GENDER DIFFERENCES IN ENTREPRENEURIAL ORIENTATION IN THE PRODUCT INNOVATION OF MANUFACTURING SMALL AND MEDIUM ENTERPRISES

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Abstract - Small and medium enterprise sector is the focus of African and south African economic policies. To be sustainable, small businesses sector must be inclusive of all genders in its entrepreneurial approach in order to improve the product offerings and compete for the market against large businesses. The purpose of this study is to determine whether there are gender differences in entrepreneurial orientation (EO) in the product innovation of manufacturing small and medium enterprises (SMEs). A questionnaire was distributed to 300 owner-managers from a sample of SMEs in KwaZulu-Natal/South Africa. The findings confirm that there is no difference between men and women in the innovativeness, risk-taking and proactive ness in the product innovation of SMEs. Gender has no influence on the way the owner-managers approach innovation, decide to take risk and anticipate the market. This study recommends policy interventions to create full opportunities for women participation and involvement in the economic mainstream. It further recommends the support for women entrepreneurial initiatives in their attempt to contribute to the employment creation.

Keywords - Innovativeness, Risk Taking, Proactiveness, Gender, Product Innovation, SMEs

I. INTRODUCTION

1.1 Background to Introduction

Small business sector remains a major contributor to employment creation and economic development of many African countries. South Africa is one of the biggest economies of the African continent, but the country facesthe same reality of high unemployment and inequality where women have limited access to economic mainstream. Although formal small and medium firms used to be considered as a source of lower-skilled jobs and contribute 98.5% of the number of formal firms in the South African economy, the recent trend shows that small South African firms are becoming more skill intensive (Small Business Institute, 2018).Aptly, the small and medium enterprises sector in South Africa absorbs disadvantageous groups of the society to participate in the economic activities of the country. According to Wong and Aspin wall (2004), small and medium enterprises in the manufacturing sector act as the foundation of a manufacturing economy and support the success of large organisations.

The sector includes various key industrial activities such as automobile and component; pulp and paper products; chemicals and petrochemicals; food and beverages; and textiles, clothing and footwear. Despite some progress in including underrepresented women, business environment including small business sector has not reached parity between men and women. Several barriers include discriminatory cultural practices; limited mobility, voice and representation; a disproportionate share of family and household responsibilities; and a lack of maternity protection(International Labour Organization, 2012) are among the factors that seem to limit women from exhibiting their full entrepreneurial potential.

1.2 Problem Statement

The Department of Economic Development and Tourism annual report (2021) confirms that manufacturing sector contributes over 16% to Kwa Zulu Natal's gross domestic product (GDP) and to South Africa's manufacturing gross value added (GVA). Unfortunately, SMEs in South Africa are not sufficiently innovative and are not optimally contributing to the economy as they should.

The country unemployment rate still stands at over 30 percent. This necessitates inclusiveness in the sector to facilitate the involvement of both men and women. Thus, the South African innovation policy success lies on how it incorporates both the economic and social environment of innovation. For instance, although one province may show a slightly positive outlook on investment R&D in comparison with other provinces, the country faces the challenge in creating sustainable employment opportunities in manufacturing industry (South African National Council on innovation, 2017).A positive trend shows that female business ownership rates have risen in recent decades, but the prevalence of business ownership among women is only 50–60% of that for men. The aggregate data from the Organization for Economic Co-operation and Development shows that a low rate of business ownership among women is a worldwide phenomenon(Fairlie& Robb, 2009).It is unclear whether there are gender differences in entrepreneurial orientation of owner-managers in the product innovation of SMEs. This paper is important because it addresses the inclusiveness of women who are regarded as a marginalised group.

II. LITERATURE REVIEW

2.1 Gender

Women remain underrepresented in many organizational contexts in the United States, particularly in leadership positions. One contributing factor is that bias and discrimination can cause underrepresented group members to receive less instrumental help, including advice, feedback, and assistance on work-related tasks(Kirgios, Rai,Chang,& Milkman, 2022).

2.2 Entrepreneurial Orientation

The early studies of Miller (1983)developed and considered entrepreneurial orientation as a three dimensional construct that only included innovativeness, proactiveness and risk taking (Mahmood& Hanafi, 2013). Miller (1983) defined entrepreneurial orientation at firm level as one that engaged in product market innovation, undertook risky ventures and was keen to come up with proactive innovations in order to overcome its competitors. In this context, literature confirmed that there was a consensus amongst researchers around the initial three dimensions (Wiklund& Shepherd, 2005). Entrepreneurial orientation included processes, practices and decision-making activities that were likely to lead to the introduction of a new product into the market. The focus of EO is on the pursuit of business opportunities by attempting to expand the business through continuous monitoring and scanning of business environment (Lumpkin& Dess, 1996).Innovativeness dimension is described as a search for novel, unusual or creative solutions to challenges facing a firm. According to Avlonitis and Salavou (2007) firms could exhibit varying degrees of EO which could be grouped on opposite extremes of a continuum. For example, at one end was the entrepreneurial organisation that included as part of their product market strategies and agenda to undertake aggressive, regular and extensive innovations while taking considerable related risks. It is important to establish whether SMEs owned and managed by women show different EO as compared to the men counterpart.

2.2.1 Innovativeness

Lumpkin and Dess (1996) confirmed that innovativeness was the tendency of a firm to engage in and support new ideas, novelty, experimentation, and creative processes leading to new products, services or technological processes.

De Jong et al., (2015) stated that entrepreneurial orientation studies were initially regarded innovativeness as a central characteristic of an entrepreneurial organisation.Studies on the gender differences in terms of innovation by De Vita, Mari and Poggesi (2014) revealed that when compared to their male counterparts, female entrepreneurs are less innovative and thus less inclined to expansion and export orientation. In this context, this study hypothesises that there is a statistically significant difference between the mean values gender and innovativeness in SMEs

2.2.2 Risk-taking

Vij and Bedi (2012) define risk taking as the tendency to take bold actions with an uncertain outcome. According to Campos, de la Parra and Parellada (2012), risk taking implies taking bold actions by venturing into the unknown through committing limited resources to undertake under the conditions of the uncertain.Lumpkin and Dess (1996) also indicated that the risk-taking attitude investigated at individual level tended to differ at firm level, although most of entrepreneurially related risk taking studies analysed risk at individual level. Vij and Bedi (2012) referred to risk taking as the tendency to take bold actions with an uncertain outcome.Tan (2008) found that women entrepreneurs were likely to participate in more risky venture compared to the male counterparts. In contrast, Furdas and Kohn (2010) did not find any significant gender differences in the risk tolerance behaviour for entrepreneurs.

2.2.3 Proactiveness

Lee and Peterson (2000) stated that proactiveness is a dimension of entrepreneurial orientation focusing on an opportunity-seeking, forward-looking perspective requiring launching new products ahead of the competition and acting in anticipation in the prospect of demand to initiate change in the business environment. In the same context, Vij and Bedi (2012) confirmed that proactiveness could be achieved through aggressive behaviour directed at rival firms and a pursuit of favourable business opportunities. With regard to gender and proactiveness, Tan (2008) established that women entrepreneurs are more proactive than men as they are more willing to take bolder decision to move into risky and untried ventureswhen compared to their male counterparts. There fore, the researcher assumed that there is a statistically significant difference between the mean values gender and proactiveness in SMEs.

2.3Product Innovation

This is recognised as changes in products and services an organisation would be able to offer for sustainable business. Product innovation is considered to be changes in the products or services an organisation offers. According to Radas and Bozic (2009), the market scope is vital for SMEs because of its effect on innovation, especially the product and process innovation. Kraus, et al., (2012) stated that the main core of innovation study literature has focused on product innovations and the relationship between product innovativeness and corporate success. Gender has no impact on innovation, however gender diversity is more likely to be related

to innovation where as lower or higher levels of gender diversity lead to less optimal results(González-Moreno, Díaz-García and Sáez-Martínez, 2018). However, Avenyo and Kraemer-Mbula (2021) found that maleowner-managers were likely to introduce product innovations than their female owner-managers counterparts. There seems to be contradictory findings about how product innovation takes pace in a female owned and male owned businesses, this study hypothesises that there is a statistically significant difference between the mean values gender and product innovation in SMEs

2.4. Manufacturing Small Medium Enterprises Sector

According to Sunjka and Emwanu (2015), a small medium enterprise is independently owned, run and financed, with a small share of the marketplace or relatively little impact on the sector/industry in which it operates and where one or very few people manage the business without a formalised management structure. In South Africa, the National Small Business Act 102 of 1996 (amended in 2004) also categorises SMMEs into micro, very small, small, and medium enterprises using a complex set of thresholds. These thresholds are defined according to three measures: total number of full-time employees; total annual turnover; and total gross asset value excluding fixed property, by sector and sub-sector (Small Business and Cooperatives in South Africa, 2017). South African terminology of small, medium and micro enterprises (SMMEs) is equivalent to internationally commonly used terminology of small and medium enterprises (SMEs). The Act stipulates that small and medium enterprises are characterised by a minimum of five and maximum of two hundred full-time employed members and a gross asset value excluding fixed property of respectively R0.15-R50, and R0.10-R18 millions. Entrepreneurial orientation appears critical for SMEs to survive and growth in the volatile business environment.



Figure 1: Study Model Gender, Innovativeness, Risk taking and Proactiveness and Product Innovation

III. METHOD

3.1 Research Design

To achieve the objectives of the study, quantitative method was adopted, as indicated by Hair, et al., (2011)the importance of quantitative data and results for business research. A quantitative method focused on control of the investigation and structure of research situation, the reliability of the results and a statistical significance of the results (Welman et al., 2007). In this context, a survey design used because it is regarded as cost-effective as compared to other research designs and also allows generalisation to large populations(Coldwell and Herbst, 2004).

3.2 Sampling, Data Collection and Questionnaire

From the database of the Durban Chamber of Commerce and Industry in South Africa, a sample was drawn and 300 SMEs were selected for the purpose of achieving the objectives of this study. A structured questionnaire was distributed to owner-managers of the selected small and medium firms in manufacturing sector. Furthermore, the questionnaire was properly constructed to ensure there liability of items used and construct validity were observed. All the responses were measured at the 5 point Likert scale ranging from strongly disagree, disagree, neutral, agree to strongly agree Owner-managers were asked to provide their opinions about EO dimensions: the innovativeness, risk-taking; and proactiveness In the same vein, Wiklund, Patzelt and Shepherd (2009) affirmed that even in the recent times researchers still preferred to use the original and validated scale of Miller (1983), with innovativeness, risk-taking, and proactiveness as relevant dimensions of entrepreneurial orientation. All data collection activities were monitored to ensure adherence to the data collection protocol and to prompt actions to minimize and resolve missing data.

IV. RESULTS AND DISCUSSION

This section focuses on research results analysis, interpretation and discussion. The statistical results from the survey are presented as generated by a statistical package for social sciences (SPSS). Both descriptive and inferential statistics were used to test whether there are gender differences in entrepreneurial orientation and product innovation in manufacturing SMEs.

4.1 Descriptive Statistical Analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	121	54.8	54.8	54.8
	Female	100	45.2	45.2	100.0
	Total	221	100.0	100.0	

Table 1:Gender composition of Owner-Manager

Table 1 shows that of all the owner-managers who responded, 121 (54.8%) were male and 100 (45.2%) were female. These results indicate that male respondents dominate the SME manufacturing sector. The sample structure is representative of the population of SMEs as it is consistent with the study of Cilliers and Strydom (2016) that found that despite narrowing gap between men and women in recent years, men still dominate the SME sector in South Africa. This is also supported by small enterprises development agency (SEDA) which confirms that 45% of SMEs are owned by women compared to 55% owned by men.

	N	Mean	Std. Deviation	Std. Error Mean
EO: Innovativeness	221	4.0694	.63123	.04246
EO: Risk Taking	221	3.3846	.98698	.06639
EO: Proactiveness	221	3.6471	.76631	.05155
IP: Product Innovation	221	3.6674	.60617	.04078

Table 2: Group Mean and Standard deviation value scores of the variables

Results prove that the mean value scores of all the items of the four dimensions were >3. However, innovativeness shows the highest mean values with mean value score slightly above 4. This confirms agreement with the items that measured entrepreneurial orientation and product innovation. In contrast, risk taking shows the lowest mean score slightly >3 to signify the neutral position of respondents with regard to the items under this dimension.

4.2 Reliability Analysis

According to Welman, Kruger and Mitchell (2007), Cronbach's Alpha establishes the degree to which the items of a research instrument measure the same attributes in order to confirm the study reliability. A reliability coefficient of 0.70 or higher is considered to be "acceptable".

Entrepreneurial Orientation	Number of Items	Coefficient
EO-Innovativeness	7	.846
EO-Risk Taking	3	.845
EO-Proactiveness	6	.832
IP-Product Innovation	8	.846

Table 3: Reliability Cronbach's alpha test: Entrepreneurial Orientation and Product Innovation

As depicted in Table 3, to address the reliability of the data, the reliability Cronbach's alpha was used to test the four main dimensions. The reliability test grouped the items together for a single measure of each construct. As shown in Table 3, the reliability coefficient result is >.70. In summary, based on the test of reliability coefficient of (> 0.80), the measurement is deemed very high and acceptable. In this context, the reliable Cronbach coefficient alpha values validate that most individual items in questionnaire measured the same dimension consistently.

4.3 Testing Gender Differences in Entrepreneurial Orientation and Product Innovation in SMEs

This paper aims to determine whether there are gender differences in entrepreneurial orientation and product innovation of manufacturing SMEs. This is, to establish whether male and female business owners differ in innovativeness, risk taking, proactiveness orientation for their product innovation.

Gender		Innovativeness	Proactiveness	Risk taking	Product Innovation
Male	Mean	24.6033	21.8430	10.1157	29.5868
	N	121	121	121	121
	Std. Deviation	3.08350	4.07842	2.87573	4.80047
Female	Mean	23.8500	21.2000	10.2000	29.0400
	N	100	100	100	100
	Std. Deviation	4.38172	4.30879	3.07482	4.91528
Total	Mean	24.2624	21.5520	10.1538	29.3394
	N	221	221	221	221
	Std. Deviation	3.73727	4.18691	2.96093	4.84934

Table 4: Gender Differences in Entrepreneurial Orientation and product innovation in SMEs

The results in the Table 4 show that the mean scores of genders based on the responses in relation to the innovativeness, risk taking, proactiveness, and product innovation of owner-managers. Maleand female respondents depict almost similar mean scores and standard deviation between the innovativeness, risk taking, proactiveness, and product innovation. It can be interpreted that on one hand, there are differences in respondents' opinions, but low variability is observed. It can be confirmed that all participants responded differently to those questions relating to the innovativeness, risk taking, proactiveness, and product innovation regardless their genders.

ANOVA TEST: Entrepreneurial Orientation and Product Innovation with regard to Gender groups
One-way ANOVA was used to examine statistical differences among gender and entrepreneurial orientation and product innovation in manufacturing SMEs. The test of analysis of variance aims to establish whether there are any significant differences between the means of groups of variables. The statistical package for social science (SPSS) was used to make comparison of the means between the groups.

		Sum of Squares	Df	Mean Square	F	Sig.
Innovativeness	Between Groups	31.070	1	31.070	2.237	.136
	Within Groups	3041.709	219	13.889		
	Total	3072.778	220			
Proactiveness	Between Groups	22.635	1	22.635	1.293	.257
	Within Groups	3834.017	219	17.507		
	Total	3856.652	220			
Risk taking	Between Groups	.389	1	.389	.044	.834
	Within Groups	1928.380	219	8.805		
	Total	1928.769	220			
Product Innovation	Between Groups	16.369	1	16.369	.695	.405
	Within Groups	5157.179	219	23.549		
	Total	5173.548	220			

Table 5: Entrepreneurial Orientation, Product Innovation and Gender groups

There is a statistically significant difference between gender and innovativeness of owner-managers in manufacturing SMEs (Objective1): The results, as shown in Table 5, indicate that there is a no significant difference between the mean values of gender and facilitation. The p value of 0.136>0.05 proves that there is not a statistically significant difference since the p value is bigger than $\alpha = 0.05$. This indicates that there are similarities in the opinions of both genders. The results confirm thatthe owner-manager's gender does not determine how the direction that the business may take in terms of innovativeness, risk taking, proactiveness for product innovation. Although De Vita, Mari and Poggesi (2014)'s study revealed that when compared to their male counterparts, female entrepreneurs are less innovative, this study reiterates that gender has no bearing on the decision about regular changes in product lines, to encourage staff to share information and knowledge for innovation purposes small and medium sized firms.

There is a statistically significant difference between gender and risk taking attitude of owner-managers in manufacturing SMEs (Objective 2): The Results in the Table 5depict that there is not a statistically significant difference between the mean values of gender and conduct as shown by a p value of.834>0.05 confirming no statistical significance. The results prove that gender does not differentiate the risk taking attitude of small and medium business owners. In this context, an owner of SME is likely to adopta risk-taking position in order to maximise the probability of exploiting potential opportunity in firms regardless their genders.The literature reviewed provided contradictory findings, for example, Tan (2008) found that women entrepreneurs were likely to participate in more risky venture compared to the male counterparts. In contrast, Furdas and Kohn (2010) did not find any significant gender differences in the risk tolerance behaviour for entrepreneurs. Thus, the later assertion is aligned with the findings of this study.

There is a statistically significant difference between gender and proactiveness of owner-managers in manufacturing SMEs (Objective 3): The results, as shown in Table 5, indicate that there is a no significant difference between the mean values of gender and proactiveness. The p value of .257>0.05 proves that there is not a statistically significant difference since the p value is bigger this indicates that there are similarities in the opinions of both genders. Tan (2008) established that women entrepreneurs are more proactive than men as they are more willing to take bolder decision to move into

risky and untried ventures when compared to their male counterparts. This study's findings are that gender differences do not affect the entrepreneurial approaches of small and medium sized enterprises. The results confirms that gender of owner-managers of SMEs does not affect how they monitor market trends to identify future needs of customers.

There is a statistically significant difference between gender and product innovation of owner-managers in manufacturing SMEs (Objective 4): The results, as shown in Table 5, indicate that there is a no significant difference between the mean values of gender and facilitation. The p value of .405>0.05 proves that there is not a statistically significant difference since the p value is bigger than $\alpha = 0.05$. The results indicate that there are similarities in the opinions of both genders. This study's findings are that gender differences do not affect the innovation product in SMEs. The findings align with González-Moreno, et al., (2018)who found that gender difference has no impact on innovation. In contrast, Avenyo and Kraemer-Mbula (2021) found that male owner-managers were likely to introduce product innovations than their female owner-managers counterparts. Next is the conclusion and recommendations.

V. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This paper aimed to determine whether there are differences in gender in EO and product innovation of manufacturing SMEs. The literature provided contradictory results with regards to gender and entrepreneurial orientation of owner-managers in SMEs' sector, but this study confirms that there is no difference between man and woman as both express the same opinion on the variables innovativeness, risk taking, proactiveness and product innovation. The study reiterates that gender cannot reflect the attitude of owner-managers towards innovation and risk, and proactive decisions to compete in the market.

5.2Limitation of the Study and Further Research

The study's limitation is that it is based on small and medium enterprises located in South Africa. South African economic context should be considered. The results cannot therefore be generalised to large companies and other geographical location such as developed countries. The research suggests further study to investigate the comparative approach of countries may provide insight on the topic.

5.3 Managerial Implications and Recommendations

Different studies such as the international labour organisation, (2011) and United Nations industrial development organisation, (2012) confirmed that the policy makers undermine the role of women with "gender-blinded" policies in an attempt to build capacity for economic growth. Thesmall enterprises sector should promote inclusiveness to provide an opportunity to marginalised individuals such as women an access to the economic mainstream, especially as the SME's sector still faces tremendous challenges such as growing and sustaining small firms in the turbulent economic environment due to Covid-19 pandemic. The economic policies should be formulated to support both men and women owners of businesses if they are considered equal to contribute to the development of the SME sector for the employment creation and income generation. However, the fact that there is no gender difference in entrepreneurial orientation raises opportunity for gender diversity for product innovation. According to González-Moreno, at al., (2018) gender diversity is more likely to be related to innovation whereas lower or higher levels of gender diversity could lead to less optimal results.

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