

Explaining Generation Z's Actual Use of Augmented Reality in Retail: A UTAUT2-Based Conceptual Framework

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ABSTRACT

Augmented reality (AR) is increasingly embedded in mobile retail applications through virtual try-on, product placement, interactive visualisation, and contextual product information. Yet its managerial value depends on enacted use rather than on consumers merely reporting that they intend to use a feature. This conceptual paper develops a UTAUT2-based framework that places actual AR use at the centre of explanation for Generation Z retail consumers. An integrative, concept-centric review was conducted through targeted searches across scholarly publisher platforms, backward citation chaining, and DOI verification. The revised evidence base comprises 32 verified sources spanning consumer-facing AR retail research, foundational AR and UTAUT/UTAUT2 studies, technology-use research, and conceptual-review and measurement methodology. Evidence was coded by construct, focal outcome, and relevance to the proposed relationships. The framework retains UTAUT2's causal ordering: performance expectancy, effort expectancy, social influence, hedonic motivation, price value, facilitating conditions, and habit shape behavioural intention, while behavioural intention, facilitating conditions, and habit are proposed to explain subsequent actual use. The principal adaptation is operational rather than a claim of a wholly new causal architecture. Actual AR use is specified as a multidimensional formative behavioural composite capturing frequency, duration, breadth, recency, and repetition, preferably using behavioural logs. The paper further treats Generation Z as a heterogeneous sampling boundary rather than a homogeneous causal category and identifies prior AR experience, device access, retail task, and context as boundary conditions. The resulting framework offers a transparent and testable basis for examining the intention, by using gap in AR retail without conflating adoption intention with enacted behaviour.

Keywords— Augmented Reality, Actual Use, Generation Z, Mobile Shopping, Retail Technology, UTAUT2

INTRODUCTION

Retailing has become an increasingly blended activity in which consumers move between physical stores, mobile interfaces, social platforms, and digitally augmented product encounters. AR is one of the technologies enabling this convergence because it superimposes digital content on a user's perception of the physical environment rather than replacing that environment altogether (Azuma, 1997). In retail, the technology supports functions such as visualising furniture within a room, applying cosmetic shades to a live facial image, trying on footwear or accessories virtually, and retrieving contextual product information at the point of decision. These applications may make products easier to imagine and evaluate, particularly when physical inspection is unavailable (Dacko, 2017; Hilken et al., 2017; Yim et al., 2017).

The appeal of AR is not limited to functional assistance. Its vividness, interactivity, and capacity to create a sense of presence can make mobile shopping more absorbing, enjoyable, and personally relevant (Javornik, 2016; McLean & Wilson, 2019; Poushneh & Vasquez-Parraga, 2017). Experimental and field-oriented studies have associated AR with richer mental imagery, improved processing fluency, consumer inspiration, engagement, and favourable responses to brands and retail interfaces (Heller et al., 2019a; Rauschnabel et al., 2019). These findings explain why retailers often present AR as both a decision aid and an experience-enhancement mechanism.

Nevertheless, the availability of an AR feature does not establish that consumers will use it. A customer may appreciate a demonstration, report an intention to try a feature, or express favourable purchase intention without later activating AR during an authentic shopping episode. This is not a minor methodological issue. A systematic review of the technology acceptance model found that behavioural intention was generally related to actual use, but perceived usefulness and perceived ease of use were less consistently associated with actual use than intention-centred reasoning might suggest (Turner et al., 2010). In other words, intention is relevant, but it is not interchangeable with enacted behaviour.

The distinction is especially consequential when studying Generation Z. This cohort has extensive experience with mobile interfaces, image-based communication, filters, and digitally mediated social interaction. However, it is theoretically unsafe to infer retail AR use merely from broad digital familiarity. A recent study of Generation Z found that habitual AR use in non-retail settings could transfer into shopping-related acceptance, while performance expectancy became particularly important when AR was understood as a practical tool rather than a novelty (Schapsis et al., 2025). Qualitative work on young fashion consumers similarly indicates that ease, visual experience, technological quality, and perceived usefulness matter across pre-purchase, purchase, and post-purchase stages (Kovács & Keresztes, 2024). The evidence therefore points to conditional acceptance, not automatic adoption.

Much of the AR-retail literature has examined attitudes, behavioural intention, willingness to buy, patronage intention, purchase intention, continuance intention, or other responses adjacent to use (Bonnin, 2020; Huang & Liao, 2015; Khashan et al., 2023; Rese et al., 2017). Systematic reviews similarly show that technology acceptance, customer experience, and intention-oriented outcomes dominate much of the field (Chen et al., 2022; Lavoye et al., 2021). These outcomes are legitimate, but they answer different questions from enacted use. A retailer deciding whether to maintain an expensive virtual try-on function needs to know whether consumers actually activate it, how they interact with it, whether they return, and under what conditions use persists. Recent field evidence illustrates the value of this distinction: retailer app data can link AR usage with downstream sales outcomes, while interaction-level studies reveal meaningful variation between first-time, repeat, and abandoned AR use (Caboni et al., 2024; Tan et al., 2022). A framework centred on actual use is therefore needed to complement the strong intention-oriented stream.

This paper addresses that need by contextualising the extended unified theory of acceptance and use of technology (UTAUT2) to explain how Generation Z consumers' evaluations and intentions may become actual use of retail AR. The paper has three objectives. First, it distinguishes behavioural intention from enacted use and retains intention as an intermediate process variable rather than the final adoption outcome. Second, it specifies how facilitating conditions and habit may operate at the intention-behaviour boundary without assuming that they are necessarily the strongest predictors in every AR setting. Third, it develops an operational definition of actual AR use that can be tested with application logs, observed interaction, or carefully bounded self-reports. The proposed contribution is therefore a domain-specific contextualisation and measurement refinement of UTAUT2, not a claim that the original UTAUT2 causal architecture has been replaced.

METHODOLOGY

This paper uses an integrative conceptual review combined with theory adaptation and model development. An integrative review is appropriate when a developing phenomenon has been examined through different

theories, outcomes, and research designs and the objective is to integrate those perspectives into a new conceptual account rather than calculate a pooled effect (Snyder, 2019). The design also follows Jaakkola's (2020) guidance that a conceptual paper should make its theoretical purpose explicit, justify the selected theory, and show how concepts are connected to generate a contribution. UTAUT2 is therefore used as an organising structure for interpreting AR-retail evidence, not as an unquestionable or complete explanation.

The review was concept-centric rather than author-centric. Evidence was organised around usefulness, ease, social influence, enjoyment, value, facilitating resources, habit, intention, and enacted use, consistent with the principle that literature synthesis should be structured around concepts and relationships when the objective is theory building (Webster & Watson, 2002). The review is not presented as a systematic review or as a complete census of all AR publications. Its purpose is transparent conceptual integration and proposition development, and the revised manuscript therefore distinguishes what can be reported reproducibly from what cannot be reconstructed retrospectively.

For the revision, core Boolean logic was ("augmented reality" OR AR) AND (retail OR shopping OR e-commerce OR "virtual try-on") AND (UTAUT2 OR adoption OR "behavioural intention" OR "actual use" OR usage OR habit OR "Generation Z"). Construct-specific follow-up searches paired AR-retail terms with performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, continuance, repeated use, and behavioural logs. The analysis proceeded in four stages. First, each source was coded by focal outcome namely attitude, behavioural intention, purchase or patronage intention, engagement, continuance intention, self-reported use, behaviourally recorded use, or downstream behavioural outcome. Second, antecedents from AR studies were mapped to UTAUT2 constructs; for example, improved product evaluation and mental imagery were linked to performance expectancy, usability to effort expectancy, enjoyment to hedonic motivation, and compatibility or support to facilitating conditions. Third, each proposed relationship was compared with the original UTAUT2 architecture, in which behavioural intention is shaped by the UTAUT2 antecedents and use is explained more proximally by behavioural intention, facilitating conditions, and habit (Venkatesh et al., 2012). Fourth, propositions were formulated only as directional statements for future empirical testing and were coded by evidential status: direct AR-retail evidence, theory-transfer evidence, or limited/direct evidence still required. This procedure prevents adjacent outcomes from being treated as actual use and avoids claiming relative predictor strength where the reviewed evidence does not establish it.

LITERATURE REVIEW

Augmented Reality in Retail and the Intention–Use Problem

AR's retail value emerges from its capacity to situate product information within the consumer's immediate context. A static image asks the consumer to imagine how an object will look, fit, or function. AR can partly externalise that cognitive task by placing a manipulable representation in front of the consumer. Research on augmented mental imagery suggests that such support can improve processing fluency and decision comfort (Heller et al., 2019a), while multi-sensory AR research illustrates how the interface can make otherwise untouchable products more experientially accessible (Heller et al., 2019b). Situated-augmentation research further explains how AR may reduce the psychological distance between a product and the environment in which it will be used (Hilken et al., 2017). These benefits vary by product and task. AR may be more useful when appearance, size, spatial fit, or self-representation is central to evaluation. Comparative youth-market research found that AR can enhance online decision processes, but the response to AR also depends on market context and the meaning attached to the application (Pantano et al., 2017). Research on consumer acceptance similarly shows that utilitarian and hedonic evaluations coexist: an application must usually work well enough to be useful while offering an experience engaging enough to sustain attention (Rese et al., 2017; Yim et al., 2017).

The literature also reveals a recurring outcome problem. Many AR-retail studies measure whether consumers intend to use AR, intend to continue using it, intend to buy after using it, feel inspired by it, or evaluate a brand

more favourably. Systematic reviews confirm that acceptance, experience, and intention-oriented outcomes remain prominent (Chen et al., 2022; Lavoye et al., 2021). Khashan et al. (2023), for example, integrate UTAUT2 with task–technology fit but retain behavioural intention as the central dependent construct. More recent UTAUT2-based work similarly explains retail customers' intention to use AR applications rather than observed use (Elsotouhy et al., 2026). These studies offer valuable adoption evidence, but intention and continuance intention should not be treated as synonymous with enacted behaviour.

Actual use therefore requires a more specific operational definition. In this framework, actual AR use means enacted interaction with one or more AR retail functions during a genuine or realistically simulated shopping process. Five primary behavioural dimensions are proposed which are (1) frequency, the number of AR activations within a defined period; (2) duration, the time spent in AR-enabled sessions; (3) breadth, the number of functions, products, or categories for which AR is used; (4) recency, the time elapsed since the latest AR interaction; and (5) repetition, use across separate shopping occasions. Exposure, activation, meaningful manipulation, and downstream actions such as saving an image or adding a product to a cart should be recorded as event states rather than collapsed into a simple used/did-not-use variable. Interaction-level evidence already shows that first use, repeated use, and abandonment are behaviourally distinguishable (Caboni et al., 2024), while field data demonstrate the feasibility of linking actual retailer-app AR usage to commercial outcomes (Tan et al., 2022).

When these five dimensions are combined into a single overall actual-use measure, the framework proposes a formative or composite specification rather than a reflective scale. The dimensions contribute distinct information to the behavioural profile: a consumer can use AR frequently but briefly, recently but within only one product category, or broadly without repeated use. The indicators therefore need not be interchangeable or highly correlated, and removing one changes the substantive content of the composite (Diamantopoulos & Winklhofer, 2001). Future studies may alternatively model each behavioural dimension separately if the research question does not justify aggregation. Objective application logs are preferred because they can record launches, session length, products visualised, repeat sessions, and downstream actions. Observation and controlled field tasks can provide behavioural evidence when logs are unavailable. Self-report remains useful under privacy or access constraints, but items should refer to specific periods and actions rather than vague agreement with statements such as 'I use AR' (Turner et al., 2010).

Generation Z as a Boundary Condition Rather Than a Homogeneous Explanation

Generation Z is used in this paper as a theoretically relevant sampling boundary, not as an assumption that all members of the cohort possess the same resources, preferences, or technology experience. Studies of young consumers show that AR responses vary with market context, shopping stage, technological quality, practical usefulness, and prior AR experience (Kovács & Keresztes, 2024; Pantano et al., 2017; Schapsis et al., 2025). In future empirical tests, age band within the cohort, income or purchasing power, device capability, prior AR exposure, product category, cultural setting, and frequency of mobile shopping should therefore be reported and, where theoretically justified, controlled, stratified, or tested as boundary conditions. Cohort membership itself is not proposed as a causal construct in the model.

UTAUT2 as the Theoretical Foundation

UTAUT consolidated eight earlier technology-acceptance traditions and proposed performance expectancy, effort expectancy, social influence, and facilitating conditions as central explanations of intention and use (Venkatesh et al., 2003). UTAUT2 extended the framework to voluntary consumer settings by adding hedonic motivation, price value, and habit and by refining the relationships involving use behaviour (Venkatesh et al., 2012). In the original UTAUT2 study, use was measured after the first survey wave, which established temporal separation between beliefs, intention, and later behaviour. This design is particularly relevant to the present paper because it demonstrates that actual use should be modelled as a downstream outcome rather than collapsed into intention.

A meta-analytic evaluation supports the broad utility of UTAUT2 while also showing that relationship strengths vary across technologies, contexts, and model specifications (Tamilmani et al., 2021). Such variation cautions against mechanically transplanting coefficient expectations from one technology to another. Retail AR is simultaneously instrumental, experiential, visual, device-dependent, and sometimes socially shareable. The proposed framework therefore retains UTAUT2's structural ordering but contextualises the meaning of each construct around AR-shopping tasks and frictions.

Behavioural intention remains in the framework as a proximal motivational state rather than as evidence that adoption has already occurred. Actual use is the final dependent outcome. The framework's adaptation of UTAUT2 is deliberately limited and explicit: it does not introduce new causal paths merely because the context is AR. Instead, it translates each established UTAUT2 construct into AR-retail terms, makes the intention–enactment boundary analytically visible, specifies AR-specific facilitating conditions such as device compatibility, product-model availability, permissions, lighting, and physical space, and operationally sharpens use as a multidimensional behavioural composite. The first three elements are contextual adaptations of existing UTAUT2 logic; the fourth is the principal measurement contribution of this paper.

FINDINGS AND DISCUSSION

Conceptual Framework and Propositions

Performance Expectancy

Performance expectancy refers to the degree to which consumers believe that using a technology will improve the performance of a relevant activity (Venkatesh et al., 2012). For retail AR, the relevant performance gains include judging spatial fit, reducing uncertainty, comparing alternatives, visualising ownership, and making a decision with less mental effort. AR has been shown to support mental imagery and processing fluency (Heller et al., 2019a), and studies in e-commerce associate interactivity and vividness with usefulness and favourable consumer responses (Yim et al., 2017).

Among Generation Z consumers, practical value may be more consequential than the assumption that novelty alone is sufficient. Schapsis et al. (2025) found that performance expectancy played a central role in the shift from AR as a gimmick toward AR as an omni-digital shopping utility. This suggests that young consumers are likely to form stronger intentions when AR helps them complete a recognisable shopping task rather than merely entertaining them.

Proposition 1: Performance expectancy positively influences Generation Z consumers' behavioural intention to use AR in retail shopping.

Effort Expectancy

Effort expectancy concerns the perceived ease associated with technology use (Venkatesh et al., 2012). Retail AR can impose effort through device permissions, camera positioning, scanning, calibration, loading delays, body or surface alignment, and unfamiliar controls. Even a digitally fluent consumer may abandon a feature when the interaction interrupts the shopping flow. Acceptance studies have repeatedly identified ease-related beliefs as relevant to consumer evaluations of AR applications (Huang & Liao, 2015; Rese et al., 2017).

Ease should not be interpreted as a stable personal preference alone. It is also a design outcome. Clear onboarding, immediate feedback, stable object tracking, and visible instructions reduce the work required to understand what the feature can do. Generation Z's extensive mobile experience may reduce basic learning costs, but it may also raise expectations for responsiveness and interface coherence. The proposed positive relationship therefore reflects perceived friction within the AR encounter, not a simplistic assumption that younger users find all technology easy.

Proposition 2: Effort expectancy positively influences Generation Z consumers' behavioural intention to use AR in retail shopping.

Social Influence

Social influence is the perceived expectation or endorsement of people important to the consumer (Venkatesh et al., 2012). AR retail experiences may become visible through shared try-on images, social-media filters, creator demonstrations, peer recommendations, and brand communities. Social visibility can lower uncertainty by showing that others have used the feature successfully. It can also make AR use symbolically meaningful when the application is connected to style, identity, or participation in a trend.

The effect should not be overstated. Social influence may stimulate trial without producing repeat use if the feature lacks functional value. This distinction is important for Generation Z because habitual exposure to AR through social platforms can make the technology familiar, but familiarity must still transfer into a shopping task (Schapsis et al., 2025). Social influence is therefore expected to shape intention, while its conversion into behaviour remains dependent on facilitating conditions and repeated utility.

Proposition 3: Social influence positively influences Generation Z consumers' behavioural intention to use AR in retail shopping.

Facilitating Conditions

Facilitating conditions refer to the perceived availability of resources, knowledge, compatibility, and support required to use a technology (Venkatesh et al., 2012). In mobile AR, these conditions include a capable camera and processor, operating-system compatibility, sufficient storage, acceptable connectivity, suitable lighting or physical space, understandable permissions, and assistance when the feature fails. Dacko (2017) showed that mobile AR shopping creates value within a broader service and device setting rather than through the application in isolation.

Facilitating conditions matter at two points. Before use, consumers who believe they possess the necessary resources should be more willing to use the feature. At enactment, the resources must actually be available. A consumer may intend to visualise a sofa but fail to do so because the room cannot be scanned, the application crashes, or the device is unsupported. The framework consequently proposes both an intention pathway and a direct actual-use pathway, consistent with UTAUT2.

Proposition 4a: Facilitating conditions positively influence Generation Z consumers' behavioural intention to use AR in retail shopping.

Proposition 4b: Facilitating conditions positively influence Generation Z consumers' actual use of AR in retail shopping.

Hedonic motivation

Hedonic motivation is the enjoyment or pleasure derived from technology use (Venkatesh et al., 2012). AR can create enjoyment through novelty, vividness, playful experimentation, self-expression, and a temporary sense of immersion. Research has linked AR interaction with enjoyment, flow-like responses, engagement, and positive customer experiences (Javornik, 2016; McLean & Wilson, 2019; Poushneh & Vasquez-Parraga, 2017).

However, hedonic motivation may be stage-dependent. It can encourage first use and exploration, yet its effect may decline as novelty diminishes. Recent Generation Z evidence suggests that utilitarian value can overshadow hedonic motives once consumers understand AR as a practical shopping resource (Schapsis et al., 2025). The framework therefore positions enjoyment as an antecedent of intention while allowing future

longitudinal research to test whether its effect weakens as habit and performance value become more prominent.

Proposition 5: Hedonic motivation positively influences Generation Z consumers' behavioural intention to use AR in retail shopping.

Price value

Price value captures the consumer's trade-off between perceived benefits and the monetary cost of technology use (Venkatesh et al., 2012). Retail AR is often offered without a direct fee, but its use is not costless. Consumers may incur mobile-data use, storage consumption, battery drain, time, privacy exposure, or the need for a more capable device. Conversely, a useful application can prevent an unsuitable purchase, reduce search time, and decrease the inconvenience associated with returns.

Price value should therefore be operationalised as a broader net-benefit judgement. This interpretation is consistent with mobile shopping, where consumers evaluate convenience and experience against effort and other sacrifices. It is also relevant for Generation Z consumers whose resources and device access may vary substantially. When the perceived decision benefit exceeds the combined monetary and non-monetary burden, intention should be stronger.

Proposition 6: Price value positively influences Generation Z consumers' behavioural intention to use AR in retail shopping.

Habit

Habit is the extent to which behaviour becomes automatic through prior learning and repetition (Venkatesh et al., 2012). In retail AR, habit may develop within the shopping domain, but it may also transfer from adjacent domains. Generation Z consumers who routinely use face filters, lenses, games, or camera-based effects already possess learned interaction patterns that can reduce the unfamiliarity of retail AR. Evidence from an apparel-shopping study indicates that non-retail AR habits can shape acceptance of mobile AR shopping applications (Schapsis et al., 2025).

Habit can plausibly influence both intention and behaviour. Consumers may expect to use a feature because it fits an established digital routine, and repeated successful encounters may reduce deliberation at later shopping occasions. However, the reviewed AR evidence does not justify prespecifying habit as the strongest predictor of actual use. Schapsis et al. (2025) provide emerging evidence that non-retail AR habits can transfer into Generation Z's acceptance of shopping AR, whereas the direct habit→actual-use path in retail remains to be tested. The proposition is therefore directional only; its relative effect size should be treated as an empirical question that may vary by product category, AR experience, and stage of adoption.

Proposition 7a: Habit positively influences Generation Z consumers' behavioural intention to use AR in retail shopping.

Proposition 7b: Habit positively influences Generation Z consumers' actual use of AR in retail shopping.

Behavioural intention and actual use

Behavioural intention is the consumer's stated motivational readiness to use AR, whereas actual use is the enacted interaction defined earlier. UTAUT2 predicts that stronger intention should increase subsequent technology use (Venkatesh et al., 2012), and the broader acceptance literature supports a positive but imperfect intention–use relationship (Turner et al., 2010). The imperfection is central to the model rather than a nuisance to be ignored.

The intention–use relationship should also be treated as contingent rather than automatic. Consumers require an opportunity to use AR and sufficient facilitating conditions at the relevant shopping moment. A consumer cannot enact an intention if a desired product lacks an AR model, the feature is difficult to locate, the application is incompatible with the device, or the physical setting prevents effective use. Future studies should therefore collect intention before the behavioural observation window and record use later, ideally across multiple shopping occasions. This design would permit direct estimation of the intention–use gap rather than relying on same-session self-report.

Proposition 8: Behavioural intention positively influences Generation Z consumers’ subsequent actual use of AR in retail shopping.

Construct	AR-retail interpretation	Primary pathway in the proposed model
Performance expectancy	Improvement in product evaluation, decision confidence, fit judgement, and search efficiency	Behavioural intention
Effort expectancy	Ease of activation, calibration, navigation, and interaction	Behavioural intention
Social influence	Endorsement, visibility, and normalisation through peers and social media	Behavioural intention
Facilitating conditions	Device, connectivity, compatibility, knowledge, space, and support	Behavioural intention and actual use
Hedonic motivation	Enjoyment, playfulness, vividness, and immersive engagement	Behavioural intention
Price value	Benefits relative to money, time, effort, data, battery, and privacy costs	Behavioural intention
Habit	Automaticity developed through retail or non-retail AR experience	Behavioural intention and actual use
Behavioural intention	Motivational readiness to use AR in a future shopping episode	Actual use

RESEARCH DISCUSSION

The framework reframes the central question in AR-retail research. Instead of asking only whether Generation Z likes AR or intends to use it, the model asks how favourable evaluations become observable action. This change improves theoretical precision because purchase intention, AR-use intention, continuance intention, and actual AR use are not interchangeable outcomes. The framework preserves UTAUT2's process logic while making its empirical endpoint more demanding: beliefs shape intention, and subsequent behaviour must then be observed rather than inferred from intention.

A second insight concerns the transition from novelty to repeated utility. Early encounters with AR can be driven by curiosity and enjoyment, whereas repeated use is more likely to require dependable task value. Evidence on mental imagery, product evaluation, and decision support demonstrates plausible sources of utility (Heller et al., 2019a; Hilken et al., 2017), while interaction-level research shows that consumers may use AR in informational, experiential, social, and inspirational modes and may abandon or repeat applications across occasions (Caboni et al., 2024). Generation Z evidence further suggests that performance expectancy

and transferable AR experience can become salient as the technology shifts from novelty toward shopping utility (Schapsis et al., 2025). These findings justify testing stage-dependent effects, but they do not establish a universal ranking of predictors.

Third, the framework gives facilitating conditions a substantive role rather than treating them as a control variable. AR use is unusually dependent on hardware, permissions, environmental conditions, and content availability. A consumer may possess high intention and still be unable to use a feature. This makes retail AR a useful setting in which to study the intention–behaviour gap because the constraints are observable and often measurable.

Theoretical and Managerial Implications

Theoretically, the study contributes by contextualising UTAUT2 without claiming a new structural theory. Its contribution lies in separating intention from enacted use, identifying the AR-specific conditions that can interrupt enactment, and specifying actual use as a measurable behavioural composite. This distinction also enables future studies to compare self-reported use with system-recorded use and to test whether conventional UTAUT2 relationships survive when the outcome is observed behaviour rather than stated intention.

For researchers, the main implication is methodological. Cross-sectional surveys conducted immediately after an AR demonstration may exaggerate the proximity between intention and behaviour. A stronger design would collect beliefs and intention at Time 1, capture actual AR events during a later observation window, and test whether facilitating conditions and habit explain additional variance in the behavioural composite or its individual dimensions. Researchers should distinguish exposure, activation, meaningful interaction, repeat use, and discontinuance; pre-register the observation period; report device and product-category constraints; and assess whether formative aggregation of the use indicators is substantively justified.

For retailers, the framework suggests that promotional excitement is insufficient. Performance expectancy requires accurate rendering, relevant product coverage, and decision support. Effort expectancy requires low-friction access. Facilitating conditions require cross-device optimisation and clear guidance. Habit requires consistency across shopping occasions. Social sharing and playful design can encourage trial, but repeat use will depend on whether the experience is dependable enough to become part of the customer journey (Dacko, 2017; McLean & Wilson, 2019).

Managers should also avoid interpreting downloads or permissions as use. A more informative dashboard would separate AR exposure, activation, meaningful interaction, repeat interaction, and downstream action. These measures can reveal whether consumers merely test the novelty or employ the feature as a decision tool. Privacy-preserving aggregation should be used, particularly when camera-based data are involved; personal-data disclosure is itself part of the consumer's AR evaluation (Smink et al., 2019).

CONCLUSION

AR can enrich retail shopping by making products easier to visualise, evaluate, and experience, but digital familiarity among Generation Z does not guarantee routine retail use. The central theoretical problem is enactment: whether favourable evaluations and intentions become observable behaviour. By contextualising UTAUT2 around this boundary, the paper proposes that the established UTAUT2 antecedents shape behavioural intention, while intention, facilitating conditions, and habit are tested as more proximal explanations of subsequent use.

The contribution is deliberately precise. It does not claim a new causal architecture or universal predictor ranking; instead, it develops an AR-specific interpretation of UTAUT2 and a formative behavioural operationalisation of actual use based on frequency, duration, breadth, recency, and repetition. Future longitudinal and log-based studies can test these propositions across heterogeneous Generation Z segments and determine when retail AR becomes a durable shopping practice rather than a temporary technological attraction.

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