4.3.1. General Creativity LevelThe frequency table below shows the creativity levels of the respondents. This was generated by the addition of the questions asked to check their general level of creativity.

Table 2: General Creativity Levels

Creativity Levels	Frequency	Percent
Less Creative	4	2.8
Neither More or Less Creative	53	37.3
More Creative	80	56.3
Much More Creative	5	3.5

From Table 2, it can be seen that most 53(37.3%) respondents were neither more nor less creative as well as More Creative. While very few were Less Creative4(2.8%) and Much more Creative 5(3.5%).

4.3.2. Students' Personal Perception on Creativity Level

The figure 5 shows the students perception on their level of creativity based on the questions that were asked in the questionnaire to see if they thought themselves creative or not. It can be seen that most respondents perceive themselves to be More Creative and Much more creative.
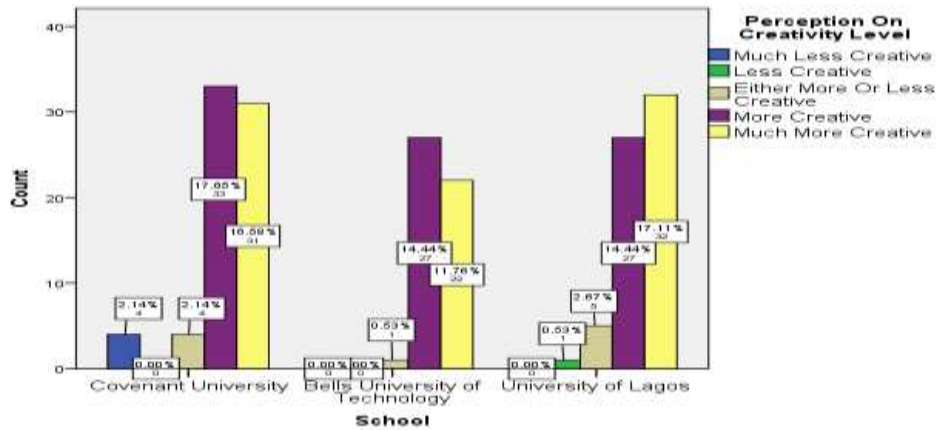
Figure 5: Respondents Perception of their Creativity Level in the Schools

4.3.3. Design Creativity Levels

Figure 6 shows the students design creativity levels based on the questions which was basically asking them if their classmates thought their designs were novel, aesthetic and functional.
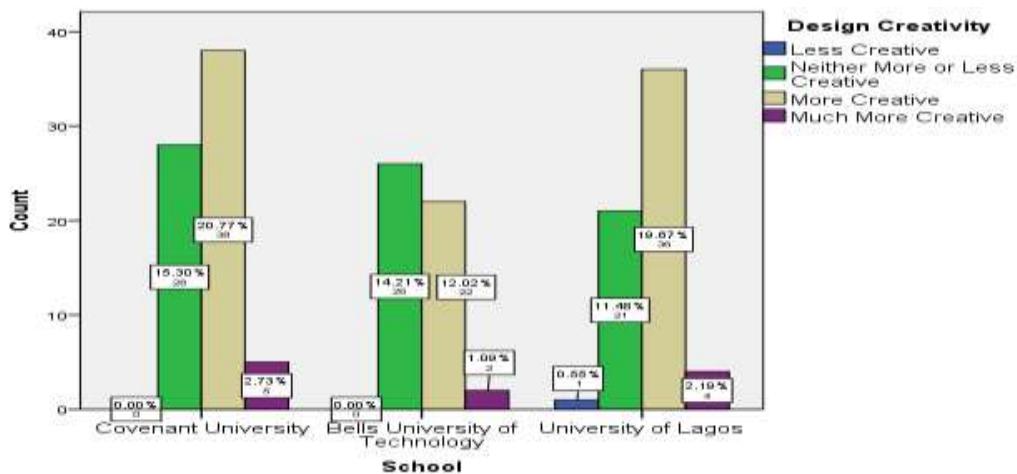

Figure 6: Design Creativity Among Respondents

From the above, it can be seen that most students have design creativity levels ranging between neither more or less creative or more creative. Only 11 students CU-5; Bells-2 and University of Lagos-4) across the three selected schools were much more creative in design and only 1 respondent was seen to be Less Creative in University of Lagos.

4.3.4. Total Creativity Levels

The Figure 7 shows the total creativity levels of the respondents, taking into consideration their general creativity level, the perception of their creativity and the architecture students' design creativity.
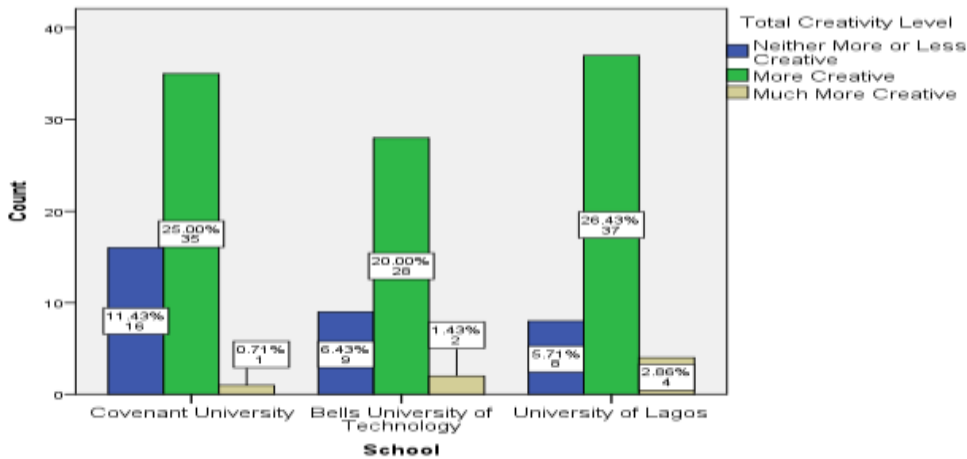
Figure 7: Total Creativity Levels

It can be posited averagely that, from the selected schools of architecture, most (UNILAG-26.43%; CU-25%; and Bells University-20%) of the students are more creative in terms of the summation of their design creativity, perception on their creativity and general creativity levels in all the schools. Only very few (UNILAG-2.86%; CU-0.71%; and Bells University-1.43%) students are at the level of much more creative. Students from the University of Lagos were recorded to be have the most (26.43) creative individuals.

4.3.5. Reasons for Studying Architecture and Total Creativity Levels

From Fig. 8, it can be seen that the more creative students and the only students that were much more creative fell under the people who had the passion for Architecture and as seen consequently, the people with this passion were the people with good levels of interest. This may definitely affect creativity levels and how much potentials personality characteristics displayed in the course of group project executions and assignments.
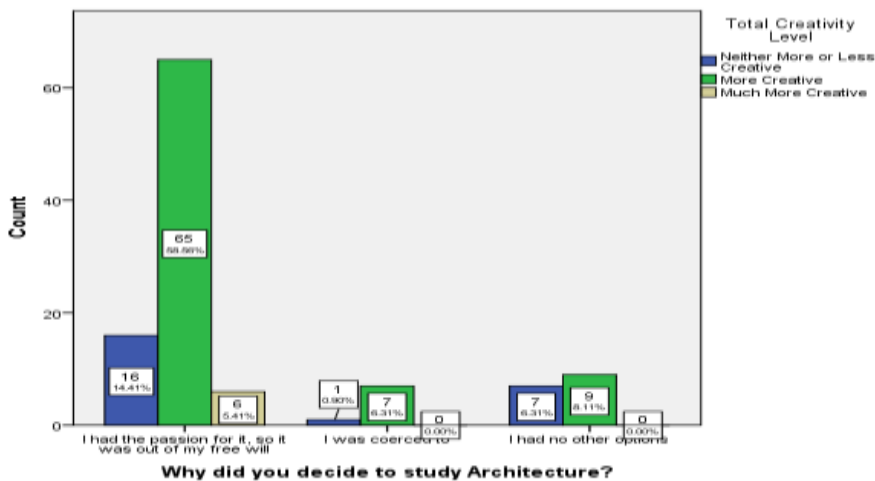

Figure 8 Reasons for Studying Architecture and Total Creativity Levels

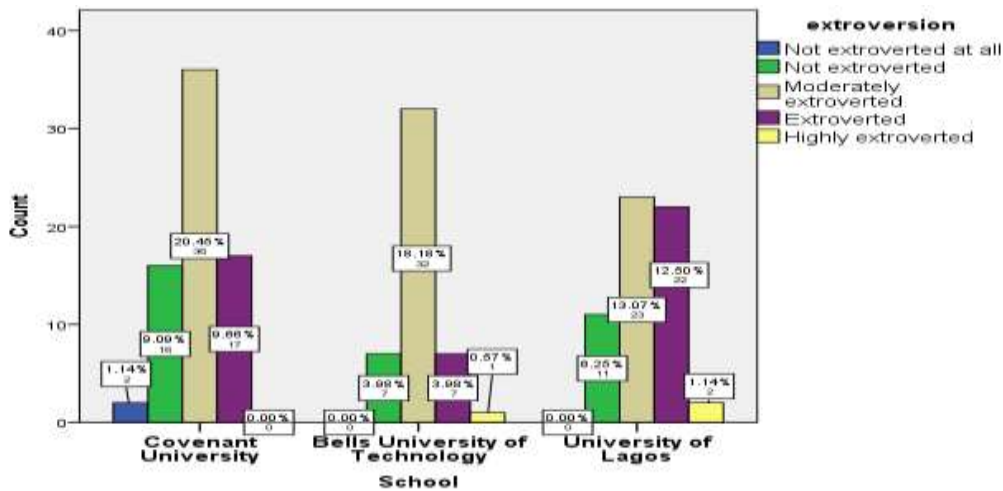### 4.3.6. Personality and Creativity of Architecture Students

Figure 9 Extroversion in the Various Schools

From the the chart representation in Figure 9, it is evident that students who are highly extroverted are more in University of Lagos(12.50%) than in Bells University(3.98%) and Covenant University(9.66%). This may have been, perhaps, due to the spatial arrangement and standardized planning levels of the learning environment and social facilities available for active socialisation (Hornberg,, & Reiter-Palmon, (2017)(13) amongst students. The University Of Bells can be seen to have the lowest number of extroverted students across all schools observed. Students who are not extroverted at all can only be found in Covenant University(1.14%) according to these findings.
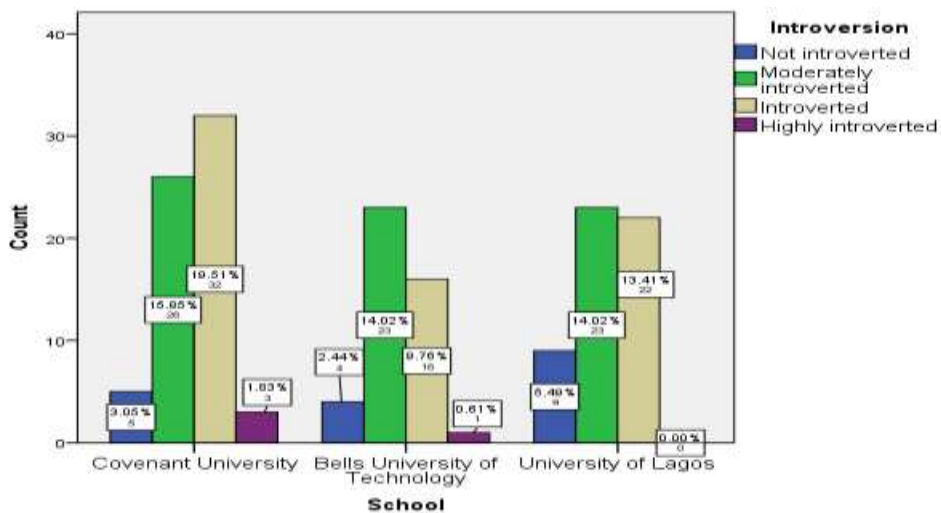

Figure 10: Introversion in the three (3) selected Schools

From the analysis above it can be seen that students who are highly introverted are more populated in Covenant University than in Bells University and University Of Lagos combined perhaps due to environmental constraints. Students who are introverted are also more populated in Covenant University than in the other schools. Students who are not introverted can be seen to be more in the University of lagos than in the other schools.

4.3.7. Extroversion and Total Creativity Levels

From the figure11, it can be seen that moderately extroverted(34.88%) individuals were most within the more creative level.
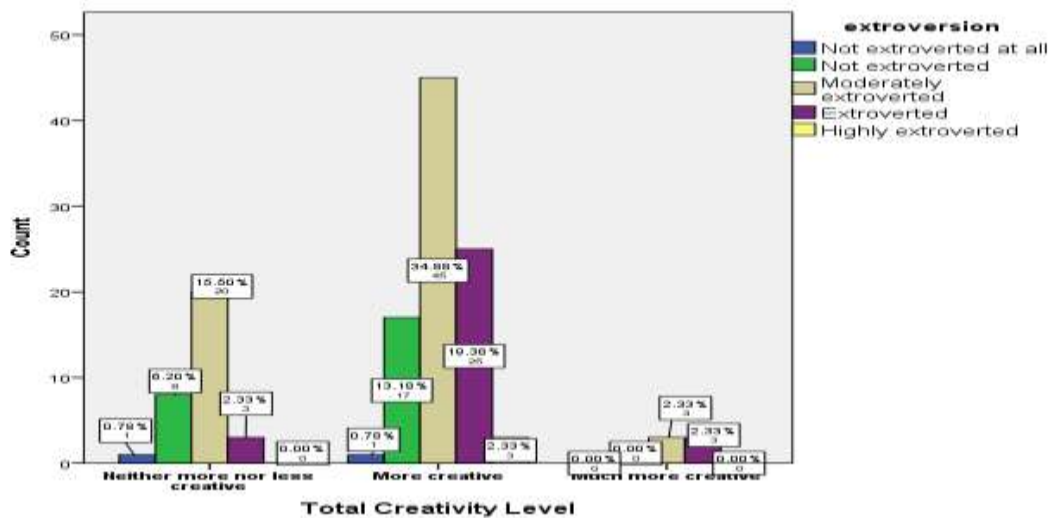

Figure 11: Extroversion and Total Creativity

Futhermore, more creative persons tended towards moderate extroversion and highly levels of extroversion(highly extroverted). This is continous with what Gelade (1997)(11) asserted that creative people are more extroverted than others who are not.

4.3.8. Introversion and Total Creativity Levels

From the figure 12 above, it can be observed that the more introverted individuals seemed to show less creativity levels as none of the highly introverted students were seen under the much more creative group. Important to note is that moderately introverted individuals were also found to be most populated with the more creative levels as well.
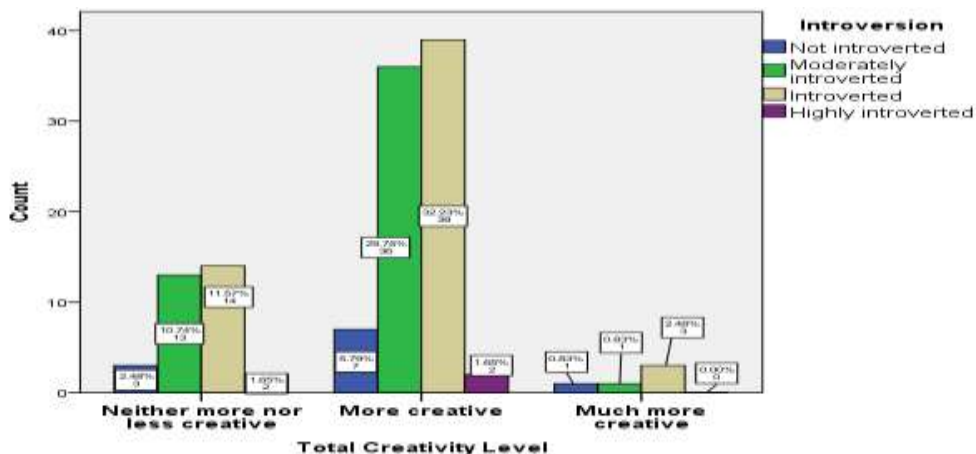
Figure 12: Introversion and Total creativity Levels

There was a balance between the number of extroverted and introverted students, sensing and intuitive, thinking and feeling and finally judging and perceiving. Also, students were looked at and characterized by their different levels of interest. These interests included their interest in Architecture as well as their interest in certain core courses including design studio, building components/construction and finally building structures). Majority of the students were interested or very interested in their core courses.

As expected, most of the architecture students in the study perceived themselves to be very creative. However, on assessing their general creativity levels, it was seen that a lot of the Architecture students had average levels of creativity and more of them were creative but only few of them were actually very creative unlike what their perception values suggested. Finally, this study has shed light on how different categories of extroversion-introversion personality types affected the levels of creativity. Most of the higher expressions of each of the personality types were dominant in the more creative levels, however, it is imperative to note that in spite of the polar differences that exists in the extroversion-introversion dichotomy, there also exists some yet untapped potential benefits of the categoric personality types of architects in educational pupilage as well as professional tutelage. More benefits are still awaiting the Architect-Teachers, the students, architecture schools and professional practice as they engage the didactic formulae into their operating systems.

5. DIDACTIC RECOMMENDATIONS

Understanding the personality characteristics of individual students:

This is a strong factor that directly affect an Architecture student's creativity levels. therefore, a high-level pragmatic step needs to be taken by optimally integrating some relevant epistemological findings into the batteries of syllabi, curricular grains and pedagogical armory of architecture schools. students should be sure that they go into architecture having the perquisite personalities, personal drives and motivations towards architectural profession. parents should also not coerce their wards into something they are not interested in as it inhibits the expression of their creativity.

Emergent Needs to Enroll Educators/Teachers into Didactic Seminar Courses

More so, on the pedagogic stable of Architect-Teachers, there is an urgent need to acquire Didactic skills as a high-level Gestalt specialist. Continous professional modular courses (CPD) are essential for capacity development; from the applied behavioral sciences like Gestalt psychology, philosophy and sociology. A didactic Teacher also need to strive as a matter of imperativeness, to seek how to unwrap the potentials of individual students through the handling of design studio briefs, individual-specific and group dynamics projects.

In -Loco-Parentis Policy and Implementation Strategies

The didactic role of a Teacher/Instructor cannot be underrated as every student is a gestalt patient in the hand of a *Didactic Teacher*-who serves as a confidant, custodian, advocate and other scaffolding roles to assist the students in ascending to the upper echelons of his/her design training and professional. A didactic Teacher plays the roles of existentialist, Gestalt Psychologist, Phenomenological Investigators, Advocates in dialogic transactions, Conductor of Personality Characteristics Orchestral Conductor, Decoder of body language, a bridge for unfinished transaction, Stirrer of Creativity and other gestalt roles (Aderonmu, P. A, 2013)(2).

SWOT Analysis and Gestalt Therapy Applications

An adequate Pedagogical-didactic knowledge content of individual personality characteristics is needed to enable the architectural educators to make the Architecture students to be made to understand and engage the Gestalt therapy of SWOT (strengths, weakness, opportunities and threats) patience-analytical findings and orchestrate the individual and group dynamics personality characteristics. This would enable all the stakeholders to effectively permutate and synergize these different potentials levels with drive the Total creativity levels to the highest echelon of architectural design endeavours; via the professional practice later on after graduation from the University. Another derivable benefit from the different characteristics to form a strong team especially regarding their design studio. The students knowing the above have a role to play in ensuring that with the knowledge of their personality types and how it

affects their creativity, they can by the guidance of a didactic Teacher establish a pattern construct for their individual and group work place skills requirements.

Optimizations of Problem Based Learning (PBL) and Group Dynamics

In Group work and the simile of architectural design competition, excellent didactic curves could be derived from students and Teachers who can also work in harmonious relationship by engaging varying strengths; to tackle their weaknesses hence ensuring a very strong and creative design outputs as a result of very good creativity levels and group-work dynamics-teamwork. Hence, a Didactic Teacher may need to balance the instructional techniques in order to favour all members of dynamic groups of students (Aderonmu, Geshinde, Adewale, Erebor & Sholanke, 2017)(3). Finally, future researchers should endeavor to extend research beyond private and federal institutions by surveying state universities as well as individual creativity and its contribution to the would-be design group dynamics.

High-level Algorithmic Structure of Students Engagements in Didactics

The active engagement of students as chief actors of didactic learning and professional practice through *highly structured classroom participation and self-reflections (*Cubero-Pérez, Cubero, and Bascón, 2019; Bubnys, 2019)(9)(8)-Algorithmic group dynamics would help the learners to be aware of their personalities as well as Teachers to understand them. In this way, a strong focus would be placed on interpreting students' personality characteristic experiences during didactic teachings and significant interventions aimed at establishing links between individual characteristics among the students would be highly imperative.

6. CONCLUSION

As personality types affect creativity levels, design creativity as well as general creativity levels of architecture students: a good mix of personalities characteristics including the two (2) dichotomies (extroversion-introversion) were established as advantageous in this study. On assessing the respondents' general creativity levels, it was seen that a lot of the Architecture students had average levels of creativity and *more of them were creative* but only few of them were actually *very creative*. The findings suggested that in spite of polar differences of extroversion and introversion, there are lots of merger benefits and synergic associations of attributes in the capacity building of a seasoned architects. This study suggested that there is urgent need for stakeholders, especially the studio Teachers, parents and guardians of architecture school to understand typical personality attributes of students in order to orchestrate in the desirable directions. This would also assist the Instructors and Teachers to emphasize the pedagogical contents of the syllabi, the relevant indices in the curricula grains and the specifics needed by individuals to study Architecture with high-stake achievements. Future investigations should be conducted in other to facilitate a more comprehensive spectral effects of other MBTI personality characteristics on creativity. This would help to provide valuable compendium of Didactics to the evidence-based policymaking related to all issues on Personality characteristics and influences on students' creativity.

REFERENCES

[1] Aderonmu, Omonijo, Anyaegbunam, & Amole (2016). The Influence of Personality Characteristics on Teachers and Students in Architectural Design Studio Projects in Some Selected Nigerian Universities. *Mediterranean Journal of Social Sciences* 7(2) 1.

[2] Aderonmu, P.A (2013). Neo-Pedagogical Style for Acculturating the Beginners in Architecture Schools; psycho-social issues. Paper published at 2012 Architects Colloquium, Abuja.

[3]   Aderonmu, P. A and Geshinde, Abiodun M. and Adewale , B. A. and Erebor, Emokpae and Sholanke, Anthony Babatunde (2017) *The Influence of Architects' Sensing-Intuitive Personality Characteristics on Design Morphology in Selected Nigerian Universities.* Covenant International Journal of Psychology (CIJP), 2 (1). pp. 1-24.

[4]   Aderonmu, P. A and Adewale , B. A. and Babalola, Daniel Olatunde and Fulani, O. and Ediae, Osahon James and Izobo-Martins, O. (2018) *Pedagogic Integration of Cultural Art-knowledge Contents into Architecture curriculum: Teachers' Gestalt Acculturation Experience.* Covenant International Journal of Psychology, 3 (1). pp. 50-67.

[5]   Ali, (2019). Personality traits, individual innovativeness and satisfaction with life; Journal of Innovation & Knowledge 4 (2019) 38–46.

[6]   APA, (2017). Personality; APA Retrieved from https://www.apa.org/topics/personality/

[7]   Atayero, A., Alao, A., Odukoya, J., (2014). Overcoming Barriers to New Learning Technologies in A University Setting: The Case of Covenant University, Ota, Nigeria; Proceedings of EDULEARN14 Conference 7th-9th July 2014, Barcelona, Spain; ISBN: 978-84-617-0557-3.

[8]   Bubnys, R. (2019). *A Journey of Self-Reflection in Students' Perception of Practice and Roles in the Profession*; Research Institute, Siauliai University, 25 Visinskio Street, 76351 Siauliai, Lithuania; remigijus.bubnys@su.lt; Tel.: +370-673-12930; Sustainability2019,Pp.11,194;doi:10.3390/su11010194;www.mdpi.com/journal/sustainabi lity.

[9]   Cubero-Pérez, R., Cubero, M., and Bascón, M.J, (2019). *The Reflective Practicum in the Process of Becoming a Teacher: The Tutor´s Discursive Support.* Published: 2 May 2019; Journal of Education Sciences. Educ. Sci. 2019, 9, 96; doi:10.3390/educsci9020096; www.mdpi.com/journal/education (MDPI).

[10]   Csikszentmihalyi, M. (2009). *Creativity: Flow and the psychology of discovery and invention*. HarperCollins.

[11]   Gelade, G. A. (1997). Creativity in conflict: The personality of the commercial creative. *The Journal of Genetic Psychology*, 158(1), 67–78.

[12]   Guilford, J. P. (1971). *Creativity Tests for Children: A Manual for Interpretation*, Sheridan Psychological Services, Beverly Hill.

[13]   Hornberg, J., & Reiter-Palmon, R. (2017). Creativity and the Big Five Personality Traits. In G. Feist, R. Reiter-Palmon, & J. Kaufman (Eds.), *The Cambridge Handbook of Creativity and Personality Research* (Cambridge Handbooks in Psychology, pp. 275-293). Cambridge: Cambridge University Press. doi:10.1017/9781316228036.015.

[14]   Jung, C.G. (1971) Psychological Types trans R.F.C. Hull Collected Works Vol 6 Princeton.

[15]   Jung, C.G. (1989) Analytical Psychology: Notes of the Seminar given in 1925 ed. Wm McGuire Princeton.

[16]   Jung, C.G. (2009). Liber Novus The Red Book Edited by Sonu Shamdasani; W.W. Norton Philemon Series.

[17]   Khalil, R., (2016). Influence of extroversion and introversion on decision making ability. International Journal of Research in Medical Sciences Khalil R et al. Int J Res Med Sci. 2016 May;4(5):1534-1538 www.msjonline.org; ISSN 2320-6071; ISSN 2320-6012.

[18]   Kretchy, I.A, Acheampong, F., Laryea, J, Osafo, J, Asampong, E, Dickson, E., (2019). Personality Traits, Clinical Characteristics, and Health-Related Quality of Life of Patients with Hypertension in a Primary Hospital in Ghana; International Journal of Hypertension; Volume 2019, Article ID 7489875, 9 pages; https://doi.org/10.1155/2019/7489875.

[19] Loewe, N., Bagherzadeh, M., Araya-Castillo, L., Thieme, C., & Batista-Foguet, J. M.(2014). Life domain satisfactions as predictors of overall life satisfaction among workers: Evidence from Chile. Social Indicators Research,118(1), 71–86).

[20] Melissinopoulos, S., (2013). From Pedagogy to Didactics: Clarifying the Discussion on Architectural Education; Stavros Melissinopoulos. The University of Edinburgh (UK); AAE Conference, 2013.

[21] Mitchell, L., (2016). Student Success center; winter 2016; concordia.ca/studentsuccess.

[22] Myers & Briggs Foundation (2018). Type Use for Everyday life; retrieved from http://www.myersbriggs.org/type-use-for-everyday-life/

[23] Olander, M.H, (2016). Development of students' knowledge about didactics during their first year of the master's programme in didactics, Reflective Practice, 17:4, 507-521; Reflective Practice, 2016 Vol. 17, NO. 4, 507–521, Routledge (Taylor &Francis) http://dx.doi.org/10.1080/14623943.2016.1178633;DOI:10.1080/14623943.2016.1178633

[24] Popoola S.I, Atayero A.A., Badejo A, John T, Odukoya J.A , Omole D.O,(2018). Learning analytics for smart campus: Data on academic performances of Engineering Undergraduates in Nigerian Private University. Data in Brief 17(2018)76–94

[25] Revelle, (2013). Personality Theory and Research. personality project. Retrieved from https: www.personality project.org/index.html; Copyright © 2019 - Positive Psychology Program

[26] Spreckelmeyer and Stein, (1999). Classical Readings in Architecture; on cultural responsiveness. pp334.McGraw-Hill Co. USA.

[27] Swan, A., & Stein R., (2019). Evaluating the validity of Myers-Briggs Type Indicator theory: A teaching tool and window into intuitive psychology; Journal of Social and Personality Psychology Compass; January 2019.

[28] Zahid, M.A, Varghese, R., Mohammed, A.M, Ayed, A.K, (2016). International Journal of Medical Education. 2016; 7:181-187 ISSN: 2042-6372; DOI: 10.5116/ijme.5749.80f5 Comparison of the problem-based learning-driven with the traditional didactic-lecture-based curricula.