

Article

Implementing Online Product Reviews and Muslim Fashion Innovation for Resilience during the New Normal in Indonesia

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Abstract: The COVID-19 pandemic in Indonesia has harmed the fashion sector, particularly SMEs (small and medium-sized enterprises). In the wake of the epidemic, the Muslim Fashion Shop (MFS) sector has experienced a drop in sales. Therefore, developing innovative products and excellent customer approaches are critical to MFS resilience. This pandemic has additionally affected the shift from offline to online sales channels. Online sales features, referred to as online product reviews (OPRs), allow customers to leave comments or evaluations. OPRs are one of the sources of product feature information, and are a means of increasing valued for online consumers that some companies are currently underutilizing. In order to develop Muslim fashion designs, this project performed OPRs. The purpose of this study is to show the benefits of OPRs in the development of new Muslim fashion products in Indonesia in order to assist businesses in surviving in the new normal era. The first phase of OPR data collection at Shopee was carried out in five steps. OPR data were collected in Shopee using NVivo's N-Capture QSR. The data obtained from phase one were needed in order to equalize perceptions and make corrections using the member check obtained data OPR method using Focus Group Discussion (FGD). The second phase consisted of eight steps. This phase sharpened the results of phase one using expert judgement word frequency analysis in NIVO. The third and final phase analysed the fashion industry's new normal innovation approach. This research shows the usefulness of OPR data for the evolution of fashion design in Indonesia, among other findings. According to this study, companies' expertise, experience, and design innovation are essential variables in a changing/disruptive marketplace. Ongoing research suggests utilizing OPRs to generate new design trends, high-quality products, and innovative tactics in order to sustain Muslim fashion business.

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Keywords: COVID-19; fashion; Muslim; Indonesia; OPR; new normal

1. Introduction and Background

In a form of unstable situation, government regulations have restricted community activities during the COVID-19 pandemic [1]. This situation has changed the behavior of the Muslim fashion market in Indonesia. In 2020, regulations were passed, causing many physical stores to close [2]. As the fashion industry was very dependent on these physical stores, the industry has suffered significant losses, especially in the Muslim fashion sector [3]. Based on data from the Indonesian Central Bureau of Statistics in 2020, the contraction of growth in the Textile and Apparel industry fell by 34.90%, and export value decreased by 25.95% [4]. Furthermore, the decline in the apparel industry reached -35% in 2020. These data include the Muslim Fashion industry, which is one of the largest contributors to the fashion industry in Indonesia [5].

To be resilient and sustainable, many Muslim fashion stores have moved their businesses online. This shift in the market has changed the way in which a seller obtains customer feedback or review. With businesses having gone online, OPR data on e-commerce

platforms are used instead of physical customer surveys. Indeed, developing a Muslim fashion product requires customer voices via OPRs in order to remain resilient in the Muslim fashion business [6].

OPRs are generated by the customers of an online shop, who publish their reviews on the website of the retailer or seller [7]. Most customers who write OPRs are young customers [8]. OPRs are an important source of data, because consumers write honestly based on their experiences of satisfaction or dissatisfaction [9]. OPRs are used as a communication platform between the fashion industry and consumers [3]. The reviews and ratings are used to improve online market product development and consumer services. For example, considering that a study has indicated that 80% of the fashion industry must make fast decisions for their design development and marketing strategy [3], OPRs can be a tool to replace consumer surveys to assist designers in determining consumer needs [10] and finding innovative fashion design models [11]. As OPRs can influence consumers purchasing decisions [8], they can be used to help sellers to share and build media perceptions in order that fashion products always gain consumer trust [12]. Thus, OPRs are a good tool for marketing strategy and product development.

Moreover, OPRs, especially in e-commerce, are used as a strategy for business sustainability and resilience [13]. In order to be sustainable and resilient, Muslim fashion designers must take into account e-commerce consumers' unstable behaviour [1], and avoid imitation. Accordingly, the Muslim fashion industry must have skilled designers who can develop creative, innovative, effective and efficient Muslim fashion products based on customers' desires and feedback. OPR data extraction helps fashion designers in product creation and in making evidence-based decisions, as well as in creating effective and efficient product design alternatives [14,15]. OPR data on design quality, colors, materials, patterns, personalization, customization experiences, instant assistance, product details, pictures, and text descriptions all play an important roles in improving a fashion design [16,17]. Although highly skilled and efficient designers have the ability to design and develop fashion quickly, the sustainability of a product is determined by its users [18,19]. Certainly, designers must make certain innovations based on their customers' needs [20], and Muslim Fashion Designers are not exempted.

However, the use of OPR data as consumer feedback which affects the design and quality of Muslim fashion products during the COVID-19 pandemic or the new normal period remains very rare. Previous research on the use of OPRs has included OPR data, marketing support, and product development, as well as their influence on purchasing decisions [21,22]. However, this research was conducted before the COVID-19 pandemic. Thus, previous studies have not discussed which indicators can affect the development of Muslim fashion and the innovations made to survive and remain resilient during the post-COVID-19 new normal. Previous studies have only shown that Muslim fashion designers agree on the importance of and need for OPRs [23]. Although there are several benefits of OPRs, the utilization of OPRs in Indonesia is limited. Therefore, research about OPRs and their effect in Indonesia as a Muslim majority country is important. Undoubtedly, because the COVID-19 pandemic has changed consumer behaviors, in order to stay resilient during the new normal Muslim fashion innovation in Indonesia is extremely necessary. In order to address these research gaps, this study attempted to answer the following questions:

- How do online product reviews impact Muslim fashion products?
- How can designers innovate Muslim fashion products using OPRs to stay resilient during the new normal of the COVID-19 pandemic?

In order to study the innovations made by Muslim fashion designers to remain resilient during the new normal of the COVID-19 pandemic, this study aimed to utilize OPR data for design innovation, and especially for the development of Muslim fashion products. This study used a qualitative approach with primary and secondary data collection methods [24]. The primary data were obtained through a semi-structured in-depth

interview approach with eight Muslim fashion experts. The interview process was documented using a video recorder, with this being approved by experts. Meanwhile, the secondary data, a collection of OPR text reviews, were obtained from an official Muslim Fashion Shop (MFS) on the Shopee online store platform. MFS is the leading Muslim brand, according to Nikei World Modest Fashion [25].

2. OPRs Are Used to Support the Resilience of Muslim Fashion in Indonesia

The Muslim fashion industry's resilience during the pandemic must be strengthened by increasing the creation value of their products. To become resilient, Muslim fashion industry must strengthen its human resource capacity, business diversification, productivity, and product marketing [26]. The creation value of Muslim fashion consists of preparing, responding, and recovering [27]. Furthermore, in order to stay resilient, the COVID-19 pandemic has forced the Muslim fashion industry to be adaptive, collaborative, innovative, and creative in order to develop new products based on types of consumer feedback such as OPRs [6], as well as to improve service and product quality [28]. These changes require the fashion industry to be more innovative and adaptable in order to reduce the spread of COVID-19 [29].

2.1. The Development of Fashion Design in the New Normal Era

The situations or conditions during or after the COVID-19 pandemic, which force people to adapt to live, comprise the new normal [30]. This new normal requires fast adaptation from all industries, including Muslim fashion design. Before the COVID-19 pandemic, there were many models and designs in Muslim fashion. For example, many additional beads and detailed embroideries were used. People wore fewer masks. In Muslim fashion, one commonly-worn mask is called a niqab. Based on interviews with experts, during the pandemic the Muslim fashion industry developed comfort and anti-virus materials called "viroblock" materials using biobased innovation [31]. Another example is MFS branded market product designs. MFS product designs are known to use expensive and exclusive materials such as silk, luxury rayon, and crystal sequins. However, the pandemic has brought about design changes involving comfortable and "viroblock" materials. These changes were influenced by the limitation of activities outside of the home. Many activities that were previously carried out offline began to be performed online [32].

When the pandemic began to subside, the use of masks was made obligatory in order to protect people from spread of COVID-19 [33]. This obligation has triggered changes in Muslim fashion design; masks have been developed as both protection and as Muslim fashion items. Thus, designers innovate masks with aesthetic preferences in mind [34]. Although medical masks appear to be superior to cloth masks in terms of filtration and breathability, cloth masks tend to accentuate aesthetics that match the clothing worn [35]. Muslim fashion designers have created masks that are both visually and fashionably designed to complement certain clothes.

2.2. Fashion Product Indicators Based on Previous Research Literature Studies

Typically, the sustainability performance of a product or system is quantified in terms of the environmental, economic, and social dimensions outlined within the fundamental definition of sustainability [20]. However, there may be distinctions with regard to the fashion industry. As a result, such dimensions are classified into quantifiable indicators of various performance elements. While numerous sets of sustainability indicators exist in the literature, there is no globally approved set for measuring and comparing fashion goods from a holistic perspective in the female Muslim fashion business.

Previous research has developed indicators such as quality, design, and customer innovation. Quality indicators consist of several factors, such as competitiveness, timelessness, and product quality [36–39]. Meanwhile, design indicators include factors such

as timelessness, colour, materials, patterns, fabrics, creativity, product details, comfort and style [36–40]. Lastly, innovation indicators include pictures, text descriptions, and instant assistance [37,38]. However, researchers carried out these research activities before the COVID-19 pandemic. There is a research gap around the question of which indicators affect the development of Muslim fashion and the innovations made to survive and remain resilient during the post-COVID new normal.

Various design innovations have been made to meet consumer needs. Various indicators that have been developed previously all use creative (design) and quality indicators [41]. While previous studies have developed indicators in fashion product development, as seen in Table 1, they have not added indicators of the influence of COVID-19 on product development.

Table 1. Fashion product indicators from previous research sources.

Indicator	Reference
Creative, technical, production, and distribution	[36]
Quality, timeless design, competitive factors, customer service innovation, costs	[37]
Factors that influence fashion trends include design, color, materials, and patterns	[40]
Fabrics, materials, personalization, quality products, customization experiences, instant assistance, sufficient product details, picture and text descriptions	[38]
Quality, price, comfort, style, color, material, brand	[39]

Technical indicators are techniques used during the fashion production process. The technology of the fashion industry is currently developing very rapidly in terms of pattern, cutting, sewing, and embroidery technology. An example is patterning technology, which has developed using laser cutting and robotics. However, production technology is not discussed further in this paper. Creative indicators relate to the design creativity of fashion products; other researchers have discussed this indicator category [36,40]. Quality indicators refer to the quality of fashion, fabric, and stitches [42]. Timeless or classical design indicators denote designs that are developed without focusing on trends and that can always adjust to the times due to their simple model designs. Another indicator involves customization experiences, instant assistance, sufficient product detail, pictures, and text descriptions [38].

3. Materials and Methods

Muslim clothing is worn not only to adhere to Islamic religious law but also to express one's individuality through a variety of trendy, fashionable fashion styles. As a result, discussing Muslim dress is fascinating. This study focuses on Muslim clothing based on the fact that Indonesia is the country with the largest Muslim population in the world [43].

According to the 2019 Small and Medium Enterprises Information and Promotion Media and data from The State of the Global Islamic Economy 2019, Indonesia is the runner-up among the countries that produce the best Muslim clothing in the world [44]. Meanwhile, another study shows that statistics indicate Indonesia's spending on Muslim clothes has surpassed USD 20 billion, or around IDR 279.03 trillion. This is the third-highest figure among the Organization of Islamic Cooperation's member countries [15].

Additionally, Muslims in Indonesia are given the freedom to work and gain economic independence, and thus the Muslim fashion business is very much needed [45]. During the pandemic, physical stores were closed, and Muslim fashion consumers turned to online stores. In order to survive, fashion products need to consider the voice of

consumers through OPRs, as this may impact the resilience of the Muslim fashion industry itself.

OPR-Based Customer Requirements Data Mining Design. This section describes the detailed steps taken in this study to obtain customer requirements feature data for Muslim fashion products using OPRs. At first, the OPR data collection from Shopee was carried out manually due to the limited ability of the researchers; that the data collected in this way were limited and incomplete. To overcome this problem, the OPR data on Shopee were collected using NVivo's NCapture QSR. This study involved ten young designers to refine the OPR data obtained from NCapture NVivo.

The next steps involved were cleaning emoticons, changing non-standard words into standard, eliminating non-standard sentences, and changing slang into standard sentences. Subsequently, Focus Group Discussions (FGD) were conducted with ten young designers in order to equalize perceptions and correct one another using the member check method. The FGD and member checks resulted in 200 data items. This result was supported by the NIVO QSR through the word frequency menu to maintain the objectivity of the study. This study took 200 data items from the online store Muslim Fashion Shop (MFS), which were analyzed by NVivo, resulting in 4216 words that matched the development of Muslim fashion products. The amount of data was in accordance with statistical confidence standards. A 95% confidence interval was considered to be significant [46]. Of the 4216 words analyzed using NVivo, the number of words found to correspond to product development was 1537.

Calculation of Qualitative Analysis of Text OPRs with NVIVO. The researchers reduced the data by first grouping the data by type, then by grouping the test results and interview results in the NVivo source folder (open coding). The researchers further reduced the data by creating nodes in NVivo to collect similar information (axial coding). Then, the researchers presented the data using the chart, text search, word frequency, and matrix coding features in NVivo. Finally, the research was based on triangulation using cluster analysis and comparison diagrams in NVivo, along with the coding comparison feature. This feature presents the percentage agreement coefficient and the Kappa coefficient. This study combined focus and sub-focus analysis with qualitative analysis of NVivo, word maps, and the word frequency in order to obtain an overview of the implementation of OPRs for the basis of future innovation in the Muslim fashion industry using current OPR data.

3.1. Proposed Framework

While information on OPR reviews is available on the internet, this is still fragmented and not detailed. More detailed information about consumer needs is sourced from text information about OPR, and comes from knowledge and experience in developing products from the expert assessment of Muslim fashion designers. Therefore, in this study, we propose a framework structure design for implicit knowledge-oriented fashion development based on OPRs, as shown in Figure 1. The structure of this framework has three phases.

Phase 1 and Phase 2 in this study used NVivo qualitative analysis. Phase 1 started from the OPR data collection process; at the beginning of this study, the raw OPRs were downloaded manually. Then, the process of cleaning sentences and emoticons into standard sentence structures was carried out. After manually mining the data, we analyzed, extracted, processed and made conclusions based on the OPR text data using NVivo software. The results of Phase 1 in the form of word maps and word frequencies had to be analyzed and interpreted by expert designers; this was carried out in Phase 2. Phase 2 involved employing expert Muslim fashion designers to read and analyze the subconclusions from the results of the NVivo analysis of the OPRs. Phase 3 involved a descriptive analysis of how the Indonesian Muslim fashion industry innovates in the new normal era. Figure 1 presents the research framework, and the Results section presents all the results of the NVivo calculations for OPR and expert analysis.

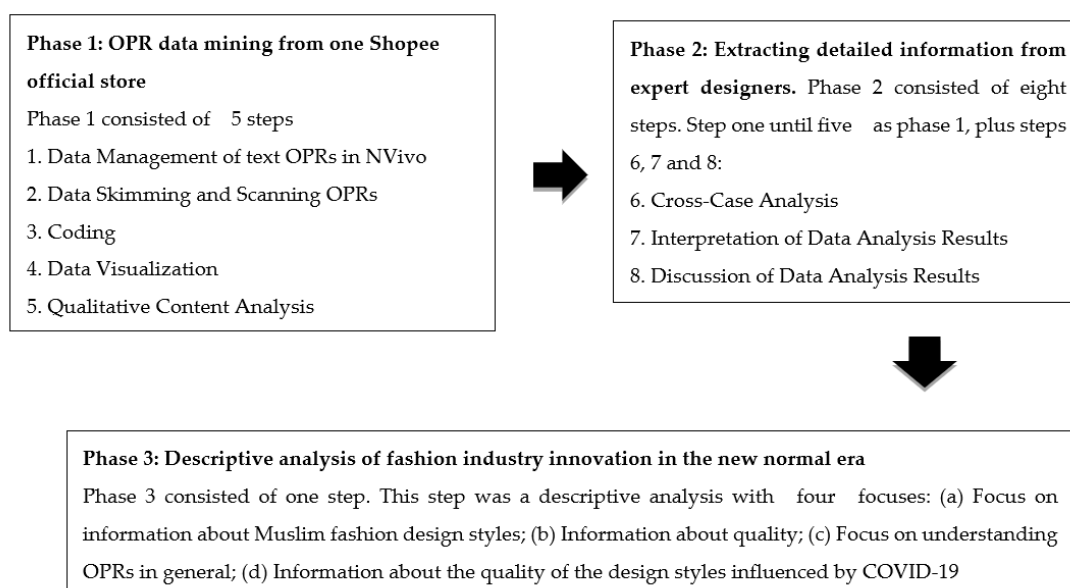


Figure 1. Structure design for implicit knowledge-oriented fashion development based on OPRs (proposed structure).

This implicit knowledge-oriented structure based on OPRs involved the transfer of information based on experience and expertise, which was used as the basis for new product development. The aim was to obtain user requirements and the characterization of product features based on online reviews, and therefore to provide an accurate analysis of user requirements [39]. OPR data were the source of user requirements, and experts added detailed information.

3.2. Phase 1: Excavation Method for OPRs of One Official Store on Shopee

Phase 1, consisting of five steps, involved the extracting of OPRs from Shopee's e-commerce platform data, with a total of 200 OPRs obtained. This section describes how we explored and analyzed OPRs using the NVivo approach.

Step 1: OPR data management in NVivo

In this step, we converted the 200 OPRs as data sources into standard sentences. This process was done manually by ten fashion design alumni, with each having at least two years' experience in the fashion industry. To overcome this problem, the OPR data on Shopee were collected using NVivo's NCapture QSR. Furthermore, the words that often appeared as keywords were searched by skimming and scanning the standard sentences.

Step 2: OPR data skimming and scanning

In this step, we performed the most compelling data skimming and data scanning techniques with various query techniques. OPR text keywords were collected using a text search query. From the analysis data, we selected the 72 words that appeared most frequently. The results of NVivo skimming obtained a word frequency of 4216 words; however, after scanning the words related to fashion product development, there were 1537 words. The rest related to the consumers' impressions of service and delivery. The process of analyzing words that affect fashion design was done manually by the ten fashion alumni. They performed an initial interpretation of consumer needs from the word frequency. The next stage was coding to form categories and subcategories.

Step 3: OPR coding

Step 3 involved a coding process that formed new categories and subcategories of themes sourced from OPR data. The coding results were validated and verified by experts in design, namely senior designers with established brands and professional designers who design MFS products.

Step 4: OPR data visualisation

In this step, we presented the analyzed data using charts, text search, word frequencies, and matrix coding in NVivo. In addition, conclusions were drawn by triangulation using cluster analysis and comparison diagrams. We performed data visualization using word cloud graphics. Then, the process of qualitative content analysis for the interpretation of inter-integrated categories was carried out.

Step 5: OPR content qualitative analysis

Content analysis is sometimes called thematic analysis. The categories formed in the NVivo nodes needed to be integrated into new themes. Conclusions were drawn by triangulation using cluster analysis and comparison diagrams in NVivo. In addition, the data from the OPR text required interpretation from fashion design experts. The results of word frequency calculations and the descriptive analysis of OPRs were then summarized and concluded. Next, the expert designers read, understood, and analyzed the conclusions of the reviews written by consumers with the OPR data. The next stage was the analysis of Muslim fashion expert interviews using NVivo.

3.3. Phase 2: Qualitative Study of Expert Interviews: Expert Judgment through NVivo

Expert Interviews

This study was a qualitative study, with the focus on maximizing detailed information [24]. Phase 2 involved the development of conclusions based on the OPRs through interviews with eight fashion design experts through offline and online media. Each expert interview took 40 to 120 min, and aimed to obtain detailed information about innovation in fashion design development, especially during the pandemic. Design experts were selected using purposive sampling, representing the competences of Indonesian designers as Muslim fashion designers, marketing experts, brand owners, design coordinators, and technical clothing, patterning, and cutting experts. Table 2 shows demographic data from the participating experts, who will subsequently be referred to as Experts 1 to 8. The designers who participated are experts as well as fashion business decision-makers in the real world [47–49]. The experts' tasks were to seek detailed information on OPRs and interpret future fashion strategy innovations, especially during the pandemic. The results of the interviews were an essential feature of this study, namely, the views of designers who influence Muslim fashion products.

Table 2. Demographic data of fashion experts ($n = 8$ experts).

Characteristics		Number	Experts
Gender	Female	6	1,2,4,5,7,8
	Male	2	3,6
Age	20–30 years old	1	3
	31–40 years old	2	4,6
	41–50 years old	2	7,8
	51–60 years old	2	2,5
	Above 61 years old	1	1
Education	Undergraduate degree	3	3,4,8
	Master's degree	4	1,5,6,7
	Doctoral degree	1	2
Experience in the fashion industry	3–5 years	2	3,4
	Above 10 years	6	1,2,5,6,7,8
Position within the company	Designer and Owner	4	1,2,5,8
	Designer and Marketing	3	1,2,6

	Designer Coordinator	1	7
Marketing channel	Marketing online and offline	8	1,2,3,4,5,6,7,8
Brand ownership	Has own brand	4	1,2,5,8
	Does not have a brand	4	3,4,6,7

The demographic data on the experts from Table 2 shows that the participants were both male and female, and that their ages ranged from 20 to 61 years old. Furthermore, the experts held undergraduate to doctoral degrees, each with a minimum of three years' experience in the Indonesian fashion industry. These experts had strategic positions in their companies as designers, designer coordinators, and brand owners. Some had their own brands, and some did not. The development of the interview items was based on indicators used by previous researchers. Table 3 shows a list of the indicators used, i.e., items or a list of questions.

Table 3. List of interview questions that represent fashion research indicators.

No	Indicator	Question Number (Q = Question)	Reference
1	Fashion Product Development Creative, Technical, Production, And Distribution	Q24 ; Q30.	[36]
2	Quality, Timelessness, Competitive Factors Quality, Timelessness Quality, Innovation Customer Service, Costs	Q29 ; Q30.	[37]
3	Factors That Influence Fashion Trends, Such as Design, Color, Materials, And Patterns	Q13.	[40]
4	Fabrics, Materials, Personalization, Quality Products, Customization Experiences, Instant Assistance, Sufficient Product Details, Pictures, And Text Descriptions	Q27 ; Q28.	[38]
5	Quality, Price, Comfort, Style, Color, Material, Brand	Q19.	[39]
6	The Use of OPRs To Improve Customer Service	Q1, Q2, Q3, Q4	[7,8,21,50]
7	The Use of OPRs to Develop Quality Products	Q17 ; Q18	[10,14,16,17,51]
8	The Use of OPRs to Discover New Marketing Strategies	Q1, Q2, Q3, Q4	[7,8,22,52–55]
9	The Use of OPRs To Improve Media Perceptions	Q5; Q6; Q7; Q8	[12,54,56–58]
10	Increasing Sales Revenue and Consumer Trust	Q10; Q11; Q12; Q13; Q14	[12,53,59]
11	Improve Crisis Management	Q14; Q15; Q16; Q17; Q18; Q19; Q20	[41,60,61]

12	The COVID-19 Pandemic and Its Impact on Online-Offline Sales Of Muslim Fashion Products	Q14; Q15	Yunia Dwie
13	Design Innovation in Muslim Fashion Industry during COVID-19 Pandemic	Q16; Q29	Yunia Dwie

Appendix A shows the list of questions asked of the eight expert designers. As with the NVivo analysis, Phase 2 had eight steps; Steps 1–5 were the same as in Phase 1, along with three additional steps.

Step 6: Cross-Case Analysis of interview results

Step 6 required cross-case analysis of the expert interview results. This process was more in-depth, making comparisons of themes based on the backgrounds of the qualitative experts involved in this study. The results of the expert interviews were expected to have differences according to their respective backgrounds and experience, including age, position, and gender.

Step 7: Interpretation of Interview Data Analysis Results

Step 7 involved the interpretation of the data analysis results with regards to the responses of the expert designers. The conclusions made had to be in accordance with the responses made during the interviews.

Step 8: Discussion of Data Analysis Results

Step 8 was the process of comparing the results of the data analysis with theory and previous studies. In this context, it was explained whether the research data supported, confirmed, or contradicted previous studies. The results of the data analysis were then described in detail in Phase 3, a descriptive analysis of innovation in the fashion industry.

3.4. Phase 3: Descriptive Analysis of Fashion Industry Innovation in the New Normal Era

Phase 3 was a descriptive analysis of innovations in Indonesia's Muslim fashion industry made with regards to the new normal era after COVID-19. According to the eight experts, innovation in the fashion industry in the new normal era consists of four focuses. These four focuses are: (a) Information about Muslim fashion design styles; (b) Information about quality; (c) Understanding of OPRs in general; and (d) Information on the quality of the design styles affected by COVID-19.

Expert designers develop the actual implementation of OPR text data in fashion product development. OPR texts generate general criteria that consumers need. These criteria help companies determine and develop ideas for designing fashion products at an early stage [62,63]. This study fills a rare gap in previous studies, namely, using detailed information on OPR product features from consumers by adding interpretations from fashion designers. Designer considerations and interpretations are needed because designers have experience and knowledge, and make decisions about which products should be produced and sold on the market [47–49].

4. Results

4.1. Word Frequency of the OPRs

Word Frequency Calculation Results

Figure 2 shows the most frequently-occurring words in the OPRs, with representations made using a word cloud and word mapping. Based on the results from the NVivo cloud word map, it appears that some words were more significant than others. Larger font sizes indicate more frequently used words in the OPRs.



Figure 2. Word cloud information from OPRs.

Figure 2 features a word cloud containing the words most frequently used by the reviewers. In this study, reviews unrelated to product development design were ignored, such as those related to delivery and speed, which are not fashion product development parameters. Of those reviews related to fashion product development, the words that most often appeared were product, good, quality, original, material, comfortable, color, soft, cut, neat, smooth, cool, hijab, pattern, thin, variety, and shape. Meanwhile, the colors often used in the OPRs were toska, pink, blue, dusty, brown, dark, green, navy, yellow, and turmeric. The detailed criteria for stitching quality that appeared in the OPRs were cuts, neatness, defects, threads, stitches, folds, embroidery, and buttons.

The frequencies of the words that often appeared were related to the expectations that the consumers had. However, expert interpretation is needed to assemble and detail this information, because it only involves snippets of words. Information from OPRs requires more detail, such as what “good product, original quality” means; what “comfortable material” denotes, especially which particular kinds of fabric; what “soft color, neat cut” means; and what kind of fabric is soft but still feels cool. All of this information was missing from the OPR text data. Therefore, for more detailed information, an assessment from experts was needed, namely, the designers.

4.2. Expert Analysis on Innovation and Design Strategy in Muslim Fashion

Interview data extraction was performed using a coding focus, sub-focus, and mapping strategy. Figure 3 shows the results of the word cloud data from the NVIVO calculation results. Words that stand out include consumer, company, fashion, offline, influential, development, sales, strategy, brand ‘MFS,’ marketing, essential, pandemic, and designer. The results were processed data. All conjunctions and words that did not provide information related to product development design, such as according to, using, being, as, especially, etc., were not included in the calculation process. The frequency of the structured interviews indicates that the experts agreed that OPRs are necessary for companies, because OPRs affect design development and company strategy. Furthermore, OPRs are considered as representative of users’ personal experience or feelings towards a product or service, which can be essential sources of information in meeting consumer needs.



Figure 3. Word cloud information from expert judgment or designers.

4.3. Pearson Correlation Coefficient

A Pearson correlation is a correlation measure used to measure the strength and direction of a linear relationship between two variables. Two variables are considered to be correlated if a change in one variable is accompanied by a change in another, either in the same or an opposite direction.

Requirements for Pearson's correlation coefficient

$$r = \frac{\sum_i (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_i (x_i - \bar{x})^2} \sqrt{\sum_i (y_i - \bar{y})^2}} \quad (1)$$

where

r = correlation value;

x = variable x ;

y = variable y .

The strength of the correlation relationship, as follows [64]:

0: No correlation;

0.00–0.25: very weak correlation;

0.25–0.50: enough correlation;

0.50–0.75: strong correlation;

0.75–0.99: very strong correlation;

1: perfect correlation.

Qualitative research requires saturated data, meaning that in this case, the experts provided consistent information when the researcher repeated the questions. Table 4 shows that information from Expert 1 to Expert 8 showed the results of a Pearson correlation of more than 0.64, meaning that each piece of information was proven to have a strong to very strong correlation. The Pearson correlation coefficient calculations showed that all relationships between the expert sources had minimum values ranging between 0.64 and 0.90. This means that all the sources provided information about the consistent focus of research and had a strong to very strong bond; this indicates that the research data were saturated.

Table 4. Pearson correlation coefficients.

Correlation Category	Node A	Node B	Pearson Correlation Coefficient
Very Strong	Expert 5	Expert 3	0.901715
	Expert 4	Expert 2	0.875048
	Expert 6	Expert 1	0.864688
	Expert 8	Expert 3	0.859388
	Expert 3	Expert 2	0.857933
	Expert 7	Expert 6	0.85779
	Expert 8	Expert 4	0.853269
	Expert 4	Expert 1	0.852893
	Expert 4	Expert 3	0.850797
	Expert 8	Expert 5	0.848748
	Expert 3	Expert 1	0.847749
	Expert 5	Expert 2	0.841549
	Expert 5	Expert 4	0.835166
	Expert 5	Expert 1	0.829974
	Expert 7	Expert 1	0.828295
	Expert 6	Expert 5	0.827073
	Expert 8	Expert 2	0.822536
	Expert 2	Expert 1	0.81383
	Expert 6	Expert 4	0.811166
	Expert 6	Expert 3	0.807944
Strong	Expert 8	Expert 1	0.785933
	Expert 8	Expert 6	0.771647
	Expert 6	Expert 2	0.768739
	Expert 7	Expert 4	0.707221
	Expert 7	Expert 5	0.706069
	Expert 7	Expert 3	0.686711
	Expert 8	Expert 7	0.650216
	Expert 7	Expert 2	0.640302

4.4. Matrix Coding, Expert Focus and Sub-Focus

Previously, it was explained that Phase 3 consisted of four focuses: the design of Muslim fashion styles, product quality, general understanding of the implementation of OPRs, and the impact of COVID-19 on the Muslim fashion industry. The four focuses can then be explained further in several sub-focuses. The first focus, Muslim fashion design styles, can be divided into three sub-focuses: Muslim fashion product features, OPRs for motif ideas, and product development processes. The second focus, product quality, can be divided into similarity levels in actual products and pictures, material quality, and online sales picture quality. The eight experts agreed that it was essential that the color of an online photo used for a product was similar to the actual product's color. The experts considered the sub-focus of material quality as well, that is, the need for the quality of the fabric and accessories to be selected. In order to obtain quality images for online sales with good resolutions, "you can zoom in until you can see product details."

The third focus was a sub-focus on the general understanding of OPRs, which consisted of OPRs influencing buying decisions, OPRs as product development, consumer voice OPRs, and understanding of OPRs. The fourth focus of the expert interviews was the influence of COVID-19, which consisted of three sub-focuses, namely, online and offline selling prices of fashion products, offline sales, online sales, and strategies for the COVID-19 period. Six experts confirmed the focus of COVID-19's influence on the fashion industry, and only one reported being less affected, Expert 7, because Expert 7 produces

Muslim fashion that is not based on trends but rather uniform orders, and already has loyal customers in the community.

4.5. Focus: Design Style

Specifically, the Muslim fashion design styles indicated that the Muslim fashion product features or material qualities were the most talked about, followed by motif ideas and the product development process based on knowledge and experience. OPRs for motif ideas were stated by Experts 1 and 4. Meanwhile, information on the development process based on knowledge and experience were stated by Experts 7 and 1.

Out of the eight experts, Experts 1 and 3 gave the most information on the use of OPRs for product features. The eight experts agreed that OPRs can be used to read and develop Muslim fashion features from the information on Muslim fashion design styles. Furthermore, the eight experts conveyed that OPRs can be used to develop product motifs, especially Experts 1 and 4, who reported using OPRs the most. All in all, the eight experts reported using OPRs as a tool in product development, with the dominant experts in this respect being Experts 1 and 7.

4.6. Focus: Product Quality

Furthermore, the detailed product quality focus had three sub-foci: similarity levels in actual products and pictures, material quality, and online sales picture quality. Specifically looking at product quality the sub-foci were all given the same priority. The similarity of images and products was put forward by Expert 6. Meanwhile, information about the quality of materials was put forward by Experts 1 and 8. However, for the online sales image quality information, all experts provided the same information. The eight experts agreed that honesty in the appearance of online products is essential in order to not disappoint consumers. The general understanding of OPRs shows that the experts provided various information according to their understanding of OPRs in general. The experts stated that OPRs influence their buying decisions and product development, and that OPRs represent consumers' voices.

4.7. Focus: General Understanding of OPRs

The eight expert designers provided information on the focus of understanding OPRs in four areas. For the expert understanding of the influence of OPRs on purchasing decisions, the eight experts agreed that OPRs can influence other consumers. Furthermore, the eight experts agreed on the influence of OPRs on the development of high fashion Muslim products, especially Expert 1, Expert 7, and Expert 8. Information about consumer voices conveyed through OPRs was reported as being vital for the sustainability of a company's strategy, especially by Experts 1, 2, 7, and 8. Possessing an understanding of OPRs in general and using OPRs more specifically was reported as being vital, especially by Experts 2, 5, 6, and 8.

4.8. Focus: Product Development Innovation during New Normal of COVID-19 in the Muslim Fashion Industry

All of the experts reported exceptional innovations for remaining resilient during the COVID-19 pandemic. This part presents the dominance of information from the sub-focus of the influence of COVID-19 on product development. From the extraction of query text for product development during the COVID-19 period, it was determined that there are opportunities for designs, motifs, patterns, and the development of antivirus materials such as viroblock material. Some industries implement Made to Order (MTO)-based product development. However, ability, experience, the proper use of data, and consumers' voices are significantly beneficial for developing Muslim fashion products. Various efforts have been made by the Muslim fashion industry to survive and thrive in the new normal era, especially in Indonesia. Due to the pandemic, fashion design has changed. One of

these changes is fashion masks that are adapted to the design of certain clothes. Therefore, companies must improve the quality of materials that can withstand bacteria and viruses.

Of the eight expert designers, almost all the experts reported understanding the importance of Muslim fashion design styles. However, the most dominant were the opinions of Experts 1, 6, and 7. For product quality, all experts said that product quality is quite essential. Overall, the eight experts reported understanding the importance of OPRs and the impact of COVID-19 on the fashion industry.

Figure 4 shows the results of the OPR text queries and product development innovation during the COVID-19 pandemic. From the 4236 words used as data, it appears that opportunities during the COVID-19 period included innovation, hard work, color and pattern innovation, and innovation with regards to the types of fabric that can withstand the spread of viruses, or viroblock material. The product development process requires online and offline elaboration from the people involved. The strategy of survival or resilience, especially for middle-to-upper market brands, produces premium products and daily products as well as modular fashion, which is easy to mix and match. The use of big data and experts is essential for product study and development. The use of social media platforms such as Instagram is essential in order to maintain consumer loyalty.

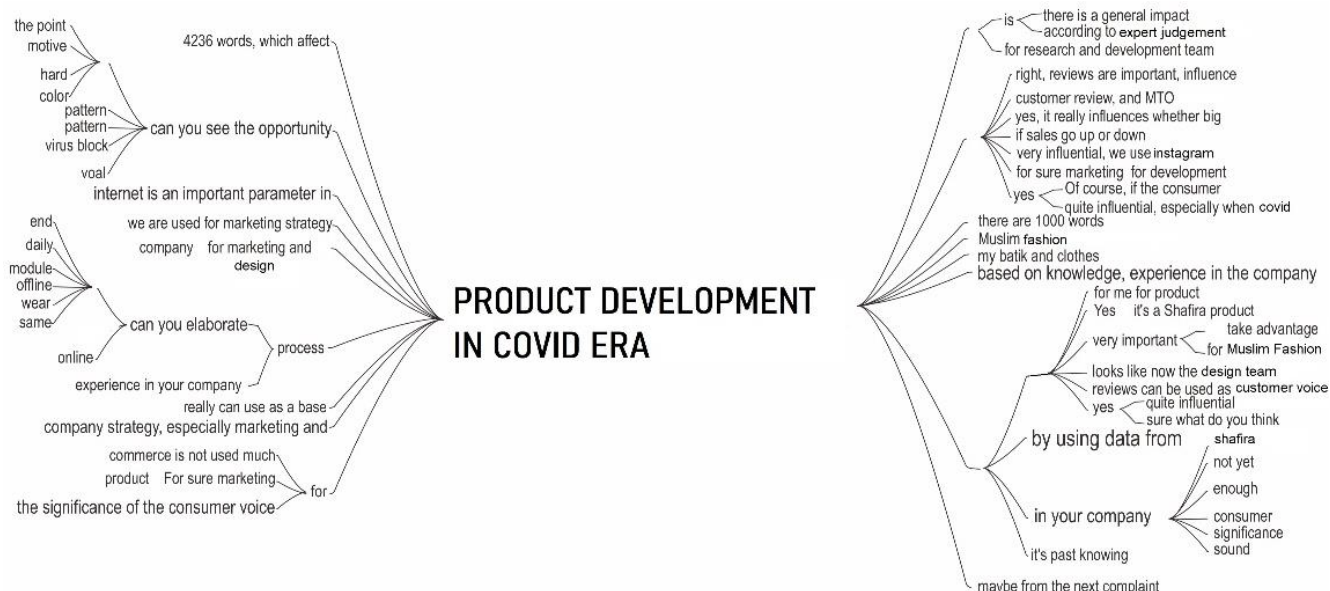


Figure 4. OPR text search queries and product development innovation during the COVID-19 pandemic.

5. Discussion

5.1. Benefits of OPRs and Designer Innovation in Muslim Fashion Product Development

Implementing OPRs as feedback from consumers and innovative designers in developing Muslim fashion is the key to the fashion industry's success in the new normal era. In this study, many positive and negative reviews sourced from OPRs provided data on product features based on the quality of materials, motifs, and colors. According to consumers who wrote OPRs, quality denotes materials, colors, stitches, and the installation of details on other clothing product accessories such as buttons, zippers, and beads. All details of these accessories must go through quality control before being distributed on the online or offline market. The definition of image quality referred to in OPRs was read by experts as the quality of photos uploaded on online stores. Photos of fashion products uploaded to e-commerce pages must be prepared with an image quality as close as possible to the actual product. However, if the fabric stock is not available, the company must directly communicate with consumers and show the alternative materials that are

available. The quality of the motifs must match the motifs of the uploaded products, except for Muslim clothing made from written batik, because the colors and motifs of written batik cannot be the same. In this study, there is a limitation, namely that we do not include positive and negative connotation semantics (i.e., positive or negative sentiment analysis); we will continue studies related to semantics in subsequent research. For example, if there are consumers who write reviews saying “I don’t care if it’s original”, there are in fact such reviews on non-official online stores at Shopee. In this study, we only took data from the official store (line 17, line 88, line 239, line 216). The official store is a store that only sells original goods or representatives of original brands.

Several innovations in the fashion industry for maintaining resilience in the new normal include the concepts of “less is more”, flexibility, and speed. “Less is more” in the design of fashion products can be interpreted as classic, simple cuts which last a long time and are designed for longevity. Flexibility and speed mean that Muslim clothing designers in Indonesia must have creativity and innovate to develop their products flexibly and quickly. This support creativity basis is marked as leverage points of sustainable design, focus on customer compliance, and market success [1]. Products sold in the online market do not fit one particular body size, and rather cover all sizes. During the new normal, the materials used must be comfortable. Indeed, clothes designed as a set with a mask or a fashion mascraf trend must be comfortable to wear. Regarding motif design, designers are often inspired by and innovate based on events that are taking place in Indonesia, such as sports, music, and even politics.

Innovation design in product development during the COVID-19 pandemic must be based on knowledge and experience. In this study, because of the characteristics that differed between the participating experts such as background, age, brand ownership, and educational background, these expert designers provided different information while mutually reinforcing the innovation process of developing Muslim fashion products. The designers predicted and interpreted the data from the OPRs and gave their opinions according to their experience in the field.

The word frequency results from interviews with producers obtained the following most common words: consumer, company, fashion, offline, influential, development, sales, strategy, marketing, necessary, pandemic, and designer (Table 5). From the description analysis, the frequency of internet words represented the consumers’ voices, and these can influence a company from a designer’s point of view. Furthermore, OPR fashion product reviews can affect product development and online sales. The findings of this study support previous research confirming that OPRs are beneficial for consumer voting and product development, with our results confirming that the same applies for Muslim fashion products [36]. Thus, this study shows that companies consider reviews on the internet as being important for developing Muslim fashion products. OPRs affect a company’s strategy, such as developing new products according to consumer demand.

Table 5. Focuses, sub-focuses, and expert codes.

Sub-Focus	Expert Code							
	1	2	3	4	5	6	7	8
Focus Design Style								
1: Muslim fashion product features, quality of materials, motifs, colors	6	4	6	4	4	4	4	4
2: OPRs for motif ideas	4	2	1	3	1	2	2	1
3: Product development process based on knowledge and experience	3	1	1	1	1	2	4	1
Focus Product Quality								

1: Similarity level in real product and picture	1	1	1	1	1	2	1	1
2: Material Quality	2	1	1	1	1	1	1	2
3: Online sales picture quality	1	1	1	1	1	1	1	1
Focus General Understanding of OPRs								
1: OPRs influence buying decisions	7	3	2	5	4	4	6	5
2: OPRs as product development	8	3	5	5	1	4	6	6
3: Consumer voice OPRs	3	1	3	1	2	2	3	4
4: Understanding OPRs	4	9	6	6	8	8	2	8
Focus Impact of COVID-19 on design and marketing strategy								
1: Online and offline selling prices for fashion products	1	1	1	1	1	1	1	1
2: Offline sales	2	2	3	4	3	2	4	5
3: Online sales	2	3	2	5	3	2	3	4
4: Strategy during COVID	4	4	4	5	4	4	6	5

5.2. Theoretical and Practical Implications of Using OPRs in Fashion Product Development

5.2.1. Theoretical Implications

Previous research has not systematically demonstrated the use of OPRs, especially for developing Muslim fashion products during a pandemic. This study fills this research gap by considering experts in order to obtain indicators of Muslim fashion products. Based on the feedback of consumers using OPRs combined with the feedback of experts, this study explored research areas and factors that can influence product development and strategies used by companies, especially during the pandemic in Indonesia.

The strong motivation in this research was to prove that OPR reviews impact the development of fashion products, primarily Muslim fashion products, in Indonesia. Although several studies have processed OPR data using machine learning [65,66], they did not provide complete information about the use of OPRs for the development of Muslim fashion products, especially in Indonesia.

This study provides a reference for further research, especially in this area, and specifically for the use of OPRs, star ratings, sales volume, and consumer trust in collaboration with manufacturers and designers.

5.2.2. Managerial Implications

After conducting word frequency analysis on both OPR data and interviews with experts, the words that most often appeared in the two were quality, consumer, original, company, delivery, fashion, seller, speed, offline, development, sales, strategy, materials, pandemic, designer, color, production, complaint, direct, selling, website, and commerce; these words were analyzed descriptively. The frequency of "quality, original products" is an important indicator approved by companies. Meanwhile, what can increase consumer satisfaction in addition to products is "delivery service, friendliness, and speed of the seller" [7,8,21,50]. Consumer disappointment has been found to have an impact on offline sales, and it has been determined that consumers trust reviews on the internet [9,67,68]. Thus, OPRs are essential for product development that supports sales strategies [10,14,16,17,51].

5.3. Customer Requirement Features of OPRs Help Develop Fashion Products in the New Normal

The results of this study are consistent with previous studies, which found that for the development of fashion products, creativity, technical ability, production quality, and distribution are needed [1,36]. In addition, this research proves that during the COVID-19 pandemic, the sales channel for Indonesian fashion products changed to online channels.

In addition to these four factors, buyer reviews (OPR), policies on the use of masks, and closed clothing all affect the development of Muslim clothing. In the future, Muslim fashion products will have to consider the need for additional features that provide a sense of security from exposure to the coronavirus. Manufacturers to date have made various efforts in this regard, including using antiviral or viroblock materials for hijab and mask suits, and masraf products (masks and scarves) have been developed by designers as well.

Furthermore, there has been a change in the consumers targeted by producers of premium Muslim fashion products. Before the pandemic, manufacturers focused on the upper-middle end market. However, during the pandemic, and likely for future Muslim fashion products, the target market has been the middle class, from premium fashion to daily fashion. Product quality refers to a product's color and type, and whether it has a long service life and an affordable price. Furthermore, in the future, Muslim fashion producers must innovate in consumer services. The speed of online sales response, color accuracy, and original product motifs with images in online stores are essential to maintaining consumer trust; the results of this research support previous research [37,40].

To receive the benefits of OPRs as a medium for exploring the features of Muslim fashion products, skills, expertise, foresight, and reading information from reviews in text form are required. These qualities require experience. This study found that designers who focus on made-to-order products said that the essential factors in product development are the quality of the fabric, personal relationships between producers and consumers, the accuracy of consumers in reading the direction of fashion trends, the accuracy of images, and the clarity of product descriptions in online stores. In addition, Muslim fashion features must be comfortable and conform to customers' styles [39]. These findings support those of previous researchers [38]; however, some features are different from previous researchers, including the finding that Indonesian Muslim fashion can be divided into two types.

There are two types of Muslim clothing in Indonesia, namely, modern Muslim fashion and syar'i Muslim fashion. Modern Muslim fashion has designs that are looser in the rules, meaning, for instance, that trousers can be worn. For this fashion type, usually two or three top and bottom clothes are worn, with a shorter hijab style adopted which covers the whole body and hair. As for syar'i Muslim fashion, a long hijab usually covers the hands and developing masraf. During the COVID-19 pandemic, the demand for Islamic fashion products has increased compared to those of the modern type. According to the expert designers interviewed, because of information on reducing the risk of being exposed to COVID-19 and using masks and more closed clothes, consumers have chosen to replace them with masks.

6. Conclusions

Entrepreneurs in the Indonesian Muslim fashion industry must immediately address the challenge of declining income due to COVID-19. The Muslim fashion industry is currently trying to restore conditions based on innovations from experts. Based on information from OPRs, which have been confirmed to impact the development of Muslim fashion products, there are features which consumers need. This study confirms that the results of features or customer requirements from OPRs will help designers to develop fashion products in the future. However, OPRs only provide general information, and adjustment to the new normal era after COVID-19 should be based on the ability to extract information from experts, experience, and the accuracy of consumer review data. The results of this study provide an opportunity to empirically test the benefits of OPRs for the fashion business and design innovation, and can assist with the efforts of the Muslim fashion industry to survive in the post-COVID new normal conditions.

Furthermore, adjustments to the new normal conditions for Muslim fashion products must always pay attention to the voices of consumers. Fashion products should be of a high quality. Muslim fashion designers must design closed Muslim clothing to avoid

droplets, and masks made of virobloc that are cool and easily absorb sweat. The latest consumer need is for a mask design that avoids dripping and is aesthetically fashionable enough to match the clothing design known as *masraf*. Future research can investigate how these recommendations for Muslim fashion clothes can be applied practically to non-Muslim closed clothes in Indonesia and other countries.

This study has several limitations, namely: (a) semantic analysis of positive, negative, or neutral sentiments from consumers was not considered; (b) data collection and analysis did not use machine learning, instead using the NVIVO tool; and (c) the object of research was focused only on Muslim fashion in Indonesia. These limitations can be used in future research. extracting and analysing data using a sentiment analysis approach. The potential for future research lies in the source and type of data, not only text data from OPRs from e-commerce but other data sources such as video review data sources and other multimedia. Therefore, specific improvements for further research can be made using these data sources.

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Appendix A: List of Expert Interview Questions

- Q1. Do you and your company sell Muslim clothes online and offline?
- Q2. Do your company understand the concept of big data, especially online product reviews (OPR's) from the internet/online?
- Q3. If so, what do you know about big data, especially OPR's?
- Q4. And what does the review data (OPR's) mean for you and the company?
- Q5. Do you think that the voice of consumers from reviews (OPR's) on the internet is an important parameter in developing fashion products?
- Q6. What are your opinions about the power of big data, especially online product reviews (OPR's), for companies?
- Q7. Can big data (OPR's) affect the company's strategy, especially marketing and product development?
- Q8. Are big data (OPR's) beneficial enough for your company?
- Q9. If so, in what ways can big data (OPR's) be used in company development?
- Q10. Is there a general impact of big data (OPR's) on the decision-making process?
- Q11. In your opinion, do big data (OPR's) affect the decision to buy fashion products for your consumers?
- Q12. What is your company's strategy to develop new markets/new consumers who are not yet members?
- Q13. What is your company's strategy for consumer members?
- Q14. Will the COVID-19 pandemic affect online marketing?
- Q15. Will the COVID-19 pandemic affect offline marketing?
- Q16. How is company innovation to overcome the COVID-19 pandemic from offline and online sales?
- Q17. Do you think negative reviews from online consumers are holding back sales?
- Q18. Do positive reviews from online consumers have an impact on sales of Muslim clothes?

- Q19. How to determine the colour of Muslim fashion designed in your company?
- Q20. How to ensure the quality of the e-commerce image is the same as the original product?
- Q21. How to divide the products marketed online and offline based on the price of your product?
- Q22. Can you describe the product development process based on your company's knowledge and experience?
- Q23. How would you rate the significance of consumer voices for the development of fashion products in your company?
- Q24. What are the most important features of adult women's Muslim clothes, in your opinion? (Design, colour, quality and pattern)
- Q25. Can you see opportunities for developing fashion products using OPRs data?
- Q26. Which fashion product feature do you think is the most influential in the overall production? (Materials, patterns, stitches, etc.)
- Q27. Can knowing consumer needs from reviews on OPR's have an effect on the development of women's Muslim clothes?
- Q28. Do you think that the wrong choice of Muslim fashion design features that consumers don't want will increase production costs?
- Q29. For future designs, what strategies do you take to strengthen the market, especially in the new normal era?

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