

Perceived Product Quality and Consumers' Intent to Purchase Sustainable Products

*Mohamad Hasriq Haiqal Mohd Rashid¹, Haszlin Shaharudin²,
Nur Shahidatul Aina Muhammad Firdaus³

^{1, 2, 3} Faculty of Art & Design, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

haiqalhasriq@gmail.com¹, ulindin73@gmail.com², shieda.firzie66@gmail.com³

*Corresponding author

Received: 11 August 2026; Accepted: 30 August 2026; Published: 1 September 2026

ABSTRACT

Perceived product quality brings together design, performance, user experience, and sustainability in product evaluation. This study examines the priorities that shape user evaluation of sustainable electric kitchenware. A questionnaire was completed by 150 end users in electrical and electronic kitchenware retail settings, using an electric rice cooker as the product stimulus. SPSS analysis covered twelve purchase factors, three product quality evaluation items, and seven design evaluation elements. Design recorded the highest purchase factor mean ($M = 4.03$), followed closely by quality and quick ordering (both $M = 3.87$). Eighty percent of respondents selected one of the two highest response categories for design. Product quality was strongly centred on users: 74.0% identified users as the appropriate definers of quality, 62.7% evaluated quality after use, and 52.0% selected quality as the leading contributor to good product design. Across the seven design elements, the leading criteria were shape, easy to understand, spare part availability, stability, reliability, brand, and product benefit. The study integrates these findings into a user centred sustainable product design decision architecture that connects purchase priorities, perceived quality, and concrete design criteria for early product development.

Keywords: *Perceived product quality, Sustainable product design, Consumer priorities, Electric kitchenware, Design evaluation.*



ISSN: 2550-214X © 2026. Published for Idealogy Journal by UiTM Press. This is an Open Access article distributed under the terms of the Creative Commons Attribution-No Commercial-No Derivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

1 INTRODUCTION

Perceived product quality is a multidimensional judgement formed through product attributes, user experience, expectations, and comparison with alternatives. In product development, users interpret quality through visible form, function, reliability, usability, materials, brand meaning, and previous experience. These evaluations shape how a product is understood before and after use. Perceived quality therefore provides a direct link between design decisions and user evaluation (Agarwal & Teas, 2004; Golder et al., 2012; Stylidis et al., 2020).

Sustainability extends this quality judgement. Recent research shows that product quality in circular and sustainable contexts includes customer value, functionality, longevity, design, technical attributes, and environmental considerations (Bayram et al., 2024). K rkemeyer et al. (2025) further demonstrate that sustainability can operate as a quality dimension alongside established product quality attributes. Sustainable product development therefore benefits from translating environmental goals into product characteristics that users can recognise through performance, durability, material use, serviceability, and everyday value.

Consumer research also shows that purchase decisions for household appliances are shaped by several connected criteria. Reliability, durability, brand, product features, value for money, and sustainability can all influence evaluation (Visser et al., 2018). Marcon et al. (2022) show that green product attributes and consumer behaviour are closely connected through product design. These findings support an integrated approach in which sustainability is considered together with quality, function, and consumer priorities.

This study examines these relationships through responses from 150 end users evaluating electric kitchenware. The analysis connects three evidence layers: purchase priorities, user evaluation of product quality, and priorities across seven design evaluation elements. The objective is to identify how users structure product value and to translate these priorities into a practical user centred reference for early sustainable product design. This approach provides a direct connection between consumer evidence and design decision making.

2 LITERATURE REVIEW

2.1 Perceived Product Quality as A Multidimensional User Judgement

Perceived product quality refers to the judgement users form from product attributes, experience, expectations, and comparison cues. Golder et al. (2012) distinguish quality production, quality experience, and quality evaluation, placing the customer at the centre of the final quality judgement. Styliadis et al. (2020) similarly describe perceived quality as a structured set of attributes that can be identified and prioritised during product development. These perspectives position perceived quality as a manageable design construct that connects technical product characteristics with user experience.

Product cues influence this judgement at several levels. Agarwal and Teas (2004) link perceived quality with value and risk assessments derived from product and market cues, while Beneke et al. (2013) connect perceived product quality with perceived value and willingness to buy. For industrial design, users interpret quality through form, material, brand, expected performance, reliability, and usability. Perceived quality therefore functions as both a design input and a user outcome.

Sustainability broadens this construct further. Bayram et al. (2024) associate product quality in circular economy research with functionality, longevity, technical attributes, design, market value, customer perspectives, and environmental aspects. Körkemeyer et al. (2025) incorporate sustainability directly into perceived quality modelling. Together, these studies show that sustainable attributes gain meaning when users can connect them to product performance, durability, material use, serviceability, and long-term value.

2.2 Purchase Priorities, Quality and Sustainable Choice

Perceived quality is closely connected with purchase decisions. Tsiotsou (2006) links perceived quality with satisfaction and purchase intention, while Morwitz (2014) explains how purchase intention reflects consumer decision processes. In this study, purchase priorities are treated as the criteria users consider when evaluating electric kitchenware. This focus allows design, quality, brand, price, sustainability, and purchase convenience to be compared within one consumer evaluation structure.

Research on sustainable products strengthens this perspective. Visser et al. (2018) found that household appliance decisions involve reliability, durability, product features, brand, value for money, and energy related considerations. Marcon et al. (2022) identify a close relationship between green product attributes and consumer behaviour. These studies support the analysis of sustainability as part of a wider product value structure.

The explicit sustainability item in this study captures the stated importance of sustainability during purchase evaluation. The sustainability design element then shows how users express this value through specific product criteria, including stability, material use, energy efficiency, assembly and disassembly, and recyclability. Reading these two levels together provides a clearer account of how sustainability enters product evaluation and design decisions.

2.3 Sustainable Product Design as Early-Stage Decision Support

Early design decisions influence the environmental, social, and economic performance of a product throughout its life cycle. Isaksson Hallstedt et al. (2023) show that decision support during early development helps design teams integrate sustainability into key product choices. Bocken et al. (2016) similarly emphasise design strategies that extend product life, support reuse and recovery, and improve material and resource efficiency. Effective sustainable product design therefore connects sustainability strategies with user expectations and product value from the beginning of development.

User centred design provides a practical connection between sustainability goals and market acceptance. Veryzer and Borja de Mozota (2005) show that user-oriented design strengthens new product development by bringing user knowledge into design decisions. In Malaysian design research, Du and Ayob (2024) connect product design with sustainable meaning, Abdul Jamil and Abu Bakar (2025) show how design development influences public acceptance, and Md. Nazri et al. (2025) demonstrate the role of visual, sensory, and emotional experience in product interaction. These studies support an integrated design approach in which sustainability, perceived quality, and user response are considered together.

2.4 Research Gap, Novelty and Study Contribution

Literature establishes three important foundations. Perceived quality is multidimensional, sustainability increasingly forms part of quality evaluation, and purchase decisions involve several product and market criteria. The research opportunity is to connect these foundations within one user-centred evidence structure for everyday electrical products. This study addresses that opportunity by examining purchase priorities, user evaluation of quality, and seven design evaluation elements within the same group of respondents.

Table 1 Research Gap and Study Positioning

Research area	Established knowledge	Research gap	Contribution of this study
Perceived product quality	Quality develops through customer experience and evaluation, and perceived quality can be structured through product attributes (Golder et al., 2012; Styliadis et al., 2020).	A clear link is required between user quality judgement and concrete product design priorities.	Connects user defined quality with seven design evaluation elements and their priority criteria.
Sustainability and quality	Sustainability is increasingly recognised as part of product quality and circular product value (Bayram et al., 2024; Korkemeyer et al., 2025).	Consumer evaluation benefits from a clearer connection between the general idea of sustainability and specific product attributes.	Connects the sustainability purchase factor with stability, material use, energy efficiency, assembly and disassembly, and recyclability.
Purchase priorities	Perceived quality influences purchase decisions and consumer value (Tsiotsou, 2006; Morwitz, 2014).	Design, quality, convenience, brand, price, and sustainability require direct comparison within one purchase priority structure.	Compares twelve purchase factors from the same group of 150 respondents and identifies the spacing between the leading factors.
Sustainable household products	Household appliance buyers evaluate reliability, durability, brand, features, value, and sustainability together (Visser et al., 2018).	Sustainable product value needs to be translated into criteria that can guide product design decisions.	Maps seven design elements to user priorities for an electric rice cooker product stimulus.

Research area	Established knowledge	Research gap	Contribution of this study
Early design decision support	Sustainability decision support is most useful when it guides early product choices (Isaksson Hallstedt et al., 2023).	User perceived quality requires a more visible role within early sustainable product planning.	Develops a user centred decision architecture for product planning and concept evaluation.

(Source: Authors' synthesis)

2.5 Operational Definitions and Measurement Architecture

The study keeps each construct clearly defined so that every result retains its specific meaning. Table 2 presents the operational definitions, measurement structure, and analytical role of the main constructs used in the study.

Table 2 Operational Definitions and Measurement Architecture

Construct	Operational meaning	Measurement in this study	Analytical use
Purchase factor priority	Relative importance assigned to twelve factors when considering electric kitchenware.	Five point ordered response scale; N = 150 for each factor.	Mean, median, mode, standard deviation, rank, and gap from the highest mean.
Perceived product quality	User judgement of product quality in relation to experience, design, and product performance.	Timing of quality evaluation; stakeholder who should define quality; contributor to good product design.	Frequencies, percentages, and priority order.
Design evaluation elements	Seven domains that translate quality perception into design criteria: form, function, safety, sustainability, quality, commerciality, and innovation.	Respondents selected the most important criterion within each element for the electric rice cooker stimulus.	Percentage distribution and priority order within each element.
Sustainability priority	Importance assigned to sustainability as a purchase factor and through specific sustainability design criteria.	Purchase factor mean and priorities within the sustainability element.	Connects the general sustainability priority with concrete product attributes.
User centred decision architecture	Integration of purchase priorities, product quality evaluation, and design element priorities for early product development.	Developed from the combined study findings.	Provides a practical design decision reference for sustainable product development.

(Source: Authors' instrument and analytical framing)

2.6 Literature Alignment of the Seven Design Evaluation Elements

The seven design evaluation elements connect established quality concerns with sustainable product design criteria. Table 3 aligns each element with relevant literature and shows its role in the present study.

Table 3 Literature Alignment of The Seven Design Evaluation Elements

Element	Conceptual role	Main literature support	Role in present study
Form	Visible shape, appearance, colour, finishing, and texture influence how users interpret product character and quality.	Creusen & Schoormans (2005); Homburg et al. (2015)	Captures visible product cues that shape early user evaluation.
Function	Quality is experienced through the extent to which products fulfil expected use and performance.	Golder et al. (2012); Bayram et al. (2024)	Translates quality into comprehension, ergonomics, comfort, usability, and performance.
Safety	Technical quality includes dependable operation, standards, maintenance, testing, and serviceability.	Bayram et al. (2024); Shaharudin (2013)	Represents user confidence in safe operation, maintenance, and serviceability.
Sustainability	Sustainable value is expressed through product attributes across the life cycle and should be anticipated in early design.	Isaksson Hallstedt et al. (2023); Marcon et al. (2022)	Captures stability, material use, energy efficiency, assembly and disassembly, and recyclability.
Quality	Perceived quality integrates reliability, durability, specifications, materials, and conformance cues.	Stylidis et al. (2020); Korkemeyer et al. (2025)	Represents dependable long term product value.
Commerciality	Brand, price, information, reviews, recommendation, and service influence perceived value and willingness to buy.	Aaker & Joachimsthaler (2000); Beneke et al. (2013)	Connects design value with market credibility and purchase support.
Innovation	Design development creates value when novelty or differentiation produces a meaningful user benefit.	Homburg et al. (2015); Abdul Jamil & Abu Bakar (2025)	Connects product benefit with novelty, uniqueness, prestige, and exclusiveness.

(Source: Authors' synthesis)

3 METHOD

3.1 Research Design and Study Context

A quantitative questionnaire design was used to examine user evaluations of electric kitchenware. The study involved 150 end users in electrical and electronic kitchenware chain store settings. The unit of analysis was the individual respondent. The research design was structured to identify purchase priorities, product quality evaluation patterns, and design criteria within a common consumer context. The retail setting placed respondents in a context where product alternatives, price information, brand cues, and visible design features are directly relevant to purchase evaluation. This setting supports the study of practical consumer priorities for electric kitchenware and provides a clear context for linking purchase considerations with product design criteria.

3.2 Instrument, Product Stimulus and Measurement

The questionnaire contained two analytical blocks. The first examined purchase considerations for electric kitchenware. Twelve factors were rated on a five-point ordered scale ranging from Definitely Not to Definitely Yes: design, quick ordering, instinct, location, free delivery, brand, quality, online reviews, price, sustainability, peer recommendations, and customer service. The second block focused on perceived product quality and design evaluation. It examined when quality is evaluated, who should define product quality, what contributes most to good product design, and which criteria are most important within seven design evaluation elements.

An electric rice cooker was used as the stimulus for detailed product evaluation. The product provides a familiar household context that combines visible form with function, safety, maintenance, materials, quality, commercial value, and innovation. Using one consistent stimulus enabled

respondents to evaluate the seven design elements against the same product context.



Figure 1 Electric Rice Cooker Used as the Product Stimulus

3.3 Measurement Structure

The measurement structure separates purchase priorities from priorities within the seven design elements because the two levels represent different parts of product evaluation. A purchase factor rating shows the importance of a factor when buying electric kitchenware. A percentage within a design element shows which criterion respondents prioritised inside that specific domain. This structure preserves the meaning of each measure while supporting a clear comparison of consumer priorities.

The same structure is applied to sustainability. The explicit sustainability purchase item represents its stated importance during purchase evaluation, while stability, material use, energy efficiency, assembly and disassembly, and recyclability represent concrete criteria within the sustainability design element. Together, these measures show how sustainability moves from a general purchase consideration to specific product design priorities.

3.4 SPSS Data Analysis

Responses were analysed in SPSS using frequencies, percentages, mode, median, mean, and standard deviation where applicable. For the twelve purchase factors, mean, median, mode, and standard deviation were used to show the relative position and distribution of each factor. Categorical product quality items and the seven design elements were analysed using frequencies, percentages, and within element rankings.

The analysis also compares the spacing between priorities. The gap from the highest mean shows the distance between each purchase factor and the leading factor. The difference between the first and second criterion within each design element shows how closely the leading priorities are positioned. Together, these measures provide a concise view of the structure of user priorities.

Table 4 SPSS Analysis Structure

Evidence block	Response structure	Statistical measure	Analytical purpose
Twelve purchase factors	Five point ordered ratings	Mode, median, mean, standard deviation, rank, gap from top	Shows the relative position and response pattern of each purchase factor.
Leading purchase factor	Five category response distribution for design	Frequency, percentage, cumulative percentage	Shows the strength of respondent endorsement for the leading factor.
Product quality evaluation	Categorical responses	Frequency and percentage	Shows when quality is evaluated, who defines it, and what contributes to good design.
Seven design elements	Priority criterion within each element	Percentage and priority order	Shows how respondents prioritise criteria within each design element.
Cross element comparison	First and second criterion within each element	Percentage point difference	Shows how closely the leading priorities are positioned within each element.

(Source: Authors' analysis)

4 RESULTS

4.1 Purchase Factor Priority Structure

Table 5 presents the twelve purchase factors in order of mean score. Design recorded the highest mean ($M = 4.03$), followed closely by quality and quick ordering (both $M = 3.87$). The difference of 0.16 points places design, quality, and quick ordering within a closely positioned leading group. Brand ($M = 3.63$) and price ($M = 3.47$) form the next level of purchase consideration, followed by delivery, recommendations, customer service, sustainability, online reviews, instinct, and location.

The response distribution for design confirms its strong position. Of 150 respondents, 82 (54.7%) selected Very Probably and 38 (25.3%) selected Definitely Yes, giving 80.0% in the two highest response categories. Sustainability recorded a mean of 3.31 and is interpreted together with the specific sustainability criteria presented in the design evaluation results.

Table 5 Ranked Purchase Factors for Electric Kitchenware

Rank	Factor	Mode	Median	Mean	SD	Gap from top
1	Design	4	4.00	4.03	0.718	0.00
2	Quality	4	4.00	3.87	0.800	0.16
2	Quick Ordering	4	4.00	3.87	0.682	0.16
4	Brand	4	4.00	3.63	0.823	0.40
5	Price	4	4.00	3.47	0.757	0.56
6	Free Delivery	4	3.00	3.41	0.943	0.62
6	Peer Recommendations	4	4.00	3.41	0.706	0.62
8	Customer Service	3	3.00	3.35	0.675	0.68
9	Sustainability	3	3.00	3.31	0.634	0.72
10	Online Reviews	4	3.00	3.26	0.886	0.77
11	Instinct	3	3.00	3.02	0.831	1.01
12	Location	3	3.00	3.01	0.794	1.02

Note. Gap from top = 4.03 minus the factor mean. Tied means share the same rank. Mean, median, mode, and standard deviation are presented together to provide a complete summary of each purchase factor. (N = 150; Source: Authors' SPSS analysis)

4.2 User Defined Product Quality

Three results define the product quality perspective of the respondents. First, 62.7% evaluated the quality of electric kitchenware after using the product, while 15.3% evaluated it before purchase. Second, 74.0% stated that users should determine or define product quality. Third, 52.0% selected quality as the leading contributor to good product design. Together, these results place users and product experience at the centre of perceived quality evaluation.

Table 6 Product Quality Evaluation Profile

Evaluation dimension	Response	Percentage (%)	Rank within item
Timing of quality evaluation	After using	62.7	1
Timing of quality evaluation	Before purchase	15.3	2
Timing of quality evaluation	At point of using	12.7	3
Timing of quality evaluation	At point of purchase	5.3	4
Timing of quality evaluation	Before using	4.0	5
Contributor to good product design	Quality	52.0	1
Contributor to good product design	Free trials and discounts	22.7	2
Contributor to good product design	Competitive pricing	15.3	3
Contributor to good product design	Good value-added services	7.3	4
Contributor to good product design	Communication strategies	2.7	5
Stakeholder who should define product quality	Users	74.0	1
Stakeholder who should define product quality	Researchers	14.7	2
Stakeholder who should define product quality	Design industry	11.3	3

(Source: Authors' SPSS analysis)

4.3 Seven Element Design Evaluation

Table 7 presents the priorities within the seven design evaluation elements. The leading criteria were shape for form (25.7%), easy to understand for function (23.0%), spare part availability for safety (30.0%), stability for sustainability (27.3%), reliability for quality (24.7%), brand for commerciality (20.9%), and product benefit for innovation (32.3%). The distribution across each element shows that user evaluation involves several relevant criteria, with product benefit recording the highest individual share at 32.3%.

Table 7 User Priorities Within the Seven Design Evaluation Elements

Design element	Criterion	Percentage (%)	Within element rank
Form	Shape	25.7	1
Form	Appearance	23.0	2
Form	Color	20.6	3
Form	Product Finishing	19.7	4
Form	Texture	11.0	5
Function	Easy to Understand	23.0	1
Function	Ergonomic	22.0	2
Function	Comfortable	19.0	3
Function	Performance	18.3	4
Function	Convenient, Easy to Use, User Friendly	17.7	5
Safety	Spare Part Availability	30.0	1
Safety	Test Results	25.7	2
Safety	Warranty Provisions	18.7	3
Safety	Maintenance	16.3	4
Safety	Compliance with Standards and Regulations	9.3	5
Sustainability	Stability	27.3	1
Sustainability	Material Use or Type	21.7	2
Sustainability	Energy Efficient	18.3	3
Sustainability	Assemble and Disassemble	16.7	4
Sustainability	Recyclability	16.0	5
Quality	Reliability	24.7	1
Quality	Durability	22.0	2
Quality	Product Specifications	21.0	3
Quality	Material Selection	18.3	4
Quality	Conformance	14.0	5
Commerciality	Brand	20.9	1
Commerciality	Recommendation	16.9	2
Commerciality	Price	14.4	3
Commerciality	Product Information	14.2	4
Commerciality	Customer Review	13.6	5
Commerciality	Service after Purchase	11.1	6
Commerciality	Online Reviews	8.9	7
Innovation	Product Benefit	32.3	1
Innovation	Uniqueness	26.0	2
Innovation	Prestige Value	20.3	3
Innovation	Exclusiveness or Limited Availability	14.0	4
Innovation	Novelty or Originality	7.4	5

Note. Percentages show the response distribution within each design evaluation element.
Rankings identify the order of criteria within the same element. (Source: Authors' SPSS analysis)

4.4 Cross Element Priority Pattern

The difference between the first and second criterion ranges from 1.0 percentage point for function to 6.3 percentage points for innovation. Form and quality each show a 2.7-point difference, commerciality shows 4.0 points, safety shows 4.3 points, and sustainability shows 5.6 points. This close spacing shows that each design element combines several important criteria and supports a portfolio approach to product design decisions.

Table 8 Concentration of User Priorities Within Each Design Element

Element	Top criterion (%)	Second criterion (%)	Margin (pp)
Form	Shape (25.7)	Appearance (23.0)	2.7
Function	Easy to Understand (23.0)	Ergonomic (22.0)	1.0
Safety	Spare Part Availability (30.0)	Test Results (25.7)	4.3
Sustainability	Stability (27.3)	Material Use or Type (21.7)	5.6
Quality	Reliability (24.7)	Durability (22.0)	2.7
Commerciality	Brand (20.9)	Recommendation (16.9)	4.0
Innovation	Product Benefit (32.3)	Uniqueness (26.0)	6.3

Note. pp = percentage points. The margin shows the difference between the first and second criterion within each design element.

(Source: Authors' analysis)

5 DISCUSSION

5.1 Design, Quality and Convenience Form the Leading Purchase Priorities

Design recorded the highest purchase factor mean at 4.03, followed closely by quality and quick ordering at 3.87. The 0.16-point difference shows that the leading purchase priorities are closely connected. Consumers evaluate electric kitchenware through a combination of product design, perceived quality, and purchase convenience, with brand and price providing additional decision support.

This pattern aligns with multidimensional product design research. Homburg et al. (2015) explain that product design operates through several dimensions and market outcomes, while Creusen and Schoormans (2005) show that product appearance communicates aesthetic, symbolic, functional, ergonomic, and categorisation information. The present findings extend this perspective by showing that design operates together with quality and convenience in consumer purchase evaluation.

5.2 Quality Is Built Through Product Use

The quality results emphasise the importance of product experience. Almost two thirds of respondents (62.7%) evaluated quality after using the product, and 74.0% stated that users should define product quality. These findings align with Golder et al. (2012), who distinguish quality experience from quality evaluation, and with Stylidis et al. (2020), who describe perceived quality as a structured set of attributes shaped through user assessment. Reliability, durability, product specifications, and material selection therefore remain central to the quality element because users evaluate how these characteristics perform in everyday use.

For product development teams, this means that technical specifications, manufacturing quality, compliance, testing, and material decisions gain value through the user experience they create. Körkemeyer et al. (2025) extend this view by showing that sustainability can form part of contemporary quality perception. For electric kitchenware, sustainable design is therefore strongest when environmental value is supported by dependable performance, durability, serviceability, and positive

use experience.

5.3 Sustainability Becomes Clear Through Concrete Product Attributes

Sustainability recorded a purchase factor mean of 3.31. Within the sustainability design element, respondents identified stability (27.3%) as the leading criterion, followed by material use or type (21.7%), energy efficiency (18.3%), assembly and disassembly (16.7%), and recyclability (16.0%). Read together, these results show that sustainability gains clearer design meaning when it is expressed through tangible product attributes that users can evaluate.

This finding is consistent with sustainable product research. Marcon et al. (2022) connect green product attributes with consumer behaviour, while Visser et al. (2018) demonstrate the importance of reliability, durability, features, brand, value, and energy considerations in household appliance decisions. The present findings support an attribute translation approach in which sustainability is communicated through stable performance, materials, energy use, serviceability, durability, and end of life considerations.

5.4 Integrated User Centred Decision Architecture

The combined findings support a layered decision architecture for sustainable product development. Purchase priorities identify the factors that shape early consumer evaluation. Product quality results identify the central role of users and product experience. The seven design elements translate these evaluations into specific criteria for form, function, safety, sustainability, quality, commerciality, and innovation. Together, these layers provide a practical structure for integrating user value and sustainability during early product development (Isaksson Hallstedt et al., 2023).

Table 9 Integrated User Centred Sustainable Product Design Decision Architecture

Decision layer	Empirical basis	Implication for product development
1. Purchase priorities	Design (M = 4.03), quality and quick ordering (M = 3.87)	Apply an integrated concept screen that considers design, quality, and purchase convenience together.
2. Quality authority	Users identified as quality definers (74.0%)	Use target user evaluation as a formal input to concept and prototype review.
3. Quality evidence	Quality most often evaluated after use (62.7%)	Include evidence from product use in quality evaluation and validation.
4. Design translation	Seven elements with priorities distributed within each element	Translate perceived quality into form, function, safety, sustainability, quality, commerciality, and innovation criteria.
5. Sustainability translation	Stability, material use, energy efficiency, assembly and disassembly, recyclability	Express sustainability through observable and designable product attributes.
6. Decision structure	First and second criterion differences range from 1.0 to 6.3 percentage points	Apply a portfolio approach that balances several important criteria within each design element.

(Source: Authors' synthesis)

5.5 Comparison With Previous Research and Design Implications

Table 10 compares the main findings with previous research and translates each result into a practical design implication. The comparison shows how the study connects consumer priorities, perceived quality, and sustainable product design within one decision structure.

Table 10 Comparison of Main Findings with Previous Research

Current finding	Related literature	Research interpretation	Design implication
Design records the highest purchase factor mean ($M = 4.03$), followed closely by quality and quick ordering ($M = 3.87$).	Homburg et al. (2015); Creusen & Schoormans (2005)	Design value operates together with quality and convenience as connected purchase priorities.	Use integrated concept evaluation that considers design, quality, and purchase convenience together.
Users define quality (74.0%) and evaluate it mainly after use (62.7%).	Golder et al. (2012); Styliadis et al. (2020)	Perceived quality is strongly shaped by user experience and product performance during use.	Build user evaluation and product use feedback into concept and prototype assessment.
Sustainability records $M = 3.31$ as a purchase factor, while specific sustainability criteria show clear priority differences.	Marcon et al. (2022); Visser et al. (2018); Isaksson Hallstedt et al. (2023)	Sustainability gains clearer meaning when it is expressed through tangible product attributes.	Communicate sustainability through performance linked attributes such as energy use, materials, durability, and serviceability.
Leading shares across the seven design elements range from 20.9% to 32.3%, with first and second criterion differences from 1.0 to 6.3 percentage points.	Bayram et al. (2024); Körkemeyer et al. (2025)	Perceived product quality is structured through several connected criteria within each design element.	Develop design specifications as a balanced set of user priorities across each element.
Product benefit leads innovation (32.3%), followed by uniqueness (26.0%) and prestige value (20.3%).	Abdul Jamil & Abu Bakar (2025); Veryzer & Borja de Mozota (2005)	Innovation is strongest when differentiation creates a clear and recognisable user benefit.	Prioritise benefit led innovation and connect novelty with practical user value.

(Source: Authors' synthesis)

5.6 Research Scope and Future Development

This study focuses on 150 end users evaluating electric kitchenware in chain store settings, with an electric rice cooker used as a consistent product stimulus. This focused context provides a detailed view of how purchase priorities, perceived quality, and design criteria are connected within an everyday household product category.

The decision architecture provides a strong basis for further development across additional appliance categories, regions, and product types. Future studies can extend the framework through multi-item measurement, reliability and construct validation, confirmatory analysis, choice experiments, and longer-term use data. These extensions can deepen understanding of how product quality priorities influence satisfaction, continued use, repair decisions, and replacement behaviour.

6 CONCLUSION

This study identifies how users connect purchase priorities with perceived product quality and sustainable design criteria in electric kitchenware. Design recorded the highest purchase factor mean ($M = 4.03$), followed closely by quality and quick ordering (both $M = 3.87$). The 0.16-point difference shows a closely connected leading group. Product quality was strongly centred on users: 74.0% identified users as the appropriate definers of product quality, 62.7% evaluated quality after use, and 52.0% selected quality as the leading contributor to good product design.

The seven design elements provide a detailed product level view of these priorities. Shape, easy to understand, spare part availability, stability, reliability, brand, and product benefit led their respective elements. The difference between the first and second criterion ranged from 1.0 to 6.3 percentage points, showing that each element contains several relevant criteria. Sustainability becomes especially useful for design when it is expressed through concrete attributes such as stability, material use, energy efficiency, assembly and disassembly, and recyclability.

The resulting decision architecture integrates purchase priorities, user evaluation of quality, seven design elements, and sustainability within one early-stage product development reference. It offers product designers and manufacturers a clear evidence-based structure for translating user priorities into practical design decisions for sustainable electric kitchenware.

ACKNOWLEDGMENT

The authors acknowledge the Faculty of Art and Design, Universiti Teknologi MARA, and thank all respondents and contributors who supported the study.

FUNDING

This research received no external funding.

AUTHOR CONTRIBUTIONS

All authors contributed equally to the preparation of this paper.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

DATA AVAILABILITY

The statistical outputs and research documentation supporting the findings are retained by the corresponding author.

REFERENCES

- Aaker, D. A., & Joachimsthaler, E. (2000). *Brand leadership: Building assets in an information economy*. Free Press.
- Abdul Jamil, A. R., & Abu Bakar, M. F. (2025). Design development for product extension in the context of public acceptance in Malaysia. *Idealogy Journal*, 10(1), 206–217. <https://doi.org/10.24191/idealogy.v10i1.767>
- Agarwal, S., & Teas, R. K. (2004). Cross-national applicability of a perceived risk-value model. *Journal of Product & Brand Management*, 13(4), 242–256. <https://doi.org/10.1108/10610420410546952>

- Bayram, B., Deserno, L., & Greiff, K. (2024). Product quality in the circular economy: A systematic review of its definition and contexts in scientific literature. *Circular Economy and Sustainability*, 4, 2713–2747. <https://doi.org/10.1007/s43615-024-00396-0>
- Beneke, J., Flynn, R., Greig, T., & Mukaiwa, M. (2013). The influence of perceived product quality, relative price and risk on customer value and willingness to buy: A study of private label merchandise. *Journal of Product & Brand Management*, 22(3), 218–228. <https://doi.org/10.1108/JPBM-02-2013-0262>
- Bocken, N. M. P., de Pauw, I., Bakker, C., & van der Grinten, B. (2016). Product design and business model strategies for a circular economy. *Journal of Industrial and Production Engineering*, 33(5), 308–320. <https://doi.org/10.1080/21681015.2016.1172124>
- Creusen, M. E. H., & Schoormans, J. P. L. (2005). The different roles of product appearance in consumer choice. *Journal of Product Innovation Management*, 22(1), 63–81. <https://doi.org/10.1111/j.0737-6782.2005.00103.x>
- Du, S., & Ayob, S. (2024). From aesthetics to design: Sustainability of wabi-sabi in ceramic product design in the contemporary context. *Ideology Journal*, 9(1), 19–26. <https://doi.org/10.24191/ideology.v9i1.530>
- Golder, P. N., Mitra, D., & Moorman, C. (2012). What is quality? An integrative framework of processes and states. *Journal of Marketing*, 76(4), 1–23. <https://doi.org/10.1509/jm.09.0416>
- Homburg, C., Schwemmle, M., & Kuehn, C. (2015). New product design: Concept, measurement, and consequences. *Journal of Marketing*, 79(3), 41–56. <https://doi.org/10.1509/jm.14.0199>
- Isaksson Hallstedt, S., Villamil, C., Lövdahl, J., & Wallin Nylander, J. (2023). Sustainability Fingerprint – guiding companies in anticipating the sustainability direction in early design. *Sustainable Production and Consumption*, 37, 424–442. <https://doi.org/10.1016/j.spc.2023.03.015>
- Körkemeyer, J. A., Brings, H., Montavon, B., & Schmitt, R. H. (2025). Multidimensional perceived quality: Extended level model and case study including sustainability as a quality dimension in the perception of plastic packaging. *CIRP Annals*, 74(1), 645–650. <https://doi.org/10.1016/j.cirp.2025.03.017>
- Marcon, A., Ribeiro, J. L. D., Dangelico, R. M., de Medeiros, J. F., & Marcon, É. (2022). Exploring green product attributes and their effect on consumer behaviour: A systematic review. *Sustainable Production and Consumption*, 32, 76–91. <https://doi.org/10.1016/j.spc.2022.04.012>
- Md. Nazri, H., Taharuddin, N. S., Ibrahim, N. I., & Ibrahim, N. A. (2025). Reka bentuk produk emosi: Membentuk pengalaman melalui sentuhan emosi dalam reka bentuk [Emotional product design: Shaping experiences through emotional touch in design]. *Ideology Journal*, 10(1), 89–100. <https://doi.org/10.24191/ideology.v10i1.713>
- Morwitz, V. (2014). Consumers' purchase intentions and their behavior. *Foundations and Trends in Marketing*, 7(3), 181–230. <https://doi.org/10.1561/17000000036>
- Muhammad Firdaus, N. S. A., Shaharudin, H., Ahmad, M. A., Bonollo, E., Wan Omar, W. N. F., & Hasan, Z. (2020). A development of conceptual model for defining users' quality perception in product design. *Voice of Academia*, 16(1), 26–35.
- Shaharudin, H. (2013). A cross-cultural study of studio-based design education with particular reference to specific Australian and Malaysian contexts [Doctoral dissertation, University of Canberra].
- Sierra-Fontalvo, L., Berni, A., & Borgianni, Y. (2026). Sustainability cues in users' perception and consumption: A product design-oriented systematic literature review. *Design Science*, 12, e1. <https://doi.org/10.1017/dsj.2025.10046>
- Stylidis, K., Wickman, C., & Söderberg, R. (2020). Perceived quality of products: A framework and attributes ranking method. *Journal of Engineering Design*, 31(1), 37–67. <https://doi.org/10.1080/09544828.2019.1669769>
- Tsiotsou, R. (2006). The role of perceived product quality and overall satisfaction on purchase intentions. *International Journal of Consumer Studies*, 30(2), 207–217. <https://doi.org/10.1111/j.1470-6431.2005.00477.x>
- Veryzer, R. W., & Borja de Mozota, B. (2005). The impact of user-oriented design on new product development: An examination of fundamental relationships. *Journal of Product Innovation Management*, 22(2), 128–143. <https://doi.org/10.1111/j.0737-6782.2005.00110.x>

Visser, M., Schoormans, J., & Vogtländer, J. (2018). Consumer buying behaviour of sustainable vacuum cleaners: Consequences for design and marketing. *Journal of Cleaner Production*, 195, 664–673. <https://doi.org/10.1016/j.jclepro.2018.05.114>