

RASCH MODEL FOR GENDER-BASED ANALYSIS OF INNOVATION BEHAVIOR AMONG CULINARY MSME ENTREPRENEURS IN INDONESIA

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Abstract

This research aims to accurately assess and analyze culinary MSME entrepreneurs' innovation behavior gender based and the differences between the instrument items. The instrument in this research was developed by examining the concepts and theories of innovation behavior and testing 109 entrepreneurs. Determining the sample size in this study used purposive sampling. Data analysis was carried out using the Rasch model. The findings of this research produce significant differences in the innovative behavior of business actors based on gender from the research instrument, which consists of 13 indicator items. Significant differences were found in items directly related to promoting idea concepts. Male entrepreneurs are likelier than women to agree with the idea implementation component. Regarding seeking support, women are more likely to agree than men. Male entrepreneurs like challenges more than women. This research contributes to developing the knowledge of business actors' innovation behavior, seen from their readiness to innovate based on gender to improve business performance. Furthermore, it guides the government in designing more inclusive innovation policies, training programs, and better support for MSME entrepreneurs.

Keywords: Innovation Behavior, Competitive Advantage, MSME, Rasch Model

Abstrak

Penelitian ini bertujuan untuk menilai dan menganalisis secara akurat perilaku inovasi pengusaha UMKM kuliner berdasarkan gender dan perbedaan antara item-item instrumen. Instrumen dalam penelitian ini dikembangkan dengan mengkaji konsep dan teori perilaku inovasi dan menguji 109 pengusaha. Penentuan ukuran sampel dalam penelitian ini menggunakan purposive sampling. Analisis data dilakukan dengan menggunakan model Rasch. Temuan penelitian ini menghasilkan perbedaan yang signifikan pada perilaku inovatif pelaku usaha berdasarkan gender dari instrumen penelitian yang terdiri dari 13 item indikator. Perbedaan yang signifikan ditemukan pada item yang berhubungan langsung dengan mempromosikan konsep ide. Pengusaha laki-laki lebih cenderung setuju dengan komponen implementasi ide dibandingkan perempuan. Dalam hal mencari dukungan, perempuan lebih cenderung setuju daripada laki-laki. Pengusaha laki-laki lebih menyukai tantangan daripada perempuan. Penelitian ini berkontribusi dalam mengembangkan pengetahuan tentang perilaku inovasi pelaku usaha, dilihat dari kesiapan mereka untuk berinovasi berdasarkan gender untuk meningkatkan kinerja usaha. Selain itu, penelitian ini juga dapat menjadi panduan bagi pemerintah dalam merancang kebijakan inovasi yang lebih inklusif, program pelatihan, dan dukungan yang lebih baik bagi pengusaha UMKM.

Kata kunci: Perilaku Inovasi, Keunggulan Bersaing, UMKM, Model Rasch

INTRODUCTION

The research trends in innovation behavior over the past decade have been limited in their focus on small and medium-sized enterprises, particularly with a specific gender perspective. However, according to Minniti (2009); Belghiti-Mahut et al., (2016), the issue of gender has

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received broader attention among management and entrepreneurship researchers. Thus far, existing research has primarily addressed the innovation behavior of employees within companies (Luksyte et al., 2018; Etikariena, 2019; Choi & Kang, 2021; Gao et al., 2023). Meanwhile, the market dynamics for small and medium-sized culinary businesses in Pekanbaru have been rapidly changing, as evidenced by globalized lifestyles and evolving consumer preferences. It has led to intense competition among culinary SMEs, making it challenging for business owners to develop innovative behavior to formulate strategic plans for competitiveness (Hermundsdottir & Aspelund, 2021; Lim, 2022; Hughes et al., 2021).

In this context, business owners need to keenly identify the needs and desires of their target markets to achieve higher customer satisfaction than their competitors. Therefore, business owners must think more strategically, creatively, innovatively, and consistently due to increasing competition. Innovation is a step taken to address market competition and is a sustainable strategy for achieving competitiveness. According to (Volná et al., 2015), innovation is intellectual capital aimed at developing and marketing new products to the industry market to meet consumer needs. Innovation encompasses not only product outcomes but also attitudes and moving towards change. (Kotler, 2018) states that there are three indicators of innovation: product quality, product variety, and product style and design.

Innovative behavior is identified using various indicators, including providing something new and valuable (Kamran & Ganjinia, 2017)(Saraih et al., 2019), (Nurfadilah & Irawati, 2021), being proactive and creative, seeking and implementing new ideas and approaches (Hughes et al., 2021)(Guckenbiehl & Corral de Zubielqui, 2022) (, the ability to try new and improved processes (Saleh et al., 2023), and behavior in generating and garnering support to ensure implementation (Knezović & Drkić, 2021). Creating opportunities, generating ideas, pursuing ideas, communicating ideas, refreshing ideas, advocating for ideas, and overcoming challenges are also aspects of innovative behavior (Sudibjo & Prameswari, 2021)(Rosyiana, 2022). A company's ability to innovate will facilitate achieving a competitive advantage. These actions require resources, and a company's resources are crucial as capital during innovation activities.

This issue demands that business owners exhibit innovative behavior to discover new ways to conquer a problematic market for competitors to imitate. Previous research has also stated that the innovative capacity of individuals varies because only some possess the same innovation abilities (Sulistiowati, 2018; Hughes et al., 2021; Istiqlil et al., 2023). Based on pre-survey data, not all culinary SME owners in Pekanbaru understand the importance of innovation. It aligns with the findings of previous research (Agustina, 2014; Colclough et al., 2019) because innovation is often perceived as costly, and its effectiveness is questioned due to its lack of knowledge. Therefore, some business owners choose to be followers rather than take the risk of failing as leaders in generating new ideas.

Previous research on innovative behavior reveals that companies face a paradox: they must continuously improve existing products to strengthen their short-term competitive position while simultaneously introducing new products to meet future needs (Helmi & Psikologi, 2011; Colclough et al., 2019; Hidayat et al., 2022). Innovative behavior involves enhancing creativity through problem-solving skills and utilizing new ideas to develop and implement new strategies, products, and services to achieve competitive advantage (Colclough et al., 2019; Fatoki, 2021; Choi & Kang, 2021).

Gender factors can influence the innovation behavior of SME owners (Micro et al.) in various ways. However, the influence of gender on innovation behavior results from complex social and cultural dynamics and should not be generalized. Gender factors can affect innovation behavior among SME owners, such as rooted stereotypes about women or women's roles. There is an imbalance in reproduction mechanisms in decision-making (Belghiti-Mahut et al., 2016). These stereotypes can also be observed in the participation of women in innovation activities among SME owners in Pekanbaru. Gender factors can affect SME owners' access to the resources required for innovation. In some cultures or societies, women may face more significant barriers to accessing funding, training, business networks, or infrastructure that supports innovation (Marthalina, 2018). These limitations can hinder women's ability to develop and implement innovative ideas. The organizational culture within SMEs can influence the participation and innovative contributions of male and female business owners, raising

questions about whether such culture supports gender collaboration and inclusion in the innovation process (Minniti, 2009; Tjahya Putri & Soetji, 2014; Belghiti-Mahut et al., 2016; Pratiwi et al., 2022).

On the other hand, the innovative behavior of female business owners often tends to be local and can be influenced by various contextual factors. They can contribute to economic growth and job creation (Belghiti-Mahut et al., 2016). The ability of business owners to innovate is crucial for the company's survival in the face of stiff competition (Sulistiowati, 2018). Expanding product variety, diversifying products, and differentiating products require the innovative capacity of business owners as a form of individual innovative behavior based on actionable plans (Sulistiowati, 2018; Lim, 2022)2). Innovative capacity is developed based on knowledge and skills related to product and production techniques, technology, and other supporting insights (Sulistiowati, 2018; Nurfadilah & Irawati, 2021; Knezović & Drkić, 2021).

This research aims to accurately assess and analyze the innovation behavior of culinary MSME entrepreneurs and analyze the differences between the instrument items using the Rasch Model Testing of Gender-Based Innovative Behavior among Culinary SME Owners in Pekanbaru to Enhance Competitive Advantage. The study seeks to identify the instrument items measuring innovative behavior among culinary SME owners in Pekanbaru and analyze the differences among these instrument items. It examines the level of gender-based innovative behavior among SME owners in Pekanbaru and its impact on their competitive capabilities. This research addresses a research gap and offers more profound insights into the factors influencing innovative behavior among SME owners based on gender. It contributes to designing more inclusive policies and programs and provides better support for SME owners, regardless of gender, to innovate and grow their businesses. This research is a significant contribution to marketing, particularly in studying innovative behavior among SME owners in achieving business performance.

Literature Review

Innovative Behavior Concept

Innovative behavior is seen as behavior that leads to implementing initiatives in work or business, either individually or in groups, by conveying new and valuable ideas, processes, products, or other things. Innovative behavior is a multi-dimensional and comprehensive construct of overall behavior, contributing to the innovation process. Innovative behavior in business organizational practices consists of various opportunities for exploration, mass production, support, and application.

Previous research studies on the factors that influence innovative behavior were examined (Susanne G. Scott, 1994; De Jong & Den Hartog, 2010) examining individual characteristics of executives, teamwork directly on innovative behavior, and the influence of individual, management, and group work characteristics, partly for innovative behavior through the psychological climate to innovation. Research studies on innovative behavior continue to develop; several previous researchers defined innovative behavior as skills in conveying and developing new ideas that describe behavior to try to update old ones (De Jong & Den Hartog, 2010; Taştan, 2013).

Innovative behavior is also seen as the ability to implement creativity to achieve competitive ability. This ability can solve problems and find ways to improve and increase the company's competitiveness and performance. (Lim, 2022; Firdaus & Sakinah, 2023) Adds that innovative behavior turns opportunities into marketable ideas; original ideas play an important role in turning creative thinking into more valuable ones. In entrepreneurship, the innovation of companies and operators plays an important role, and entrepreneurs use innovation to develop their businesses and act.

Innovation is a step taken to face market competition and a sustainable strategy to achieve competitiveness. According to (Volná et al., 2015), innovation is intellectual capital as an effort to develop and market new products to industrial markets to meet consumer needs. Innovation is not only in production results but also in attitudes and the movement towards change. (Kotler, 2018) states that there are three innovation indicators: product quality, product variants, product style, and design. Innovative behavior is identified using several indicators, namely: Providing something new and valuable (Kamran & Ganjina, 2017; Saraih et al., 2019), being proactive

and creative (Nurfadilah & Irawati, 2021), looking for and implementing new ideas and ways (Hughes et al., 2021; Guckenbiehl & Corral de Zubielqui, 2022) the ability to try new and better processes (Saleh et al., 2023), behavior in ideas and get support to ensure implementation (Knezović & Drkić, 2021), Create opportunities, generate ideas, pursue ideas, communicate ideas, updating ideas, fighting for ideas, and overcoming challenges (Sudibjo & Prameswari, 2021; Rosyiana, 2022). The company's ability to innovate will make it easier to achieve competitive advantage. These actions require resources. Company resources are significant as capital during innovation actions. Consumer behavior is considered a force that can influence their behavior, ultimately influencing innovative behavior and company innovation as a whole. Identifying innovators is confirmed in the specific case of users of modern technology.

Innovative behavior between male and female business actors can be seen from their motivation to start their own business. These similarities can be called financial desires, the need for autonomy, responses to possible crises, and identifying profitable business opportunities. Several studies have found that women and male entrepreneurs are more similar than different Kamran & Ganjnia (2017), Owalla et al. (2021), Peter (2022). Previous research explored women's reasons (Peter, 2022). Becoming an entrepreneur is similar to male business actors, in general, to fulfill needs and achieve financial independence. Women seen from a traditional perspective are more dominated by men because running a business is for the desire to own financial freedom and the opportunity to work.

Based on previous literature searches, innovative behavior tends to discuss employees in companies responsible for behaving innovatively to achieve high performance. In contrast, in the business world, there is still limited research on the innovative behavior of business actors as a critical driver for companies to compete superiorly compared to competitors. So, the state of the art of this research refers to previous research, which still studied the innovative behavior of company employees but still needs to examine differences in innovative behavior based on differences in respondent characteristics, especially in MSMEs. So, this state-of-the-art research is also a novelty that will examine the innovative behavior of Culinary MSME entrepreneurs based on the characteristics of respondents using the Rasch model application.

METHODS

The Rasch measurement model is used in this research because it aims to assess the characteristics of business actors based on gender accurately. It is by the advantages of the Rasch model, which is known as one of the characteristics, logistics, and non-dynamic design (Linacre, 2016). It is about single-item response theory, where the quantity of selected latent personal characteristics and the number of other similar latent characteristics are expressed in different items; therefore, they can be calculated separately (Linacre, 2016). However, they can still be compared and contrasted with each other. The scores can be used in parametric statistics and testing the validity of the Rasch Model and its many aspects. This quantitative research uses surveys, questionnaires, scales, tests, and function analysis to make the research more accurate (Oone, 2021). This research aims to find gender-based innovative behavioral instruments for Culinary MSME business actors to achieve competitive capabilities. The instrument was developed by studying innovative behavioral concepts and theories, which were found to have logical validity. The initial draft instrument was tested on 10 Culinary MSME business actors in Pekanbaru. The revised instrument based on the test results was distributed to all respondents (Pranatawijaya et al., 2019).

Determining the sample, this research uses purposive sampling, where the researcher determines the number of samples and sample criteria that can be used in the research (Etikan, 2016). To obtain samples that represent the research objectives and meet the criteria for providing information. The sample criteria in this research are namely respondents who represent the population homogeneously working in Culinary MSMEs in Pekanbaru as many as 109 samples. The researcher's sample criteria were determined as follows: business actors from Culinary MSMEs domiciled in the Pekanbaru - Riau area. For primary data collection, we distributed questionnaires via a Google Form link or met directly with respondents who are culinary entrepreneurs in Pekanbaru, Riau, Indonesia. We also made direct observations

regarding differences in innovative behavior between female and male business actors as a consideration when we analyzed the data.

Table 1. Population & Sampel

Demographics		Frequency	Percentage (%)
Gender	Female	88	80,7
	Male	21	19,3

Source : Research Processing, 2023

The measurement scale for the instrument uses a Likert scale with five ratings, namely 1 for strongly disagree, 2 for disagree, 3 for unsure, 4 for agree, and 5 for strongly agree (Pranatawijaya et al., 2019). Testing this research instrument uses the Rasch Model in Winstep. Data processing starts from input data from the questionnaire from an ordinal scale converted to an interval scale by Winstep. Testing with Winstep is carried out on the tables: (1) Summary Statistics, (2) item measure and variable map, (3) Item (Column), (4) Item: Dimensionality, (5) Rating-test (partial – credit) scale, and (6) Differential Test. Innovative behavior of Culinary MSME business actors to achieve competitive capabilities: functional Rasch model (DIF) plot analysis and probability values table 30.4 aim to see the bias of respondents based on the respondent's background such as age, gender, domicile, and others (Sumintono & Widhiarso, 2013).

Table 2. Research Instrumen

Component	Item
Generating Ideas (K1) (Onne., 2000; Dincer et al., 2011)	I provide new ideas to improve competitive abilities
	I provide new ideas regarding the use of technology to improve competitive capabilities
	I always take the initiative and be creative in looking for the latest ideas from various reference sources
	I always take the initiative and be creative in generating ideas by utilizing technology to improve my competitive abilities
Promoting Ideas (K2) (Onne., 2000)	I always directly promote ideas to improve competitive abilities
	I always indirectly promote ideas to improve competitive abilities
Implementating Ideas (K3) (Onne., 2000); (Kang et al., 2016)	I always implement new ideas and new ways from every idea I find for my business
	I did this new thing as an effort to improve the previous process
Seeking Support (K4) (Dahiya & Raghuvanshi, 2022)	I always get support from other parties in implementing new ideas in your business
	I try to find support from other parties to implement new ideas
Facing Challenges (K5) (Sudibjo & Prameswari, 2021)	I always feel challenged to do new things according to consumer needs and desires
	I always feel challenged to do new things that my competitors haven't done
	I often overcome challenges in new things I do in business

Source : Research Processing, 2023

FINDINGS AND DISCUSSION

This research uses Rasch model data analysis to measure and explain more precisely the level of item difficulty, detect item and person fit, identify items that experience bias using DIF analysis, and measure the level of respondent innovation behavior (Linacre, 2016). The appropriate model for measuring data using a Likert scale is the Rasch model. The Rasch model converts ordinal data into interval data using logarithms (). This logarithmic function is used to produce an evenly-spaced interval scale. Then, calibration is carried out to determine the relationship between item difficulty and people's abilities using the same scale unit called the logit. The data in this study were prepared and entered using Winsteps software version 5.3.4 (Linacre, 2016).

Table 3. Summary of Instrument Statistics: Person And Item Reliability

	Person	Item
N	109	12
Measure		
Mean	3,02	0,00
SD	1,68	1,73
Outfit Mean Square		
Mean	1,01	1,01
SD	0,79	0,56
Separation	2,12	7,22
Reliability	0,82	0,98
Cronbach Alpha	0,83	

Source: Research Processing, 2023

Based on testing with the Rasch model, the 13 items of the innovative behavior instrument of business actors had more respondents who chose the answer in the affirmative, had a person reliability of 0.82, which means good, had a Cronbach's alpha value of 0.83 which means very good, and an item reliability value of 0.98, which means that the consistency between items in this instrument is classified as very good. These findings show that this instrument can be used in research because it meets the criteria based on the Rasch model (Zehrioglu & Mert, 2020). The findings of this test prove that the Rasch model can be used to look at three reliabilities at once, namely, person reliability, Cronbach's alpha reliability, and item reliability (van Buuren & Wijnmalen, 2015). Based on the findings of this research, which uses the Rasch model, the research instrument meets the fit criteria with various criteria so that the instrument in this research can measure what is being measured. The requirements for the instrument to be able to measure or be valid are essential because this is significantly related to the trustworthiness of a study (Zehrioglu & Mert, 2020).

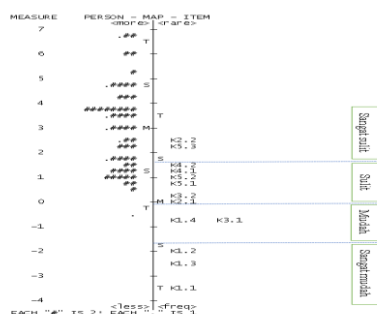


Figure 1. Distribution of respondent ability and Test Item Difficult

Based on the map image above, make a table as follows:

Table 4. Level of Difficulty of Research Instrument Items

	Dimension				
Level of difficulty	Generating Ideas	Promoting Ideas	Implementating Ideas	Supporting Ideas	Challages
Very Difficult		K2.2			K5.3
Difficult		K2.1	K3.2	K4.1, K4.2	K5.1, K5.2
Easy	K1.4		K3.1		
Very Easy	K1.1, K1.2, K1.3				

Source : Research Processing, 2023

The most accessible item to approve is item K1.1 (I provide new ideas to improve competitive capabilities). It means that item K1.1 is the easiest for respondents to carry out. Meanwhile, the most challenging item to approve is item K2.2 (I always indirectly promote ideas to improve competitive capabilities). It means that item K2.2 is the most challenging item for respondents to carry out. It means that respondents find it difficult to promote their ideas indirectly because individuals experience difficulty in promoting their innovative ideas because they are worried about not getting support or being well received by their internal environment and target market.

Innovation Behavior by Gender

Respondents' innovation behavior was classified based on the average value and standard deviation of the person logit (NLP) value. The classification is divided into four, namely low ($NL < -0.33$), moderate ($-0.33 \geq NL > 1.34$), high ($1.34 \geq NL \geq 4.7$), and very high ($NL > 4.7$). More details can be seen in table 4 below:

Item Difficulty.

The level of item difficulty can be seen from the logit value. Classification of item difficulty levels is based on the mean and standard deviation of the logit values. There are 12 items classified into four classifications, namely very easy ($NL < -1.73$), easy ($0.00 \geq NL \geq -1.73$), complex ($+1.73 \geq LN \geq 0.00$)

Table 5. Results of Innovation Behavior Based on Gender

Demographics	Very High	High	Moderat	Low
Gender				
Female	17	53	17	1
Male	3	11	7	-

Source : Research Processing, 2023

The findings of this research can be seen based on Table 4 above that in demographics based on Gender, men, and women have a high tendency in innovation behavior. For female respondents, the number of respondents in the high category dominates the number in other categories; likewise, for men, the number of respondents in the high category dominates the number of respondents in other categories. Interestingly, there was one female respondent who had low innovation behavior.

Differences in Innovation Behavior Based on Gender

The following analysis stage looks at differences in innovation behavior based on Gender as seen from the innovation behavior items. Differential item function (DIF) analysis carried out this difference analysis. This DIF analysis can show the response of each subgroup to each item on innovation behavior.

The criteria used to detect item bias are DIF contrast, Rasch-Welsch t, and Mantel-Haenzel probability. Based on these three criteria, it was found that four items were detected as biased, namely items K2.1, K3.1, K4.1, and K5.1. These four items meet the criteria for biased items because they meet 2 or 3 criteria for items considered biased. More details can be seen in table 5 below:

Table 6. Results of Differences in Innovation Behavior Based on Gender

Item	Male		Female			DIF Contrast		Joint S.E	Rasch-Welch		MH	
	Obs AV	Dif Measure	DIF S.E	Obs AV	DIF Measure	DIF S.E			t	p	Chi-sq	p
K1.1	0,04	-3,91	0,77	-0,01	-3,34	0,38	-0,57	0,86	-	0,5168	1,5231	0,2172
K1.2	0,03	-2,09	0,52	-0,01	-1,88	0,28	-0,20	0,60	-	0,7382	0,4160	0,5189
K1.3	0,03	-2,67	0,56	-0,01	-2,41	0,31	-0,26	0,64	-	0,6888	0,5866	0,4437
K1.4	-0,01	-0,76	0,52	0,00	-0,80	0,25	0,04	0,57	0,07	0,9457	0,6896	0,4063
K2.1	-0,28	1,43	0,43	0,07	-0,26	0,24	1,69	0,50	3,41	0,0017	4,8111	0,0283
K2.2	-0,18	2,84	0,34	0,04	2,24	0,20	0,61	0,40	1,53	0,1355	1,8775	0,1706
K3.1	0,15	-1,55	0,51	-0,03	-0,56	0,25	-0,99	0,57	-	0,0930	13,9460	0,0002
K3.2	0,01	0,30	0,51	0,00	0,35	0,23	-0,05	0,56	-	0,9284	0,2176	0,6409
K4.1	-0,20	1,93	0,39	0,05	0,99	0,22	0,95	0,45	2,11	0,0423	1,4388	0,2303
K4.2	0,18	0,56	0,50	-0,04	1,56	0,21	-1,00	0,54	-	0,0762	0,0014	0,9704
K5.1	0,20	-0,23	0,52	-0,05	1,03	0,22	-1,26	0,56	-	0,0339	1,8381	0,1752
K5.2	-0,07	1,23	0,45	0,02	0,83	0,23	0,40	0,50	0,80	0,4320	1,9889	0,1585
K5.3	0,11	1,93	0,39	-0,03	2,35	0,20	-0,42	0,44	-	0,3412	1,3757	0,2408

Source :Research Processing, 2023

Next, to get a clearer picture, visualization is used in the form of a DIF graph for each component or dimension of innovation behavior. The graph can be seen below:

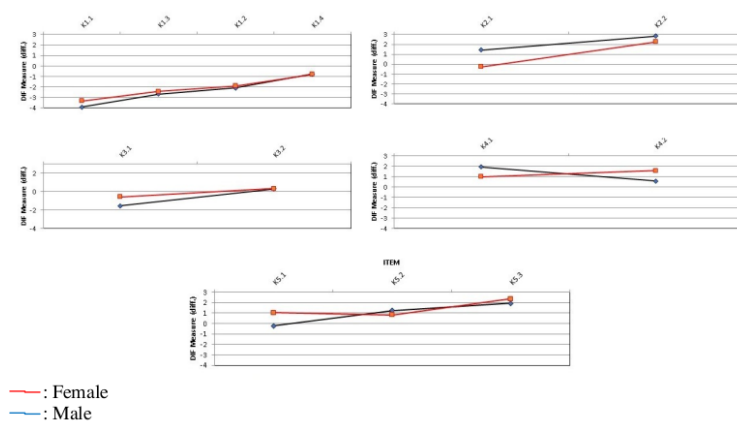


Figure 2. Visualization of Innovation Behavior Components

Based on Graph 1, it can be seen in the idea generation component that men tend to agree more easily to this component than women, but this difference is not very significant. In

promoting ideas, women tend to agree with this component more quickly than men. A significant difference occurs in item K2.1 (I always directly promote ideas to improve competitive capabilities). Significant differences can also be seen in item K3.1 (I consistently implement new ideas and new methods from every idea I find for my business). In implementing ideas, men agree more easily to this component than women. In seeking support, women more readily agree to item K4.1 (I always get support from other parties in implementing new ideas in business). The differences in these items are significant.

Meanwhile, men agree more readily to item K4.2. In facing challenges, men agree more easily to this component than women. Significant differences in item K5.1 (I always feel challenged to do new things according to consumer needs and desires). The findings of this research are in line with research by Frederick et al., (2007); Kamran & Ganjina, (2017); Hermundsdottir & Aspelund (2022) regarding the principles of innovation that innovators must always be active in creating new ideas and opportunities or sources of innovation. Innovators start small, then have ideas to build, develop, and enable to grow with the proper planning and expansion in the right way at the right time. In this case, the respondents showed their awareness of actively creating new ideas and being good at seizing opportunities from small things to increase the competitiveness of their business. Innovative behavior increases the quantity and variety of products and services and improves the quality of products and services and success in competition (Kamran & Ganjina, 2017). Furthermore, this research shows that women are more risk-averse in facing risks because women do not tolerate significant risks, while men can control themselves to avoid risks (Astuti, 2017). Men prefer challenges to risks. Based on this, it is known that women are more risk-averse than men or that gender influences the innovative behavior of business actors in avoiding risks.

However, this finding differs from research by Sherlywati et al., (2017) that business actors are more willing to take risks even though they do not dare to take on serious challenges. Gender differences in innovative behavior related to risk avoidance have a significant effect; men tend to accept higher levels of risk than women. The findings of this research also support research results (Kristina & Wiratmaja, 2018) that women tend to avoid risks (risk averse) compared to men who tend to take risks (risk takers). Women prefer to make decisions with low risk. Men are much braver at taking risks than women. While women have different attitudes towards risk. It is because there are more women oriented to more detailed matters regarding the possibility of failure and more aware of the risk symptoms that arise, especially from the financial side.

This research shows that female business actors tend to avoid risks because they are more careful, so the research results align with (Astuti, 2017) that women are more careful and tend to avoid risks than men. However, according to Sunanda & Hiremani (2018), female business actors play a significant role in economic growth in developing countries to increase prosperity and welfare through their business activities. Suprani (2017) research shows that female entrepreneurs run their businesses with partners. Women entrepreneurs still need to have the complete trust of their husbands in running their businesses. Meanwhile, according to Arbain et al., (2015); Yusnita & Wahyudin (2019), Diana (2020), gender is used to identify differences between men and women from a non-biological perspective which arise as a result of social, religious, cultural and customary influences that develop in local society.

Gender is a difference in the function of social roles constructed by society related to the responsibilities of men and women. Gender is understood as how men and women play roles and act according to local values, norms, and social and cultural regulations. So gender can be said to be differences in roles, functions, and responsibilities between men and women, formed by social culture and can change according to developments over time. The findings of this research are also in line with Diana, (2020) that men are more work-oriented, objective, independent, aggressive, and generally have higher self-confidence than women. Apart from that, male business actors have better abilities than women in managerial responsibilities. Meanwhile, women are seen as more passive-oriented. Apart from that, male business actors have better abilities than women in managerial responsibilities. Meanwhile, women are seen as more passive, consideration-oriented, more sensitive, and have lower organizational responsibility than men.

However, the findings of this research also show that female business actors are more tolerant, flexible, creative, enthusiastic, and energetic and can relate to the community environment. Female entrepreneurs have a medium level of self-confidence and tend to be emotional (Alma, 2013). The results of this study are in line with the research (Georgellis et al., 2000) innovative business entrepreneurs are described by their ability to plan for the future, creativity in innovation, and determination to take risks. This will facilitate business development and success because innovation is a critical element influencing entrepreneurial business performance. Innovation and planning are crucial elements in maintaining the survival of a business. Small business owners or managers who want their company to grow must have skills in innovation and planning. Support services for innovation should consider providing different approaches to supporting entrepreneurship and small businesses. It involves integrating consultancy on strategic planning with innovation projects for small businesses and entrepreneurs (Georgellis et al., 2000; Lukes & Stephan, 2017; Mamman, 2020; Ben Isaiah Peter, 2022).

CONCLUSION

This research uses the Rasch Model Analysis Method to measure the innovation behavior of culinary MSME entrepreneurs in improving their business competitiveness. The results of this research conclude that 13 research instruments on the innovation behavior of culinary MSME entrepreneurs can be used in research because they meet the fit or valid and reliable criteria. The 13 instrument items are related to the five main components with 13 question items: generating ideas, promoting ideas, implementing ideas, seeking support, and facing challenges. This research found that generating ideas is a dimension that is easier to do than other dimensions. On the other hand, the dimensions of promoting, implementing, supporting, and challenging tend to take much work for respondents to carry out. The most accessible item to agree on is providing new ideas to improve competitive capabilities).

Meanwhile, the items that are most difficult to approve are items that always indirectly promote ideas to improve competitive capabilities. It means that this item is the most challenging item for respondents to carry out. It means that respondents find it difficult to promote their ideas indirectly because individuals experience difficulty in promoting their innovative ideas because they are worried about not getting support or being well received by their internal environment and target market. There are significant differences in items that directly promote ideas to improve competitive ability). Significant differences can also be seen in consistently implementing new ideas and new ways from every idea I find for my business). In implementing ideas, it appears that men agree more easily to this component than women. In the component of seeking support, women agree more easily. In facing challenges, men agree more easily to this component than women.

Based on the conclusions of this research, this research contributes to developing the knowledge of business actors' innovation behavior, seen from their readiness to innovate based on gender to improve business performance. Designing innovation policies and training programs that are more inclusive and provide better support for MSME actors. The training can be in the form of strengthening innovation behavior soft skills regardless of their gender, to behave better in innovation to achieve sustainable competitive advantage. Of course, this research significantly contributes to developing marketing strategy science, especially the study of the innovation behavior of MSME business actors in achieving business performance by optimizing their sustainable competitive advantage.

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