

Proposing Conceptual Framework to Better Understand the Determinants of College Major Choice in Arts and Design

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Abstract

The creative industry has been identified as having the potential of becoming one of the dominant pillars of Indonesia's economy. The supply of human resources to such an industry can be derived from arts and design education, which currently receives little attention from the Indonesian Government. That has encouraged foreign-based Higher Education Institutions (HEIs) to set up establishments in Indonesia. The problem of this research has focused on the issue of a design school which has been struggling to compete despite many superiorities and privileges. An intensive literature review has been done, as a suitable technique, to extant frameworks which can actually be combined to deal with the complexity of this multifaceted process of college major choice. Hence, this research aims to propose a new multi-theoretical framework combining three prominent career development theories, which is called HOROSCOPE, the abbreviation of Holland's RIASEC Personalities in Social Cognitive and Planned Behaviour Theories. It is expected that better understanding of the theoretical aspects would eventually lead to better practices by the management of HEIs delivering arts and design programmes in setting up any future strategies which will ultimately derive more profitable and sustainable business of education. This research revealed that it is clearly desirable for HEIs offering majors in arts and design in Indonesia to improve their understanding on college major choice, which will have further policy implications in the areas such as tuition fees, financial aids, recruitment strategies, and physical developments. The key recommendations have been suggested to conduct an empirical study to validate this conceptual framework in Indonesia.

Keywords: Creative industry; education; career development theories.

1. Introduction

The creative industry has been identified as having the potential of becoming one of the dominant pillars of Indonesia's economy. Through the economic data such as of contribution to national GDP, capability to employ the workforce as well as the growth potential, creative industry has proved itself to be the driving force for Indonesia in the 21st century (British Council, 2018; Sudhana and Ameen, 2018). Since its inception in the early 2000s until the year 2016, creative industry has contributed to 7.55% of the national GDP on the average. The figure is significant considering it is an emerging sector. The 2016 data from the Indonesian Ministry of Industry show more established sectors with much lower contributions to the national GDP: transportation (5.22%), financial (4.2%), business services (1.71%) and many others. In addition, the year 2017 could see that the creative industry has been able to employ a significant number of workforce in Indonesia up to 16.4 million people or slightly more than 12% of the overall workforce. Whereas, in terms of growth, creative industry has consistently grown between 8-10%, which is well above the average national GDP of 5.3%.

In order to be sustainable, such industry requires the supply of capable human resources, which can be derived from arts and design education (Westwood, 2012). Nevertheless, only a little attention received from the Indonesian government in that field of education until today. Only a small number of public Higher Education Institutions (HEIs) specializing in arts and design formed by the government across Indonesia. For instance, there are only seven of arts and design HEIs out of 85 participating HEIs in the 2018 National Exams for State Universities Entrance (i.e. Seleksi Nasional Masuk Perguruan Tinggi Negeri or SNMPTN). Along with a few teachers' colleges and general HEIs, only 3003 out of 117,025 university seats are dedicated to arts and design study programmes or about 2.5% in proportion. In most contemporary organizations, adopting technology is not only used ICT to fill up some forms and records but rather it is also a tool that performs the process of identification, accumulation, analysis, measurement, preparation, interpretation and communication of the information used by management to plan (Ameen and Ahmad, 2011, 2014; Husin, Abou-Shouk and Khalifa, 2013; Agwa, Aziz and Khalifa, 2018b, 2018a; Alharthi *et al.*, 2019).

Such situation, in addition to the emergence of global economy which enables goods, services, people, skills, and ideas move freely across the globe (Al-Shamsi *et al.*, 2018; Khalifa, 2018; Mohamed *et al.*, 2018, 2019; Nusari *et al.*, 2018; Al-Ali *et al.*, 2019; Sudigdo, Khalifa and Abuelhassan, 2019; Trung and Khalifa, 2019; Hitt, Ireland and Hoskisson, 2014), has encouraged foreign-based HEIs to set up establishments in Indonesia mainly in Jakarta and Surabaya as the two biggest cities since the 1990s. These new schools intentionally and knowledgeably offered vocational study programmed specializing in arts and design. Taking the form of a for-profit business, those newly established HEIs have been struggling to compete in the overcrowded market since they have a different focus. General public in Indonesia are already familiar with the mainstream programmed such as business and management, engineering and science, health and medical studies, agriculture, law and information technology (Khalifa and Hewedi, 2016; Khalifa and Mewad, 2017; Al-Ali *et al.*, 2018; Alkhateri *et al.*, 2018; Ameen, Almari and Isaac, 2018; Baharuden, Isaac and Ameen, 2019; Marilyn *et al.*, 2019). However, anti-mainstream programmers such as arts and design receive hesitancies. It is mainly due to the abstract notion of what the output of such fields of education will turn into. The profession of artists and designers still sound foreign to the majority of parents (i.e. the common bearers of educational costs in Indonesia) as these professionals still have not regarded as high as medical doctors, engineers, and lawyers by the general society. However, there have been changes in recent years with the creation of Indonesia's Creative Economy Agency (i.e. Badan Ekonomi Kreatif or BEKRAF) in the the year 2015 which promotes the development of the creative economy in Indonesia. In addition, the exponential growth of digital start-ups supported by ever-higher internet connectivity has boosted the image of arts and design professionals.

1.1 Statement of the Problem

Armed with the optimism of the future of Indonesian creative industry, a North American based school later mentioned as "Design School X or DSX" has been filling the gap of vocational design education demand in Surabaya since the year 2005. Several years later, other education providers which are also foreign-based along with local private and public HEIs followed suit by offering courses in the interior, fashion, visual communication, products as well as graphics design among others. However, despite sizable growing market which has not been fully tapped, privileges given by the Indonesian Ministry of Research, Technology and Higher Education (MORTHE) which encourages the formations of vocational based HEIs of both public and private, provision of various flagship programmers in arts and design, substantial sales and marketing funds and efforts as well as more than a decade of experience in running a design school, the current number of students at DSX is well below management's expectation. There are currently about 100 students studying at various programmers and the school's management actually determined to have at least triple of that number by the year 2020. Such a situation can be attributed from the enrolment number which shows a positive trend but not at the right slope. It is just not steep enough so that the school may experience a sustainable growth in the long run as can be observed in Figure 1.

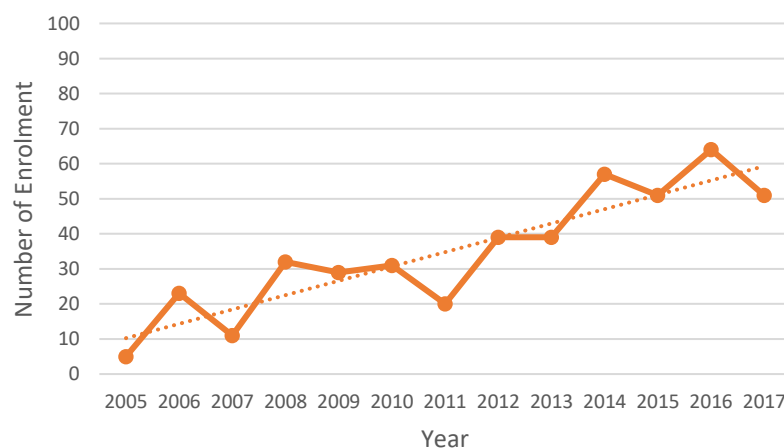


Figure 1: Annual Students Enrolment at DSX

The fluctuations in Figure 1 actually do not align with Global Competitiveness Report from World Economic Forum (WEF), which shows a consistent increase in the tertiary education enrolment rate in Indonesia in the past five years (i.e. from the year 2013 – 2017) (World Economic Forum, 2017). Between the year 2013 and 2014, the rates were 23.1% and 24.9% respectively. The rates have been steady at 31% in the year 2015, 2016 and 2017. It can then be concluded that between such periods, there has been an increase of almost 25% in enrolment. Although those percentages signal a good momentum for HEIs in Indonesia to recruit

students, it is not the case for DSX. Therefore, it is clearly desirable for HEIs offering majors in arts and design in Indonesia, such as DSX, to improve their understanding on college major choice, which will have further policy implications in the areas such as tuition fees, financial aids, recruitment strategies, and physical developments.

1.2 Significance of the Study

The significance of this study is twofold. First, this study contributes to the current body of knowledge in college major choice by closing these following observable gaps: 1) current literature tends to focus on the institutional choice rather than major choice (Alonderiene and Klimaviciene, 2013); 2) at the time of writing, research that analyses the determinants of college major choice in arts and design have been very lacking especially focusing on Indonesia; 3) to understand the determinants of college major choice, past research used career development theories on a separate basis and only minimal efforts have been shown to combine them so that better insights may be provided. Second, customers have always been the key to every business, including those of HEIs. Consumer behavior thus has to be well understood. The growth of customers' numbers is supposed to assist any kind of business to betterment. A quantitative descriptive study is needed to understand the determinants of college major choice in arts and design. Such a study is important so that an understanding of the theoretical aspects can be developed which in turn can be put into practice by the management of HEIs. The analysis will assist any future strategies, such as in the physical developments, teaching deliveries as well as sales and marketing campaigns. In a much broader perspective, any HEIs administrators currently involved in the delivery of arts and design study programmers would gain acumen into the process of college major choice. A better understanding would lead to improved strategies of their own and pave the way to conduct further research in their own settings.

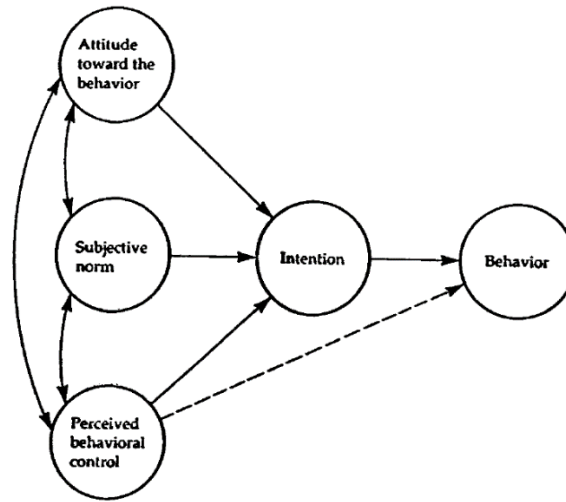
2. Preliminary Literature Review

2.1 College major choice

College major choice has been regarded as one of the most important decisions for a college student to make (Medalia, 1968). Such choice determines a set of coursework that the student needs to be pursued toward an intended qualification such as a degree, diploma or certificate. The choice's significance is reflected by the limitation upon student's future career choice (Medalia, 1968) and consequently predicted future earnings (Berger, 1988) as well as psychological well-being or mental health throughout the course of study (Hearn, 1980). Next, to the student, the impact of such choice is also evident to the major's hosting department and to the future corporation. The major's hosting department has to gain enough enrollment so that it can survive the competitions and subsequently review its resources to maintain education quality while keeping the expectation of recruiting the "bright students" which consequently will build up its excellent reputation (Medalia, 1968). The future corporation will be able to foresee its future workforce so that a labor shortage will not occur (Downey, McGaughey and Roach, 2009). The two issues have recently been proven by some studies in the college major of Accounting (Tan and Laswad, 2009). Due to becoming such prominent subject, college major choice has been well researched at least in the past four decades as well as been investigated across the world, across various post-secondary disciplines and involving several influencing factors. That truly signals the significance of the topic. Some of the selected literature are listed in Table 1.

2.2 Major Career Development Theories

In the field of college major choice, there are at least three prominent career development theories among others utilized by numerous past researches as theoretical frameworks in understanding the influences of various factors on students' college major choices. First, the Theory of Planned Behavior or TPB (Ajzen, 1991) is an advancement of the Theory of Reasoned Action (TRA) originally developed by Fishbein and Ajzen in 1975. By adding the Perceived Behavioral Control (PBC) as the new construct following the two previous ones in the original model: individual attitudes toward behavior (ATT) and subjective norms (SN), the new model hypothesizes that the three factors influence people's intentions by which they act in accordance with to perform certain behaviors as depicted in Figure 2. The intention is the central factor in the theory which grasps the motivational factors that influence behavior.



Source: Ajzen (1991)

Figure 2: Diagram of the Theory of Planned Behaviour

Table 1: Selected Research Paper in College Major Choice

<i>Authors (year)</i>	<i>Title</i>	<i>Published in</i>
Medalia (1968)	Choice of College Major by Contest Mobility	Sociology of Education
Hearn (1980)	Major Choice and the Well-Being of College Men and Women: An Examination from Developmental, Organizational, and Structural Perspectives	Sociology of Education
Berger (1988)	Predicted Future Earnings and Choice of College Major	Industrial and Labor Relations Review
Eide (1994)	College Major Choice and Changes in the Gender Wage Gap	Contemporary Economic Policy
Trusty et al. (2000)	Effects of gender, socioeconomic status, and early academic performance on postsecondary educational choice	Journal of Counseling and Development
Leppel et al. (2001)	The Impact of Parental Occupation and Socioeconomic Status on Choice of College Major	Journal of Family and Economic Issues
Worthington & Higgs (2004)	Factors explaining the choice of an economics major	International Journal of Social Economics
Scott & Mallinckrodt (2005)	Parental Emotional Support, Science Self-Efficacy, and Choice of Science Major in Undergraduate Women	The Career Development Quarterly
Li (2008)	Chinese Students' Choice of College Majors	Career planning and adult development journal
Keshishian (2010)	Factors Influencing Pharmacy Students' Choice of Major and Its Relationship to Anticipatory Socialization	American Journal of Pharmaceutical Education
Workman (2015)	Parental influence on exploratory students' college choice, major, and career decision making.	College Student Journal
Schmeiser et al. (2016)	Student Loan Information Provision and Academic Choices	American Economic Review
Cobb-Walgren et al. (2017)	Does Marketing Need Better Marketing? A Creative Approach to Understanding Student Perceptions of the Marketing Major	E-Journal of Business Education & Scholarship of Teaching
Wang et al. (2017)	Differences in Household Registration and College Student Employment—An Empirical Study Based on an Employment Survey of College Graduates	Chinese Education & Society
Martin Humburg (2017)	Personality and field of study choice in university	Education Economics
Lian Niu (2017)	Family socioeconomic status and choice of STEM major in college: An analysis of a national sample	College Student Journal

Second, Social Cognitive Career Theory or SCCT (Lent, Brown and Hackett, 2000) is an advancement of general social cognitive theory originally developed by Bandura in the year 1986. The theory hypothesises that people form career interests and choices by focusing on several cognitive-person variables (e.g. self-efficacy, outcome expectations and goals) as well as on how such variables interact with their particular environment (e.g. gender, ethnicity, social supports, and barriers) as shown in Figure 3 (Lent, Brown and Hackett, 2000). Further, it was mentioned that the term “career” is also relevant to academic development since the models of academic and career choice are similar. It can be observed from the below figure that the model has two complementary levels of theoretical analysis. The antecedent level considers person inputs and environment features which then influence certain learning experiences. The subsequent level consists of self-efficacy and outcome expectations that influence interests and goals and actions subsequently. The theory posits that those constructs affect one another through complex complementary relationships.

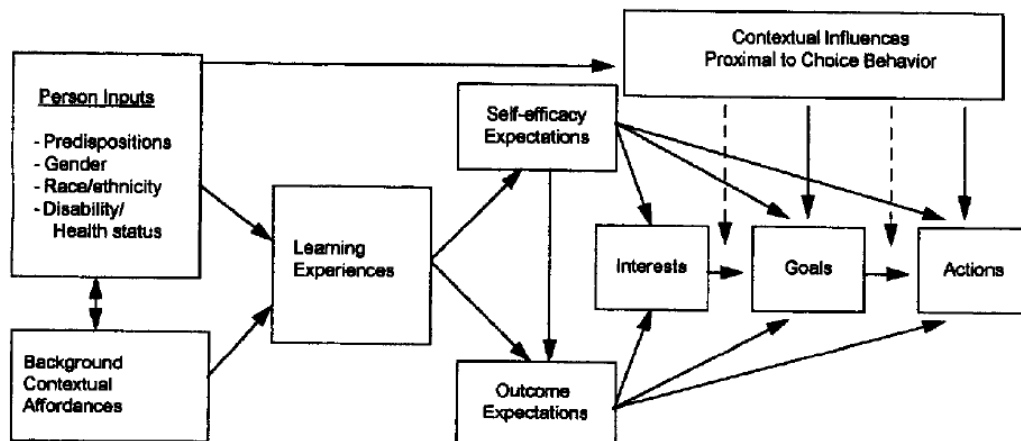


Figure 3: Model of SCCT
Source: Lent et al. (2000)

Third, Holland’s Vocational Theory developed by John Holland in the year 1959. The theory suggests three important concepts. First, there should be congruence between people’s vocational personalities and work environments by which both are characterized using a combination of six types: Realistic, Investigative, Artistic, Social, Enterprising, Conventional which are commonly abbreviated and known as RIASEC. A higher degree of congruence will result in self-satisfaction, good endurance and contribution thus will guarantee a successful career (Husin, Abou-Shouk, and Khalifa, 2013; Agwa, Aziz and Khalifa, 2018b, 2018a; Alharthi *et al.*, 2019). Holland codes (the first three imminent types following ranking) will be used to describe personalities and work environments. Next, to congruence, consistency is another important concept. It is represented by greater proximity on Holland’s Hexagon as illustrated in Figure 4. Hence, RI personalities have greater consistency than RA personalities with RS having the least. The last concept is differentiation which is the numerical difference among the six scores. Most people will exhibit peaks and valleys among the six types. On the contrary, people with all-high or all-low scores make it difficult to assess their vocational personalities.

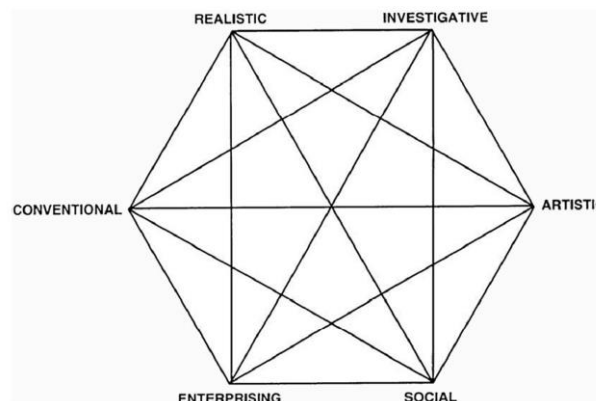


Figure 4: Holland's Hexagon Model
Source: Schroeder, Haier, & Tang (2012)

2.3 Combining Major Career Development Theories

Recently, there have been studies combining the two prominent career development theories of TPB and SCCT (Heinze and Hu, 2009; Chen, Pratt and Cole, 2016). The motivation of integrating the two is to apply the combination to wider settings and to gain better insights into this complex socio-behavioral phenomenon by having greater explanatory power (Heinze and Hu, 2009). It was also mentioned in the study that such efforts have been made possible due to similarities between the constructs of the two theories and interactions between them found in the existing literature. Additionally, the original SCCT model is deemed parsimonious so there is no need to include all constructs (Wang, 2013). Past studies signify that self-efficacy of SCCT has a strong relationship with PBC of TPB (Taylor & Todd, 1995; Pavlou & Fygenon, 2006 in Heinze & Hu, 2009), which cause the addition such construct to the TPB's framework (Giles & Larmour, 2000 in Heinze & Hu, 2009). Next to self-efficacy, interests and outcome expectations are predictors of behavior (Lent, Brown and Hackett, 2000). Interests were found to be overlapping with the attitude construct of TPB (Heinze and Hu, 2009), thus it should not be included. In his original works, Bandura (1986) differentiated the outcome expectations into three forms: physical, social and self-evaluating (Heinze and Hu, 2009). It was stated that physical expectations are associated with perceived job availability and PBC, whereas social expectations resemble SN of TPB (Khalifa and Abou-Shouk, 2014; Abd-Elaziz *et al.*, 2015; Abou-Shouk and Khalifa, 2017). Therefore, self-evaluating outcome expectations is the only construct left to be incorporated in the joint model. Perceived job availability is included as a direct predictor of intention since it has been found to be one of the most consistent predictors of student intentions (Tillberg & Cohoon, 2005 in Heinze & Hu, 2009). One of such integrated models is portrayed in Figure 5.

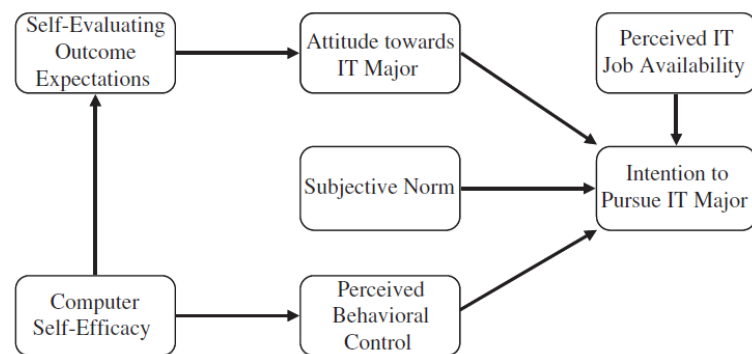


Figure 5: Research Model of IT Major Choice
Source: Heinze & Hu (2009)

2.4 Proposed Conceptual Framework

Despite the broad use of the TPB and SCCT individually as well as combined in investigating the college major choice, at the time of writing, Holland's theory of vocational personalities has been used a lot more (Brown & Lent, 2005; Spokane & Cruza-Guet, 2005 in Nauta 2010). It has been well-known that the theory has been around for almost 60 years. Its empirical testability and simplicity to be used on a widespread basis outperform its seniority among other career development theories (Nauta, 2010). The theory is based on the hypothesis that personality factors influence career choice. It points out the importance of congruence between personalities, which are classified into six types known as RIASEC, as well as environments. Such congruence determines the positive career choice outcomes which include satisfaction, persistence, and achievement (Callanan and Greenhaus, 2006). Although the theory has been used extensively in counseling psychology instances, it has received mixed supports (Nauta, 2010). Recent research has criticized the theory by describing it as somewhat overlooking students' characteristics such as demographic backgrounds, self-efficacy and educational plans for the future other than their personalities (Wang, 2013). In addition, the environment has been heavily associated with the academic majors' environment instead of students' such as their external supports and barriers and affordability. It was further concluded that Holland's theory is only instrumental in the decision making of academic choices. Such a conclusion was made on the basis that students' college major choice is more complex than a simple analysis of personality-environment fit.

There have been recommendations on extending Holland's theory. Many of the above-mentioned students' factors which are not justified by Holland's theory are outlined by SCCT (Wang, 2013). It was further mentioned that such extension allows the research into the depth and complexity of the multifaceted process of major choice. There are at least three propositions that enable this study to integrate Holland's theory and the integrated model of TPB and SCCT through the self-efficacy construct: (1) self-efficacy as the central construct

in SCCT needs further study (Nauta, 2010), (2) the relation between Holland's RIASEC personality types and corresponding self-efficacy types is substantial (Betz, Harmon and Borgen, 1996) and (3) personality trait is an important determinant of human behavior (Ajzen, 1991). The integration process is depicted in Figure 6. This new multi-theoretical framework is called HOROSCOPE, the abbreviation of Holland's RIASEC Personalities in Social Cognitive and Planned Behaviour Theories.

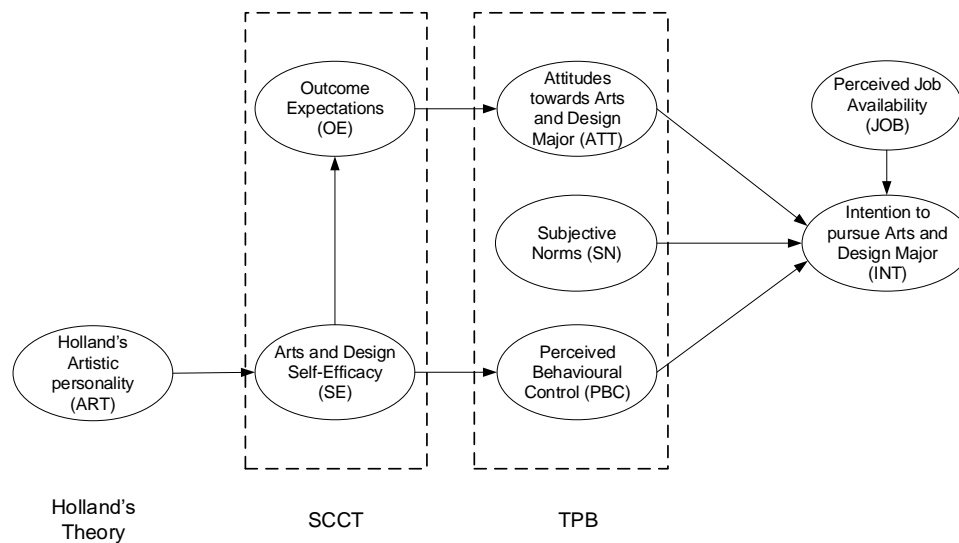


Figure 6: Integration Process of Three Career Development Theories

A better understanding of the determinants of college major choice in arts and design in Indonesia is the general purpose of this study. Resulting from such research's objective, the following research hypotheses were developed and are proposed to be tested on the above-mentioned HOROSCOPE conceptual framework:

- H1: there is a positive and significant relationship between attitudes (ATT) towards Arts and Design majors and the intention to pursue such majors (INT).
- H2: there is a positive and significant relationship between subjective norms (SN) and the intention to pursue Arts and Design majors (INT).
- H3: there is a positive and significant relationship between perceived behavioral control (PBC) and the intention to pursue Arts and Design majors (INT).
- H4: there is a positive and significant relationship between Arts and Design self-efficacy (SE) and the perceived behavioral control (PBC).
- H5: there is a positive and significant relationship between Arts and Design self-efficacy (SE) and the outcome expectations (OE).
- H6: there is a positive and significant relationship between outcome expectations (OE) and the attitudes towards Arts and Design majors (ATT).
- H7: there is a positive and significant relationship between perceived job availability (JOB) and the intention to pursue Arts and Design majors (INT).
- H8: there is a positive and significant relationship between Holland's Artistic personality characteristics (ART) and the Arts and Design self-efficacy (SE).

3. Proposed Research Methods

3.1 Population and Sample

This study defines its population as the Year 12 students (i.e. last year of secondary education in Indonesia) of selected private high schools listed as in Table 1 in the city of Surabaya, the second largest city in Indonesia, who expressed various degrees of affection in arts and design as in Figure 7.

“I love arts and design”
 “I am really into arts and design”
 “I am crazy about arts and design”
 “I am a huge fan of arts and design”
 “I am fond of arts and design”
 “I am keen on arts and design”
 “I like arts and design”
 “I really like arts and design”
 “I quite like arts and design”
 “I like arts and design very much”
 “I enjoy arts and design”
 “I think arts and design are ok”
 “I think arts and design are not bad”

Figure 7: Degrees of affection about Art and Design subjects

Once a respondent expressed some degree of affection toward Arts and Design subjects, he or she were then asked to participate in filling up the already prepared self-report questionnaire. Variables were measured using a Likert Scale which recommended in the previous studies (Isaac, Aldholay, Abdullah, & Ramayah, 2019; Isaac, Abdullah, Ramayah, & Mutahar, 2017; Isaac, Abdullah, Ramayah, Mutahar, & Alrajawy, 2017).

Table 2: Selected Private High Schools in Surabaya

<i>No.</i>	<i>Name of Private High School</i>	<i>Location in the city</i>	<i>Number of Year 12 students</i>
1	SMA “G1”	West	150
2	SMA “G2”	East	200
3	SMA “P1”	West	480
4	SMA “P2”	East	400
5	SMA “P3”	North	400
6	SMA “SL”	Central	520
7	SMA “HN”	East	110
8	SMA “MS”	Central	40

The main reason Year 12 students were chosen as the population on this study was unlike in the US and Canada, where students are admitted to colleges without declaring their majors until later in their college life, students in Indonesia like most other countries experience the college-major-specific admissions rules (Bordon and Fu, 2015). As a result, students at various HEIs in Indonesia already have a set of courses (i.e. curriculum) structured specifically for their chosen educational programmes right from the beginning of their studies. The preceding shows the urgency by which the decision to enrol in a particular major should have been made even before the end of high school time (i.e. Year 12).

To determine the population, Year 12 students of selected classes at three big private high schools of P1, P2, and P3 were questioned about their affection in arts and design. As a result, about 10% of these students expressed such affection. Therefore, the population of this study can be determined as 10% of 2300 or 230 students. The website of www.raosoft.com was used in determining the minimum sample size. With parameters, 5% of accepted margin of error, 95% of confidence level and 50% of response distribution, the recommended sample size by Raosoft are 145.

3.2 Data Collection

To collect responses from the respondents, a questionnaire with 5-point-Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree) will be used. The questionnaire's design will be very much based on the Heinze and Hu's study in the year 2009 with some major adjustments in the determinants' inquiries to the fields of arts and design.

The data collection process will be done during the months of September until December 2018, which is the period for most HEIs to visit the education fairs conducted by various high schools throughout Indonesia and to prospect the senior high school students. The timing is proposed mainly because outside those times, it is unlikely Year 12 students can be asked to be respondents.

3.3 Data Analysis

Two recent studies that combine TPB and SCCT use Structural Equation Modelling (SEM) techniques as their analytical framework (Heinze and Hu, 2009; Chen, Pratt and Cole, 2016). The newest employs Partial Least Square (PLS) method as it is well suited for predictive and theory building applications (Al-Shamsi *et al.*, 2018; Alkhateri *et al.*, 2018; Mohamed *et al.*, 2018; Shamsi *et al.*, 2018; Alkutbi *et al.*, 2019). Since the nature of this study is similar to the preceding research, this study will also employ such second generation of the analytical framework. The method explains the endogenous constructs and tests both the measurement and the structural models. The measurement model examines the relationships between observed variables (measurement items) and their underlying constructs. The path model examines the hypothesized relationship among the studied constructs, including estimations of path coefficients and their levels of significance (Chen, Pratt and Cole, 2016). One of the available PLS software to perform both instrument validation and structural path modeling is SmartPLS. The reliability and validity analyses of the measurement model are performed before the path analysis and hypothesis test. The main reasons for choosing SEM as a statistical method for this study is that SEM offers a simultaneous analysis which leads to more accurate estimates (Isaac, Abdullah, Ramayah, & Mutahar, 2017a(Ameen & Ahmad, 2013; Isaac, Masoud, Samad, & Abdullah, 2016).

4. Conclusions and Recommendations

The conclusion of this paper has been reached to the vitality of conducting in-depth research to proposing a new multi-theoretical framework which consists of Theory of Planned Behaviour, Social Cognitive Career Theory, and Holland's Vocational Theory. It was intended to better understand the determinants of college major choice in arts and design in Indonesia as such the complexity of this multifaceted process of college major choice can be dealt with. A better understanding of the theoretical aspects would eventually lead to better practices by the management of HEIs delivering arts and design programmes in setting up any future strategies which will ultimately derive more profitable and sustainable business of education. It is therefore recommended to examine the determinants of college major choice in arts and design using the proposed HOROSCOPE framework. Due to some limitations of this study in which the population is limited to the Year 12 students at selected private high schools in Surabaya, comparative and larger scale of research involving respondents from various big and small cities in Indonesia is recommended. In addition, longitudinal studies will also be recommended to see the final effects of the initial college major choice from Year 10 until Year 12 students.

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