

Evaluating an Art and Design Students' Gender-Based Entrepreneurial Potential Model

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ABSTRACT: Extant literature has revealed the issue of gender inequality in art and design education and entrepreneurship. Given that gender inequality hinders socio-economic development in any nation, it is crucial to gather empirical evidence on whether the entrepreneurial potential of art and design students is influenced by gender. Hence, this study examined the relationship between art and design students' gender and their entrepreneurial potential. Using a well-structured questionnaire, the study sampled 204 art and design undergraduate students from different higher institutions across Nigeria. Data were collected from participants using a questionnaire that included measures of their entrepreneurial traits. The hypothesized relationships among variables were tested based on Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). The findings indicate that CFA and SEM results showed a good fit between the proposed model and the observed data for both female and male groups. This suggests that both genders of art and design students have significant potential to become entrepreneurs without any biases. **KEYWORDS:** gender, art and design students, entrepreneurial potential, Sustainable Development Goals (SDGs), Confirmatory Factor Analysis (CFA), Structural Equation Modeling (SEM). **DOI:** doi.org/10.34053/artivate.12.1.204

Introduction

Entrepreneurship, in the context of this article, encompasses a range of activities, including innovation, risk management, value creation, resource allocation, intrapreneurship within organizations, social and serial entrepreneurship, economic development, lifestyle choices, cultural expression, academic and research endeavors, and global engagement, all centered around identifying opportunities and applying entrepreneurial principles in diverse contexts beyond traditional venture creation. This agrees with De Avila and Davel (2023), who reasoned that arts entrepreneurship could be innovation-based, mindset-

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based, project-based, and organization-based. Like other fields, entrepreneurship in art and design involves identifying opportunities, taking risks, organizing resources, and using innovation and creativity to bring a new product, service, or business concept to the marketplace.

Entrepreneurship is relevant to economic growth and significant for driving social development in every nation of the world. Ungureanu (2020) opines that entrepreneurship and economic development have become significantly interlinked in the new global economy. Fostering entrepreneurship in the art and design field is increasingly essential. The reason for this is the increasing need for channeling the teeming unemployed youths towards viable and sustainable pathways to self-reliance. The art and design discipline offered in higher education institutions is vocational-based and provides a vital path for creativity, innovation, and entrepreneurship. Emphasizing the teaching and learning of entrepreneurship in the arts and design field is driven by the need to facilitate artists' integration into the workforce and equip individuals who can drive the creative economy (De Avila & Davel, 2023). The art and design field is a domain of the creative economy that offers prominent entrepreneurial potential (Jalil et al., 2019).

Entrepreneurship potential comprises a set of psychological cognitions and perceptions of oneself about confidence, success, risks, motivations, and competencies, including everything that influences entrepreneurial intentions (Ward et al., 2019). Entrepreneurial potential connects with several personality traits that characterize successful entrepreneurs, including self-efficacy, opportunity-seeking, calculated risk-taking, leadership, persistence, and more (Souza et al., 2017). This implies that the more entrepreneurial traits individuals possess or can develop, the greater their potential to become entrepreneurs (Windapo, 2018). According to Zefane (2012), people with the desire or potential to become entrepreneurs are usually more inclined to start a business.

Youth unemployment and gender stereotypes continue to persist as significant issues in the field of entrepreneurship (Mahlaole & Malebana, 2022). In Nigeria, a developing country with over 200 million people, youth entrepreneurship research is crucial for addressing the issue of high unemployment rates. Nevin et al. (2020) reported that 41% and 31% of the Nigerian population aged 15-34 years and 25-34 years were unemployed. The percentage of unemployed individuals with a bachelor's degree was 41%, which is higher than 18% for those with vocational skills. This indicates that more than obtaining a higher education is required to secure employment. To tackle this problem, the Nigerian government introduced the NPower policy, which aims to create 600,000 new jobs and provide entrepreneurial training and skills development opportunities for graduates and non-graduates (Nevin et al., 2020). However, according to Akabuike (2022), Nigeria has not yet tapped into the entrepreneurial potential of its students.

The interest in entrepreneurship education in the 21st century now hinges on achieving sustainable development goals (SDGs) (Ashari et al., 2021). In this sense, the extent to which an entrepreneurship course can achieve the SDGs determines its effectiveness. The

attempt to attain SDGs 4 and 5 has recently driven the need for more inclusive and equitable quality education and more gender-based research in developing countries. Regarding entrepreneurship, gender inequality is deleterious to socio-economic development in any country, particularly developing countries (Olawejaju & Fernando, 2020). In Nigeria, addressing gender biases in entrepreneurial undertakings is one of the significant concerns of vocational education and training in recent times (Akwa, 2016).

Since Odewole et al. (2022) addressed the gender suitability of the art and design discipline, considering gender issues relating to art and design students' entrepreneurial potential is also relevant. Gender disparities and the efficacy of entrepreneurship training programs are interconnected with gender concerns in entrepreneurship education and advancement. The claim in some extant literature that entrepreneurship is male-oriented presents gender as a mystifying variable that moderates entrepreneurial intentions and behavior (Ward et al., 2019). According to Miller (2013), sociological literature on gender and artistic careers revealed numerous ways in which cultural perceptions of artists tend to assume a masculine subject. Thus, there is a need to provide empirical evidence on whether or not the potential of art and design students to become entrepreneurs is gender-driven.

"Gender-driven" in the context of this article suggests that entrepreneurial potential may vary by gender-related factors, such as the experiences, challenges, or opportunities that individuals of different genders encounter when pursuing entrepreneurial activities in the art and design field. Nonbinary groups have been an essential community in art and design, like in other fields of human endeavor (Furman et al., 2019). Therefore, it is imperative to clarify that the female or male gender referred to in this article is the "genetic female or genetic male," according to the Nigerian cultural context, instead of the socially attributed meanings to the masculine and feminine genders. To the researcher's best knowledge based on the literature review, no empirical study has yet been conducted to investigate art and design students' gender-based entrepreneurial potential in Nigeria's tertiary institutions. Hence, this study examined art and design students' gender-based entrepreneurial potential using Structural Equation Modeling (SEM) to test the hypothesized relationships among variables.

Theoretical Background

Gender in Entrepreneurship

Gender is a significant factor, particularly regarding stereotypes about women in the labor market (Pech & Řehoř, 2021). There is evidence of disparity in the gender gaps in entrepreneurial involvement in some African countries, including Nigeria (Ndofirepi et al., 2018). Gender inequalities in entrepreneurship typically encompass several factors, including limited access to credit and finance/capital, fewer networking opportunities for

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women entrepreneurs, horizontal gender segregation, challenges balancing work and family life, and gender biases and stereotypes about women in business (Arnaut et al., 2016). The perpetuation of a stereotypical and male-centric view in entrepreneurial activities can dissuade women from engaging in such activities (Cardella et al., 2020). Hence, promoting gender equality can foster the establishment and success of enterprises characterized by increased innovation, sustainability, and a rewarding workplace (Muntean & Ozkazanc-Pan, 2015).

Gender and Entrepreneurial Potential in Art and Design Education

Higher education provides an appropriate avenue for the development of entrepreneurship (Hatt, 2018). Entrepreneurial learning in higher institutions provides avenues to develop students' entrepreneurship mindset (attitudes) and skills (Olorundare & Kayode, 2014). However, the role of gender in entrepreneurship education is an important and complex issue, as gender can influence the opportunities and challenges faced by aspiring entrepreneurs of different genders. Entrepreneurial potential, which comprises both the environment and personality traits that motivate individuals to intend to start a business or become an entrepreneur, can serve as a tool for analyzing gender differences (Ward, 2019).

Gender is important in considering the variables of entrepreneurial potential since gender inequality plays a significant part in entrepreneurial activities (Bela et al., 2021). In the context of this article, gender-based entrepreneurial potential refers to the inherent capabilities, qualities, and attributes that enable individuals to identify opportunities, take calculated risks, and create value in various domains, including traits like creativity, innovation, resourcefulness, and the ability to transform ideas into successful endeavors, which may differ in the biological female and male gender. Gender-based entrepreneurial potential hinges on the assumptions of differences between male and female propensity to become entrepreneurs, given the significant concerns that young people with high entrepreneurial potential are more inclined to be enterprising than those with lower entrepreneurial potential (Zeffane, 2013). The issue of gender inequalities concerns entrepreneurial intentions, considering the significant gap between genders in entrepreneurship globally (Konutgan, 2022).

Gender Inequality in Art and Design Education in Nigeria

Taking Nigeria as a case study, gender inequality in art and design education is traceable to historical patriarchal structures and cultural norms preceding colonization. Aina et al. (2015) noted that the disparities in Nigeria's higher education system are rooted in traditional gender roles. Before colonial influence, the Nigerian society adhered to distinct gender-specific roles and skill development. Boys were predominantly entrusted with acquiring essential occupational skills such as farming, fishing, carpentry, masonry, and

blacksmithing/goldsmithing. These skills were considered essential for the economic sustenance of the community. Conversely, girls were traditionally taught skills related to reproductive functions, including housekeeping and childbearing. This division of labor along gender lines created a dichotomy in skill training and access to education, perpetuating a gender gap in vocational and creative fields, including art and design.

However, Abodunrin (2017) shed light on women's historical involvement in Nigeria's art realm, traced back to their engagement in traditional crafts such as pottery, weaving, and other artisanal works. These crafts were essential components of Nigeria's cultural heritage and economy, and women played a vital role in their preservation and development. In essence, while patriarchal structures and historical gender-based divisions of labor have contributed to gender disparities in art and design education, women's historical involvement in traditional crafts underscores their significant contributions to Nigeria's artistic and creative heritage. Efforts to address gender inequity in the art and design field should acknowledge and build upon these historical foundations, working to break down the barriers that have limited women's participation and opportunities in art and design education. Wall-Andrews and Luka (2022) underscored the need for fostering gender equity among diverse artists who aspire to professionalize their careers through acquiring production and entrepreneurship skills.

Like in other parts of the globe, students pursuing entrepreneurship in art and design education in Nigeria face challenges related to the lack of curricula that strongly emphasize entrepreneurial skills development, issues with balancing creativity with commercialism, and a need for mentorship and support, among others (Thom, 2015). Addressing these challenges requires a multi-faceted approach, including integrating business education into art and design curricula, providing access to resources, creating supportive ecosystems, promoting the value of creativity and entrepreneurship, and encouraging gender equality in art and design entrepreneurship. In Nigeria, as in many other places, recognizing and supporting the potential of art and design entrepreneurship, with no regard for gender biases, can be vital for economic development, cultural enrichment, and diversification of the arts and design industry.

Stereotype Activation and Gender-Integrative Theories

Addressing gender-related challenges in arts and design education and entrepreneurship involves promoting gender equality and breaking down stereotypes and biases. According to Lo, Sun and Law (2012), changing the normative perceptions that associate entrepreneurship primarily with males is difficult, as these notions reflect self-perceptions molded by entrenched gender stereotypes regarding entrepreneurship. Hence, based on the literature review, the author considered the stereotype activation and gender-integrative theories pertinent to examining gender-based entrepreneurial potential among art and design students in this study. The reason is that these two concepts address different aspects

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of gender perception. While stereotype activation theory focuses on how stereotypes affect individuals' self-perception and behavior, gender-integrative theory challenges traditional gender biases, countering the deleterious effects of stereotypes.

Stereotype Activation Theory

The stereotype activation theory suggests that stereotypes can automatically and unintentionally affect people's perceptions, judgments, and behaviors (Wheeler & Petty, 2001). It highlights the significance of being aware of different biases and working actively to challenge and correct them to promote fair and unbiased interactions with others. According to stereotype activation theory, when a stereotype becomes cognitively accessible (stereotype activation) in specific situations, it will influence attitudes and behaviors (Sweida & Reichard, 2013). Gender stereotyping hinders the prospects of female entrepreneurs from thriving in the entrepreneurial arena, preventing them from exploring unfamiliar sectors and managing larger businesses with the potential for higher profits (Adom & Anambane, 2020). Gender roles and stereotypes negatively influence women's entrepreneurial self-efficacy and intention to initiate high-growth businesses (Sweida & Reichard, 2013).

Stereotypes contribute to social categorization, a critical factor in fostering prejudiced attitudes, thereby giving rise to distinctions between in-groups and out-groups (Türko, 2016). Regarding the outcomes of the stereotype activation theory, the gender stereotyping of entrepreneurial endeavors leads to reduced entrepreneurial intentions and a decreased likelihood of women embarking on their business ventures (Jennings & Tonoyan, 2022). Within the realm of entrepreneurship, gender stereotypes are prevalent, historically portraying entrepreneurship as a predominantly male domain (Jennings & Tonoyan, 2022). These stereotypes can create barriers for women, including female art and design students, who may encounter societal expectations and biases undermining their entrepreneurial potential. In the context of art and design entrepreneurial education, gender stereotypes can influence the attitudes and behaviors of both male and female students, leading to varying levels of gender inequality. Based on the reviewed literature, a hypothesis is proposed as follows:

H₁: Art and design students' gender-based entrepreneurial potential model supports stereotype activation theory.

Gender-Integrative Theory

Muntean and Ozkazanc-Pan (2015) criticized existing approaches to studying women's entrepreneurship drawn from various feminist theories, suggesting the consideration of a gender-integrative perspective to entrepreneurship that attributes gender appropriately to both men and women instead. Research has indicated that individuals of both

genders tend to evaluate business opportunities equally when entrepreneurs are described using gender-neutral attributes (Gupta et al., 2014). The gender-integrative theory requires a departure from rigid gender stereotypes, acknowledging that entrepreneurial success is not inherently linked to specific gender traits or characteristics. Stereotype nullification, which entails linking gender-neutral attributes with domains traditionally associated with males, can eradicate gender disparities in entrepreneurial intentions (Gupta, Turban & Bhawe, 2008). According to Muntean and Ozkazanc-Pan (2015), the potential of stereotype nullification is an effective remedy for gender bias in entrepreneurship as the gender gap in entrepreneurial intentions can be eliminated by deliberately associating entrepreneurship with gender-neutral characteristics.

The gender-integrative theory establishes a supportive ecosystem that encourages all individuals, irrespective of gender, to pursue their entrepreneurial aspirations and unlock their full potential, recognizing individual strengths, skills, or competencies as the driving factors rather than gender, acknowledging the unique capabilities that both males and females possess to ensure an unbiased assessment. Regarding art and design entrepreneurship education, this approach supports equal opportunities for all students, encouraging them to develop their entrepreneurial skills and promoting an inclusive environment of innovative ideas and diverse perspectives, irrespective of gender. Based on the reviews, the following hypothesis is formed:

H₂: Art and design students' gender-based entrepreneurial potential model supports gender-integrative theory.

Required Skill Sets for Entrepreneurship

According to Cooney (2012) and Agogbua and Mgbatogu (2021), the skill sets required for entrepreneurship can be classified into three main groups: entrepreneurial, technical/soft, and business management skills. Entrepreneurship education equips individuals with technical, business management, and personal entrepreneurial skills to thrive independently (Okoro, 2021). For art and design students to increase their chances of achieving entrepreneurial success in the creative industry, developing and refining personal entrepreneurial skills, technical/soft skills, and management skills through continuous learning, practice, and real-world experiences is essential.

Entrepreneurial skills encompass traits and abilities crucial for success in the entrepreneurial journey. These skills include creativity and innovation, self-motivation and determination, risk-taking, resilience, adaptability, and flexibility (Cooney, 2012; Agogbua & Mgbatogu, 2021). Technical/soft skills are the practical knowledge and expertise needed in art and design entrepreneurship. These skills include but are not limited to communication and presentation, coordination, time management, and networking/collaboration (Cooney, 2012; Agogbua & Mgbatogu, 2021). Management skills are crucial for operating a flourishing art and design business venture. These skills include business planning and

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strategy, financial management, and marketing/promotion (Cooney, 2012; Agogbua & Mgbatogu, 2021).

Combining these required skill sets could positively influence students' entrepreneurial potential in art and design. According to Zeng et al. (2023), experiential entrepreneurship learning methods have significantly contributed to cultivating entrepreneurship and management skills within the cultural and creative industries. Combining entrepreneurial and technical/soft skills would not diminish any expected qualities of an entrepreneur but rather enhance their potential for success by incorporating additional attributes (Cooney, 2012; Alroaia & Baharun, 2017). Technical/soft and managerial skill traits are complementary rather than mutually exclusive toward achieving entrepreneurial success (Wang et al., 2019).

Research findings by Njoku et al. (2020) revealed that students' gender significantly influenced their business management, technical, marketing, accounting, financial management, and ICT compliance skills in creating business ventures. However, it is essential to reflect on these results prudently and consider the broader context of gender dynamics in entrepreneurship. Addressing gender disparities, challenging stereotypes, and promoting equal opportunities is essential to fostering inclusive and diverse entrepreneurial ecosystems (Veckalne & Tambovceva, 2023). Based on the extant literature reviewed, the following hypotheses are proposed:

H₃: There is a significant relationship between art and design students' technical/soft and managerial skill traits, regardless of gender.

H₄: There is a significant relationship between art and design students' entrepreneurial and technical/soft skill traits, regardless of gender.

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Methodology

The study used a quantitative research design based on an online survey. Art and design students from some Nigerian tertiary institutions were selected as the sample to gather data. Tertiary education institutions in Nigeria include universities, polytechnics, colleges of education, and monotechnics, providing advanced levels of education. An online questionnaire survey was designed using Google Forms. The survey questions centered on the three main skill sets required for entrepreneurship: technical skills (TES), managerial skills (MNS), and entrepreneurial skills (ETS), and were measured using a five-point Likert scale ranging from 1 (never) to 5 (very often). However, Fricker (2012) identified some drawbacks of an unrestricted, self-selected sampling method for online surveys as used in

this study. In the context of this study, the potential presence of self-selection, which occurs when individuals voluntarily choose to participate in the survey, can lead to a non-random sample (Fricker, 2012). The respondents in this study involved only the art and design students from various Nigerian tertiary institutions, who accepted to voluntarily participate in the survey without any form of enforcement or inducements. The survey link was distributed to the volunteering art and design students' WhatsApp platforms with the help of students and lecturers from the respective institutions.

Data were collected from a sample of 204 students enrolled in colleges of education, polytechnics, and universities within the designated timeframe for data collection. It is generally accepted that a sample size greater than 200 is sufficient for most models (Kline, 2005). Hence, considering the 36 hypothesized variables used in this study, a sample size of 204 is considered suitable for SEM. The data were analyzed using IBM SPSS Statistics 29 and IBM SPSS Amos 29 Graphics. The hypothesized relationships among variables were tested based on Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM).

The SEM is a multivariate statistical analysis technique combining aspects of factor analysis and multiple regression analysis to explore and assess the structural relationships between observed variables and latent constructs in a given dataset (Setiawan et al., 2020). The SEM holds broad applicability due to its quantitative approach in testing substantive theories and explicitly considers the presence of measurement error, a pervasive factor in most disciplines (Civelek, 2018). This makes SEM a valuable tool for researchers seeking to validate theoretical constructs and explore complex relationships in their studies.

In conducting SEM, researchers frequently employ CFA as an initial step to assess the measurement model's adequacy, ensuring that the observed variables accurately represent the intended constructs or factors before evaluating the structural model (Jackson & Gillaspay, 2009). The CFA model is often categorized as a type of measurement model within the broader framework of SEM (Harrington, 2009). The CFA also plays a pivotal role in validating measurements and assessing the reliability of a research instrument (Hamdan, Badrullah, & Shahid, 2011). Given the drawbacks of traditional correlational analysis methods, such as the Pearson coefficient analysis in measuring reliability and validity (Hamdan, Badrullah, & Shahid, 2011), the study preferred using CFA/SEM. More so, the CFA/SEM distinguishes itself by encompassing both observed (measured) and unobserved variables (latent constructs) and explicitly specifies error, necessitating a formal model specification for estimation and testing, while traditional correlational methods rely on default models and analyze only measured variables, assuming measurements occur without error (Suhr, 2006).

Results and Discussion

Demographic Characteristics of Respondents

Table 1 shows the respondents' demographic characteristics. The data presented in Table 1 indicated that the samples have good gender distribution, with 66 (32%) females and 138 (68%) males. The current higher institution of study of the respondents cut across all the three major tertiary institutions in Nigeria, which are the College of Education with 13 (6%), Polytechnic with 28 (14%), and University with 163 (80%), respectively. The respondents' educational level is categorized as follows: 100 Level (OND 1, or Year 1) with 41 (20%), 200 Level (OND 2, or Year 2) with 67 (33%), 300 Level (HND 1 or Year 3) with 59 (29%), 400 Level (HND 2) with 30 (15%), and 500 Level with 7 (3%). The areas of specialization of the respondents are Art Education with 5 (2.5%), Art History with 3 (1.5%), Ceramics with 17 (8.3%), General Art/Design with 28 (13.7%), Graphics with 52 (25.5%), Painting with 49 (24%), Sculpture with 15 (7.3%), and Textiles with 35 (17.2%). With the satisfactory frequency distributions of the demographic characteristics surveyed in the study, it can be inferred that the respondents who participated in the survey adequately represent the target population.

Table 1. Respondents' demographic characteristics

| Respondents' demographic characteristics | Frequency (n=204) | Percentage (%) |
|--|--------------------------|-----------------------|
| <i>Gender</i> | | |
| Female | 66 | 32 |
| Male | 138 | 68 |
| <i>Type of current higher institution of study</i> | | |
| College of Education | 13 | 6 |
| Polytechnic | 28 | 14 |
| University | 163 | 80 |
| <i>Educational Level</i> | | |
| 100 Level, OND 1, Year 1 | 41 | 20 |
| 200 Level, OND 2, Year 2 | 67 | 33 |
| 300 Level, HND 1, Year 3 | 59 | 29 |
| 400 Level, HND 2 | 30 | 15 |
| 500 Level | 7 | 3 |
| <i>Area of specialization</i> | | |
| Art Education | 5 | 3 |
| Art History | 3 | 2 |
| Ceramics | 17 | 8 |

| | | |
|--------------------|----|----|
| General Art/Design | 28 | 14 |
| Graphics | 52 | 25 |
| Painting | 49 | 24 |
| Sculpture | 15 | 7 |
| Textiles | 35 | 17 |

Descriptive Analysis

Table 2 shows the descriptive analysis of the respondents regarding the 36 items measured in this study. TES10: “I like searching for appropriate methods and techniques to ensure success in whatever I do” has the highest mean of 4.378. TES6: “I enjoy having many friends” has the lowest mean of 3.039. This implies that the art and students’ research and development skills are the most pronounced, while their networking skills are the least pronounced.

Table 2. Descriptive data of the respondents

| S/N | Item | Variable | Skill Trait | Mean | Sd | Mean Score Rank |
|-----|------|---|---------------|-------|-------|-----------------|
| 1 | TES1 | I prefer not to interrupt other people when they are speaking. | Communication | 3.431 | 1.397 | 28 |
| 2 | TES2 | I pay attention to non-verbal signals—body language, facial expressions, and gestures—when communicating with others. | Communication | 3.956 | 1.155 | 17 |
| 3 | TES3 | It is easy for me to inspire others to do what I want. | Leadership | 3.299 | 1.111 | 31 |
| 4 | TES4 | I am not afraid of acting as a leader during activities. | Leadership | 3.412 | 1.254 | 29 |
| 5 | TES5 | I like to be in contact with other people. | Networking | 3.902 | 0.983 | 19 |
| 6 | TES6 | I enjoy having many friends. | Networking | 3.039 | 1.203 | 32 |
| 7 | TES7 | I can work out good relations with different people. | Team playing | 4.039 | 0.977 | 14 |
| 8 | TES8 | I can work together with a person or a team. | Team playing | 4.275 | 0.927 | 3 |

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| | | | | | | |
|-----------|-------|---|------------------------|-------|-------|----|
| 9 | TES9 | I like researching and challenging old ideas and practices and finding ways to improve things. | Research & Development | 3.971 | 0.904 | 16 |
| 10 | TES10 | I like searching for appropriate methods and techniques to ensure success in whatever I do. | Research & Development | 4.378 | 0.729 | 1 |
| 11 | MNS1 | I do not get caught by surprise in situations that I could have planned. | Planning | 3.642 | 0.989 | 26 |
| 12 | MNS2 | I like to have the activities of my next year always well planned. | Planning | 3.725 | 1.014 | 24 |
| 13 | MNS3 | My own decisions are influential in my work. | Decision Making | 4.127 | 0.777 | 8 |
| 14 | MNS4 | I think I can shape my life with my decisions. | Decision Making | 4.132 | 0.846 | 7 |
| 15 | MNS5 | I can improve efficiency by pooling the resources I have. | Resource Management | 4.054 | 0.878 | 12 |
| 16 | MNS6 | I can transform the resources I have efficiently to produce goods/services. | Resource Management | 4.118 | 0.891 | 10 |
| 17 | MNS7 | I am very capable of organizing and executing actions to be successful. | Motivation | 4.127 | 0.917 | 8 |
| 18 | MNS8 | I have control over the critical factors that influence my success. | Motivation | 3.882 | 0.891 | 19 |
| 19 | MNS9 | I can easily convince anybody to buy a product/service. | Marketing | 3.637 | 0.949 | 28 |
| 20 | MNS10 | I can provide sales support. | Marketing | 3.750 | 0.983 | 23 |
| 21 | MNS11 | I like to have a budget plan for the money I spend. I enjoy tracking and recording my expenses. | Financial/Accounting | 4.044 | 0.959 | 13 |
| 22 | MNS12 | I enjoy saving and investing my money. | Financial/Accounting | 4.167 | 0.899 | 6 |

| | | | | | | |
|----|-------|--|---------------------------|-------|-------|----|
| 23 | MNS13 | I enjoy building relationships and creating win-win outcomes when dealing with other people. | Negotiation | 4.201 | 0.784 | 4 |
| 24 | MNS14 | I am willing to compromise during a negotiation when necessary to solve problems. | Negotiation | 3.863 | 0.899 | 20 |
| 25 | ETS1 | I try to work in new ways that others have not employed before. | Creativity/ Innovation | 3.882 | 0.960 | 19 |
| 26 | ETS2 | I like working on projects that allow me to try something new. | Creativity/ Innovation | 4.113 | 0.849 | 11 |
| 27 | ETS3 | I face difficult situations in my daily activities as personal challenges. | Persistency | 3.858 | 0.917 | 21 |
| 28 | EST4 | The obstacles I face make me increase my energy to overcome them. | Persistency | 4.118 | 0.874 | 10 |
| 29 | ETS5 | I can make effective decisions regarding business in the future. | Visionary | 4.093 | 0.908 | 15 |
| 30 | ETS6 | I like making preparations for the future. | Visionary | 4.373 | 0.787 | 2 |
| 31 | ETS7 | I am open to changes in my work and studies. | Flexibility | 4.176 | 0.841 | 5 |
| 32 | ETS8 | I have no problem adapting to a new situation and practice. | Flexibility | 3.975 | 0.975 | 15 |
| 33 | ETS9 | I have an excellent ability to detect business opportunities. | Opportunity seeking | 3.848 | 0.937 | 22 |
| 34 | ETS10 | I am interested in knowing the market needs for determining products/services. | Opportunity seeking | 3.951 | 0.940 | 18 |
| 35 | ETS11 | I like to run financial risks for potential benefits. | Risk-taking | 3.672 | 1.048 | 25 |
| 36 | ETS12 | I like to be exposed to situations that involve some risk. | Risk-taking | 3.343 | 1.183 | 30 |

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Internal Validity and Reliability of the Constructs by CFA

Five (5) out of the initial ten items for TES, six (6) out of the initial 14 items for MNS, and five (5) out of the initial 12 items for ETS provided a good measure of residual matrix and evidence of convergent validity. Thus, they were used for the CFA. The remaining items for each of the TES, MNS, and ETS constructs used for CFA and their factor loadings are shown in Table 3. According to Sürücü and Maslakçı (2020), the reliability of a scale is established when the composite reliability (CR) exceeds 0.7, as in Cronbach's alpha value, and convergent validity is confirmed when the average variance extracted (AVE) exceeds 0.5. Hence, as shown in Table 3, the CR values exceed 0.7, and AVE values exceed 0.5, revealing good convergent validity. Approaches employed to address missing data in this study include conducting exploratory data analysis to visually inspect response patterns, identify trends, and detect any unusual patterns that may indicate data quality issues and implementing robust maximum likelihood estimation in SEM to reduce the impact of outliers on parameter estimates.

Table 3. Results of the Internal Validity and Reliability of the Constructs based on CR and AVE

| Item | Factor Loading | CR | AVE |
|-------|----------------|-------|-------|
| TES | | 0.842 | 0.516 |
| TES1 | 0.713 | | |
| TES3 | 0.692 | | |
| TES4 | 0.649 | | |
| TES7 | 0.781 | | |
| TES8 | 0.751 | | |
| MNS | | 0.861 | 0.510 |
| MNS2 | 0.626 | | |
| MNS3 | 0.663 | | |
| MNS6 | 0.771 | | |
| MNS7 | 0.792 | | |
| MNS8 | 0.691 | | |
| MNS10 | 0.729 | | |
| MNS2 | 0.626 | | |
| ETS | | 0.852 | 0.537 |
| ETS2 | 0.751 | | |
| ETS3 | 0.787 | | |
| ETS5 | 0.75 | | |
| ETS7 | 0.74 | | |
| ETS8 | 0.626 | | |

Results of the CFA Model

Figure 1 shows the CFA results for the female art and design students’ entrepreneurial potential regarding the tested constructs. The CMIN/DF ratio of 1.192 suggests a good fit between the proposed model and the observed data. Generally, a ratio below the threshold of 2 is considered acceptable, indicating that the model adequately represents the data. The Incremental Fit Index (IFI) value of 0.939 indicates a good fit between the proposed model and the observed data. An IFI value closer to 1 suggests a better fit, and a value above 0.90 is typically considered acceptable. The Tucker-Lewis Index (TLI) value of 0.919 represents a moderate fit between the model and the data. Similar to the IFI, a TLI value closer to 1 is desired. However, a value above 0.90 is generally considered acceptable. The Comparative Fit Index (CFI) value of 0.935 suggests a satisfactory fit between the model and the observed data. Like the IFI and TLI, a CFI value closer to 1 is desirable, with values above 0.90 typically indicating an acceptable fit. The Root Mean Square Error of Approximation (RMSEA) value of 0.058 indicates a good fit between the model and the data. A lower RMSEA value suggests a better fit, and values below 0.08 are generally considered acceptable. The Standardized Root Mean Square Residual (SRMR) value of 0.08 represents a reasonable fit between the model and the data. A lower SRMR value indicates a better fit, and values below 0.08 are generally considered acceptable. Based on the provided CFA results, it can be inferred that the proposed model fits the data reasonably well for female art and design students’ entrepreneurial potential.

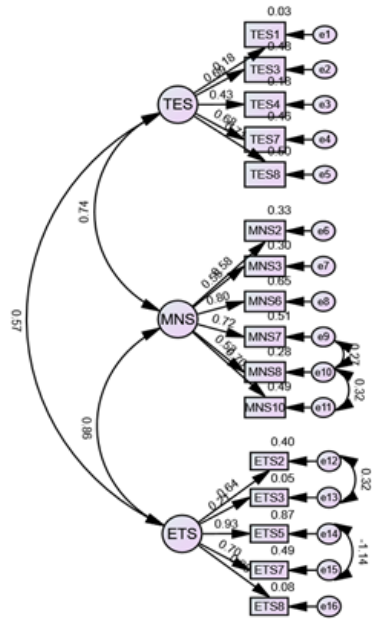


Figure 1. CMIN/DF = 1.192; IFI = 0.939; TLI = 0.919; CFI= 0.935; RMSEA = 0.058; SRMR = 0.08

Figure 2 shows the CFA results for the male art and design students’ entrepreneurial potential regarding the tested constructs. The CMIN/DF ratio of 1.414 suggests a good fit

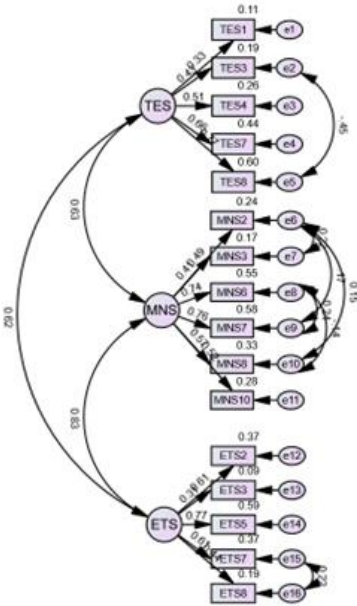


Figure 2. CFA for Male. CMIN/DF = 1.414; IFI = 0.927; TLI = 0.902; CFI= 0.924; RMSEA = 0.057; SRMR = 0.0657

between the proposed model and the observed data. Generally, a ratio below the threshold of 2 is considered acceptable, indicating that the model adequately represents the data. The IFI value of 0.927 indicates a good fit between the proposed model and the observed data. An IFI value closer to 1 suggests a better fit and a value above 0.90 is typically considered acceptable. The TLI value of 0.902 represents a moderate fit between the model and the data. Similar to the IFI, a TLI value closer to 1 is desired. However, a value above 0.90 is generally considered acceptable. The CFI value of 0.924 suggests a satisfactory fit between the model and the observed data. Like the IFI and TLI, a CFI value closer to 1 is desirable, with values above 0.90 typically indicating an acceptable fit. The RMSEA value of 0.057 indicates a good fit between the model and the data. A lower RMSEA value suggests a better fit, and values below 0.08 are generally considered acceptable. The SRMR value of 0.0657 represents a good fit between the

model and the data. A lower SRMR value indicates a better fit, and values below 0.08 are generally considered acceptable. Based on the provided CFA results, it can be inferred that the proposed model fits the data reasonably well for male art and design students' entrepreneurial potential.

Comparing the CFA results for female and male art and design students' entrepreneurial potential, the CMIN/DF ratio for female and male students is 1.192 and 1.414, respectively. Both ratios are below the threshold of 2, indicating a good fit for both groups. However, the CMIN/DF ratio for female students (1.192) is lower than that for male students (1.414), suggesting a slightly better fit for the female group. The IFI values for female and male students are 0.939 and 0.927, respectively. Both values indicate a good fit, with the female group having a slightly higher IFI value. The TLI values for female and male students are 0.919 and 0.902, respectively. While both values indicate a good fit, the female group shows a slightly higher TLI value. The CFI values for female and male students are 0.935 and 0.924, respectively. Both values suggest a satisfactory fit, with the female group having a slightly higher CFI value. The RMSEA values for female and male students are 0.058 and 0.057, respectively. Both values indicate a good fit, with no substantial difference between the two groups. The SRMR values for female and male students are 0.08 and 0.0657, respectively. Both values suggest a good fit, with the male group showing a slightly lower SRMR value.

Results of the SEM Model and Hypothesis Testing

Figure 3 shows the results of the SEM analysis on data regarding female and male art and design students' entrepreneurial potential. The CMIN/DF ratio of 1.287 suggests a good fit between the proposed model and the observed data for both female and male groups. Generally, a ratio below the threshold of 2 is considered acceptable, indicating that the model adequately represents the data. The IFI value of 0.960 indicates a good fit between the proposed model and the observed data for both groups. An IFI value closer to 1 suggests a better fit, and a value above 0.90 is typically considered acceptable. The TLI value of 0.948 represents a good fit between the model and the data for both groups. Similar to the IFI, a TLI value closer to 1 is desired. A TLI value above 0.90 is generally considered acceptable. Therefore, the TLI value of 0.948 indicates a satisfactory fit for both female and male students. The CFI value of 0.958 suggests a good fit between the model and the observed data for both groups. Like the IFI and TLI, a CFI value closer to 1 is desirable, with values above 0.90 typically indicating an acceptable fit. The CFI value of 0.958 indicates a strong fit for both female and male students. The RMSEA value of 0.039 indicates a good fit between the model and the data for both female and male students. A lower RMSEA value suggests a better fit, and values below 0.08 are generally considered acceptable. The RMSEA value of 0.039 indicates a strong fit for both groups. The SRMR value of 0.0531 represents a good fit between the model and the data for both groups. A lower SRMR value indicates a good fit between the proposed model and the data. Typically, values below 0.08 are considered acceptable in assessing model fit. In this case, the obtained SRMR value of 0.0531 suggests a strong fit for both female and male students.

The structural equation modeling (SEM) analysis results allow us to infer that the proposed model effectively captures the relationship between variables associated with entrepreneurial potential among female and male art and design students. This inference is supported by the favorable fit indices, including CMIN/DF, IFI, TLI, CFI, RMSEA, and SRMR, indicating a strong fit for both groups. The findings suggest that the proposed model accurately represents the interconnections between various factors related to entrepreneurial potential in art and design education for both female and male students. These results provide confidence in the validity and applicability of the model to understand and assess entrepreneurial potential in this specific population.

The stereotype activation theory posits that individuals can be influenced by

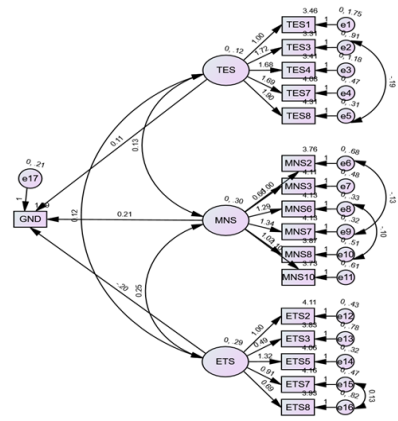


Figure 3. CMIN/DF = 1.287; IFI = 0.960; TLI = 0.948; CFI = 0.958; RMSEA = 0.039; SRMR = 0.0531

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stereotypes associated with their gender, leading to impacts on their behaviors, attitudes, and self-perceptions (Wheeler & Petty, 2001). In this regard, gender stereotypes can negatively influence the perception of art and design students regarding entrepreneurial potential. However, the SEM results indicate a good fit of the proposed model for both female and male respondents, suggesting that gender stereotypes may not significantly influence art and design students' entrepreneurial potential within the context of this study. Therefore, H_1 is not supported. Hence, H_1 , which proposes that art and design students' gender-based entrepreneurial potential model supports stereotype activation theory, is rejected.

The gender-integrative theory supports recognizing and respecting gender differences while avoiding stereotypes (Muntean & Ozkazanc-Pan, 2015). Since the SEM results indicate a good fit of the proposed model for female and male art and design students, this suggests that gender may not be a significant differentiating factor when predicting entrepreneurial potential among art and design students. Therefore, H_2 was supported. Hence, H_2 , which suggests that art and design students' gender-based entrepreneurial potential model supports gender-integrative theory, is accepted.

Table 4. Testing hypotheses H_3 , H_4 , and H_5 .

| Hypothesis | Relationship | Estimate | S.E. | C.R. | P | Decision |
|------------|--------------|----------|------|-------|------|----------|
| H_3 | ETS <--> MNS | .246 | .049 | 5.016 | *** | Accepted |
| H_4 | TES <--> MNS | .126 | .046 | 2.765 | .006 | Accepted |
| H_5 | ETS <--> TES | .120 | .043 | 2.777 | .005 | Accepted |

The results of the hypotheses testing the relationship between technical/soft skill traits (TES), managerial skill traits (MNS), and entrepreneurial skill traits (ETS) among art and design students are shown in Table 4. When examining the relationships between variables, hypotheses are tested to determine the significance of their influence by analyzing the critical ratio (C.R.) and probability values (p-values). The C.R. value ≥ 1.96 or the p-value ≤ 0.05 indicates a significant influence between the studied variables (Syamsudin et al., 2022). As shown in Table 3, the connection of ETS with MNS was positive and significant (C.R.=5.016, $p= 0.001$); hence, H_3 was supported. The relationship between TES and MNS was positive and significant (C.R.=2.765, $p= 0.006$); therefore, H_3 was supported. The association between ETS and TES was positive and significant (C.R.= 2.777, $p < 0.005$); hence, H_4 was supported.

In Table 4, the results of testing H_3 revealed a p-value of 0.000, which is lower than the generally recommended significance level of 0.05. Therefore, hypothesis H_3 , which proposes a significant relationship between art and design students' entrepreneurial skill traits and their managerial skill traits, regardless of gender, is accepted. This implies that, irrespective of gender, students with specific entrepreneurial skills in art and design are

more likely to exhibit corresponding managerial skills. While art and design students often possess creative and innovative mindsets, developing entrepreneurial and managerial skills can significantly enhance their ability to turn their ideas into successful ventures. Entrepreneurial skill traits are essential for identifying and exploiting opportunities, taking calculated risks, and managing the overall business process. These skills are valuable for art and design students who aim to create their businesses or work as freelancers. On the other hand, managerial skill traits are crucial for organizing and executing the daily operations of a business. The relationship between art and design students' entrepreneurial and managerial skill traits is vital in determining their entrepreneurial potential. Combining creativity, problem-solving abilities, adaptability, networking, leadership, time management, financial literacy, and communication skills empowers them to transform their artistic talents into successful entrepreneurial endeavors. According to Zeng et al. (2023), experiential entrepreneurship learning methods have significantly contributed to cultivating entrepreneurship and management skills within the cultural and creative industries.

In Table 4, the result of H_4 testing indicated a p-value of 0.006, which is lower than the generally recommended significance level of 0.05. Consequently, hypothesis H_4 , which proposes a significant relationship between art and design students' technical/soft skill traits and their managerial skill traits, regardless of gender, is accepted. This implies that, irrespective of gender, students with specific technical/soft skills in art and design are likelier to exhibit corresponding managerial skills. Technical/soft skills form the basis of the artistic value and quality of products or services offered by art and design entrepreneurs. These skills are essential for creating unique, visually appealing, and innovative works that attract customers and differentiate them in the market. Managerial skills help art and design students translate their technical skills into successful entrepreneurial ventures. By developing managerial abilities, students can effectively market their work, manage finances, build client relationships, and lead teams, thereby enhancing their chances of business success. Technical/soft and managerial skill traits are complementary rather than mutually exclusive toward achieving entrepreneurial success (Wang et al., 2019). While technical/soft skills allow artists and designers to produce compelling and aesthetically pleasing work, managerial skills provide the necessary entrepreneurial acumen to turn that work into a sustainable business. While exceptional technical/soft skills are valuable, lacking managerial abilities may limit their capacity to commercialize their work effectively. On the other hand, solid managerial skills without sufficient technical proficiency may result in a lack of artistic quality and innovation. Therefore, art and design students with a combination of technical/soft and managerial skills traits are more likely to realize their entrepreneurial potential. These students can establish successful creative enterprises and thrive as artistic entrepreneurs by continuously honing their technical/soft skills while developing managerial competencies.

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In Table 4, the result of H_5 testing showed a p-value of 0.005, which is below the generally recommended significance level of 0.05. As a result, hypothesis H_5 , which suggests a significant relationship between art and design students' entrepreneurial skill traits and their technical/soft skill traits, regardless of gender, is accepted. This indicates that, irrespective of gender, students with particular entrepreneurial skills in art and design are likelier to exhibit complementary technical/soft skills.

Combining entrepreneurial and technical/soft skills would not diminish any expected qualities of an entrepreneur but rather enhance their potential for success by incorporating additional attributes (Cooney, 2012; Alroaia & Baharun, 2017). The relationship between art and design students' entrepreneurial and technical/soft skill traits significantly determines their entrepreneurial potential. Both sets of skills are essential and complementary, contributing to the overall success of students in pursuing entrepreneurial ventures in the art and design industry. While entrepreneurial skill traits provide the vision, adaptability, and business acumen necessary to launch and manage a successful venture, technical/soft skill traits enable the execution and delivery of high-quality artistic products or services. Students who combine both skill sets effectively have more potential to succeed as entrepreneurs in the art and design industry.

Practical Implications

To address gender inequalities and biases, there is a need to design and deliver entrepreneurship education that is more inclusive and tailored to the needs of diverse aspiring entrepreneurs (Pimpa, 2021). It is important to continue exploring and addressing gender inequalities in entrepreneurship education to promote a more inclusive and equitable entrepreneurial ecosystem. Ndofirepi et al. (2018) accentuated the necessity for gender-sensitive approaches to formulating and executing entrepreneurship development and support measures among potential entrepreneurs. Hence, modifying entrepreneurship education curricula will mitigate stereotypes hampering gender equality in entrepreneurship (Türko, 2016). Entrepreneurship should not be centered around contrasting the approaches of male and female entrepreneurs but rather on how both genders can contribute to the economic progress of a nation.

Moberg (2020) suggested some approaches teachers can employ to handle gender issues in entrepreneurship education. These strategies include using entrepreneurial role models with varied backgrounds, teaching how to do entrepreneurship rather than how to become an entrepreneur, using gender-mixed groups, conveying the image of entrepreneurship as a rewarding endeavor, and providing different images of entrepreneurship that will boost students' entrepreneurial mindset (Moberg, 2020). Adopting these teaching approaches will enable students to focus more on entrepreneurial activities in a manner that surpasses the gender-stereotypical image of entrepreneurship.

To properly harness art and design students' entrepreneurial potential, there is a

need to consider the adoption of the gender-responsive pedagogy framework. According to Chapin and Warne (2020), gender-responsive pedagogy involves teaching and learning processes tailored to address the distinct learning needs of female and male students. Incorporating gender as a fundamental perspective in higher education pedagogy fosters a more inclusive and interactive learning environment that ensures equitable participation from both women and men (Chapin & Warne, 2020). By creating an inclusive environment that appreciates diversity and avoids perpetuating gender biases, art and design education can foster an entrepreneurial culture where all students are encouraged to explore their entrepreneurial potential, regardless of gender.

Limitations

Regarding the drawbacks of an unrestricted, self-selected sampling method for online surveys as used in this study, students who are more inclined towards entrepreneurial activities might be more likely to participate, skewing the results and making it challenging to generalize the findings to the entire population of art and design students. It is essential to minimize self-selection bias in surveys, especially in niche populations like art and design students, by introducing incentives to encourage more representative participation.

Though both showed a good fit in the study, the CMIN/DF ratio of the female students could have been lower than that of the male students due to the much smaller sample size of female participants (32%). Future research should consider using the same number of male and female participants to check this pattern. Within the study duration, the researcher could not acquire a comprehensive number of art and design undergraduate students in higher institutions across Nigeria. More so, the study does not have detailed information about the specific population of art and design students being targeted. Factors such as family and cultural backgrounds and other demographic variables can significantly influence students' entrepreneurial potential in art and design. Without a clear definition of the population, the generalizability of the study's findings becomes questionable. Future research in the context of this study should take cognizance of these limitations and make necessary improvements.

Conclusion

This study has contributed to the knowledge that can assist art and design educators and policymakers in promoting an inclusive and equal opportunity environment that encourages and supports entrepreneurship among art and design students, regardless of gender. The finding of this study showed good responses from both female and male students, signifying a promising entrepreneurial potential, agreeing with Zeffane (2013). The research findings by Konutgan (2022) also revealed that, although the pursuit of status and a willingness to take risks substantially influence an individual's choice to pursue entrepreneurial goals, there is no significant relationship between gender

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differences and entrepreneurial intention. This is, however, in contrast to the survey that revealed that males are about three times more likely than females to start a business after graduation (Pech & Řehoř, 2021). The findings by Ndofirepi, Rambe and Dzansi (2018) also established the existence of significant gender differences in entrepreneurial intention. These inconsistencies highlight the complex and multifaceted relationship between gender and entrepreneurship, suggesting a need for further research.

It is essential to note that the findings of this study are specific to the sample and context of the art and design students within higher education institutions across Nigeria. Further research is needed to validate these results in different settings and to explore potential variations in entrepreneurial potential across gender groups within the art and design field. While the proposed model in this study demonstrates a good fit with the data, further research is warranted to delve deeper into the intricacies of gender stereotypes and their potential impact on entrepreneurial potential in various contexts. Addressing and mitigating gender biases and stereotypes remains crucial to promoting equal opportunities and supporting all individuals' entrepreneurial endeavors, irrespective of gender. More efforts should be made to address gender-related issues in art and design entrepreneurship education to ensure continuous progress and inclusivity.

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