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A Delphi Study of Socio-Cognitive Predictors of Career Choice Behaviour in the Construction Industry in South Africa

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ABSTRACT

This paper presents findings of a Delphi study which sought to identify the key factors that influence and determine the career choices of women in the construction industry in the South African context. Adopting the Socio-Cognitive Career Theory (SCCT) as the study's conceptual framework, a two-round iteration was performed to obtain the opinion of 14 experts actively involved in the South African construction industry. Consensus was achieved on ten predictors and 53 elements that influenced women's decisions to undertake a career in the construction profession. Findings from the study revealed women's career choices were influenced by gender, self-efficacy, socio-economic status, outcome expectations, goal representations, learning experiences, interests, social supports, perceived barriers and access to opportunity structures. Ethnicity was found to have insignificant importance and impact on their career choices. The implication of the research is that results from the study provides insight into the factors that could conceivably increase the participation of women who want to enter and remain in the construction work.

Keywords: Career choice; Construction industry; Gender; Socio-cognitive career theory, South Africa; Women

1. INTRODUCTION

Making a career choice in the construction industry has not been a common decision by women in South Africa (Ozumba & Ozumba, 2012). Haupt & Fester (2012) revealed in their study on women-owned construction enterprises that the decision of some women to pursue a career in construction was opportunistic and coincidental rather than a deliberate option and choice. Lack of knowledge and understanding of the career opportunities available in the industry, as well as the discriminatory environment, are some of the main obstacles identified as negatively influencing the career choices of women in construction (English & Hay, 2015; Oyewobi et al., 2020). Findings from a study conducted by Chileshe & Haupt (2010) on the factors impacting career decisions in the South African construction industry revealed that out of 491 female high school students, 424 of them reported that they had not even considered a career in construction or building. The study further revealed that parents, teachers, and students believed construction only involved jobs such as carpentry, bricklaying, and painting. Clearly, the construction industry needs to improve and enhance its image to counter these common stereotypes. Therefore, research concerning this issue should be continually conducted until sustainable improvements are made.

Although there have been numerous studies on gendered experiences in the construction industry (Chileshe & Haupt, 2010; English & Hay, 2015; Madikizela, 2008;

Ahuja & Kumari, 2012; Rosa et al., 2017; Vainikolo, 2017; Bennett et al., 2015 ; Akinlolu & Haupt, 2019; Oo et al., 2020), few studies have attempted to view these experiences from a theoretical perspective to give a larger meaning to career choices and development. Likewise, although numerous researchers have suggested a convergence of major career development theories (Eccles, 1984; Eccles et al., 1985; Hackett et al., 1991; Krumboltz et al., 1976; Lent et al., 1994), most recognize that this convergence has still not been achieved. The lack of empirical research in this area suggests that more in-depth exploration of this issue is required.

Many of the career theories that have been developed over time have focused on individual constructs such as self-efficacy, goal representations, interests, and outcome expectations (Bandura, 1989; Lent et al., 1994). The application of these career theories to different cultures and contexts has received limited attention (Ali & Saunders, 2006; Hunt et al., 2017; Saifuddin et al., 2013). Similarly, despite the significance of culture and the social context, issues of diversity and inclusion are mostly viewed through a Western lens (Syed & Özbilgin, 2009). Although an increasing amount of research focusing on gender inequality and career decisions have been conducted, the different dynamics in ethnicity and culture has been consistently neglected (Shapiro et al., 2009; Wells et al., 2010).

Through a Delphi study of construction industry experts, this study aims to determine the key socio-cognitive and contextual factors that influence career choices in construction. In the development of the Delphi instrument, the main research question was split into two sections that measured importance and impact respectively, namely;

a. What are the major factors that are perceived to be extremely important in predicting women's career choice in the South African Construction industry?
b. What are the major factors that are perceived to have a major impact on predicting women's career choice in the South African Construction industry?

This study contributes to research on gendered career choice in male-dominated environments in non-Western cultures. Research trends on gender in male-dominated work suggest that contextual and environmental factors may play a major role in shaping the attitudes, motivations, and career choices of a person (Ceci et al., 2009; Saifuddin et al., 2013). Numerous studies aimed to examine the declining participation in the South African construction industry may not fully capture the dynamics of career choices for individuals aspiring to undertake careers in construction (Sangweni, 2015; Akinlolu & Haupt, 2019). Therefore, the study attempts to expand the Socio-Cognitive Career Theory (SCCT) beyond its individualistic roots to incorporate more social and environmental factors.

2. THE SOCIO-COGNITIVE CAREER THEORY

This study was framed by the Social Cognitive Career Theory (SCCT) as it relates to the career decisions of women in the construction industry. The SCCT, conceptualized by Lent et al. (1994) and derived from Bandura's social cognitive theory, is founded from the social cognitive theory, which argues that a person is not entirely controlled by their environments, nor are they able to apply complete free will. Instead, a person's behaviour and thoughts influence the environment and are likewise influenced by personal factors and the social environment (Bandura, 1986; Charity-Leeke, 2012). Bandura (1986) referred to the relationship between three factors, namely person factors, external behaviour, and the environment, as "triadic reciprocity" (p. 18). Further, neither the person nor the environment is static (Kelly, 2009). Bandura noted that the three factors have different strengths, depending on the situation. Since there is a dependence on the person and contextual variables, along with the assertion that the person and environment are not static, Bandura's social cognitive theory has proven to be reasonable from upon which to develop a theory of career development, as done by Lent et al. (1994) with SCCT.

SCCT elaborates exclusively on the educational interest formation, career development, performance, and persistence of individuals in their career endeavours. Lent et al. (1994) attempted to combine elements of various theories developed and modified by several other theorists such as person-environment correspondence (Dawis & Lofquist, 1984), personality typology (Walsh & Holland, 1992), social learning (Krumboltz et al., 1976), life-span, life-space (Super, 1980), and developmental theory (Vondracek & Schulenberg, 1986). Therefore, an inclusive and comprehensive individual career choice model was produced (Lent et al., 2001). Processes whereby individuals' educational and professional interests are developed; the influence of interests and other socio-cognitive mechanisms on career choices, and the attainment of different levels of career performance and persistence are outlined in the SCCT (Lent et al., 1994; Ali &McWhirter, 2006).

SCCT focuses on the role of cognitive factors such as self-concept, self-efficacy, goal representations, interests, outcomes and expectations in the career development of an individual and how these factors interact with internal and individual variables such as gender, ethnicity, belief systems and social supports to influence the career behaviour of adolescents (Lent et al., 2000; Lent et al., 2008; Ali and Saunders, 2006; Kelly, 2009; Saifuddin et al., 2013). Biological, situational, and contextual factors such as race, sex, intelligence, culture, and gender role socialization are moderators of the formulation of choice goals and significantly influence career development (Ali & McWhirter, 2006; Kelly, 2009).

Table 1: Core constructs of the SCCT identified from the literature

SCCT Constructs	
Self- Efficacy	Saiffudin et al. (2013) Hunt et al. (2017), Ali et al. (2006), Daniels (2012), Chronister et al. (2003), Kelly (2009), Lent et al. (2008), Patton and Creed (2007)
Outcome Expectations	Lent et al. (2008), Patton and Creed. (2007)
Goal representations	Saiffudin et al. (2013) Chronister et al. (2003) Kelly (2009)
Social supports	Saiffudin et al. (2013) Hunt et al. (2017) Lent et al. (2008)
Learning Experience	Saiffudin et al. (2013) Hunt et al. (2017) Ali et al. (2006)
Interest	Chronister et al. (2003) Lent et al. (2008)
Self-concept	Kelly (2009)

Table I shows a comparison of existing literature regarding the basic constructs of the Social Cognitive Career Theory (SCCT) as applied to the career decision and development process. The predominant elements are related to self-efficacy, outcome expectations, goal representations, social supports, interest, and learning experience.

Self-efficacy has been found to play a crucial role in the career choices of individuals (Charity-Leeke, 2012; Hackett & Betz, 1981; Sawtelle et al., 2012). Self-efficacy belief, which is the core construct of SCCT and typically influences a person's academic and professional aspirations, is influenced by learning experiences (Saifuddin et al., 2013). In the context of SCCT, outcome expectations are anticipations of possible consequences from chosen actions and work-related behaviours (Lent et al., 2008; Kelly, 2009). Goal representations are achievement-related choices (Lent & Brown, 2006). All these factors, in combination with background factors and personal inputs such as gender, race and ethnicity, are the most prevailing predictors of career decision making as they are also suggested to influence learning experiences (Kelly, 2009; Charity-Leeke, 2012). From the SCCT perspective, learning experiences are verbal encouragement, supports and modelling from significant others used to maximise the performance accomplishment of a person (Flores et al., 2010). Lent et al. (1994) theorized that self-efficacy and outcome expectations lead to the formation of career interest, which results in the intention of getting involved in corresponding

activities with those interests. Interests are hypothesized to result in actual engagement in activities that lead to performance outcomes (Kelly, 2009).

Previous studies have demonstrated the function of the SCCT in the career outcomes of a person (Ali and McWhirter, 2006; Saifuddin et al.,2013; Hunt et al., 2017). These studies have shown that SCCT can be adapted to encapsulate the cultural characteristics of diverse environments, and therefore provide an ideal framework for understanding the social and cultural factors that influence the occupational choices, interests and aspirations of girls and women (Mau et al., 2000; Saifuddin et al., 2013). For example, through a path analysis and choice model, Lent et al. (2008) examined the relationship between self-efficacy, outcome expectations, intentions and interests of engineering students. Rogers et al. (2008) extended the SCCT career choice model to investigate the role of personality, self-efficacy, social supports, outcome expectations and intentions in the career readiness and planning of students. Rajabi et al. (2012) investigated the factors that influence the career choice intentions of Iranian agriculture students based on SCCT, using an artificial neural network. Jin et al. (2009) examined the influence of self-efficacy beliefs and personality traits such as extraversion, openness, agreeableness, and conscientiousness on the career decisions of Chinese postgraduate students. Kelly (2009) examined the extent to which self-efficacy, outcome expectations, self-and environment exploration, overall life satisfaction, and socioeconomic status (SES) would determine a student's adaptive transformation from school to the workplace. Ochs & Roessler (2004) examined the career exploration intentions of students and found that outcome expectation and self-efficacy beliefs play a significant role in the explanation of student's career intentions.

Although numerous studies examining SCCT have emphasized individual cognitive factors, little attention has been given to environmental factors. Therefore, this study sought to explore the key environmental variables in addition to the cognitive factors, which are perceived to have a greater influence on career decisions and focuses specifically on career decisions in undertaking work in construction-related disciplines as a significant outcome in construction careers. This study builds upon the framework of SCCT's model of career choice developed by Lent et al. (1994) and integrates both environmental and individual cognitive variables. The model of career choice incorporates personal factors such as, for example, gender, ethnicity, socio-economic status and contextual variables such as barriers such as example, work-life conflict, sexual harassment, glass ceiling, and the gender wage gap, opportunity structures, support structures, socialization process, gender role stereotypes, and predicts that each of the selected variables may determine the career behaviour of individuals undertaking careers in construction.

3. THE DELPHI METHOD IN CONSTRUCTION RESEARCH

The Delphi technique was used in this study, first as a tool to achieve consensus on the key factors that influence career choice behaviour in the South African construction industry. The technique was also used to obtain experts' views on the extent to which these socio-cognitive factors/attributes influence and impact women's career choice behaviour in construction in South Africa. The Delphi technique has been defined as a multi-staged survey that seeks ultimately to achieve consensus on an important issue (McKenna, 1994; Linstone & Turoff, 2002; Brill et al.,2006).

Over the past two decades, the Delphi technique has been extensively adopted in Construction Management research (Agumba & Musonda, 2013; Perrenoud,2020). Because construction data is often highly sensitive, the Delphi method allows researchers to collect more reliable data from selected experts who have collected knowledge and experience in each area (Hallowell & Gambatese, 2010; Fellows and Liu, 2015). Yeung et al. (2009); Yik et al. (2012); Ameyaw et al. (2016); Tengan & Aigbavboa (2021) have validated the use of the

Delphi technique in construction research. This study adopted steps and procedures as prescribed in similar Delphi studies.

4. MATERIALS AND METHODS

Given the need to explore new and existing concepts within and outside the field of career decision and development process body of knowledge, within the context of construction, the flexible, effective, and efficient research technique of Delphi was deemed to be appropriate to be used in this study to determine which of the constructs identified in the review of the literature, influence, and impact career choice behaviour in the South African construction industry. As previously stated, the Delphi technique has been widely used in construction research, and therefore, the approach is not novel or unique.

4.1 The Delphi Study

Selecting the Panel of Experts

The Delphi technique adopted the non-probabilistic purposive sampling technique to select participants that meet a list of identified criteria (Okoli and Pawlowski , 2004; Turoff & Linstone, 2002). Identifying and choosing panel members for this study involved consideration of the following criteria, namely;

a. Academic qualification: A minimum of a Master's degree in construction, engineering, and management-related field.
b. Experience: The participants must have a minimum of 5 years of relevant industry or research experience.
c. Knowledge and Specialization: Each member must have sufficient knowledge of construction, management, engineering, and social sciences.
d. Research and Authorship: The participant must be actively engaged in research and is an author or co-author of peer-reviewed publications in a field related to the research topic.
e. Willingness: Panellists must be interested and willing to participate throughout all the iterations.

Adopting these criteria helped to ensure quality contributions from the panellists. Table 2 provides detailed information on the characteristics of the panel members who all had PhDs as their highest qualifications, with most being specialists in higher education and training and at least 1-15 years relevant experience.

Table 2: Demographic Information of Delphi Panel

Category	Number of participants	Percentage of Sample
Gender		
Man	8	57.1%
Woman	6	42.9%
Highest Qualification of experts		
Doctorate (PhD)	14	100.0%
Participants' field of specialization		
Engineering and Construction	6	42.9%
Higher Education and Training	8	57.1%
Years of experience		
1-15 years	7	50.0%
16 – 30 years	5	35.7%
Above 31 years	2	14.3%

The experts were identified from published articles in research databases and industry experts and were recruited via email, which provided a brief overview of the study, and the

objectives were explicitly stated in the invitation letter. To achieve the required consensus in this study, two rounds of the Delphi questionnaire were administered to panel members via email in two rounds from April to June 2020. Figure 1 presents the Delphi research flow chart.

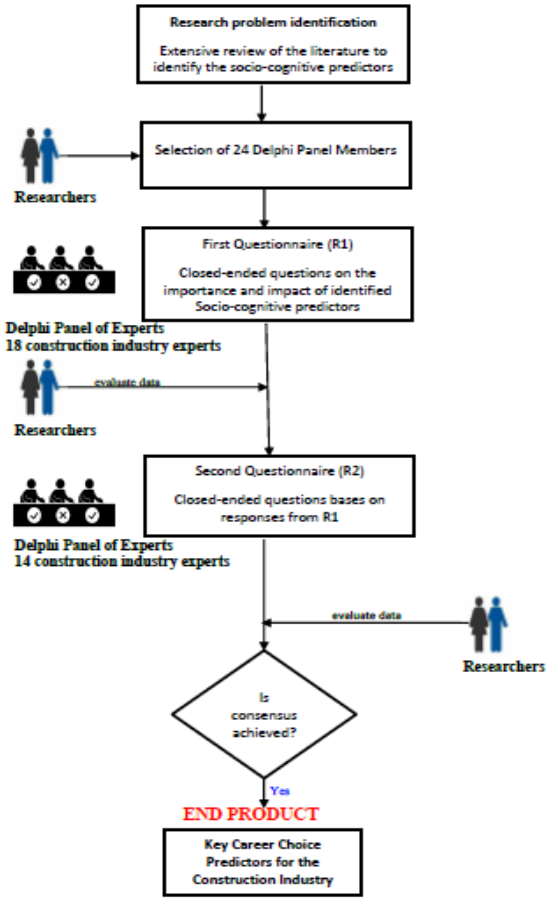

Figure 1: Flow Chart of the Delphi Study

Determining the number of panel members

While numerous studies have argued that although there is no prescribed number for a Delphi panel, there are recommended minimum numbers (Skulmoski et al., 2007). Since there is no recommended consensus as to the acceptable number of panellists in a Delphi study, 14 expert panel members were deemed an acceptable size for the panel, and 24 experts were invited to participate in the current study.

Computation of data from the Delphi study

Data computation was done using a spreadsheet software programme (Microsoft Office Excel). At the initial stage of the computational process, analysis of respondents' perceptions in achieving consensus regarding factors and attributes that influence career choice behaviour in construction are presented in the questionnaire. The study used group median responses for each item in the questionnaire. After the second round of Delphi, the absolute deviations (denoted as Di) of the group median ⌈represented as m(X)⌋ of each rating for only the pertinent questions were calculated using the following equation:

$$Di = \lceil xi - m(X) \rfloor \qquad (1)$$

Where Di = Absolute deviation
Xi = Panelist rating
m(X) = The measure of central tendency

The group median values for each round of response were computed as a measure of central tendency to determine the degree of consensus. In addition, the group median value was used as a measure of central tendency to reduce the effects of potentially biased individuals and to summarize the variableness of data.

Determination of Consensus
In a Delphi study, it is required that consensus should be reached on all questions asked. Depending on the nature of the study, a lack of consensus on a few questions could also be instructive. Some authors suggest consensus is assumed to be reached on a given question when a certain number of respondents fall within a pre-determined range of mean, median or standard deviation value, indicating a central tendency of the group response (Giannarou and Zervas, 2014). Christie and Barela (2005) suggested that for consensus to be reached, at least 75% of the respondents should rank the item two marks above and below the group mean on a 10-point scale.

Consequently, in this study, consensus on the key factors that influence career choice that would be incorporated in the refined conceptual model was reached when

- The item had a median of 7, 8, 9, 10, and at least 50% of the respondents ranked the element from 7 to 10 on an important scale.
- The item had a median of 7, 8, 9, 10, and at least 50% of the respondents ranked the element from 7 to 10 on the impact scale.

4.2 Demographic Information of the Delphi Experts

While 24 panellists were invited, only 18 participated in the first iteration. The details of the non-responsive 6 panellists were not included in Table II. As indicated in Table II, eight (8) of the panellists were men. All fourteen (14) of the experts held a Doctorate (PhD). The experts were from different sectors of the construction industry. Six (6) of the experts were involved in engineering and construction work, while eight (8) were academics in higher learning institutions.

There were three (3) architects on the panel, three (3) construction managers, two (2) quantity surveyors, one (1) building contractor, two (2) civil engineers, one (1) quarryman and two (2) project management experts.

More than half of the experts had between 1 – 15 years (9 persons) or 16-30 years (6 persons) of work experience. The average number of years of the experts was about 19 years, while the median was 20 years. This finding is indicative that the Delphi panel possessed sufficient experience and knowledge to participate in the study.

5. RESULTS AND DISCUSSION

5.1 Round One of the Delphi

In the first round, questionnaires were sent to 24-panel members, and 18 questionnaires were returned, representing a 75% response rate. Panel members were provided with two main questions, with a set of career choice influencing factors to be rated using a 10-point Likert scale. Panel members were required to rate these factors based on their importance and impact. Table III presents a summary of responses from the first round of the Delphi study. Responses were analysed, the statistical median and percentage responses. To measure consensus and to identify the main factors that influence career choice behaviour that would be included in the conceptual model, two criteria were considered;

a. Importance scale: Median of 7 and above on a 10-point Likert scale rating, and at least 50% of the respondents rating the factor from 7-10.
b. Impact scale: Median of 7 and above on a 10-point Likert scale rating, and at least 50% of the respondents rating the factor from 7-10.

As indicated in Table 3, the experts did not reach a consensus on ethnicity and family approval of choice. However, based on the pre-set criteria, the group median of these factors was less than seven and less than 50% of the respondents rated their importance and impact below 7 on a 10-point Likert scale.

First-round responses were analysed, and the second-round survey instrument was sent out to the 18 respondents with summarized group response results of the first round.

Table 3: Round-1 Delphi results summary

	Importance			Impact		
	Median	% Response (7-10)	Consensus Achieved	Median	% Response (7-10)	Consensus Achieved
Social Cognitive Factors						
Self- Efficacy	8	72.22	Yes	8	77.78	Yes
Outcome Expectations	8	66.67	Yes	9	83.33	Yes
Goal Representations	9	88.89	Yes	8	83.33	Yes
Learning Experiences	8	72.22	Yes	8	66.67	Yes
Social Supports	7	50.00	Yes	9	72.22	Yes
Interests	10	88.89	Yes	10	83.33	Yes
Person and Contextual Factors						
Gender	7	77.78	Yes	7	55.55	Yes
Ethnicity	5	33.33	No	6	44.44	No
Socio-economic status	7	55.56	Yes	7	50.00	Yes
Access to opportunity structures	10	88.89	Yes	8	88.89	Yes
Perceived Barriers	7	55.56	Yes	8	66.67	Yes
Self-Efficacy						
Accurate Self-Appraisal (Identify resources, constraints, and personal characteristics that might influence career choices)	8	83.33	Yes	8	83.33	Yes
Gathering Occupational Information (collect information on training and employment opportunities and manage them effectively)	8	88.89	Yes	8	83.33	Yes
Goal Selection (develop lists of priorities on the effective actions to successfully manage their professional development)	8	83.33	Yes	8	88.89	Yes
Planning (plan the steps needed to realize a vocational project)	8	77.78	Yes	8	72.22	Yes
Problem Solving (address difficulties related to their career)	8	88.89	Yes	8	72.22	Yes
Outcome Expectations						
Favourable income/wages	9	83.33	Yes	9	83.33	Yes
Job opportunities	9	83.33	Yes	9	88.89	Yes
Promotion and professional development	8	61.11	Yes	9	72.22	Yes
Favourable work conditions	8	77.78	Yes	9	88.89	Yes
Job security	9	88.89	Yes	9	88.89	Yes
Stable career and guaranteed employment	9	88.89	Yes	9	88.89	Yes
Family approval of career choice	6	44.48	No	7	55.55	Yes
Respected image and status in society	8	66.67	Yes	8	66.67	Yes
Satisfying lifestyle	8	77.78	Yes	9	83.33	Yes
Happy future	9	88.89	Yes	9	88.89	Yes
Job satisfaction	9	94.44	Yes	9	88.89	Yes
Achievement of career goals	9	88.89	Yes	9	88.89	Yes
Use of skills and talents	9	88.89	Yes	9	94.44	Yes

Attainment of career success	9	88.89	Yes	9	88.89	Yes
Goal Representations						
Technical/functional skills	8	72.22	Yes	8	72.22	Yes
Opportunities for training and development	8	77.78	Yes	9	88.89	Yes
Opportunities for interesting work	9	88.89	Yes	8	88.89	Yes
Financial Success	8	83.33	Yes	9	94.44	Yes
Leadership position	8	61.11	Yes	8	66.67	Yes
High social status	8	72.22	Yes	8	66.67	Yes
Career success	9	88.89	Yes	9	88.89	Yes
Social Supports						
Parental Support	8	72.22	Yes	8	94.44	Yes
Teacher Support	8	88.89	Yes	8	77.78	Yes
Family Support	8	77.78	Yes	8	72.22	Yes
Peer-group Support	8	88.33	Yes	8	72.22	Yes
Mother's support	8	94.44	Yes	8	72.22	Yes
Father's support	8	94.44	Yes	8	72.22	Yes
Support from significant other	7	66.66	Yes	8	61.11	Yes
Learning Experiences						
Verbal encouragements	8	83.33	Yes	9	72.22	Yes
Vicarious learning	8	77.78	Yes	8	77.78	Yes
Emotional arousal	8	77.78	Yes	8	72.22	Yes
Performance accomplishment	8	100	Yes	9	83.33	Yes
Interests						
Personal interest	10	100	Yes	10	94.44	Yes
Financial interest	9	88.89	Yes	9	94.44	Yes
Social interests	8	88.89	Yes	8	77.78	Yes
Perceived Barriers						
Discriminatory attitudes	9	88.89	Yes	9	72.22	Yes
Work-life conflict	9	83.33	Yes	8	77.78	Yes
Wage gap	8	77.78	Yes	8	61.11	Yes
Masculine workplace culture	9	66.67	Yes	8	68.67	Yes
Lack of access to opportunities	8	77.78	Yes	8	83.33	Yes
Challenges in career progression	8	72.22	Yes	8	61.11	Yes
Poor working conditions	7	72.22	Yes	8	72.22	Yes
Long work hours	8	72.22	Yes	7	61.11	Yes
Glass ceiling	8	66.67	Yes	7	66.67	Yes
Gender stereotypes	9	72.22	Yes	8	61.11	Yes
Lack of knowledge and career information	7	55.55	Yes	8	61.11	Yes
Lack of role models	7	61.11	Yes	8	66.67	Yes
Lack of education and training	8	61.11	Yes	8	72.22	Yes
Lack of opportunities	8	61.11	Yes	8	83.33	Yes

5.2 Round Two of the Delphi

In the survey instrument for the second round, respondents were provided with their responses and the group median from the first round so they would have an overview of the central tendency of the group response. The panellists were required to review their responses from the first round based on the group median as they deemed fit. In instances when respondents significantly deviated from the round 1 group median, they were asked to provide explanations for the deviations. Table 4 presents a summary of responses from the second round. Of the 18 panel members who participated in the first round, only 14 responded to the second survey request. The 4 non-responsive panel members were dropped from the panel as at least 2 iterations of responses were required from each panel member.

As indicated in Table 4, 1 factor did not satisfy the previously stated two consensus criteria and was eliminated. The results of the second-round survey showed that the 14 remaining panellists reached consensus by satisfying the requisite consensus criteria, which were stated earlier. Since consensus was reached, "ethnicity" was eliminated from the list, and the conceptual model for the study was developed based on the constructs retained in the Delphi study.

Table 4: Round-2 Delphi results summary

	Importance			Impact		
	Median	% Response (7-10)	Consensus Achieved	Median	% Response (7-10)	Consensus Achieved
Social Cognitive Factors						
Self- Efficacy	8	92.86	Yes	8	85.71	Yes
Outcome Expectations	9	64.29	Yes	9	92.86	Yes
Goal Representations	9	92.86	Yes	8	92.86	Yes
Learning Experiences	9	71.42	Yes	8	71.43	Yes
Social Supports	7	50.00	Yes	9	78.57	Yes
Interests	10	92.86	Yes	10	92.86	Yes
Person and Contextual Factors						
Gender	8	92.86	Yes	7	64.29	Yes
Ethnicity	5	42.85	No	6	50	No
Socio-economic status	7	57.14	Yes	7	64.29	Yes
Access to opportunity structures	10	85.71	Yes	9	92.86	Yes
Perceived Barriers	8	71.43	Yes	8	85.71	Yes
Self-Efficacy						
Accurate Self-Appraisal (Identify resources, constraints, and personal characteristics that might influence career choices)	8	85.71	Yes	8	92.86	Yes
Gathering Occupational Information (collect information on training and employment opportunities and manage them effectively)	8	92.86	Yes	9	92.86	Yes
Goal Selection (develop lists of priorities on the effective actions to successfully manage their professional development)	8	92.86	Yes	8	100	Yes
Planning (plan the steps needed to realize a vocational project)	9	78.57	Yes	8	85.71	Yes
Problem Solving (address difficulties related to their career)	8	92.86	Yes	8	78.57	Yes
Outcome Expectations						
Favourable income/wages	10	92.86	Yes	9	92.86	Yes
Job opportunities	9	92.86	Yes	9	92.86	Yes
Promotion and professional development	9	71.42	Yes	9	78.57	Yes
Favourable work conditions	9	85.71	Yes	9	100	Yes
Job security	10	92.86	Yes	9	92.86	Yes
Stable career and guaranteed employment	9	85.71	Yes	9	92.86	Yes
Family approval of career choice	7	50.00	Yes	7	57.14	Yes
Respected image and status in society	8	85.71	Yes	8	71.42	Yes
Satisfying lifestyle	9	85.71	Yes	9	85.71	Yes
Happy future	9	92.86	Yes	9	92.86	Yes
Job satisfaction	9	92.86	Yes	9	92.86	Yes
Achievement of career goals	9	92.86	Yes	9	92.86	Yes
Use of skills and talents	9	92.86	Yes	9	100	Yes
Attainment of career success	9	100	Yes	9	92.86	Yes
Goal Representations						
Technical/functional skills	8	92.86	Yes	8	78.57	Yes
Opportunities for training and development	9	85.71	Yes	9	100	Yes
Opportunities for interesting work	9	92.86	Yes	8	100	Yes
Financial Success	9	85.71	Yes	9	100	Yes
Leadership position	8	64.29	Yes	8	85.71	Yes
High social status	8	71.42	Yes	8	78.57	Yes
Career success	9	92.86	Yes	9	100	Yes
Social Supports						
Parental Support	9	78.57	Yes	8	78.57	Yes
Teacher Support	8	85.71	Yes	8	78.57	Yes
Family Support	8	71.42	Yes	7	71.45	Yes
Peer-group Support	7	78.57	Yes	8	78.57	Yes
Mother's support	8	92.86	Yes	8	78.57	Yes
Father's support	8	92.86	Yes	8	78.57	Yes

Support from significant other	7	64.29	Yes	8	64.29	Yes
Learning Experiences						
Verbal encouragements	8	78.57	Yes	9	78.57	Yes
Vicarious learning	8	71.42	Yes	8	85.71	Yes
Emotional arousal	7	71.42	Yes	7	71.43	Yes
Performance accomplishment	8	100	Yes	8	85.71	Yes
Interests						
Personal interest	10	100	Yes	10	100	Yes
Financial interest	9	92.86	Yes	9	100	Yes
Social interests	8	71.42	Yes	8	85.71	Yes
Perceived Barriers						
Discriminatory attitudes	9	92.86	Yes	9	78.57	Yes
Work-life conflict	9	85.74	Yes	8	78.57	Yes
Wage gap	8	78.57	Yes	8	64.29	Yes
Masculine workplace culture	9	71.42	Yes	8	78.57	Yes
Lack of access to opportunities	8	85.71	Yes	8	85.71	Yes
Challenges in career progression	8	85.71	Yes	8	78.57	Yes
Poor working conditions	8	92.86	Yes	8	85.71	Yes
Long work hours	8	85.71	Yes	8	78.57	Yes
Glass ceiling	8	57.14	Yes	7	71.43	Yes
Gender stereotypes	9	71.42	Yes	9	78.57	Yes
Lack of knowledge and career information	8	64.28	Yes	8	78.57	Yes
Lack of role models	8	78.57	Yes	8	78.57	Yes
Lack of education and training	8	64.28	Yes	8	71.43	Yes
Lack of opportunities	8	71.43	Yes	9	78.57	Yes

6. CONSENSUS OF RESPONDENTS

6.1 Social Cognitive Factors

All the six variables included in the Delphi study under social cognitive factors, as shown in Table 4 were retained. The socio-cognitive theory highlights the influential role of social cognitive factors on career choice. According to Bandura (1989), the formation of academic interests, career development, performance, and persistence of individuals in their career endeavours are predicted by a range of social cognitive factors. The social-cognitive factors may provide reasons as to why women are underrepresented in male-dominated professions and provide insights into how targeted strategies to increase their participation may mitigate the problem of under-representation (Aguilar et al., 2014).

6.2 Person and Contextual Factors

Situational and contextual factors such as ethnicity, sex, intelligence, and culture and gender role socialization are moderators of the formulation of choice goals and have a great influence on career choice (Ali & McWhirter, 2006; Kelly, 2009; Saifuddin et al., 2013). Of the eight constructs included in the Delphi survey under the person and contextual factors, all except one were retained. The Delphi panellists did not reach a consensus on ethnicity; therefore, it was eliminated. Although existing literature argued that ethnicity is a socially constructed aspect of the experience that helps to shape the career choice process of individuals (Hackett & Betz, 1981; Hackett & Lent, 1992), the Delphi panel concurred that ethnicity has no significant importance and impact on the career choice of individuals.

Gender

Gender has been identified to play a significant role in determining educational and career choices (Adamuti-Trache, 2004). By viewing gender as a socially constructed aspect of the experience, it may be emphasized that it is a major sociocultural agent that helps shape career choices (Adamuti-Trache, 2004; Saifuddin et al., 2013).

Socio-economic status (SES)

Socio-economic status (SES) is the position of a person based on their access to wealth, power, and prestige (Ali & McWhirter, 2006; Taylor & Yu, 2009). SES is also conceived with regards to a family or a person's income, occupation, level of education and social rank (Bécares & Priest, 2015; Xin et al., 2020).

In South Africa, the hierarchical structure of society, including access to wealth, prestige, and power, was constructed to be based on ethnicity through decades and even centuries of institutionalized inequality (Ali & Saunders, 2006; Taylor & Yu, 2009). The restriction was placed on the type of education people had to access to, where people could live, and the kind of work they could engage in (Taylor & Yu, 2009).

Subsequent research has widened the consensus regarding SES as a strong predictor of educational and career outcomes in South Africa- a highly unequal society (Taylor & Yu, 2009). Compared to those from higher SES backgrounds, students from lower SES backgrounds may have limited access to information, career guidance, and financial resources, which could limit their choice of careers (Hunt et al., 2017).

6.3 Self-Efficacy

Self-efficacy has been found to play a crucial role in the career choices of individuals and is a major predictor of choice of career choice behaviour (Hackett and Betz 1981; Charity-Leeke, 2012; Lent & Sheu, 2010; Lent et al., 2008; Saifuddin et al., 2013; Sawtelle et al., 2012). Five measures of self-efficacy were presented to the Delphi panel members, and all of them were retained. The Delphi survey showed that all the self-efficacy factors listed had significant importance and impact on career choice.

From the social-cognitive perspective, self-efficacy is a set of beliefs concerned with specific performance domains and interact complexly with external and contextual factors (Shumba & Naong, 2012). These beliefs help to determine the choice of activities, environments, persistence, and emotional reactions to certain events (Malach-Pines & Kaspi-Baruch, 2008). Elements of self-efficacy are perceived to assist a person in determining their choice of activities, degree of persistence, and emotional reaction to situations (Peña- Calvo et al., 2016).

6.4 Outcome Expectations

It argued that career decisions are significantly dependent on the likelihood that a particular action will yield a certain outcome based on the value a person places on those outcomes (Locke et al., 1986; Wanous et al., 1983). Outcome expectations have been identified as one of the most salient predictors of a career choice as individuals have positive expectations from engaging in the behaviour (Fouad & Guillen, 2006; Kelly, 2009). All fourteen variables included in the Delphi study under outcome expectations were retained.

Career choice behaviour is perceived to be significantly dependent on the subjective likelihood that a particular action will yield a certain outcome as well as the value a person places on those outcomes (Locke et al., 1986; Wanous et al., 1983). According to Bandura (1989), "people act on their judgments of what they can do, as well as on their beliefs with regards to the likely consequences of their actions." Physical outcomes (money), social outcomes (approval), and self-evaluative outcomes were highlighted as the types of outcome expectations (Bandura, 1989). Outcome expectations have been identified as one of the most salient predictors of career choice behaviour as individuals have positive expectations from engaging in the behaviour (Kelly, 2009; Peña-Calvo et al., 2016).

6.5 Goal representations

Numerous studies have suggested that several factors related to goals influence career choice behaviour (Ali & McWhirter, 2006; Peña-Calvo et al., 2016). It is expected that firmly

held goal will more likely influence career entry choice behaviours (Lent et al., 1994). Goals are also perceived to have a strong motivational effect on career choice behaviour to the extent that they are specific and clear, although maybe challenging, are attainable and proximal (Hunt et al., 2017). Goals are considered as an implicit parameter of the career choice and decision-making process (Saifuddin et al., 2013). Career aspirations, choices, and decisions are all significant concepts of goal representations (Kelly, 2009).

6.6 Social support

As documented in the literature, support from parents, teachers, and peers as crucial social supports in the career aspirations, decision making, and persistence of an individual (Mau et al., 2000; Saifuddin et al., 2013). All items presented in the Delphi survey satisfied the consensus criteria, and experts indicated that all the social support constructs were important and had an impact on career choice. Lent et al. (1994); Whittock (2002) highlighted support structures that may influence career choice. Exposure to role models, networking contacts, emotional and financial support from significant others is key support mechanisms that influence the career choices and progress of women in the construction industry (Vainikolo, 2017).

6.7 Learning Experience

The three items presented in the Delphi survey under learning expectations were retained. Previous learning experiences promote future career behaviours, and an accumulation of different kinds of reinforcements are responsible for career choices (Lent et al., 2008; Saifuddin et al., 2013; Adeyemi and Oke, 2020).

Career choice behaviour is guided by an interaction of learning experiences with personal and contextual factors (Hunt et al., 2017). A person experiences and observes other people within their environment performing various vocational activities, exposing them directly and indirectly to diverse activities as well as differently reinforcing their aspirations to pursue certain activities (Kelly, 2009). By repetitively performing certain activities, role models, and feedback from models, people refine their career choices (Lent et al., 1994). Learning experiences produce values that are acquired through socialization and fundamental social learning processes, such as vicarious learning and self-evaluative experiences (Alexander et al., 2011; Kessels & Taconis, 2012). Interactions with family members, teachers, peers, role models, cultural and religious institutions, and media sources influence personal values and standards, which may consequently influence career choice behaviour (Charity-Leeke, 2012).

6.8 Interests

Interests are strongly linked to the selection of a life career (Betz & Voyten, 1997; Bojuwoye & Mbanjwa, 2006; Lent & Sheu, 2010; Gokuladas, 2010; Humayon et al., 2018). A person is more likely to consider their interests when making a career choice (Bojuwoye & Mbanjwa, 2006). Jin et al. (2009) defined career interests as patterns of likes, dislikes, and indifferences with regards to career-related activities and occupations. Interests are skills developed during a person's socialization process and ideally are translated into career choices, although social and environmental factors often influence the level of career aspirations and choices (Bécares & Priest, 2015). Three measures of interest were presented to the Delphi panel members, and all of them were retained. The Delphi survey showed that all the interest variables listed had significant importance and impact on career choice.

6.9 Access to Opportunity Structures

Lack of information on career opportunities may likely influence the career advancement and value individuals place on various educational and career options (Jamenya et al., 2018). Reduced access to educational and vocational job-training opportunities has implications on

opportunities for women to choose careers in construction (Vainikolo, 2017). Emphasis has been made on the unequal access to training and development programs, networking opportunities and educational programs, and as a result, there is unequal awareness of a variety of career options that could broaden the career choices of women, with construction as a viable option (Aulin and Jingmond, 2011; Charity-Leeke, 2012).

6.10 Perceived Barriers

Several studies detailing the status and participation of women in construction have argued that the barriers they encounter primarily influence the decision of women to take up careers in the field (Amaratunga et al., 2006; Ginige et al., 2007; English and Bowen, 2012). This signifies that it is vital to examine negative factors that hinder women's career choices in construction.

The Delphi survey revealed that all the fourteen perceived barriers presented had significant importance and impact on career choice. In addition, studies detailing the status and participation of women in construction have argued that the barriers they encounter primarily influence the decision of women to take up careers in the field (Aulin and Jingmond, 2011; Everhart et al., 1998; Lowe and Woodcroft, 2014; Amaratunga et al., 2006; Sewalk & Nietfeld, 2013).

These barriers include discriminatory attitudes, work-life conflict, the wage gap, workplace culture, lack of access to opportunities, challenges in career progression, poor working conditions, long work hours, glass ceiling, gender stereotypes, lack of knowledge and career information, lack of role models, sexual harassment, lack of education and training and lack of opportunities (Mendez and Crawford, 2002; Fraser et al., 2013; Hoobler et al., 2009; Kaewsri and Tongthong , 2013).

7. CONCLUSION

The objective of the study was to identify the key factors that predict the career choices of women in the construction industry. The study applied the Socio-Cognitive Career Theory (SCCT) to understand the determinants of women's career choices in the construction industry by extending the evaluation of career choice predictors to include the SCCT constructs and to incorporate person and contextual variables such as gender, ethnicity, socio-economic status, perceived barriers, and access to opportunity structures. A Delphi method was adopted for the study. A panel of experts were required to draw from their experiences, which is not limited to practice in the construction industry to identify the major factors that predict the career choices of women in the construction industry. Consequently, 10 predictors and 53 elements were identified to have significant importance and impact on career choice. Further, because the sample in this study was purposively selected, some limitations apply. Since the present sample may be described as unique due to the inclusion of men and women experts in the construction industry, it is uncertain whether these results may not adequately represent the population of interest and be generalized to a general sample.

Findings from this study revealed that the key predictors of women's career choices are; Gender, Socio-Economic Status, Self-Efficacy, Outcome expectations, Goal representations, Learning experiences, Interests, Social Supports, Perceived Barriers and Access to opportunity structures. The results indicate that these factors will significantly influence women's career choices in construction.

The relevance of ethnicity with regards to women and girl's career choices has been identified from the characteristic reactions reproduced from the social and cultural environment as well as the relationship with opportunity structures within which the career choice behaviour is established (Lent et al., 1994; Beacres and Priest, 2015). Contrary to

findings from previous studies, the panel of experts perceived ethnicity to have insignificant importance and impact on career choice in the South African Construction industry.

Although the issue of women career choices in the South African construction industry has been explored, very few studies have attempted to consider predictors of career choices from a theoretical perspective. There is no evidence of a similar study conducted within the South African context. Further research may focus on the development of a model that could give insight into the persistence, academic and career choices of women in construction in South Africa. A potential area for future research may be to conduct comparative studies between South Africa and other countries, applying the SCCT constructs to identify the factors that influence women's career choices in construction and other traditionally masculine occupations.

Given the focus of the South African government to increase the level of representation by women in the construction industry, this study provides insight into those aspects or factors that could conceivably prevent this goal from being successfully achieved unless they and their influence are understood and taken into account. These include gender, socio-economic status, self-efficacy, outcome expectations, goal representations, learning experiences, interests, social supports, perceived barriers and access to opportunity structures. It is important to note that despite the importance placed on ethnicity in South Africa, it does not play a major role in the choice of careers within the context of South Africa.

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