# From Convenience to Confidence: AI-Enabled Shopping Evaluations Among Malaysian Female Gen Z University Students

**Juhaini Jabar*, Anis Marsya Azlan Reeza, Wan Muhammad Idham Wan Mahdi, Siti Norbaya Yahaya, Murzidah Ahmad Murad**

**Fakulti Pengurusan Teknologi dan Teknousahawanan, Universiti Teknikal Malaysia Melaka, Malaysia.**

***Corresponding Author**

**DOI: https://doi.org/10.47772/IJRISS.2026.101000107**

**Received: 08 October 2026; Accepted: 13 October 2026; Published: 30 October 2026**

## ABSTRACT

AI-enabled personalization is changing how young consumers encounter products, assess information and make online-shopping decisions. This study examines the relative evaluations of AI-supported shopping features among Malaysian female Generation Z university students, distinguishing shopping convenience, recommendation credibility and purchasing commitment. A cross-sectional survey yielded 350 usable responses from female online shoppers aged 18–24 at Universiti Teknikal Malaysia Melaka (UTeM) and Universiti Putra Malaysia (UPM). Twenty-five five-point agreement statements were examined through descriptive item rankings, five conceptually motivated exploratory paired comparisons using two-sided Wilcoxon signed-rank tests with Holm adjustment, and supplementary between-university comparisons. Respondents expressed generally favorable views, with 92.0% of ratings in categories four or five. Advertisement relevance was rated above prediction accuracy (mean difference = 0.366), shopping efficiency above the speed and ease of discovering preferred products (0.414), confidence in responsible personal-data handling above trust conditional on a brand's transparency about data use (0.434), purchase consideration above willingness to try a new brand (0.477), and stated brand loyalty above anticipated long-term customer commitment (0.451). All five Holm-adjusted p-values were below 0.001. Matched-pairs rank-biserial effect sizes ranged from 0.658 to 0.738 among non-tied responses; many paired ratings were equal, and mean differences were below half a point. Comparable directional patterns appeared in both university groups, with no between-university item difference significant following multiplicity adjustment. The findings offer an item-specific account of what female Gen Z shoppers value in AI-assisted retail and provide a basis for consumer-centred applications in female-oriented digital retail, including modest fashion and halal beauty.

**Keywords—**AI-enabled shopping; female Generation Z; online consumer perceptions; responsible data handling; data-use transparency; purchase-related evaluation.

## INTRODUCTION

Artificial intelligence (AI) has expanded the ability of digital retailers to tailor what consumers see, when recommendations appear and how quickly product information can be accessed. Personalized advertisements, algorithmic product suggestions and adaptive interfaces promise to reduce search effort while increasing the perceived relevance of online experiences. In consumer research, however, the attractiveness of a technology is conceptually different from the credibility of its recommendations and the durability of a purchasing relationship. Consumers may readily recognize that a platform saves time while remaining less certain about the accuracy of its predictions, the reasons behind recommendations or their willingness to become long-term customers.

Female online shoppers are a strategically important consumer group within this market. The Department of Statistics Malaysia reported internet usage of 97.6% among women in 2024, indicating extensive digital access [10]. In a Malaysian study of Shopee shopping behaviour, women accounted for 85.95% of the respondents in the study dataset, illustrating their prominence in that platform-specific sample rather than a national market

share [11]. Women's commercial relevance is also evident in the Malaysian womenswear market, where retail sales reached approximately RM12.9 billion in 2025 [13]. Research on women purchasing fashion and beauty products through e-commerce further points to product availability, shopping convenience and website quality as relevant consumer considerations [16]. These findings support focused investigation of how young female shoppers evaluate AI-driven product discovery, trust and purchasing experiences.

The 18–24 age group offers a particularly relevant Generation Z lens. Ipsos Malaysia reported that 70% of Malaysians aged 18–24 had purchased through an e-commerce platform in the preceding six months in 2025, compared with 59% in 2024 [12]. The same national study identified fashion and beauty/personal-care categories as established online-shopping segments [12]. Young adult shoppers' regular encounters with digital recommendations, platform reviews and personalized content make them an appropriate population for examining perceived relevance, shopping efficiency, trust and purchasing intentions. These patterns also carry implications for female-oriented halal retail categories, including halal-certified skincare and cosmetics and modest-fashion shopping.

Contemporary scholarship distinguishes the convenience of personalization from the trust-related qualities that shape consumers' evaluations of AI-supported shopping. Canhoto, Keegan and Ryzhikh [1] show how personalized retail offers can create both convenience and privacy tensions, while Chang and Park [2] distinguish the role of recommender systems in shaping product consideration. An and Ngo [3], drawing on Vietnamese digital-platform users, identify relevance, usefulness and trust as differentiated elements surrounding AI-powered advertising. More recently, Vu et al. [4] conceptualize trust in AI-enabled e-commerce as an adaptive assessment of utility, communication, control and governance. Together, these studies suggest that personalization is not a single uniformly positive experience but a constellation of more and less demanding consumer evaluations.

An item-level perspective is valuable for identifying the specific priorities of female Gen Z online shoppers. The study organizes five content-linked comparisons into three interpretive lenses: (i) perceived relevance and convenience (advertisement relevance versus predictive accuracy; overall shopping efficiency versus quick and easy discovery of preferred products); (ii) data-related confidence (confidence in responsible personal-data handling versus greater brand trust when data use is transparent); and (iii) purchase-related orientation (consideration of a recommended product versus trial of a new brand; stated brand loyalty versus anticipated long-term customer status). These lenses describe contrasts between distinct original statements, not newly validated psychometric constructs.

Against this background, the study examines AI-enabled online-shopping evaluations among 350 female undergraduates aged 18–24 at UTeM and UPM. Three research questions guide the analysis: RQ1, which individual AI-enabled shopping features receive comparatively higher or lower ratings? RQ2, how do the five content-linked pairs of statements differ within respondents in terms of direction, mean difference and rank-based effect size? RQ3, are the patterns broadly similar in the two university samples?

The findings are relevant to female-oriented digital retail categories, including modest fashion, skincare and cosmetics. In these settings, AI-supported discovery may help consumers navigate products, while credible seller information and, where applicable, verifiable halal certification can support informed purchasing. Existing research on Sharia-compliant e-commerce design, certification visibility and halal cosmetics purchasing provides the sectoral context [5], [6], [9]. These sectors represent potential applications of the measured general online-shopping evaluations.

## LITERATURE REVIEW AND ANALYTICAL PERSPECTIVE

### A. AI personalization: relevance, convenience and capability

Personalized technology can make the shopping journey feel more efficient by reducing search effort and arranging content around interests inferred from browsing or engagement. Research differentiates advertisement relevance, the perceived predictive accuracy of recommendations, overall shopping efficiency and whether AI makes products consumers already like easier and quicker to discover. Chang and Park [2] examine AI-assisted

consideration sets, while An and Ngo [3] highlight perceived relevance, usefulness and trust. These ideas motivate comparing evaluations of specific shopping benefits rather than assuming that they all reflect the same experience.

A shopper may welcome promotions relevant to current interests yet be less convinced that suggestions accurately anticipate the next desired purchase. Likewise, respondents may agree that personalized shopping is efficient without assigning exactly the same rating to whether AI helps them find products they like more quickly and easily. The present comparison differentiates these specifically worded evaluations; it does not measure discovery of unfamiliar products or establish objective algorithm performance.

### B. Trust: personal-data stewardship and transparency-related brand confidence

Trust-related shopping evaluations include confidence that platforms will handle personal data responsibly, expectations about recommendation accuracy and the circumstances in which disclosure or user control could increase trust. Canhoto et al. [1] discuss how personalization creates both convenience and privacy concerns, while Vu et al. [4] frame algorithmic trust around utility, communication, control and governance. The original questionnaire separates a direct statement of confidence in ethical data handling (TR3) from a conditional proposition that transparency about a brand's use of personal data would increase trust (TR4). These items concern related but different judgments.

The data-use transparency question does not ask respondents to evaluate how transparent their existing platform actually is or whether the recommendation algorithm explains its logic. Instead, TR4 asks whether transparency about the brand's use of personal data for personalization would make the respondent more likely to trust that brand. By comparing it with TR3, the paired analysis identifies relative agreement with two data-trust propositions, not an observed level of algorithmic opacity. This distinction complements literature on transparency, meaningful explanations and consumer control [1], [4], [7].

### C. Purchase consideration, new-brand trial and durable engagement

Purchase consideration occurs earlier in a consumer journey than an actual transaction or a stable long-term relationship. The decision to consider a product may be easier than committing to try an unfamiliar brand, while broad expressions of brand loyalty can coexist with greater hesitation about becoming a long-term customer. Hassan, Abdelraouf and El-Shihy [8] identify complex relationships among personalized recommendations, trust, satisfaction and loyalty in AI-driven e-commerce. Their work offers relevant theoretical context for examining levels of endorsement of purchase-related statements.

For this study, willingness to consider a product recommended from one's preferences and willingness to try a new brand because its AI suggestions are relevant express distinct purchase-related intentions. Likewise, feeling more loyal to brands offering consistently good recommendations and seeing oneself as a long-term customer represent different forward-looking brand evaluations. The paired tests assess respondents' relative agreement with these statements; they do not measure completed transactions or prove a process of behavioral change.

### D. Halal digital commerce as a consumer application

Female-oriented online retail includes product categories in which recommendation relevance, trustworthy descriptions and purchase confidence may be especially consequential. Modest fashion retailers can support search by fit, cut, fabric, style and occasion; beauty and personal-care sellers can support comparison by product attributes and suitability. Where products carry halal-related claims, credible certification information can provide an additional verification resource. Malaysian studies of Sharia-compliant platform quality and halal cosmetics shopping establish the relevance of these information needs [5], [9], while certification-visibility research supplies a broader assurance perspective [6].

These applications raise three practical questions for AI-enabled retail design: Are recommendations relevant and convenient? Are product information and personal-data practices clear enough to support confident decisions? How strongly do female shoppers endorse initial product consideration, unfamiliar-brand trial and

longer-term relationships? The survey addresses the relative ratings of general online-shopping statements; subsequent studies can apply these questions directly to modest fashion or halal-certified beauty products using product-specific measures.

# METHODOLOGY

## A. Research design and sample

This cross-sectional quantitative study focused on Malaysian female online shoppers aged 18–24, recruited purposively at Universiti Teknikal Malaysia Melaka (UTeM) and Universiti Putra Malaysia (UPM). A total of 350 completed questionnaires were usable, including 184 UTeM respondents (52.6%) and 166 UPM respondents (47.4%); 140 participants were aged 18–21 (40.0%) and 210 were aged 22–24 (60.0%). These universities provided two distinct educational settings: UTeM is a technical public university emphasizing applied engineering and technology, whereas UPM is a research-intensive institution [14], [15]. The comparison examines whether item-level perceptions appear similarly patterned across these two student settings, without assuming the samples represent all Malaysian female Gen Z shoppers.

Respondents reported recent online-shopping experience and evaluated 25 statements concerning AI-related recommendations, perceived usefulness, personal-data confidence, conditional trust responses, purchase intention and stated repeat-purchase/loyalty orientation. The resulting female Gen Z profile informs evaluation of individual digital retail features across two university settings.

## B. Instrument and item-level operationalization

The original questionnaire contained five sets of five agreement statements (1 = strongly disagree; 5 = strongly agree) under AI-driven personalization (IV1–IV5), purchase intention (DV1_PI1–DV1_PI5), repeat sales orientation (DV2_RS1–DV2_RS5), perceived usefulness (MV_PU1–MV_PU5) and trust-related perceptions (MV_TR1–MV_TR5). The full original item wording, now available from the survey instrument, is reproduced in Appendix B. Respondents rated each statement based on their online-shopping experiences on platforms including Instagram, TikTok and Shopee. The study examines individual statements to identify specific consumer evaluations, rather than interpreting the original section headings as evidence of distinct validated scales. For clarity, 'repeat sales' items are treated here as self-reported intentions or brand-related orientations, not verified repeat transactions; TR4 and TR5 express conditions under which trust might increase.

Five conceptually linked but distinct questionnaire pairs were selected for exploratory comparisons. IV2 versus IV4 considers perceived advertisement relevance and prediction accuracy. MV_PU2 versus MV_PU1 compares general shopping efficiency with quicker and easier discovery of products the respondent likes. MV_TR3 versus MV_TR4 contrasts confidence that personal data will be handled responsibly with a conditional increase in brand trust if data use for personalization is transparent. DV1_PI2 versus DV1_PI5 contrasts consideration of a preference-matched recommended product with willingness to try a new brand. DV2_RS2 versus DV2_RS5 contrasts stated loyalty to brands offering consistently good AI recommendations with anticipated long-term customer status. Each pair is interpreted at the item level; the tests were exploratory and not preregistered comparisons of validated latent constructs.

## C. Statistical procedure

Each of the 25 items was summarized using its mean and standard deviation. For each selected pair, the second item score was subtracted from the first for each respondent. Two-sided Wilcoxon signed-rank tests assessed the nonzero paired differences; the number of equal scores (ties) was also reported. Holm adjustment was applied across the five exploratory tests. Percentile bootstrap 95% confidence intervals for the mean paired differences were estimated from 5,000 respondent-level resamples. To complement p-values, matched-pairs rank-biserial correlation was calculated as (positive signed-rank sum − negative signed-rank sum) divided by their total, excluding zero differences. Mean differences, confidence intervals, rank-biserial effect sizes and tie counts are interpreted together, rather than treating statistical significance alone as practical importance.

University-specific paired mean differences were examined to assess the direction of the five contrasts within each group. Between-university item scores were compared with two-sided Mann–Whitney U tests and Holm adjustment across 25 items. These supplementary comparisons identify observed group patterns; nonsignificant differences are not interpreted as proof that the university populations are equivalent.

# RESULTS

## A. Participant profile and response concentration

Table 1. Profile Of Main-Survey Respondents (N = 350)

| Characteristic | Category | n | % |
|---|---|---|---|
| University | UTeM | 184 | 52.6 |
| | UPM | 166 | 47.4 |
| Gender | Female | 350 | 100.0 |
| Age group | 18–21 years | 140 | 40.0 |
| | 22–24 years | 210 | 60.0 |

Across the 350 main-survey participants, 8,750 responses to the 25 statements were observed. Agreement was generally high: 69.7% of scores were five and 92.0% were four or five, with no missing item responses. This favorable response concentration provides relevant context for interpreting mean differences alongside the frequency of equal paired ratings.

## B. Highest- and lowest-rated statements

Table 2. Selected Highest- and Lowest-Endorsement Items (Main Survey)

| Band | Item (short label) | Mean | SD |
|---|---|---|---|
| Highest | Shopping efficiency | 4.826 | 0.380 |
| | Advertisement relevance | 4.820 | 0.385 |
| | Brand loyalty | 4.814 | 0.389 |
| | Responsible data handling | 4.803 | 0.419 |
| | Purchase consideration | 4.786 | 0.411 |
| Lowest | New-brand trial | 4.309 | 0.817 |
| | Recommendation accuracy trust | 4.354 | 0.822 |
| | Long-term customer commitment | 4.363 | 0.817 |
| | Trust strengthened by data-use transparency | 4.369 | 0.814 |
| | Quicker discovery of preferred products | 4.411 | 0.792 |

Means and standard deviations describe individual questionnaire statements; they do not measure predictive effects. Appendix A ranks all 25 items, and Appendix B reproduces their full wording and original item codes.

Shopping efficiency (M = 4.826), advertisement relevance (M = 4.820), stated brand loyalty (M = 4.814), responsible data-handling confidence (M = 4.803) and purchase consideration (M = 4.786) received the highest ratings. Comparatively lower—although still favorable—ratings concerned new-brand trial (M = 4.309), trust in

recommendation accuracy (M = 4.354), long-term customer status (M = 4.363), transparency-related brand trust (M = 4.369) and quicker/easier discovery of preferred products (M = 4.411). These item rankings help identify the propositions that received relatively stronger or more selective endorsement.

### C. Five exploratory within-respondent gaps

Table 3. Paired Item Comparisons, N = 350

| Comparison (first minus second) | Mean gap | Bootstrap 95% CI | +/−/ties | Holm p |
|---|---|---|---|---|
| Ad relevance – prediction accuracy | 0.366 | [0.274, 0.454] | 115/39/196 | < .001 |
| Efficiency – quicker discovery | 0.414 | [0.326, 0.503] | 126/35/189 | < .001 |
| Data-handling confidence – transparency-related trust | 0.434 | [0.337, 0.534] | 137/46/167 | < .001 |
| Purchase consideration – new-brand trial | 0.477 | [0.383, 0.574] | 142/35/173 | < .001 |
| Brand loyalty – long-term customer | 0.451 | [0.354, 0.551] | 138/44/168 | < .001 |

All comparisons are two-sided and relate to the precise original item statements in Appendix B. +/−/ties shows counts rating the first item higher/lower/equally. Bootstrap intervals refer to mean paired differences. p-values are Wilcoxon signed-rank results adjusted using Holm's method; matched-pairs rank-biserial effects reported in the text concern nonzero differences.

Five exploratory pairs had positive mean differences of 0.366–0.477 points on the five-point agreement scale. Purchase consideration exceeded new-brand trial (0.477; bootstrap 95% CI 0.383–0.574), while stated loyalty exceeded anticipated long-term customer status (0.451; 95% CI 0.354–0.551). Advertisement relevance exceeded prediction accuracy (0.366; 95% CI 0.274–0.454), overall shopping efficiency exceeded quick and easy discovery of preferred products (0.414; 95% CI 0.326–0.503), and confidence in responsible personal-data handling exceeded trust conditional on data-use transparency (0.434; 95% CI 0.337–0.534). Holm-adjusted p-values were below 0.001 for all five contrasts. Matched-pairs rank-biserial effect sizes, in Table 3 row order, were 0.663, 0.710, 0.658, 0.738 and 0.686. These statistics describe how specific questionnaire statements differed within respondents, not contrasts between broader validated constructs.

Equal ratings were frequent. Of 350 respondents, 196 gave the same score to advertisement relevance and prediction accuracy, and 173 gave the same score to purchase consideration and new-brand trial; across all five contrasts, ties ranged from 167 to 196 respondents. Rank-biserial effects thus summarize directional rank information among non-tied observations, whereas mean differences summarize the whole sample. In particular, the data-handling versus transparency-related trust comparison concerns two different propositions and should not be interpreted as a rating of platforms' actual transparency.

### D. University-group comparisons

Table 4. Mean Within-Person Item Gaps by University

| Paired comparison | UTeM (n=184) | UPM (n=166) |
|---|---|---|
| Ad relevance – prediction accuracy | 0.391 | 0.337 |
| Efficiency – quicker discovery | 0.364 | 0.470 |
| Data handling – transparency-related trust | 0.467 | 0.398 |
| Purchase consideration – new-brand trial | 0.533 | 0.416 |
| Brand loyalty – long-term customer | 0.413 | 0.494 |

All five paired comparisons showed the same directional pattern in the UTeM and UPM groups. Across the 25 individual items, only one nominal Mann–Whitney p-value was below 0.05 before correction, and none remained significant after Holm adjustment (minimum adjusted p = 0.615). The findings indicate broadly consistent item-level evaluation patterns across the two institutional contexts, while the university comparison contributes a useful cross-setting perspective to the analysis of female online shoppers.

# DISCUSSION

### A. The value of separating favorable evaluations from specific commitments

This study differentiates closely related consumer evaluations that might otherwise be combined into broadly favorable attitudes toward AI-enabled shopping. The five pairs indicate relatively stronger agreement with perceived advertisement relevance, overall shopping efficiency, confidence in responsible personal-data handling, stated consideration of recommended products and brand loyalty than with their respective comparison statements. The findings complement research on the different roles of relevance, usefulness, trust and purchasing orientation [1], [3], [4], [8]. They represent relative endorsement of specific questionnaire items, not causal pathways or validated construct differences.

High endorsement is an important descriptive finding, while the prevalence of scores four and five limits differentiation at the upper end of the response scale. The paired comparisons show that some shoppers distinguish the speed and ease of discovering preferred products from broader efficiency, and conditional brand trust arising from transparent data use from confidence in responsible handling. Reporting mean gaps, confidence intervals, rank-biserial effect sizes and ties together provides a proportional basis for practical interpretation.

### B. Advertisement relevance, shopping efficiency and perceived discovery convenience

The advertisement-relevance and prediction-accuracy pair differentiates the perceived fit of digital promotions from whether suggestions accurately anticipate the next product respondents might want. The efficiency and discovery pair similarly compares an overall judgment that personalization improves shopping efficiency with an item asking whether AI helps respondents discover products they like more quickly and easily. Both statements concern convenience, but at different levels of specificity. The results provide a useful basis for examining recommendation relevance, search support and discovery convenience separately in future platform assessments [2], [3].

### C. Confidence in ethical data handling and trust from data-use transparency

The 0.434-point mean difference (bootstrap 95% CI 0.337–0.534) indicates that respondents agreed more strongly with a statement expressing confidence in responsible, ethical handling of their personal data (TR3) than with a statement that a brand's transparency about its data use would increase their trust (TR4). The second statement is conditional: it does not measure how transparent existing recommendations or platforms are. This comparison therefore highlights distinct consumer trust-related propositions, while suggesting that communication about personal-data practices deserves attention in AI-driven retail design [1], [4], [7].

### D. From purchase consideration to lasting customer relationships

Purchase consideration was rated 0.477 points higher than willingness to try a new brand whose AI recommendations were highly relevant, while expressed brand loyalty to providers offering good AI recommendations exceeded seeing oneself as a long-term customer by 0.451 points. These are self-reported intention and affiliation statements, not recorded purchases or sales. They indicate how respondents differentiate preference-matched product consideration, unfamiliar-brand trial and anticipated relationship duration.

### E. Applications to female-oriented digital retail

The observed evaluations offer practical questions for female-oriented digital retailers serving categories such as modest fashion, skincare, cosmetics and personal care. In modest-fashion shopping, personalization can

support discovery by style, size, fabric or occasion; in beauty shopping, it can support comparisons of product properties and suitability. When products carry halal-related claims, clear descriptions and verifiable certification information may complement relevant recommendations. Prior research on Sharia-compliant platform quality and halal cosmetics provides a basis for investigating these sector-specific applications [5], [6], [9].

Three practical priorities arise from these item-specific comparisons. First, AI-supported retailers can assess relevant advertising, overall shopping efficiency and how easily consumers discover preferred products as separate experiences. Second, they can improve clarity around responsible personal-data handling and communicate transparently how personal data support personalization, potentially strengthening informed trust. Third, they can explore how consideration of recommended products differs from willingness to try new brands and expressions of long-term customer intention. Product-specific work can test these priorities in modest fashion and halal beauty categories.

The present results provide a starting point for subsequent research in such retail categories, rather than direct estimates of their performance. Sector-specific studies could ask whether recommendation explanations, seller assurance and product information affect consumers' evaluations of particular modest-fashion or halal-certified beauty products, and whether stated preferences correspond to purchase records.

### F. Scope and directions for future research

Item-level descriptive statistics address RQ1 by identifying stronger and weaker endorsements across the 25 original statements. Wilcoxon paired comparisons address RQ2 by testing whether the same respondent evaluates two content-linked statements differently; they do not presume those statements measure one validated construct. Mann–Whitney tests address RQ3 through comparisons across the two university groups. Effect sizes, confidence intervals and tie frequencies are reported to support interpretation beyond p-values.

The study deliberately focuses on female university online shoppers aged 18–24 from UTeM and UPM, a defined consumer segment rather than a nationally representative sample. Ratings were concentrated at the upper end of the five-point scale, potentially limiting discrimination between favorable judgments. In addition, the paired statements differ in wording and psychological proposition: in particular, TR4 concerns the trust respondents say they would place in brands transparent about personal-data use, not a direct rating of current platform transparency. The study captures self-reported perceptions and stated purchasing orientations at one point in time, not causal changes or verified transactions.

Further research could compare male and female shoppers across wider age groups, universities and shopping locations, and measure specific product categories including modest fashion and halal-certified cosmetics. Future questionnaires may assess actual exposure to AI features, perceived transparency of current recommendation systems and certification information separately from whether transparency would increase trust. Longitudinal or behavioural data could then establish how stated shopping intentions relate to actual product trial and repurchase.

## CONCLUSION

Among 350 Malaysian female Gen Z university shoppers, favorable overall evaluations of AI-related online shopping were accompanied by distinct levels of agreement across five questionnaire pairs. Respondents rated advertisement relevance above prediction accuracy; general shopping efficiency above quick and easy discovery of preferred products; confidence in responsible data handling above the conditional proposition that transparent data use would increase brand trust; consideration of preference-matched recommendations above willingness to try an unfamiliar brand; and stated loyalty above anticipated long-term customer status. These differences were statistically detectable with Holm adjustment but relatively modest on the five-point scale and accompanied by many equal paired ratings. Both university samples showed comparable directional patterns, with no between-university item difference surviving multiple-testing adjustment.

The findings offer an item-specific approach to understanding what female Gen Z shoppers value in AI-assisted retail. Rather than treating convenience, data-related confidence and longer-term purchasing intentions as

interchangeable, platforms can examine each with precise questions. Future research can apply this consumer evaluation lens to recorded behaviours and test interventions that make personalized product information more useful and transparent.

These insights create a starting point for research into female-oriented digital retail, including modest fashion and halal beauty, in which product fit, trustworthy descriptions and, where relevant, credible halal assurance can matter alongside AI recommendations. Good personalized retail experiences should not only fit consumers' interests; they should provide relevant information and help shoppers make choices with confidence.

## ACKNOWLEDGEMENT

The authors gratefully acknowledge the Faculty of Technology Management and Technopreneurship, Universiti Teknikal Malaysia Melaka (UTeM), for its institutional support and for providing a conducive academic and research environment that facilitated the successful completion of this study and its subsequent publication.

## REFERENCES

1. Canhoto, A. I., Keegan, B. J., & Ryzhikh, M. (2024). Snakes and ladders: Unpacking the personalisation–privacy paradox in the context of AI-enabled personalisation in the physical retail environment. Information Systems Frontiers, 26, 1005–1024. https://doi.org/10.1007/s10796-023-10369-7
2. Chang, W., & Park, J. (2024). A comparative study on the effect of ChatGPT recommendation and AI recommender systems on the formation of a consideration set. Journal of Retailing and Consumer Services, 78, 103743. https://doi.org/10.1016/j.jretconser.2024.103743
3. An, G. K., & Ngo, T. T. A. (2025). AI-powered personalized advertising and purchase intention in Vietnam's digital landscape: The role of trust, relevance, and usefulness. Journal of Open Innovation: Technology, Market, and Complexity, 11(3), 100580. https://doi.org/10.1016/j.joitmc.2025.100580
4. Vu, C. B., Ozuem, W., Willis, M., & Katz, J. (2026). Navigating trust and the personalization-privacy paradox in AI-driven e-commerce: A consumer pathway framework. Journal of Retailing and Consumer Services, 93, 104938. https://doi.org/10.1016/j.jretconser.2026.104938
5. Ismail, R. M., Jusop, M., Nor, M. M., Samah, N. A., & Tjoa, A. M. (2025). Enhancing consumer trust through sharia-compliant system quality in halal e-commerce platforms: A case study. International Journal of Innovative Research and Scientific Studies, 8(4), 1439–1448. https://doi.org/10.53894/ijirss.v8i4.8096
6. Jalil, M. I. A., Samsu, S. H., Andriani, D. P., Abd. Kadir, S. U. S., & Ahmed, H. (2026). Consumer insights on halal certification: Awareness, perception, and visibility as key determinants of purchase behaviour. Journal of Islamic Monetary Economics and Finance, 12(1), 195–228. https://doi.org/10.21098/jimf.v12i1.3086
7. Alkhofaily, F., & Noureldin, A. (2026). How AI-generated review summary transparency shapes online purchase intention: The dual mediating roles of perceived diagnosticity and algorithm trust. Journal of Retailing and Consumer Services, 93, 104911. https://doi.org/10.1016/j.jretconser.2026.104911
8. Hassan, N., Abdelraouf, M., & El-Shihy, D. (2025). The moderating role of personalized recommendations in the trust–satisfaction–loyalty relationship: An empirical study of AI-driven e-commerce. Future Business Journal, 11, Article 66. https://doi.org/10.1186/s43093-025-00476-z
9. Putra, H. T., Riyanti, D., & Anggraeni, D. (2023). The effects of halal certification and web design on purchase intention mediated by brand trust in e-commerce of halal cosmetics consumers in Bandung Raya. Ilomata International Journal of Management, 4(3), 368–385. https://doi.org/10.52728/ijjm.v4i3.793
10. Department of Statistics Malaysia. (2025). ICT Use and Access by Individuals and Households Survey Report, 2024. https://www.dosm.gov.my/index.php/portal-main/release-content/ict-use-and-access-by-individuals-and-households-survey-report-2024
11. Mustakim, N. A., Abdul Karim, Z. H., Sauid, M. K., Mokhtar, N., Hassan, Z., & Mohamad Roseli, N. H. (2024). Gender-based analysis of online shopping patterns on Shopee in Malaysia: A J48 decision

tree approach. Information Management and Business Review, 16(3(I)S), 844–854. https://doi.org/10.22610/imbr.v16i3(I)S.4116
12. Ipsos Malaysia. (2025, November 13). E-commerce landscape in 2025 [Press release]. https://www.ipsos.com/en-my/press-release-e-commerce-landscape-2025
13. Euromonitor International. (2026, February 5). Womenswear in Malaysia [Market research report]. https://www.marketresearch.com/Euromonitor-International-v746/Womenswear-Malaysia-43904474/
14. Universiti Teknikal Malaysia Melaka. (n.d.). Fast fact. https://www.utem.edu.my/en/background/fast-fact.html
15. Universiti Putra Malaysia. (n.d.). About us. https://upm.edu.my/about_us-4326?L=en
16. Abdul Ghafar, A. A., Mahmood, A. N., & Zahiruddin, Z. (2023). Women preference towards purchasing fashion and beauty products through e-commerce in Selangor. Journal of International Business, Economics and Entrepreneurship, 8(1), 54–63. https://doi.org/10.24191/jibe.v8i1.22817

## APPENDIX A: FULL RANKING OF QUESTIONNAIRE ITEMS

Table A1. Item-Level Mean Ranking for the Main Survey (N = 350)

| Rank | Questionnaire item (short label) | Mean | SD |
|---|---|---|---|
| 1 | Shopping efficiency | 4.826 | 0.380 |
| 2 | Advertisement relevance | 4.820 | 0.385 |
| 3 | Brand loyalty | 4.814 | 0.389 |
| 4 | Responsible data handling | 4.803 | 0.419 |
| 5 | Purchase consideration | 4.786 | 0.411 |
| 6 | Overall usefulness | 4.786 | 0.411 |
| 7 | Product interest | 4.720 | 0.450 |
| 8 | Belief AI considers shopper interests | 4.717 | 0.457 |
| 9 | Real-time customization | 4.711 | 0.454 |
| 10 | Preference for personalized services | 4.700 | 0.459 |
| 11 | Repeated purchase orientation | 4.691 | 0.463 |
| 12 | Useful recommendations | 4.674 | 0.469 |
| 13 | Repurchase likelihood | 4.614 | 0.653 |
| 14 | Adding to cart | 4.603 | 0.689 |
| 15 | Informed decisions | 4.591 | 0.661 |
| 16 | Cultural relevance | 4.589 | 0.662 |
| 17 | Time saving | 4.586 | 0.671 |
| 18 | Tailored recommendations | 4.571 | 0.672 |
| 19 | Greater trust with personalization controls | 4.566 | 0.706 |
| 20 | Predictive accuracy of suggestions | 4.454 | 0.788 |
| 21 | Quicker discovery of preferred products | 4.411 | 0.792 |
| 22 | Trust strengthened by data-use transparency | 4.369 | 0.814 |
| 23 | Long-term customer commitment | 4.363 | 0.817 |

| Rank | Questionnaire item (short label) | Mean | SD |
|---|---|---|---|
| 24 | Recommendation accuracy trust | 4.354 | 0.822 |
| 25 | New-brand trial | 4.309 | 0.817 |

All entries reflect individual questionnaire items rather than computed domain scores. Appendix B provides the exact original questionnaire wording and source item codes for all 25 statements.

## APPENDIX B: ORIGINAL QUESTIONNAIRE ITEMS (25 STATEMENTS)

The 25 item statements below are reproduced from the original student survey supplied for this revision; item codes in parentheses align the survey identifiers with the dataset domains used in this article. All items use the same five-point agreement scale (1 = Strongly Disagree to 5 = Strongly Agree). Respondents were instructed to answer based on online shopping experiences, including Instagram, TikTok and Shopee. The original section title 'Repeat Sales' refers here to stated repeat-purchase and loyalty orientation rather than observed transaction data.

AIP1 (IV1) I frequently encounter product recommendations that are tailored to my past browsing or purchasing history.

AIP2 (IV2) The ads I see on social media or e-commerce platforms are highly relevant to my personal interests.

AIP3 (IV3) I notice that online platforms customize my shopping experience in real-time based on my current activity.

AIP4 (IV4) The personalized suggestions I receive often accurately predict what I might want to buy next.

AIP5 (IV5) The AI-driven recommendations I see are culturally and contextually appropriate for me as a Malaysian user.

PI1 (DV1_PI1) Seeing an AI-personalized recommendation increases my interest in purchasing that product.

PI2 (DV1_PI2) I am more likely to consider buying a product / services if it is suggested by an AI system based on my preferences.

PI3 (DV1_PI3) AI-driven personalization makes me more willing to add recommended items to my shopping cart.

PI4 (DV1_PI4) I have a high intention of making a purchase when I find the AI recommendations to be useful.

PI5 (DV1_PI5) I am inclined to try a new brand if its AI-powered recommendations are highly relevant to me.

RS1 (DV2_RS1) I am likely to purchase again from brands that personalize my experience using AI

RS2 (DV2_RS2) I feel more loyal to brands that consistently use AI to provide good recommendations.

RS3 (DV2_RS3) AI-driven personalization encourages me to buy repeatedly from the same brand.

RS4 (DV2_RS4) I would choose a personalized service powered by AI over a non-personalized one, even if both offer the same product.

RS5 (DV2_RS5) I see myself as a long-term customer of brands that use AI to continuously improve my shopping experience.

PU1 (MV_PU1) AI-driven recommendations help me discover products I like more quickly and easily.

PU2 (MV_PU2) Using personalized features improves the efficiency of my online shopping.

PU3 (MV_PU3) AI personalization helps me make better and more informed purchase decisions.

PU4 (MV_PU4) Overall, I find AI-driven personalization to be a useful tool for shopping online.

PU5 (MV_PU5) Personalized recommendations save me time and effort when looking for products.

TR1 (MV_TR1) I trust that the AI-driven recommendations I receive are accurate and reliable.

TR2 (MV_TR2) I believe the AI systems used by online platforms have my best interests in mind.

TR3 (MV_TR3) I feel confident that platforms using AI will handle my personal data responsibly and ethically.

TR4 (MV_TR4) I am more likely to trust a brand that is transparent about how it uses my data for personalization.

TR5 (MV_TR5) My trust in AI recommendations increases when I am given control over my personalization settings (e.g., opt-out options).