

Evaluating Fashion E-Commerce Website Effectiveness for Relationship Marketing: A Factorial Analysis and SEM Study among Millennial and Gen Z Muslims in Indonesia

Nur Fitri Rahmawati*, Iwan Sukoco, Bambang Hermanto, Arianis Chan

Department of Business Administration, Universitas Padjadjaran, Sumedang 45363, Indonesia
*nur19020@mail.unpad.ac.id (Correspondence Author), iwan.sukoco@unpad.ac.id,
iwan.sukoco@unpad.ac.id, and arianis.chan@unpad.ac.id*

Abstract. This study analyzes the effectiveness of fashion e-commerce websites as relationship marketing tools using SEM analysis of survey data from 517 Millennial and Gen Z Muslim consumers in Indonesia. The 24-item measurement model exhibits commendable reliability and validity. The final model fit, indicated by a Chi-square (χ^2) value of 477.446 with 293 degrees of freedom, yields a CMIN/DF ratio of 2.04. Further scrutiny involves evaluating indices such as GFI (0.931), AGFI (0.911), RMSEA (0.045), CFI (0.963), TLI (0.957), PCFI (0.817), PNFI (0.789), AIC (609.446), and PClose (0.927). This comprehensive set of indices collectively suggests a reasonably good fit for the examined model. The weighted average effect size approximates 3.746, indicating a substantial overall effect size for the relationship between dimensions (Customer Market Awareness, Customer Preference, Community Relationship, Website Personalization) and Website Effectiveness. Consequently, the hypothesis is supported, affirming a significant overall relationship between the specified dimensions and Website Effectiveness. The implications of these findings extend beyond statistical measures, offering valuable insights into online consumer behavior. Businesses, particularly in the realm of Muslim fashion e-commerce, can leverage these insights to enhance targeted relationship building. By understanding the dynamics influencing Website Effectiveness, companies are better equipped to elevate e-commerce experiences tailored to the unique preferences of the Millennial and Gen Z Muslim consumer segments.

Keywords: Relationship Marketing, Effective Website, E-commerce, Consumer Behavior, Fashion Muslim.

1. Introduction

The rapid growth of e-commerce has turned the internet into a massive arena of competition (Costa & Castro, 2021; Reinartz et al., 2019). Internet is an almost perfect market, as information is instant and buyers can compare sellers offerings worldwide (Jadil et al., 2022). The reason is, online marketplaces facilitate customers to switch providers with just one mouse click (Chowdhury, 2023; Kühn et al., 2020; Lemon & Verhoef, 2016). The result is fierce price competition and loss of loyalty (Gerpott & Berends, 2022; Henseler et al., 2015a; Mitra, 2022; Mujianto et al., 2023; R. Shi & You, 2023; Wood et al., 2021). Thus, It is difficult for enterprises and companies is adapt to the technical improvements driving these changes to improve online sales marketing outcomes (Dwivedi et al., 2021). Because, electronic commerce represents the most rapidly expanding market (Attar et al., 2022; Costa & Castro, 2021). To survive in the intense competition, companies operating online must work while considering online loyalty; this is crucial for online companies to remain profitable (Chowdhury, 2023; Lemon & Verhoef, 2016; Rita et al., 2019; Rivers Patrick A & Glover Sandra H, 2010). Chatzoglou et al., (2022) emphasize that trust and satisfaction are crucial factors in creating consumer loyalty.

The majority of internet consumers in this era belong to the millennial and gen z generation, which has presented difficulties for all online businesses (Djafarova & Bowes, 2021; Mason et al., 2022). Millennial and Gen Z, spend more money online than other age groups (Mason et al., 2022), and over 27% of millennials intend to spend more online and less than offline (ESW, 2022). As the first generation to grow up as digital "natives," these young people represent a distinct category of online customers behavior, and their love of technology has influenced their purchasing habits. Given that Millennial and Gen Z spend more time online and have more experience using Internet services than previous generations, it is critical to comprehend their online habits (Cattapan & Pongsakornrunsilp, 2022; Chowdhury, 2023; Helmi et al., 2023; Lemon & Verhoef, 2016; Muposhi & Chuchu, 2022; Sorensen & Jorgensen, 2019). To affect user experiences and consumer behaviors in online commerce, a website's design must be effective. These websites provide comprehensive customer market awareness, customer preference, website personalization, and connection building for the long term (Gan et al., 2006).

Steinhoff & Palmatier, (2021) underscore the pivotal role of the Internet and information technology in shaping the future potential of customer relationship marketing (RM). Recent studies have illuminated the strategic importance of relationships between sales associates and RM for overall business success (Itani et al., 2019; Morgan & Hunt, 1994). This assertion gains significance in the context of the booming Islamic Clothing Market, projected to reach a substantial size of US\$88.40 billion by 2026 with a notable CAGR of 6.7% (www.industryarc.com) and CAGR growth rate in 2023 – 2028 is 7.323% (see Fig 1). The escalating growth of this market accentuates the need for e-commerce players, particularly in the Islamic fashion domain, to recognize the strategic implications of customer RM. As industries witness varying degrees of success in leveraging RM programs, it becomes imperative for online store marketers to discern and capitalize on these trends, aligning their strategies with the discerning nature of consumers in this burgeoning market (Dwivedi et al., 2021).



Fig 1. Market Size Outlook (www.technavio.com)

In the realm of e-commerce, particularly within the domain of Muslim fashion websites, there exists a critical need to understand the elements contributing to an effective website. While significant investments are made to attract web consumers, the emphasis on web design aspects during the co-design process remains essential (Tangchaiburana & Techametheekul, 2017). In today's digital landscape, the role of website designers has become increasingly crucial in capturing, retaining, and expanding the online retail market (Guo et al., 2023; Hasan, 2016; Jeannot et al., 2022; Salehi et al., 2012). If Internet consumers do not find a fashion website to be useful, in certain circumstances the resources used to create and maintain the website were squandered (Seock, Yoo-Kyoung ; Norton, 2007; Sundström et al., 2019).

The challenge lies in deciphering the specific design features that enhance user appeal and practicality in this context. Additionally, despite the acknowledged importance of websites in stimulating demand and fostering long-term customer relationships (Gan et al., 2006; Tangchaiburana & Techametheekul, 2017), there is a gap in understanding how these aspects translate into effectiveness within the unique landscape of Muslim fashion e-commerce. Existing literature touches upon the general significance of web design and its cost-effective role in the fashion industry. However, the existing literature focuses on mainstream fashion, leaving a notable gap in understanding effective website design tailored for Muslim fashion e-commerce platforms.

With the increasing reliance on digital platforms in the fashion retail market (Ruslan et al., 2023), there is a gap in understanding the distinctive elements that contribute to the success of Muslim fashion websites. Furthermore, the study aims to fill the void in knowledge regarding the impact of website effectiveness on RM within the context of Muslim fashion e-commerce, aligning with the evolving landscape of customer RM in the digital age.

The goal of this research is to investigate the effectiveness of fashion websites as RM tools from a Millennial and Gen Z Muslim perspective, with a focus on their role in engaging Millennial consumers within the Muslim demographic. To do this, a covariance analysis was used to assess Muslim fashion E-commerce Websites. Additionally, we looked at the Confirmatory Factor Analysis and SEM analysis based on previous studies of the literature on RM (Gan et al., 2006), and modified in four dimensions: (1) customer market awareness; (2) customer preference; (3) website personalization; and (4) community relationship. In exploring the relationship between these dimensions and website effectiveness, we formulate the following hypothesis:

H₁ : How do Customer Market Awareness, Customer Preference, Community Relationship, and

Website Personalization collectively contribute to the overall effectiveness of Muslim fashion E-commerce websites for RM?

This hypothesis will guide our research question into understanding the collective impact of various dimensions on the effectiveness of Muslim fashion E-commerce websites for RM.

2. Literature Review

2.1. Relationship Marketing

RM program has many advantages, not all industries are suitable for it. Industries must meet several requirements before being accepted as candidates for developing RM. These include the customers' ongoing desire for the product, the availability of substitute suppliers and their ability to choose from them, whether word-of-mouth is a significant method of product promotion, the likelihood that customers will switch brands frequently, and the potential to cross-sell products (Khan & DePaoli, 2023).

According to research Price et al., (1995), service provider performance was defined as service delivery skills and competencies revealed during the service encounter. However, the simple fact that personnel were present in a real shop setting had a beneficial effect. According to a recent study, having personnel around increased customers' levels of happiness and pleasure (Graciyal & Viswam, 2021). These results provide credence to the assumption that people are sensitive to the presence of other people (Soderlund, 2016). When creating ad campaigns, marketers for both physical stores and online businesses should be mindful of this trend (Dwivedi et al., 2021).

2.2. Muslim Fashion

Muslim fashion has been undergoing a transformation from conservative styles to more contemporary and youthful ones. From the 1980s up to the present day, there has been a resurgence in the popularity of Muslim women's clothing styles. Particularly, in the early 21st century, there emerged a subculture in the way veiled Muslim women dress, and in the 2000s, the millennial generation introduced a subculture in modest fashion (Ruslan et al., 2023). This emergence has propelled Muslim attire to become a part of contemporary fashion (Salim et al., 2022). The global Islamic clothing market was valued at USD 72.57 billion in 2021. It is projected to grow to USD 112 billion by 2030 with a 5% CAGR between 2023 and 2030, starting at USD 76.19 billion in 2022 (*Islamic Clothing Market Size, Share, Growth Analysis, By Product, Type, End Users - Industry Forecast 2022-2028*, 2023).

The evolution of Muslim fashion is influenced by several issues, which can provide obstacles to the industry's advancement in a nation. The modest fashion business is greatly impacted by the new phenomena of fashion trends growing at an accelerated rate (Gazzola et al., 2020). Furthermore, the rise of new local and foreign designers has increased competition among modest fashion firms (Karakavak & Özbölük, 2022). The idea of fashion awareness requires the sector to adopt customer-favored fashion trends. This indicates that there is a sizable target market for Muslim fashion outside of Indonesia.

Developing on this notion, connection marketing was demonstrated to be crucial for business marketers. This is so because a key outcome of RM customer loyalty has a strong relationship with customer service (Leverin & Liljander, 2006). Additionally, in the current atmosphere of competition, it is essential to gain the loyalty of a consumer base that is becoming pickier. Business should therefore shift their focus from merely recruiting new customers to keeping their current ones (Han et al., 2021). RM for fashion Muslim has been more convenient in many ways thanks to the trend of linking it with the Internet (Kusumawati et al., 2020; Purwaningwulan et al., 2019; Saini et al., 2023).

2.3. Relationship Marketing and Muslim Fashion

Numerous models have been developed by studies to gauge the websites' efficacy. When companies adopt the Internet, they must undertake a development stage characterized by additional activities (Verhoef et al., 2021), focused efforts, formalization, and institutionalization of capabilities. Instead, integrated corporate operations must be built on customers, including information provision, web-based

service promotion, and transaction processing (Lemon & Verhoef, 2016; Reinartz et al., 2019). Several Muslim fashion marketing studies (Arab, 2022; Fetais et al., 2023; Hassan & Ara, 2022; Kusumawati et al., 2020, 2022; Nurcahyanie et al., 2022; Pradana et al., 2023; Rosmayani & Mardhatillah, 2020; Saini et al., 2023) have recommended alternative strategies for achieving customer retention over the Internet. Moreover, based on past literature in fashion (Dewalska-Opitek & Bilińska-Reformat, 2021; Doherty & Alexander, 2004; Donnell et al., 2012; Kent, 2009; Khoa, 2020; Kieu, 2019; Kim et al., 2012; Kim & Kim, 2014; Marzo-Navarro et al., 2004; Verma et al., 2016; Wagner & Mark-Herbert, 2016; Walsh et al., 2017; Zayer & Neier, 2011). RM is a multifaceted concept that includes elements like credibility, market segmentation, communication, commitment, and sales effectiveness.

For measuring the adoption of RM on Muslim fashion websites, we created a conceptual framework. Based on previous studies of the literature on RM (Gan et al., 2006), we developed and modified in four dimensions: (1) customer market awareness; (2) customer preference; (3) website personalization; and (4) community relationship. A list of website features was then developed for each dimension, adding more value along the way, by combining earlier research on fashion websites.

2.4. Previous Study

The effectiveness of a website is paramount in the realm of e-commerce, where the virtual storefront serves as the primary interface between businesses and consumers (Khoa, 2020; Sanmiguel et al., 2021). A well-designed and user-friendly website is crucial for attracting and retaining customers in the highly competitive online marketplace (Tangchaiburana & Techametheekul, 2017). The effectiveness of an e-commerce website encompasses various elements, including intuitive navigation, responsive design, and streamlined checkout processes (Lee et al., 2021; Purba et al., 2021). A visually appealing layout coupled with compelling product presentations enhances the overall user experience (Pengnate & Sarathy, 2017), fostering trust and engagement. Additionally, the integration of secure payment gateways (Abdulla & Al-Alawi, 2023; Purba et al., 2021) and robust cybersecurity measures is essential to instill confidence in users (Moon & Armstrong, 2020), ensuring the safety of their transactions. Regular updates, relevant content, and efficient customer support further contribute to a website's effectiveness, establishing a positive brand image. Ultimately, a successful e-commerce website is not merely a digital storefront but a dynamic platform that seamlessly connects businesses with their target audience, driving conversions and fostering long-term customer loyalty.

The previous study conducted by Tangchaiburana & Techametheekul (2017) aimed to investigate the impact of e-commerce web design elements on customer co-design, specifically focusing on the concept of mass customization. In contrast, the study by An & Park, (2020) contributes to fashion trend analysis by employing text mining and semantic network analysis on 29,436 blog posts to identify consumer-driven design features, with a particular focus on jackets as representative fashion items. Meanwhile, the research conducted by Soegoto et al., (2022) addresses the challenges posed by evolving clothing trends and intense competition in the fashion industry. They propose a custom clothing feature on websites to enhance the ordering experience for consumers with specific preferences, emphasizing size and clothing pieces selection without concerns about stock availability. Additionally, Chrimes et al., (2022) address the critical challenge of communicating clothing fit in online retail, a particularly pressing issue exacerbated by the COVID-19-induced surge in online clothing shopping. Zou et al., (2022) conduct a study that addresses the current gap in digital fashion research by comprehensively analyzing the audience's emotional and cognitive responses to digital fashion on social networking platforms. Lastly, Assen, (2023) critically examines the acceptance of digital technologies in fashion stores and their impact on sustainability, addressing a gap in existing research that often overlooks customer acceptance of digital innovations and their sustainability implications in the retail sector.

This study stands out from the mentioned literature by specifically focusing on the effectiveness of fashion e-commerce websites as relationship marketing tools for Millennial and Gen Z Muslim consumers in Indonesia. While previous studies explore various aspects such as web design elements,

fashion trends, custom clothing features, and digital technologies, our research uniquely delves into the dimensions of customer market awareness, preferences, community relationships, and website personalization, providing valuable insights into the RM of a specific demographic in the context of Islamic fashion e-commerce.

3. Research Methods

The research will employ a cross-sectional design, utilizing a random sample of participants from the target demographic. Data will be collected through online surveys featuring Likert scale-based questions and structured items, focusing on the dimensions of Customer Market Awareness, Customer Preference, Website Personalization, and Community Relationship. Confirmatory Factor Analysis (CFA) will be employed to validate the measurement model, ensuring the reliability and validity of the latent constructs. Subsequently, Structural Equation Modeling (SEM) analysis will be conducted to examine the interplay among the identified dimensions and their impact on the overall effectiveness of Fashion E-Commerce websites.

3.1. Procedure

Participants were provided with comprehensive information about their rights, including the option to maintain anonymity, withdraw from the study at any point, and ensure the confidentiality of their responses. Assurance was given that only the research team would have access to the collected data. Prior to the initiation of data collection, each participant willingly signed a consent form before receiving the study questionnaire for completion. The data collection spanned three months, from January to March 2023, with an average participation time of 15 to 20 minutes per participant. These measures aimed to uphold ethical considerations, ensuring voluntary participation, informed consent, and the protection of participant anonymity throughout the study.

3.2. Study Participant

In assessing the effectiveness of Muslim fashion E-commerce websites as RM tools, a survey was randomly distributed to 650 individuals meeting specific criteria. Out of the distributed surveys, 580 were successfully completed, with 517 responses deemed analyzable. This sample size aligns with Louangrath, (2017) guidelines, and, in accordance with Hair et al., (2017) statement, it meets the minimum requirement of 5-10 times the number of items in the study, which in this case is $26 \times 10 = 260$ minimum sample. This corresponds to an impressive response rate of approximately 79.54%. The unit of analysis spans the entire online Muslim fashion consumer population in Indonesia that fulfills two main criteria—having made purchases through designated websites (Buttonsarves, Ria Miranda, Kamiidea, and Wearingklamby) and a minimum purchase history of two times.

Respondent characteristics, including gender, age, education level, domicile, occupation, and income, were meticulously categorized for a comprehensive overview. To address review comments, the survey design underwent rigorous development and validation, the sampling technique employed random distribution, and ethical procedures, including informed consent and respondent anonymity, were strictly observed. These measures collectively ensure the study's robustness, allowing for meaningful insights into the online behaviors of Muslim fashion consumers in Indonesia. Table 1 presents sample participants' characteristics.

Table 1. Participants' Characteristics

Measure	Items	Freq	Percentage
Gender	Female	504	97%
	Male	13	3%
Age	Below 20 Years	22	4%
	20-24 Years	452	87%
	25-29 Years	40	8%
	More than 30 Years	3	1%

Education	Maximum High School	44	9%
	Diploma	127	25%
	Bachelor's Degree	235	45%
	Master's/ Doctoral Degree	111	21%
Income	Below 5 million IDR	190	37%
	5 million IDR - 15 million IDR	264	51%
	15 million IDR - 25 million IDR	31	6%
	More than 25 million IDR	32	6%
Payment Method	Bank Transfer	399	77%
	eWallets (Ovo, Dana, Link aja, Shopee Pay, Gopay)	105	20%
	Credit Card	13	3%

Source : Own Elaborate (2023)

Table 1 summarizes key demographic characteristics of the study participants. The majority are female (97%), with males comprising 3%. The largest age group is 20-24 years (87%), followed by below 20 years (4%), 25-29 years (8%), and above 30 years (1%). Education levels vary, with 45% having a bachelor's degree, 25% holding a diploma, and 21% possessing Master's or Doctoral degrees. Income distribution shows 51% earning between 5 million IDR and 15 million IDR, 37% below 5 million IDR, 6% in the range of 15 million IDR - 25 million IDR, and 6% earning more than 25 million IDR. In terms of payment methods, 77% prefer bank transfers, 20% use eWallets, and 3% opt for credit cards. This concise breakdown provides essential insights into the diverse participant characteristics, facilitating a focused analysis of their impact on the effectiveness of Muslim fashion E-commerce websites as RM tools.

3.3. Instruments Analysis

Prior to dissemination to respondents, rigorous scale development was undertaken, employing a Likert scale ranging from 1 to 5. The instrument underwent meticulous pretesting with a sample of 20 students to assess its validity and reliability. This crucial step ensures that the measurement tool accurately captures the intended constructs, contributing to the overall robustness of the research findings. The measurement model for effective websites, presented in Table 2 along with result mean and standard deviation, encompasses various dimensions.

Table 2. Measurement Model for Effective Websites

Dimension	Code	Indicator	Mean	STEDEV
Costumer Market Awareness	WEA1	Availability of Product Information on the website	3.796	0.714
	WEA2	Availability of Contact Email	3.843	0.721
	WEA3	Response time for customer emails (1-2 days)	3.833	0.714
	WEA4	Website easily found on search engines like Google	3.864	0.702
Costumer Preference	WEB1	This website has its own address (URL)	3.885	0.715
	WEB2	Company profile available (about us)	3.854	0.726
	WEB3	Availability of the latest information from the website (Events)	3.858	0.708
	WEB4	Availability of the latest information from the website (Promotions)	3.862	0.714
	WEB5	Availability of product stock information	3.847	0.719
	WEB6	Availability of detailed product photos	3.827	0.720
	WEB7	Availability of website menu display	3.870	0.699
	WEB8	Completeness of FAQ on the website	3.851	0.725
	WEB9	Availability of product promotion notifications on the website	3.860	0.720

Website personalization	WEB10	Promotions through third-party platforms (Instagram)	3.860	0.717
	WEC1	Condition of user login module	3.868	0.732
	WEC2	Rewards provided by the website to loyal users	3.876	0.712
	WEC3	Availability of additional platforms besides the website (Play Store)	3.852	0.735
	WEC4	Availability of online contests (Giveaways) on Instagram	3.847	0.727
	WEC5	Availability of payment using Credit Card	3.893	0.708
	WEC6	Availability of features to track the purchase process (packing, shipping, etc.) and order cancellation	3.860	0.733
Community Relationship	WEC7	Availability of model variations	3.858	0.798
	WED1	Notification of upcoming pre-launch events through membership email	3.791	0.714
	WED2	Availability of sale menu feature on the website	3.814	0.723
	WED3	Availability of products on marketplaces	3.793	0.697
	WED4	Availability of member interaction media	3.785	0.714
	WED5	Availability of 24-hour customer support	3.773	0.715

Source : Adapted from (Gan et al., 2006)

3.4. Data Analysis

The data was subjected to screening through a series of statistical analyses conducted using AMOS version 24. In the first CFA was performed, involving five constructs and 26 items, following the methodology outlined by Schumacker & Lomax, (2004). One item from each construct was set as a constant with a value of 1.0. To assess the consistency of the items, factor loadings and estimates of AVE were employed. The measurement scale's reliability was assessed using the composite reliability estimate. Discriminant validity was evaluated using HTMT ratio of correlation, a method recognized for its sensitivity in identifying non-discriminant factors (Henseler et al., 2015).

Second, the result of CFA laid the foundation for the SEM analysis, providing insights into the relationships between the constructs. The SEM analysis will specifically test the formulated hypothesis, exploring the overall relationship between customer market awareness, customer preference, community relationship, website personalization, and website effectiveness. To assess the goodness of fit (GoF) of the proposed model, various model fit indices were utilized, following recommended guidelines from the literature. These indices encompassed the chi-square statistic, GFI, RMSEA, AGFI, CFI, TLI, PCFI, PNFI, and AIC (Civelek, 2018; Hair et al., 2017; Hancock & Mueller, 2013; Schumacker & Lomax, 2004). The SEM analysis aims to provide a comprehensive understanding of the intricate connections within the conceptual framework, contributing valuable insights into the effectiveness of Muslim fashion e-commerce websites for RM.

4. Result

4.1. Confirmatory Factor Analysis

In the initial section, validity and reliability assessments were conducted. This involved a detailed description of factor loadings, AVE, and CR for the sub-scales. Subsequently, the HTMT correlation ratio was applied to assess the effective website tool. The final section of the analysis focused on model fit indices for the measurement model, which evaluated how well the data aligned with the chosen model.

4.1.1 Validity and Reliability

The purpose of the study was to assess the effective website scale's convergent validity and reliability. The results pertaining to convergent validity, comprising item factor loadings, AVE, and the dimensions' composite reliability, are displayed in Table 3. Table 3 will be cleared of items that have factor loadings less than 0.5 and impact AVE.

Table 3. Confirmatory Factor Analysis

Dimension	Factor Loading	CR	AVE	Factor Loading*	CR*	AVE*
Sub-scale (26-items)			Sub-scale (24-items)			
Costumer Market Awareness	-	0.839	0.566	-	0.839	0.566
WEA1	.696 ***			.696 ***		
WEA2	.767 ***			.767 ***		
WEA3	.779 ***			.779 ***		
WEA4	0.766			0.767		
Costumer Preference	-	0.908	0.498	-	0.902	0.507
WEB1	.665 ***			.679 ***		
WEB2	.749 ***			.755 ***		
WEB3	.727 ***			.740 ***		
WEB4	0.716			0.732		
WEB5	.760 ***			.771 ***		
WEB6	.738 ***			.742 ***		
WEB7	.696 ***			.687 ***		
WEB8	.665 ***			.642 ***		
WEB9	.678 ***			.654 ***		
WEB10	.660 ***			-		
Website personalization	-	0.871	0.496	-	0.879	0.548
WEC1	.733 ***			.738 ***		
WEC2	.727 ***			.732 ***		
WEC3	.759 ***			.765 ***		
WEC4	0.762			0.769		
WEC5	.736 ***			.741 ***		
WEC6	.698 ***			.695 ***		
WEC7	.471 **			-		
Community Relationship	-	0.849	0.530	-	0.849	0.530
WED1	.703 ***			.703 ***		
WED2	.734 ***			.735 ***		
WED3	.748 ***			.748 ***		
WED4	.720 ***			.720 ***		
WED5	0.737			0.737		

Significant at † $p < 0.100$, * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$. AVE, average variance extracted, CR, composite reliability.

Factor loadings of items must be more than 0.50 in order to meet the conventional requirements in structural equation modeling (SEM) for determining whether an item contributes significantly to a particular construct (Civelek, 2018). 25 of the 26 items on the initial scale satisfied this requirement, indicating a certain degree of validity for convergence. Remarkably, the AVE values for the customer preference and website personalization dimensions are less than 0.5. WEC7 and WEB10 were eliminated to enhance the AVE for the goals and development dimension.

4.1.2 Discriminant Validity

Table 4 displays the findings of the discriminant validity analysis. We employed the HTMT 0.90 criterion, which stipulates that the correlation ratios of the dimensions must be less than 0.90, to evaluate the discriminant validity (Henseler et al., 2015). Most of the correlation ratios satisfied the requirements for the original 26-item test, according to the data shown in Table 4.

Table 4. Discriminant Validity

Sub-scale (26-items)		X1	X2	X4	X3
X1	Costumer Market Awareness	1			
X2	Costumer Preference	0.821	1		
X4	Community Relationship	0.762	0.711	1	
X3	Website personalization	0.760	0.822	0.74	1
Sub-scale (24-items)		X1	X2	X4	X3
X1	Costumer Market Awareness	1			
X2	Costumer Preference	0.824	1		
X4	Community Relationship	0.762	0.709	1	
X3	Website personalization	0.666	0752	696	1

The HTMT results for the 24-item model showed improvement in the discriminant validity indicators as compared to the 26-item model.

4.1.3 Model Fit Indices for the Measurement Model

The models' model fit indices were evaluated using the following cutoff points: CMIN/DF and Chi-square (<3 indicates fit as suggested by Schumacker & Lomax, 2004); GFI (≥ 0.95 indicates excellent fit, as suggested by (Hancock & Mueller, 2013), and ≥ 0.9 implies reasonable fit as suggested by (Hancock & Mueller, 2013)); AGFI (>0.95 signifies excellent fit, as suggested by (Civelek, 2018), and ≥ 0.9 indicates reasonable fit as suggested by (Hu & Bentler, 1998)). RMSEA (≤ 0.05 is considered excellent as suggested by (MacCallum et al., 1996)), CFI (≥ 0.95 is excellent fit as suggested by (D. Shi et al., 2019), and ≥ 0.90 is acceptable fit as suggested by (Fan et al., 1999)), TLI (>0.95 excellent fit as suggested by (Schumacker & Lomax, 2004)), AIC (lower values approximate reality), and PClose (>0.05 indicates excellent fit as stated by (Gaskin & Lim, 2016)). The model fit indices are presented in Table 5 and Figure 1.

Table 5. CFA Model Fit

Fit indices	Values (26-Items)	Values (24-Items) and MI
Chi-square (χ^2)	1177.797	460.287
DF	293	232
CMIN/DF	4.02	1.984
GFI	0.841	0.933
AGFI	0.809	0.913
RMSEA	0.077	0.044
CFI	0.882	0.966
TLI	0.869	0.959
PCFI	0.795	0.812
PNFI	0.766	0.785
AIC	1293.797	596.287
PClose	0	0.963

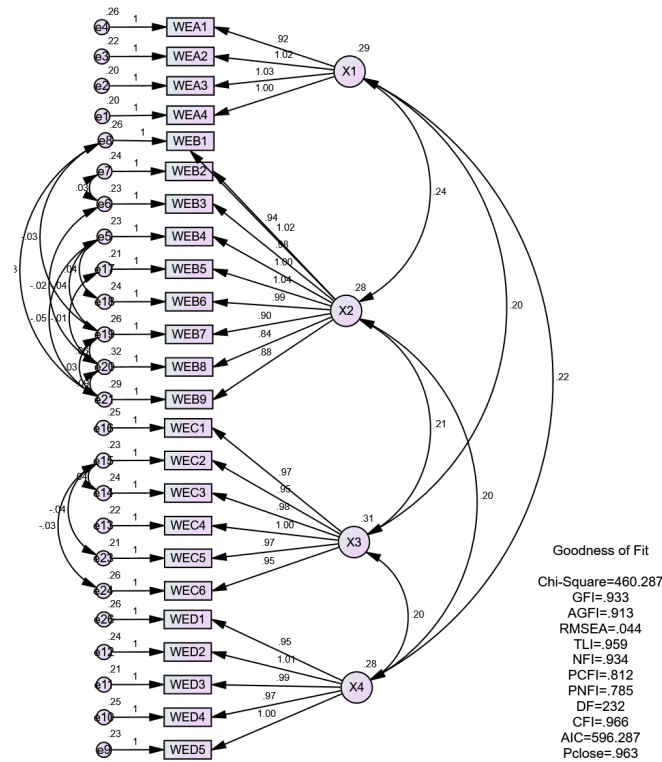


Fig 2. 24-Items and MI in CFA

The analysis of model fit indices, presented in Table 5 and Figure 2, gives insights into the goodness of fit for two model variations. For the 26-item model, the Chi-square value is 1177.797 with 293 degrees of freedom (DF), resulting in a CMIN/DF value of 4.02, GFI at 0.841, AGFI at 0.809, and RMSEA at 0.077, suggesting a reasonably good fit. In contrast, the 24-item model with modification indices (MI) shows improvements, reducing the Chi-square value to 460.287 with 232 degrees of freedom (DF) and a lower CMIN/DF value of 1.984. Notably, this version exhibits higher GFI (0.933) and AGFI (0.913) values, along with a decreased RMSEA of 0.044, indicating enhanced fit. The CFI and TLI values notably increase to 0.966 and 0.959, respectively, signifying an overall improved fit. The PCFI and PNFI values, assessing model fit considering complexity, stand at 0.795 and 0.766 for the 26-item model and 0.812 and 0.785 for the 24-item model. Regarding the AIC, the 24-item model with MI demonstrates a lower value of 596.287 compared to the 26-item model's 1293.797, suggesting superior representation of the data. Finally, the (PClose) value is 0.963 for the 24-item model, indicating an excellent fit. Overall, this analysis provides insights into the goodness of fit for both models, supporting the appropriateness of the 24-item model with modification indices.

4.2 Final SEM Analysis

SEM enables us to unravel the underlying relationships between key constructs, providing a comprehensive understanding of the complex interplay within our conceptual model. As we embark on this SEM analysis journey, we aim to scrutinize the interconnections among Customer Market Awareness, Customer Preference, Community Relationship, Website Personalization, and Website Effectiveness. The evaluation of model fit indices will guide our exploration, shedding light on the effectiveness of our conceptual model.

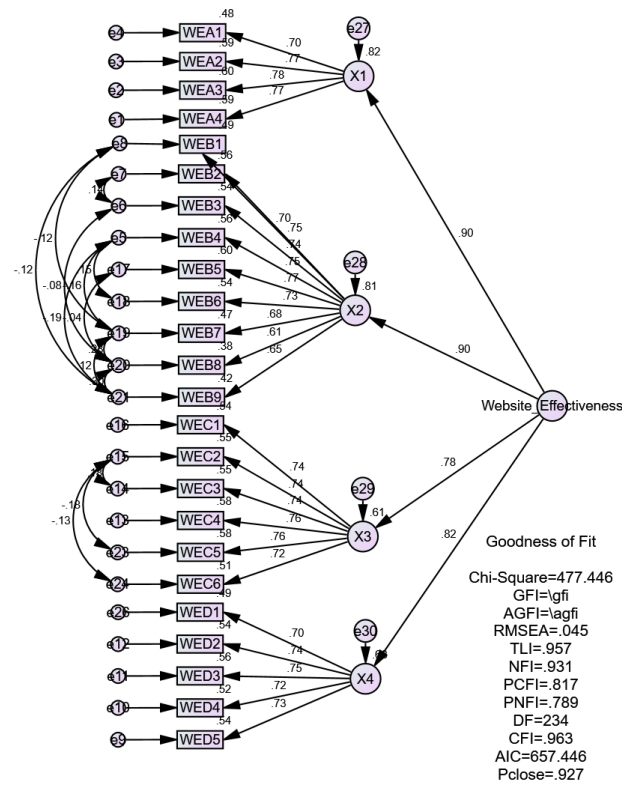


Fig. 3 Final SEM Analysis

Table 6. Final Validity and Reliability Analysis

	CR	AVE	MSV	MaxR(H)	Website Effectiveness
Website Effectiveness	0.915	0.730	0.000	0.926	0.855

Table 7. Final Model Fit

Model Fit Indices											
Chi-square	DF	CMIN/DF	GFI	AGFI	RMSEA	CFI	TLI	PCFI	PNFI	AIC	PClose
477.446	293	2.04	0.931	0.911	0.045	0.963	0.957	0.817	0.789	609.446	0.927

The final model's fit is assessed through various indices. The chi-square statistic, with a value of 477.446 over 293 degrees of freedom, indicates an acceptable fit (CMIN/DF = 2.04). Additionally, goodness-of-fit indices, including the GFI (0.931), AGFI (0.911), RMSEA (0.045), CFI (0.963), and TLI (0.957), collectively suggest a satisfactory fit. The model's ability to explain the variance is supported by PCFI (0.817) and PNFI (0.789). The AIC value is 609.446, indicating the model's relative fit compared to alternative models. The p-close value is 0.927, reinforcing the adequacy of the model fit. Overall, these indices suggest that the final model provides a good fit to the data, supporting its validity and reliability for further interpretation.

Table 8. Hypothesis Testing

Parameter	R ²	Effect Size	Estimate	Lower	Upper	P Value
Costumer Market Awareness → Website Effectiveness	0.612	1.577	0.903	0.849	0.949	0.001

Parameter	R ²	Effect Size	Estimate	Lower	Upper	P Value
Costumer Preference → Website Effectiveness	0.680	2.125	0.902	0.847	0.945	0.001
Community Relationship → Website Effectiveness	0.814	5.220	0.782	0.686	0.846	0.002
Website personalization → Website Effectiveness	0.816	5.261	0.824	0.748	0.878	0.002

To test the hypothesis stating that there is a significant overall relationship between Customer Market Awareness, Customer Preference, Community Relationship, Website Personalization, and Website Effectiveness, we can calculate the weighted average of the effect sizes for each dimension. The effect size (f²) reflects the practical significance of the relationship.

$$\text{Weighted Average Effect Size} = \frac{(0.612 \times 1.577) + (0.680 \times 2.125) + (0.814 \times 5.220) + (0.816 \times 5.261)}{0.612 + 0.680 + 0.814 + 0.816}$$

$$\text{Weighted Average Effect Size} = \frac{(0.966924) + (1.442) + (4.24668) + (4.29256)}{2.922}$$

$$\text{Weighted Average Effect Size} = \frac{10.94816}{2.922}$$

$$\text{Weighted Average Effect Size} = 3.746$$

The weighted average effect size is approximately 3.746. This indicates a substantial overall effect size for the relationship between the dimensions (customer market awareness, customer preference, community relationship, website personalization) toward website effectiveness. The magnitude of the effect size suggests a practically significant impact on the overall effectiveness of the website. Therefore, we can conclude that the hypothesis is supported, and there is a significant overall relationship between the specified dimensions and website effectiveness.

5. Discussion

The present research delves deeper into the ideas of RM and how it's used in the Muslim fashion website. The study's conclusions deepen our understanding of how to apply RM techniques to effectively handle the opportunities and difficulties faced by the Muslim fashion sector. With the increasing diversification and segmentation of the market, the emergence of distinct subcultures within Muslim fashion has presented both challenges and prospects (Hassan & Ara, 2022; Kusumawati et al., 2020; Nurcahyanie et al., 2022; Rosmayani & Mardhatillah, 2020). The study sheds light on how these subcultures influence consumer preferences, highlighting the need for tailored marketing strategies that resonate with the specific values and identities of different segments.

Furthermore, the study underscores the competitive landscape of the modest fashion sector, where numerous brands vie for consumer attention (Cardoso et al., 2022; de Kerviler et al., 2017; Kim & Kim, 2014; Kusumawati et al., 2020; Lang & Joyner Armstrong, 2018). This competitive environment necessitates a keen sense of fashion awareness to stand out and capture the target audience's interest effectively (Leifhold & Iran, 2018; Leifhold, 2018; Fetais et al., 2023; Kusumawati et al., 2020; Lang & Armstrong, 2018; Niinimäki et al., 2020; Pradana et al., 2023; Purwaningwulan et al., 2019; Sundström et al., 2019). By focusing on dimensions such as customer market awareness and customer preference, the study emphasizes the importance of aligning marketing efforts with consumer needs and aspirations.

E-commerce and its transformative impact on customer behavior are central themes in the study's narrative (Attar et al., 2022; Dwivedi et al., 2021). The convenience and accessibility of online shopping have not only reshaped consumer expectations but have also challenged businesses to rethink their approaches to customer loyalty (Cardoso et al., 2022; Chatzoglou et al., 2022; Guo et al., 2023; Khoa, 2020). In this context, the study delves into the intricacies of online consumer behavior, offering insights

into how effective websites can serve as pivotal tools in cultivating loyalty among customers (Guo et al., 2023; Hasan, 2016; Jeannot et al., 2022; Tangchaiburana & Techametheekul, 2017). Of particular significance is the study's emphasis on the millennial and gen Z generation as a target demographic. The study recognizes that millennials and gen z are not only active participants in the e-commerce landscape but also play a crucial role in shaping its evolution (Bozzi et al., 2022; Cattapan & Pongsakornrungrungsilp, 2022; Helmi et al., 2023; Muposhi & Chuchu, 2022; Park & Lee, 2021; Sorensen & Jorgensen, 2019). Effective websites play a critical role in attracting and retaining this demographic, who often place high value on seamless online experiences and personalized interactions.

The study provides substantial theoretical contributions by uncovering the intricate dynamics of RM within the Muslim fashion and e-commerce domain. These theoretical implications extend the findings of prior research, which focused on hotel websites by Gan et al., (2006) and general fashion websites by Tangchaiburana & Techametheekul (2017), Kawaf & Istanbuluoglu, (2019), Lee et al., (2021), and Nurcahyanie et al., (2022). By exploring the dimensions of customer market awareness, customer preference, community relationship, and website personalization, the research advances our theoretical understanding of how these factors collectively influence the effectiveness of fashion e-commerce websites in engaging Millennials and Gen Z. The emphasis on these generations as a target demographic contributes to the broader discourse on their active participation and influential role in shaping the evolution of e-commerce.

On a practical level, the study provides actionable insights for businesses operating in the Muslim fashion industry. As businesses grapple with the challenges posed by evolving consumer preferences, subcultures, and digital transformations, the findings offer strategic guidance. The study's exploration of RM equips businesses with practical tools to navigate this dynamic landscape, helping them build meaningful and lasting relationships with their customers. In essence, the research serves as a valuable resource for businesses seeking to optimize their digital platforms and establish a strong foothold in the rapidly changing realm of Muslim fashion e-commerce.

6. Conclusion, Limitation and Future Research

In conclusion, this study makes important contributions by investigating e-commerce website effectiveness for RM within the context of Muslim fashion. The results highlight the pivotal roles of market awareness, customer preferences, community relationships and website personalization in driving website effectiveness. However, the limitations of this research such as its narrow focus on Millennials and Gen Z consumers in Indonesia and self-reported data need acknowledgement. Future studies can build on these findings by incorporating additional cultural settings, evaluating longitudinal consumer behaviors, and integrating qualitative analyses. Overall, by emphasizing relationship-centered dimensions in assessing Muslim fashion websites, this study offers actionable guidance for businesses to optimize their digital platforms amidst intense online competition and evolving consumer preferences.

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