

Design Development for Product Extension in The Context of Public Acceptance in Malaysia

***Afrina Rauhah Abdul Jamil¹, Muhammad Fauzan Abu Bakar²**

^{1,2}College of Creative Arts, Universiti Teknologi MARA, Selangor Branch, Puncak Alam Campus, Malaysia

*afrinarauhahaj@gmail.com¹, fauzan@uitm.edu.my²

***Corresponding author**

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ABSTRACT

This study investigates the role of design development in product extension and its impact on public acceptance in Malaysia. While product and brand extensions offer businesses opportunities for growth, they also present challenges related to brand equity and consumer perception. This research examines how businesses can strategically leverage design elements to enhance consumer acceptance of product extensions. A quantitative approach was employed, utilizing a survey-based methodology with a 7-point Likert scale to assess public responses. The study applies Partial Least Squares Structural Equation Modelling (PLS-SEM) to validate the relationships between key constructs, including design development, parent brand influence, product developer contribution, and consumer attitudes. Findings indicate that effective design development significantly impacts public perception, brand image, and purchase intention, reinforcing the importance of an integrated design approach in product extension strategies. This research contributes to the field by providing a theoretical framework and empirical insights for businesses seeking to optimize their product extension strategies through design innovation.

Keywords: Product Extension, Design Development, Public Acceptance, Brand Equity, Consumer Perception.



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1 INTRODUCTION

When a corporation applies one of its established brand names on a new product or new product category, this is referred to as a brand extension. It's also known as brand stretching. A brand extension strategy is to leverage the company's existing brand equity to help launch its newest product. The corporation is banking on its current consumers' brand loyalty, which it expects will make them more open to new goods from the same brand. A successful brand extension can assist a company in reaching out to new demographics, expanding its client base, increasing sales, and increasing overall profit margins (Kopp, 2021). Past studies found that customers trust some companies and products/service brands based on the company and product/service reputation and consumer experience (Sharabati, Al-Haddad, Judeh, & Al-Badawi, 2022).

A brand extension uses a well-known product's reputation, popularity, and brand loyalty to launch a new product. To be successful, the old product and the new item must have a logical relationship. Brand dilution can occur when there is a weak or non-existent relationship. This can even be harmful to the parent brand (Kopp, 2021). Product extension, on the other hand, is the practice of launching a new product or range of products that are unrelated to the existing product category but are sold under

the same brand name. A product extension occurs when a company that produces soft beverages begins offering snack items under the same brand name. The goal of a product extension is to use the existing brand name to penetrate new markets and appeal to a wider range of consumers. Product line extensions have received increasing attention in marketing practice as they allow multi-product or service firms to meet diverse customer needs, expand sales revenue, and increase market share (Cho & Janda, 2023).

Both brand extension and product extension have advantages and disadvantages, and companies must carefully weigh the risks and rewards of each approach before implementing it. To guarantee that the additional offers are consistent with the company's brand identity and fulfil the requirements and expectations of consumers, successful brand and product extensions require careful planning, research, and implementation. The extent to which the public accepts and welcomes a new variation of an existing product is referred to as public acceptance of a product extension. A product extension is an updated version or expansion of an existing product line that is aimed to meet changing consumer wants or preferences. Past researchers have stated that today, consumers are interested in the product; they want to access whatever they want in terms of time, location, quantity, and quality. This situation increases the market competition in all sectors (Yasar & Polat, 2022). A product's public acceptance can be influenced by a number of factors, including perceived need: If the public perceives a need for the product, it is more likely that it will be accepted. For example, if a new medical gadget that can heal a previously incurable condition is introduced, the public is likely to accept it. Therefore, a proper marketing process needs to be planned carefully followed by the market research.

A marketing process is a set of procedures that a business takes to promote and sell its products or services to clients. Understanding client needs and preferences, designing a marketing mix, implementing a marketing plan, and evaluating its effectiveness are all part of the process. For product extension, the marketing process would go through the parent brand's image transfer, information, parent brand characteristics and an individual product difference as an addition to the marketing process. Marketing innovation is a new marketing method that involves significant changes in product design, product placement, and promotion or product prices (Sulton, L, A, & Sawabi, 2022). The main purpose of marketing innovation is to overcome better habits, penetrate new markets or position new company products on the market with the aim of increasing company sales (Sulton, L, A, & Sawabi, 2022). Market Research: The first phase in the marketing process is to do research in order to better understand the target audience's needs, tastes, and behaviours. Customer demographics, market trends, and competitor analysis are all part of this process.

2 LITERATURE REVIEW

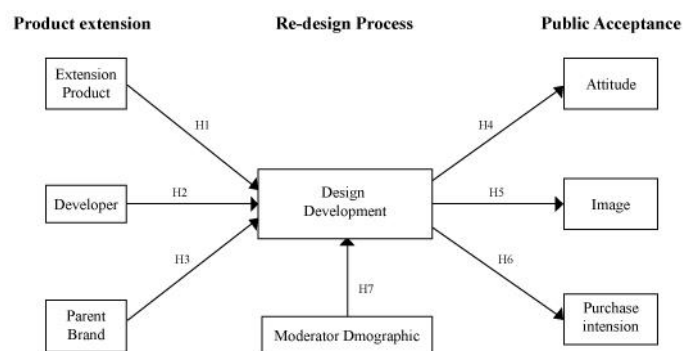


Figure 1 Proposed Theoretical Framework

2.1 Product Extension

Product extension is a strategic approach used by businesses to introduce new variations of existing products under the same brand name. While this method capitalizes on brand loyalty and market familiarity, its success largely depends on how well the extension aligns with consumer expectations and market demand (Hesse et al, 2022). Effective product extensions enhance brand perception, increase revenue streams, and strengthen customer retention. However, poor execution can lead to brand dilution, where an extension that lacks relevance or quality negatively impacts the parent brand's reputation. Research suggests that companies must carefully assess market needs, consumer behaviour, and design innovation before launching product extensions to ensure sustainable growth (Falana et al., 2024).

Product extension is a double-edged sword—when done right, it reinforces brand identity and expands market reach, but when misaligned with consumer preferences, it risks damaging brand trust. A critical factor that determines success is design development, which shapes public perception and usability (Singh et al., 2012). In the Malaysian market, where consumer expectations are evolving, integrating user-centric design and cultural relevance into product extensions is crucial. Companies should prioritize research-driven innovation, ensuring that new offerings provide added value rather than merely capitalizing on existing brand recognition. Ultimately, product extension should be a well-calibrated strategy that balances brand evolution with consumer engagement (Manhas et al., 2024).

2.2 Product Developer

Product developers play a pivotal role in ensuring the success of product extensions by bridging the gap between market needs, brand identity, and design innovation. Their responsibilities go beyond technical execution—they must analyse consumer behaviour, anticipate trends, and incorporate creative yet functional designs that enhance user experience (Dwivedi & Merrilees, 2013). In the context of this article, the effectiveness of a product extension is largely dependent on how well developers integrate design development with public acceptance. A well-structured product extension strategy, guided by an insightful developer, can strengthen brand equity and drive consumer engagement. However, if developers fail to align their innovations with brand values and market demands, the extension may face rejection, leading to wasted resources and potential harm to the parent brand's reputation (Pitta & Prevel Katsanis, 1995).

Product developers should adopt a more user-centric and data-driven approach, especially in a dynamic market like Malaysia. The evolving expectations of consumers demand continuous innovation, not just in aesthetics but also in usability, sustainability, and relevance (Kirchner-Krath et al., 2024). Successful product extensions are not merely about adding features but about creating meaningful improvements that resonate with target audiences. Developers must collaborate closely with marketing teams, designers, and researchers to ensure that each extension contributes to a cohesive brand narrative. In essence, a product developer's role is not just to innovate but to strategically craft solutions that balance business objectives with consumer expectations (Pitta & Prevel Katsanis, 1995).

2.3 Parent Brand

In this study, the parent brand plays a crucial role in determining the success of product extensions, particularly in terms of brand fit, image transfer, and consumer acceptance. The primary focus is to ensure that every product extension aligns with the original brand identity so that consumers can still recognize and trust the new offering. The study highlights that when there is a strong connection between the parent brand and the extended product, consumers are more likely to accept and purchase it. Conversely, a lack of alignment or inconsistency with the parent brand's identity can lead to brand dilution, where consumer trust in the brand weakens (Deng & Messinger, 2022).

From a strategic perspective, the parent brand serves as the key driver of consumer trust, leveraging its established reputation and credibility to introduce new product extensions. This study emphasizes how factors such as brand influence, consumer trust in the original brand, and marketing strategies directly impact the success of an extension. Therefore, it suggests that companies must maintain brand

identity consistency, ensuring that each product extension provides clear added value to consumers without compromising the parent brand's position in the market (Müge Arslan & Korkut Altuna, 2010).

2.4 Design Development

Design development is a critical pillar in the success of product extensions because it determines how well a new product resonates with consumers while staying true to the parent brand's identity. This study highlights how design plays a major role in shaping public perception, product usability, and market competitiveness. A well-executed design ensures that a product extension feels like a natural evolution rather than a forced addition, creating a seamless experience for existing customers while attracting new ones. In the Malaysian market, where consumer preferences are increasingly driven by aesthetics, functionality, and cultural relevance, design development must be both strategic and consumer centric (Tina Gada & Shreya Chudasama, 2024; Veryzer & Borja de Mozota, 2005).

The most important aspect of design development in product extension is maintaining a balance between innovation and familiarity. If a new product strays too far from the parent brand's established image, it risks alienating loyal customers. However, if it lacks innovation, it may fail to capture consumer interest in an already saturated market. This is why design thinking methodologies should be applied—focusing on consumer insights, iterative prototyping, and user experience testing before a product reaches the market. Companies that integrate user-centric design, sustainability, and technological adaptability into their product extensions will have a greater chance of gaining public acceptance and long-term success (Dewulf, 2013).

2.5 Consumers Attitudes on Product Extension

Customers' attitudes toward product extension are shaped by several key factors, including brand familiarity, perceived quality, relevance, and trust in the parent brand. A well-executed product extension can strengthen brand loyalty and encourage consumers to explore new offerings, while a poorly planned extension can lead to confusion or even damage the parent brand's reputation. Research indicates that consumers are more likely to accept a product extension if they perceive it as a logical and valuable addition to the brand's existing portfolio. Perceived fit between the original brand and its extension plays a critical role in shaping positive attitudes, as consumers tend to reject products that seem inconsistent with the brand's established identity or expertise (Deng & Messinger, 2022; Müge Arslan & Korkut Altuna, 2010).

However, product extensions also come with risks. If the new product fails to meet expectations, it can negatively impact not only the extension itself but also the brand as a whole. Brand dilution occurs when too many extensions weaken the brand's core identity, making it harder for consumers to distinguish between products. To mitigate this, companies should conduct extensive market research, test consumer perceptions, and ensure a clear value proposition before launching an extension. Additionally, marketing strategies that emphasize the benefits and continuity of the extension—while reinforcing the parent brand's strengths—can help build positive consumer attitudes and drive higher acceptance rates (Deng & Messinger, 2022; Martínez & Pina, 2003).

2.6 Consumers Attitudes on Product Extension

Product extension has a direct and significant impact on a brand's image, either strengthening its reputation or diluting its identity. When a product extension is well-executed—aligning with the brand's values, quality standards, and consumer expectations—it can enhance brand perception, reinforce consumer trust, and attract new market segments. Consumers tend to associate the new product with their previous experiences with the parent brand, which can create a positive spillover effect. If the extension successfully meets customer needs and delivers added value, it strengthens the brand's credibility and positions it as a versatile and innovative player in the industry (Müge Arslan & Korkut Altuna, 2010).

However, product extensions also come with potential risks. A poorly designed or irrelevant extension can weaken brand equity and lead to brand dilution. If the new product does not meet consumer expectations or deviates too far from the brand's core identity, it may cause confusion or even erode trust. For instance, a luxury brand introducing a budget-friendly line without proper differentiation may lose its premium appeal. Similarly, frequent or excessive product extensions can make a brand appear unfocused, leading consumers to question its authenticity and quality consistency. Therefore, companies must adopt a strategic and research-driven approach when extending their product lines to ensure that each new offering aligns with the brand's established image while maintaining relevance in the market (Klink & Smith, 2001).

2.7 Consumers Attitudes on Product Extension

Product extension plays a crucial role in influencing consumer purchase intentions, as it can either encourage or discourage buying decisions depending on how well the extension aligns with consumer expectations and brand perception. A well-executed product extension often leads to increased purchase intention, as consumers tend to trust extensions that come from familiar and reputable brands. When a brand successfully communicates the value, quality, and relevance of its new offering, it reinforces consumer confidence and drives purchase behaviour. Additionally, product extensions that offer innovation, improved functionality, or better affordability can attract new market segments and strengthen existing customer loyalty (Naeem & Abdul Sami, 2020).

However, changes in purchase intentions are not always positive. If a product extension fails to meet consumer expectations or appears inconsistent with the brand's core values, it may lead to hesitation or even rejection. Consumers may question the authenticity of the extension, especially if it lacks a logical connection to the parent brand. In some cases, brand dilution can occur when too many extensions confuse buyers, making them less likely to purchase from the brand altogether. Therefore, to positively influence purchase intentions, brands must ensure that extensions are well-researched, clearly differentiated, and positioned effectively to highlight their unique value while maintaining a strong connection to the parent brand's established image (Ting et al., 2016).

3 RESEARCH METHODOLOGY

This study employs a quantitative research methodology to examine the impact of design development on product extension and public acceptance in Malaysia (George & Merkus, 2021). A survey-based approach was used, utilizing a 7-point Likert scale questionnaire to collect responses from targeted participants (Khandelwal, 2021; Anjaria, 2022; Yamashita, 2022). The study adopted a snowball sampling technique, focusing on urban populations in Kuching and Kuala Lumpur, specifically targeting individuals aged 21 and above who possess purchasing power and influence over consumer decisions (Marcus et al., 2017; Naderifar, Goli, & Ghaljaie, 2017; Reagan et al., 2019). The research method involved Partial Least Squares Structural Equation Modelling (PLS-SEM) for data analysis, ensuring a robust examination of relationships between key variables, such as design development, parent brand influence, product developer contribution, and consumer attitudes. To enhance reliability and validity, bootstrapping and blindfolding techniques were applied, verifying the accuracy and consistency of the results. The study also incorporated Importance-Performance Mapping analysis (IPMA) to create prediction for the variables of the study. By using a structured and empirical approach, this methodology provides a comprehensive framework to assess how product extension strategies can be optimized through design innovation, ultimately shaping consumer perceptions and purchase intentions.

4 FINDINGS

The findings demonstrate using analysis using PLS Algorithm to explain the proposed theoretical framework of the study. There is one antecedent that is important to be considered for design

development to be execute for a product extension.

4.1 Reliability and Validity Results

Table 1: Reliability and Validity Results

	Cronbach's alpha	Composite reliability (rho a)	Composite reliability (rho c)	Average variance extracted (AVE)
Attitude	0.884	0.890	0.915	0.684
Design Development	0.805	0.831	0.865	0.563
Extension Product	0.859	0.861	0.899	0.640
Image	0.878	0.886	0.912	0.675
Parent Brand	0.827	0.833	0.879	0.592
Product Developer	0.875	0.897	0.909	0.667
Purchase Intention	0.862	0.863	0.901	0.645

4

PLS-SEM analysis shows that the study has strong validity and reliability. All variables fall between 0.563 and 0.684, which is the acceptable threshold of 0.5, but the discriminant validity values are higher. This demonstrates how distinct and well-differentiated the constructs are. Furthermore, the reliability of the constructs is validated by the Composite Reliability and Cronbach's Alpha scores, where all values exceed the benchmark of 0.5. In particular, the range of Cronbach's Alpha is 0.805 to 0.884, and the range of Composite Reliability scores is 0.865 to 0.915. These results validate the robustness of the measurement model by indicating that the constructs have high levels of internal consistency and stability.

4.2 Path Coefficient Results

Table 1: Path Coefficient PLS Algorithm Results

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)
Design Development -> Attitude	0.677	0.678	0.079	8.530
Design Development -> Image	0.791	0.790	0.050	15.675
Design Development -> Purchase Intention	0.707	0.708	0.069	10.183
Extension Product -> Design Development	0.246	0.238	0.126	1.957
Parent Brand -> Design Development	0.348	0.361	0.118	2.946
Product Developer-> Design Development	0.177	0.172	0.097	1.815

The findings of this study underscore the strong validity and reliability of the research model, as evidenced by the comprehensive PLS-SEM analysis. The discriminant validity values for all variables fall between 0.563 and 0.684, comfortably surpassing the acceptable threshold of 0.5. This indicates that the constructs are not only distinct but also well-differentiated, reinforcing the integrity of the measurement model.

The reliability of the constructs is further substantiated by robust Composite Reliability and Cronbach's Alpha scores. All values exceed the benchmark of 0.5, with Cronbach's Alpha ranging from 0.805 to 0.884 and Composite Reliability scores spanning from 0.865 to 0.915. These high reliability

scores suggest that the constructs possess substantial internal consistency and stability, which is crucial for the dependability of the model's findings.

The analysis of the Path Coefficients reveals significant relationships between the variables, with coefficients ranging from 0.177 to 0.791. This indicates a variation in the strength of the relationships, yet all are statistically significant. The lowest observed p-value of 0.000 highlights the robustness of these findings, indicating that the relationships are not due to random chance.

The significance of these relationships is further classified using a star rating system: three stars (*** for highly significant relationships ($p < 0.01$), two stars (**) for moderately significant relationships ($p < 0.05$), and one star (*) for marginally significant relationships ($p < 0.10$). Specifically, the paths DD → AT, DD → IMG, and DD → PI exhibit high levels of significance with p-values less than 0.01. The paths EP → DD and PB → DD are significant at the $p < 0.05$ level, while PD → DD shows significance at the $p < 0.10$ level. These results illustrate that all assessed paths significantly contribute to the explanatory power of the model.

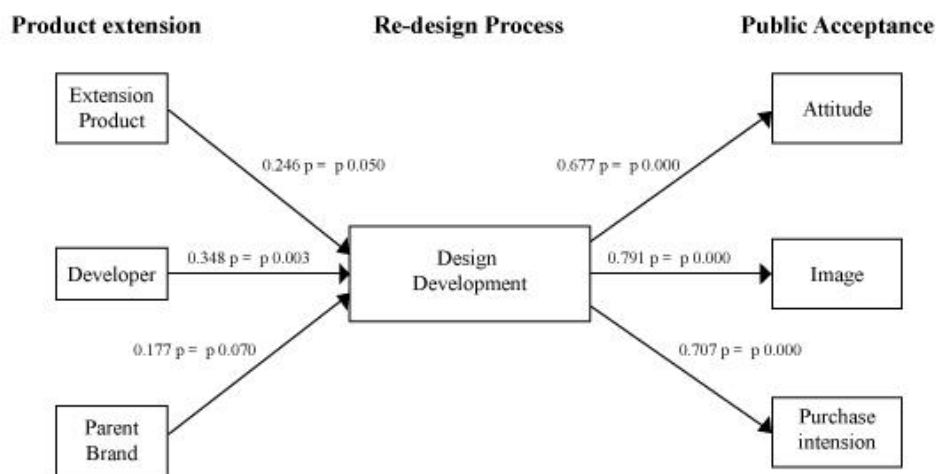


Figure 2 Proposed Theoretical Framework

These findings are critical as they validate the theoretical framework underpinning the study and provide empirical evidence for the hypothesized relationships. The high discriminant validity values confirm that the constructs are measuring distinct concepts, which is essential for ensuring the precision of the model. The strong reliability scores affirm that the constructs are consistently measured across different contexts, enhancing the credibility of the results.

The significant path coefficients indicate that the relationships between the variables are not only present but also impactful. This highlights the practical implications of the study, suggesting that interventions or changes in one variable can have meaningful effects on the others. For instance, the highly significant paths involving DD (e.g., DD → AT, DD → IMG, and DD → PI) suggest that the underlying factors represented by DD are critical drivers in the model and should be a focal point for strategic initiatives.

5 CONCLUSION

Based on these findings, other brands are recommended to adopt similar analytical approaches to evaluate the relationships between their key variables. By applying PLS-SEM, brands can obtain detailed insights into the significance and strength of these relationships, allowing for data-driven decision-making. It is recommended that future design development focus on differentiation which ensuring that constructs are distinct and well-differentiated. Brands should regularly evaluate their

product markets to verify that their marketing and operational strategies address unique aspects of consumer behaviour and preferences. The finding shows that certain paths (e.g., DD → AT, DD → IMG, and DD → PI) are highly significant. Brands should identify and prioritize key drivers within their models, focusing resources on areas that have the most substantial impact on consumer attitudes and intentions. Understanding the varying strengths of relationships allows brands to tailor their interventions. For example, significant paths with lower p-values indicate areas where strategic changes can lead to substantial improvements in consumer outcomes. Regular market research can help brands stay updated with changing consumer dynamics and ensure that their strategies remain effective and relevant.

In conclusion, this thorough analysis affirms that the research model underscores the significant relationships between the variables. These findings provide a solid foundation for future research and practical applications, ensuring that the insights derived from this study are both reliable and impactful. Other brands are encouraged to leverage these methodologies and insights to enhance their strategic initiatives and achieve better outcomes.

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Both authors are the sole contributors to the development of the article and the research. The first author is the PI of the research, while the second author is the supervisor of the research.

CONFLICT OF INTEREST

There are no conflicts of interest.

REFERENCES

- Albertsen, L., Wiedmann, K.-P., & Schmidt, S. (2020). The impact of innovation-related perception on consumer acceptance of the consumer acceptance process. *Food Quality and Preference*, 1-10.
- Albert, J. M. (2019). The Product Developer in the Centre of Product Development: A Systematic Literature Review on Describing Factors.
- Budi Rahayu, R. L. (2023). Product Quality Price and Image Brands Against Purchase Decisions. *Journal of Industrial Engineering and Management (JAIEM)*.
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., . . . Walker, K. (2020). Purposive sampling: complex or simple? Research case examples. *Journal of Research in Nursing*, 2-3.
- Chen, T., LUH, D. B., & Li, X. S. (2023). Building Product Family Platform and ProductService System Based on Extension InnovationMethod.
- Cho, J., & Janda, S. (2023). Reciprocity in upward product line extensions: A longitudinal study. *Journal of Retailing and Consumer Services*.
- Cho, J., & Janda, S. (2023). Reciprocity in upward product line extensions: A longitudinal study. *Journal of Retailing and Consumer Services*.

- Davcik, N. d. (2015). Towards a unified theory of brand equity: conceptualizations, taxonomy and avenues for future research. *Journal of Product & Brand*, 3-17.
- Demirel, D. (2022). The effect of service quality on customer satisfaction in digital age: customer satisfaction-based examination of digital CRM. *Journal of Business Economics and Management*
- Deng, Q. (Claire), & Messinger, P. R. (2022). Dimensions of brand-extension fit. *International Journal of Research in Marketing*, 39(3), 764–787. <https://doi.org/10.1016/J.IJRESMAR.2021.09.013>
- Dewulf, K. (2013). Sustainable Product Innovation: The Importance of the Front- End Stage in the Innovation Process. In D. Coelho (Ed.), *Advances in Industrial Design Engineering*. IntechOpen. <https://doi.org/10.5772/52461>
- Dwivedi, A., & Merrilees, B. (2013). Brand-extension feedback effects: an Asian branding perspective. *Asia Pacific Journal of Marketing and Logistics*, 25(2), 321–340. <https://doi.org/10.1108/13555851311314086>
- Falana, W. O., Aspara, J., & Frösén, J. (2024). The impact of Janus fit brand extensions on perceived brand innovativeness. *Journal of Business Research*, 179, 114674. <https://doi.org/10.1016/J.JBUSRES.2024.114674>
- Fleetwood, D. (n.d.). Sampling Methods: Types with Examples. Retrieved from Question Pro: <https://www.questionpro.com/blog/types-of-sampling-for-social-research/>
- Frost, J. (2018). Introduction to Bootstrapping in Statistics with an Example. Retrieved from Statistics By Jim: <https://statisticsbyjim.com/hypothesis-testing/bootstrapping/>
- George, T., & Merkus, J. (2021, december 3). Scribbr. Retrieved from <https://www.scribbr.com/methodology/explanatory-research/#:~:text=Explanatory%20research%20is%20a%20research,occurring%2C%20and%20predict%20future%20occurrences.>
- Hair Jr., J. F. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Springer Nature.
- Hawash, B., Mukred, M., & Mokhtar, U. A. (2023). The Influence of Big Data Management on Organizational Performance in Organizations: The Role of Electronic Records Management System Potentiality. *Interdisciplinary Journal of Information, Knowledge and Management*, 69.
- Henard, D. a. (2001). Why some new products are more successful than others. *Journal of Marketing Research*, 362-375.
- Hesse, A., Bündgen, K., Claren, S. et al. Practices of brand extensions and how consumers respond to FMCG giants' greening attempts. *J Brand Manag* 29, 520–537 (2022). <https://doi.org/10.1057/s41262-022-00274-w>
- Hoskins, J. D., & Griffin, A. (2019). New product performance advantages for. *Journal of Product & Brand Management*, 812.
- Husnain, M. &.-x. (2021). Exploring Brand Hate and the Association Between Similar Competitor Offer and Brand Equity: A Moderated-Mediation Model. *Frontiers in Psychology*.
- Jang, S., Hye, K. J., Liu, T., & Yang, H. (2022). What Aspects Drive the Success of a Low-Fit Extension Retailer? A Structural Topic Modeling Approach Using Product Reviews: An Abstract. In *Developments in Marketing Science: Proceedings of the Academy of Marketing Science*. Springer, Cham.
- Jihoon Cho, S. j. (2020). When Do Upward Product Line Extensions Help Overall Revenue? *Proceedings of the European Marketing Academy*.
- Jin, J. (2021). Discussion on How Extension Strategies Works to Prevent Product Sales from Declining.
- José Carlos Casas-Rosal, M. S. (2021). Food market segmentation based on consumer preferences using outranking multicriteria approaches. *Special Issue: Mind and Cognition in the Future of Decision Support Systems*.
- Joseph Hair a, A. A. (2022). *Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example*. *Research Methods in Applied Linguistics*.

- Joseph, T. (2022, December 13). What Is Bootstrapping Statistics? Retrieved from built in: <https://builtin.com/data-science/bootstrapping-statistics>
- Kaixin Sha, Y. L. (2022). Product redesign considering the sensitivity of customer satisfaction. *Artificial Intelligence for Engineering Design Analysis and Manufacturing*.
- Kang, M.-J., & Hwang, H.-J. (2019). The effects of the parent brand-congruity on the attitude to expanded brand.
- Keller. (1999). Designing and implementing branding. *Journal of Brand Management*, 315-332.
- khandelwal, M. (2021, November 19). Everything you need to know about the Likert Scale. Retrieved from Survey Sensus:
- Kirchner-Krath, J., Morschheuser, B., Sicevic, N., Xi, N., von Korflesch, H. F. O., & Hamari, J. (2024). Challenges in the adoption of sustainability information systems: A study on green IS in organizations. *International Journal of Information Management*, 77, 102754. <https://doi.org/10.1016/J.IJINFOMGT.2024.102754>
- Klink, R. R., & Smith, D. C. (2001). Threats to the External Validity of Brand Extension Research. *Journal of Marketing Research*, 38(3), 326–335. <https://doi.org/10.1509/jmkr.38.3.326.18864>
- Kopp, C. M. (2021, February 26). Brand Extension: Definition, How It Works, Example, and Criticism. Retrieved from Investopedia: <https://www.investopedia.com/terms/b/brand-extension.asp>
- Leighton, K., Kardong-Edgren, S., & Foisy-Doll, C. (2021). Using Social Media and Snowball Sampling as an Alternative Recruitment Strategy for Research. *Clinical Simulation in Nursing*, Pages 37-42.
- Li, X. Z. (2023). Time for upgrades? In time for consumers and competition. *International Journal of Production Economics*.
- Luo, A. (2022). Content Analysis | Guide, Methods & Examples. Retrieved from Scribbr: <https://www.scribbr.com/methodology/content-analysis/>
- Manhas, P. S., Sharma, P., & Quintela, J. A. (2024). Product Innovation and Customer Experience: Catalysts for Enhancing Satisfaction in Quick Service Restaurants. *Tourism and Hospitality*, 5(3), 559–576. <https://doi.org/10.3390/tourhosp5030034>
- Martínez, E., & Pina, J. M. (2003). The negative impact of brand extensions on parent brand image. *Journal of Product & Brand Management*, 12(7), 432–448. <https://doi.org/10.1108/10610420310506001>
- Müge Arslan, F., & Korkut Altuna, O. (2010). The effect of brand extensions on product brand image. *Journal of Product & Brand Management*, 19(3), 170–180. <https://doi.org/10.1108/10610421011046157>
- Markham, S. a. (2013). Product development performance assessment study. *Journal of Product Innovation Management*, 408-429.
- Marva Binte Abid, S. H. (2020). *International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies*.
- McCombes, S. (2023, june 22). Sampling Methods | Types, Techniques & Examples. Retrieved from Scribbr: <https://www.scribbr.com/methodology/sampling-methods/>
- Naeem, M., & Abdul Sami. (2020). Product Brand Loyalty and Purchase Decision. *International Journal of Entrepreneurial Research*, 3(3), 76–87. <https://doi.org/10.31580/ijer.v3i3.1504>
- Pitta, D. A., & Prevel Katsanis, L. (1995). Understanding brand equity for successful brand extension. *Journal of Consumer Marketing*, 12(4), 51–64. <https://doi.org/10.1108/07363769510095306>
- Nelson, C. (2022). *Product Development*.
- Nelson, C. (2022). *Product Development*. Springer, Cham.
- Ozretic'-Dosen, D., Brlic', M., & Komarac, T. (2018). STRATEGIC BRAND MANAGEMENT IN EMERGING MARKETS: CONSUMER PERCEPTIONS OF BRAND EXTENSIONS. Vilniaus Universiteto Leidykla.
- Peng Zhang a, X. S. (2023). The impact of extended product fit on brand loyalty: The road to durability and success for long-established enterprise. *Economic Analysis and Policy*, 1055-1075.

- Qian (Claire) Deng a, P. R. (2022). Dimensions of brand-extension fit. *International Journal of Research in Marketing*, 764-787.
- Qingguo Ma, M. W. (2020). The effects of brand familiarity and product category in brand extension: An ERP study. *Neuroscience Research*.
- Ringle, C. M.-M. (2022). Blindfolding. Retrieved from SmartPLS: <https://www.smartpls.com/documentation/algorithms-and-techniques/blindfolding/>
- Rogers, E. M., Singhal, A., & Quinlan, M. M. (2003). Diffusion of Innovations. *AN INTEGRATED APPROACH TO*, 418-434.
- Seidler, A. L., Hunter, K., Cheyne, S., & Gherzi, D. (2019). A guide to prospective meta-analysis. *BMJ: British Medical Journal*, 1.
- Siegrist, M. (2008). Factors influencing public acceptance of innovative food technologies and products. *Trends in Food Science & Technology*, Pages 603-608.
- Sharabati, A.-A. A., Al-Haddad, S., Judeh, M., & Al-Badawi, B. (2022). Brand extension and purchase intention of Jordanian banks' clients.
- Sulton, M., L, E. H., A, M. S., & Sawabi, S. (2022). The Effect of Marketing, Product, Process, and Organizational Innovations on the Marketing Performance.
- Swedberg, R. (2020). Exploratory Research. In C. Elman, J. Mahoney, & J. Gerring, *The Production of Knowledge: Enhancing Progress in Social Science (Strategies for Social Inquiry)* (pp. 17-41). Cambridge: Cambridge University Press.
- Singh, J., Scriven, J., Clemente, M., Lomax, W., & Wright, M. (2012). New Brand Extensions. *Journal of Advertising Research*, 52(2), 234–242. <https://doi.org/10.2501/JAR-52-2-234-242>
- Tran Minh Thuong, C. D. (2023). Oppo and Apple 's international marketing strategy . *International Journal of Advanced Multidisciplinary Research and Studies*.
- Urde, M. (2016). The Brand core and its management over time. *Journal of Product & Brand Management*, 26-42.
- Uwera, J. (2022). Product Design and Its Impact on Consumer Purchase Decision. Case Study of TBL, Azam, Coca-Cola, MeTL and Tanga Fresh Milk in Tanzania. *African Journal of Economics, Politics and Social Studies* (2022, Vol. 1), 129.
- Tina Gada, & Shreya Chudasama. (2024). The Role of User Experience in Effective Product Design Exercises Strategies for Incorporating User-Centric Approaches and Data Analysis with Business Intelligence. *International Research Journal of Modernization in Engineering Technology and Science*. <https://doi.org/10.56726/irjmets56245>
- Ting, M. S., Goh, Y. N., & Isa, S. M. (2016). Determining consumer purchase intentions toward counterfeit luxury goods in Malaysia. *Asia Pacific Management Review*, 21(4), 219–230. <https://doi.org/10.1016/J.APMRV.2016.07.003>
- Veryzer, R. W., & Borja de Mozota, B. (2005). The Impact of User-Oriented Design on New Product Development: An Examination of Fundamental Relationships. *Journal of Product Innovation Management*, 22(2), 128–143. [https://doi.org/https://doi.org/10.1111/j.0737-6782.2005.00110.x](https://doi.org/10.1111/j.0737-6782.2005.00110.x)
- Wetzel, M. T. (2020). Factor Analysis: a means for theory and instrument development in support of construct validity. *International Journal of Medical Education*.
- Xishu Li a, R. Z., Li, X., Zuidwijk, R., Koster, R., & Sethi, S. (2023). Time for upgrades? In time for consumers and competition. *International Journal of Production Economics*.
- Yasar, O., & Polat, T. K. (2022). A Fuzzy-Based Application for Marketing 4.0 Brand Perception in the COVID-19 Process.
- Zeng, F. L. (2019). Consumer attitudes toward downward extensions: an exploration of Giordano's extension in Hong Kong.