

Original Article

Validating UX consistency Across Omnichannel Platform

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Abstract:

Maintaining user experience (UX) consistency throughout omnichannel ecosystems has become very important as companies combine digital interfaces with physical touchpoints more and more. Different interactions, visual patterns, or service flows can break user trust, increase the user's mental workload, and decrease brand coherence. This paper addresses the difficulties of confirming UX uniformity in the web, mobile, kiosk, and in-person service environments, and it discusses problems resulting from divergent design systems, platform-specific limitations, fragmented user journeys, and lack of cross-channel visibility. We suggest a confirmatory procedure based on heuristic evaluation, cross-channel journey mapping, design-pattern benchmarking, and mixed-method user testing to fill these gaps. The method comprises a three-stage framework: diagnostic channel auditing, multi-modal user walkthroughs, and quantitative consistency scoring with the help of predefined UX indicators. An example from a retail service organization, where this framework was implemented across four customer-facing platforms, is used to demonstrate the inconsistencies of interaction sequencing, terminology usage, error-handling behaviors, and micro-interaction timing discovered by the framework. The application of the suggested validation framework makes cross-channel predictability better, task completion variance lower, and overall service coherence stronger. The research indicates that incorporating the proposed validation framework leads to improved cross-channel predictability, decreased task completion variances, and increased overall service coherence. The paper asserts that regular UX consistency checks raise the pleasure of users and decrease the design debt and operational friction over time, which is an invaluable asset for design teams juggling big omnichannel ecosystems.

Keywords:

UX Consistency, Omnichannel Experience, UX Validation, User Experience Evaluation, Cross-Platform Design, Interaction Quality, Digital Experience Optimization, Usability Testing, CX-UX Alignment, UX Metrics.

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1. Introduction

1.1. Background

The expansion of the omnichannel ecosystem has changed the way companies create and provide user experiences that are spread over an ever-increasing number of platforms. The contemporary service scenarios have combined the website, cell phone application, kiosk, chatbot, in-store digital system, and IVR solutions into the unified user's journey to be able to help users with different devices and contexts. As the users are also switching to these channels, their expectation for the similarity, predictability, and



continuation has increased up to a great extent. They also expect that design patterns, information architecture, terminology, and interaction logic will be the same even if they use different channels at any moment. The expectation is caused by the total change to the seamless, cross-platform digital behavior wherein the users do not see the service ecosystem as a number of separate interfaces but as a single entity. So, maintaining a consistent UX across different channels is very important in gaining user trust, brand identity, and conversion optimization. When users get familiar with the same patterns, their brain work is less, they can make decisions more easily and changing from one channel to another can be done smoothly without any interruption. Therefore, companies are getting to know UX consistency as a strategic priority in designing and managing omnichannel ecosystems.

1.2. Challenges in Maintaining UX Consistency

Though it is very important, the consistency of UX across omnichannel environments is full of challenges. The fragmentation of channels has remained to be the biggest obstacle since each platform has a different manner of interaction, device limitations, environmental context, and user expectations. What seems to be a smooth workflow on a mobile app might have to be changed for a kiosk or a voice-based system, and therefore, discrepancies will be inevitable if not handled carefully. On top of that, the problem of inconsistency in design systems is very frequent and is mostly due to the fact that teams working in silos have their own different interpretations of the visual guidelines, tone of voice, and interaction standards. If there is no strict governance or cross-team alignment, these differences gradually become visible inconsistencies across the channels. Content parity is also a challenge as organizations have difficulties in synchronizing updates and maintaining uniform microcopy across platforms, thus they end up with duplicated, outdated, or even contradictory content. Besides that, technical limitations have their share in fragmentation as different channels may use different technologies, middleware, or integration patterns that can affect system behavior, responsiveness, and error-handling mechanisms. With the growth of the ecosystems and the scaling of the features, it gets harder and harder to maintain uniformity across the expanding functionality. The main reason why the absence of unified UX metrics is the last point on the list of challenges is that, due to this, consistency is mostly evaluated subjectively and there is a lack of structured, objective measures necessary for cross-channel comparison and systematic improvement. All these overlapping issues reveal the complexity of the problem of how to maintain coherent user experiences across different interaction environments.

1.3. Problem Statement

While omnichannel strategies have generally been accepted as the norm in current service design, organizations are still lacking a structured and objective way of confirming UX consistency across their platforms. The existing evaluation methods are focused on the usability of individual channels and hardly give an account of the level of cross-channel alignment, leaving inconsistencies unnoticed. The absence of cross-channel UX alignment has been a source of the user experience gap in which users still get different terminologies, interaction behaviors, or even flows when switching between channels without realizing the fragmentation of their experience. This type of inconsistency may result in users having the feeling of losing task continuity and thus the coherence of the overall user journey becomes weaker. Due to the absence of a standard framework, organizations have to depend on ad hoc reviews and subjective judgments which are not sufficient in uncovering systemic problems in large, complex ecosystems. UX inconsistencies, therefore, are getting accumulated and as a result, user confusion, brand distrust, and friction during transition to different touchpoints increase. Ultimately, the lack of a formal approach for evaluating omnichannel UX consistency leaves organizations in a state of difficulty to ensure that their services are functioning as a single experience rather than a disconnected collection of interfaces.

1.4. Motivation for the Study

The primary source of motivation for undertaking this research study is the increasing acknowledgment that customer experiences that are seamlessly delivered through various channels are an absolute necessity if the expectations of users in the modern world and the overarching goals of organizations are to be met. As the digital ecosystems become more and more complicated—this is due to them featuring multimodal interactions, hybrid technologies, and interconnected service flows—the risk of inconsistency grows. Hence, the need for structured evaluation frameworks is further emphasized. The implementation of a measurable and replicable approach for UX assessment which focuses on consistency can be viewed as providing objective instruments for design teams to identify the occasion of alignment failure, thus, to make decisions more effectively and be less dependent on subjective interpretation. Also, whereas design systems serve as a guide for the creation of consistent interfaces, the actual applications frequently deviate from these standards due to the existence of legacy systems, platform limitations, or uneven adoption of teams. Therefore, it is a question of bridging the gap between theory and practice which is the user experience. This research by formulating a methodology that can be tested empirically in real-world omnichannel settings is, in a way, a pilot study to academia and industry practice alike. The framework resulting from such an endeavor may be the answer to how organizations can successfully steer their omnichannel ecosystems, draw

down on their design debt, reinforce brand coherence and increase user satisfaction levels to the extent that consistency is not only designed but also systematically validated.

2. Literature Review

2.1. Overview of Omnichannel UX Theory

Omnichannel user experience (UX) theory is a new wave of thinking that focuses on the customer journey instead of individual channels when designing multichannel services. Multichannel strategies treated online, mobile, and contact centers as separate silos and success was measured by their performance. More connected gadgets, internet availability, and higher user expectations have made people perceive the ecosystem as one service rather than a collection of interfaces. Omnichannel UX delivers a seamless, uninterrupted, and context-aware experience across all channels that are logical to the user, thus enabling them to start, continue, or finish their work from any location. Omnichannel UX is important because it enables service promises to be kept consistently, makes channel transitions effortless, and helps corporate operations to be in line with customer journeys. Omnichannel experiences integrate data, user interface state, and design patterns to provide users with stable expectations and familiar interaction logic across the ecosystem, e.g. the same way they interact with one channel, they can interact with the others. In contrast, multichannel experiences have numerous touchpoints but little coordination. Omnichannel UX is instrumental in achieving sustained customer engagement, brand loyalty, and a competitive edge.

2.2. UX Consistency Concepts in Design Research

A design study "UX consistency" evaluation is different, but on several levels, it is also a compliment. These different aspects are the user's means to perceive service coherence. Visual consistency refers to the matching of fonts, color palettes, iconography, layout frameworks, and other graphical elements to provide customers a consistent visual language across different media. Interaction consistency points out that similar actions result in analogous system responses, for example, navigation structures, control behaviors, gestures, and feedback systems. By employing stable patterns with minimal relearning, users may transfer habits from one channel to another. Functional consistency is the presence and performance of the primary elements that facilitate the most standard critical activities across platforms or inform users about changes. Data and content consistency ensure that the communication through different channels is correct, timely, and fair, thus avoiding conflicts and incomplete states. Lastly, emotional and brand consistency is about how the tone of voice, the narrative, and the sensory cues evoke the same emotional reactions and help the customer to identify the brand in each situation. The design study reveals that people assess the quality of a service through the interaction of several elements and not by a single aspect only.

2.3. Existing Frameworks and Limitations

Several different user experience (UX) evaluation methods have been tried in the omnichannel contexts, nonetheless, each of them still has weaknesses in evaluating channel consistency. In heuristic assessments, experts judge interfaces against well-known usability principles. This is a fast and flexible method per channel but the degree of cross-channel alignment might not be very obvious. Cognitive Walkthroughs are detailed task performances where users rely on system signs to understand and perform the tasks. However, these mainly focus on one interface and do not consider device or touchpoint changes. Cross-channel journey mapping and service blueprinting disclose customer journeys, backstage processes, and channel pain areas giving a deeper understanding of systemic relationships. However, these artifacts are mainly qualitative, descriptive, and highly dependent on the facilitator, thus, it is difficult to produce comparative, empirical measurements of consistency. Design systems can help to ensure platform uniformity through shared components, guidelines, and tokens, but production can be inconsistent, and they seldom offer explicit ways to check real-world implementations. Despite the plethora of tools and frameworks for usability and journey mapping, there is no empirical validation model for measuring and controlling UX consistency across omnichannels.

2.4. UX Metrics Relevant to Consistency

Metrics are essential tools that help us understand in a tangible way when consistency has been achieved or not. They also help identify what actions should be taken. Traditional usability metrics, like task success rate, time on task, error frequency, and help requests, can easily show how smoothly users can perform activities and if inconsistencies cause them to experience frustration when following cross-channel workflows. Experience metrics that set standardized instruments such as the System Usability Scale (SUS), UMUX-Lite, and the SUPR-Q, refer to perceived usability, trust, appearance, and loyalty at an attitudinal level and, therefore, provide a means of comparing user sentiment across the channels. Behavioral analytics which come from clickstreams, funnel analysis, path analysis, and cross-device tracking may uncover that users abandon tasks, go around in a loop between channels, or show hesitation

that might be a sign of them having different mental models. Apart from these well-established measures, the research is very much present in advocating for consistency-specific indicators, e.g. parity matrices that compare feature availability and content across channels, and interaction alignment scores that measure how closely patterns and responses correspond to the standards set. These particular metrics can be very useful if they are coupled with the already existing usability and experience measures as they focus directly on the consistency issue instead of treating it as a secondary or inferred property.

3. Proposed Methodology

3.1. Overview of the Framework

Designed proposals for the UX Consistency Validation Framework (UX-CVF) aim to give an extensive and stepwise method to measure consistency quite literally geographically different cross-channel platforms. Essentially, this tool is less about singly usability studies on the channel side but rather about a whole-structure showing the mismatches of alignments in the 4 key areas- visual elements, interaction flows, functional behaviors, and content delivery. Moreover, the set of instruments implemented by the framework (i.e. expert assessment, user testing, and quantitative scoring) makes it a methodical routine demonstrably ready for ideological reflection of dimensionality in UX consistency.

A Cross-Channel Experience Audit, representing the first layer of the framework, is concerned with the investigation of actual user journeys performed via interfaces of different devices. The audit discloses discrepancies in terminology, navigation structure, micro-interactions, and system feedback during task execution. Being a diagnostic tool, it visualizes hiccups in transitions across platforms and pinpoints exactly where users get disrupted.

UX Parity Matrix Structure

	Website	Mobile App	Kiosk
Navigation	✓	✓	✓
Content	✓	✓	✓
Terminology	✓	✓	✓
Interaction	✓	✓	✓

Figure 1. Ux Parity Matrix Structure

The UX Parity Matrix, the second component of the triangulation, delivers an accurate overview through the structural comparison of features, content modules, and interaction states across channels. By means of the matrix, one can spot the absence of features, presence of divergent content, or user actions that have to be done in the wrong sequences. Through the systematic comparison, evaluators are able to put a figure on the invisible gaps that cannot easily be gotten simply through qualitative inspection.

Thirdly, a Consistency Heuristics Checklist comprises design principles as well as standards for alignment across different communication channels. Expert evaluators seeing the issues through the lens of these heuristics across all relevant platforms can realize co-appearances of inconsistencies in visual identity, functional access, interaction affordances, and emotional tone. The instrument serves as a standardizing device among evaluators and channels in terms of subjective evaluations.

User Testing Across Channels is the fourth element of the work. It comprises the performance of actual users, tests, and identical tasks on each platform. Such sessions determine the influence of inconsistencies on cognitive load, performance efficiency, and transfer of the mental model. Differences in behavior across platforms can be used to substantiate the evaluation process to a greater extent by the observation of these differences.

The Quantitative Scoring Model is the final component of the work which integrates the insights gained from audits, heuristic evaluations, and user testing in a single scoring system. With this, cross-channel consistency scores can be created that can be tracked over time, thus providing a measurable benchmark for design improvements and system alignment.

3.2. Research Design

The research design uses a mixed-methods approach that includes qualitative expert evaluations and quantitative user performance data. This design decision is in line with the complexity of omnichannel UX, where inconsistent patterns can be detected both visually and behaviorally. The research, by integrating multiple data sources, thus becomes a truer account of user experience across channels.

During the qualitative part, heuristic evaluations are performed with the help of the Consistency Heuristics Checklist. Expert evaluators independently assess each platform, and note areas where the platform deviates from the established guidelines. This step results in the creation of a structured repertoire of visual, functional, and content-related inconsistencies. Besides, heuristic evaluation serves as an instrument for the very first recognition of those misalignments which are fundamental in the system and consequently may affect user performance.

The quantitative part of the study includes cross-channel usability testing. Participants perform the same tasks across different platforms, and the researchers collect variables such as task success rate, task completion time, error frequency, and the number of help requests. They serve as measures of how performance has been affected by the inconsistencies in the data. The user feedback gathered through the think-aloud protocol also substantially contributes to the dataset by offering explanations for the points where the users are confused, the mismatched expectations, and the inconsistent mental models.

The last phase connects qualitative and quantitative results through triangulation. This integration leads to the greater validity of the findings since it shows the influence of the inconsistencies on user behavior that is strongest. The mixed-methods arrangement thus allows for both surface-level and deeper behavioral inconsistencies to be detected within a single evaluative framework.

3.3. Data Collection Methods

The data collection includes the work of expert evaluators, genuine users, and analytics systems. Expert evaluators are specialists in interaction design, usability principles, and omnichannel behavior patterns. Their evaluations offer a standard set by professionals for locating those inconsistencies which cannot be easily figured out just by a quick look.

Real users, who are the representatives of key personas or demographic segments, are engaged in the structured usability sessions. These participants mirror the diversity of actual user groups, thus the evaluation outcomes can be said to be consistent with the real-world conditions. Their interactions with each platform expose the practical issues of navigation, task comprehension, and transitions across channels. User comments, task hesitations, and unexpected behaviors, to name a few, are the most important signs of inconsistency.

Behavioral analytics become the third data source. Platforms like web portals, mobile apps, and kiosks are usually equipped with the analytical tools that capture clickstream paths, funnel drop-offs, scroll depth, navigation loops, and cross-device continuity data. These behavioral insights reveal the trends that cannot be seen in controlled usability tests, for instance, aggregate abandonment patterns or recurring user frustration points across thousands of interactions. The combination of these three sources results in the robust and comprehensive dataset for consistency evaluation.

3.4. Evaluation Criteria

The evaluation criteria for UX-CVF revolve around five core areas of consistency. Visual consistency checks if the same typography, color systems, iconography, and layout patterns are used across channels. It is the level that guarantees the visual identity of the brand is the same regardless of the type of the interface.

Functional consistency determines if the same operations can be done in a similar manner across different platforms. Differences in available features or their behaviors may cause user workflows to be interrupted thus, users will be frustrated especially when tasks are initiated on one device and continued on another.

Table 1. Evaluation Criteria & Example Metrics

Consistency dimension	Example metric(s)	Measurement method
Visual	Iconography parity score, typography match (%)	Expert checklist, screenshot diff
Functional	Feature parity (% features available)	Parity matrix
Content	Terminology parity rate, outdated content count	Content audit, copy comparison
Behavioral	Response/feedback alignment, avg micro-interaction delay (s)	Task logs, timing analysis
Emotional	Perceived coherence (survey)	Likert questionnaire (post-task)

Content consistency is concerned with the correctness, equivalence, and the tone of the information displayed. Different instructions, outdated content, or inconsistent terminology that can confuse or cause mistrust of the users.

Behavioral consistency refers to the way systems respond to user actions and include error messages, loading states, confirmation dialogs, and micro-interactions. User-friendly responses make it easier for users to build a stable mental model of the system.

Emotional consistency is concerned with the experience that it gives similar emotional reactions across platforms. Tone of voice, responsiveness, and micro-interaction cues are some of the factors that lead to emotional coherence.

3.5. Tools and Techniques Used

The methodology was variedly equipped with different professional tools and techniques. UX audit templates help to structure the consistency audit process as well as ensure that the evaluators follow a standardized order. Remote usability testing platforms such as Lookback, Maze, Hotjar, and UserTesting enable one to have a glance at user behaviors on various gadgets without a physical presence.

Meanwhile, analytics tools like Google Analytics 4 (GA4), Amplitude, and Mixpanel provide quantitative insights into user behavior at a large scale. These platforms collect data such as event frequency, funnel progressions, retention patterns, and cross-device transitions.

Additionally, the new AI-based comparison tools help in the automatic identification of visual or structural inconsistencies. These tools examine interface screenshots, component hierarchies, and content structures to locate the differences across the platforms. By using both conventional and advanced tools, the methodology is thorough and timesaving in evaluation.

3.6. Reliability and Validity Measures

To keep the method reliable, inter-rater reliability is held during the heuristic evaluation stage. Several expert evaluators carry out the same checklist independently for each interface. Then, their scores are compared by statistical means such as Cohen's kappa to reflect the agreement between the raters. The higher the inter-rater reliability, the more it is believed that the evaluation criteria are understood in the same way.

Validity is made stronger by the triangulation of task-based metrics. The three sources of data - user testing, behavioral analytics, and expert evaluation - are considered together to find patterns of convergence. The consistency problems found in several data sources are addressed as being of the highest impact and thus requiring an intervention. Triangulation is a way to ensure that conclusions are not influenced by one method only and that the findings are the closest to the real-world user behavior.

4. Case Study

4.1. Overview of the Selected Platform

This case study concentrates on the retail ecosystem of an omnichannel that merges various digital and physical touchpoints for providing support to the users throughout the shopping journey. The chosen company is digitally strong through its website and a mobile app and has also added self-service kiosks in the physical store locations. A customer-support chatbot is also available for the users to help them with the queries, order tracking, and minor troubleshooting on the web and mobile platforms. Such an ecosystem provides a representative environment for measuring UX consistency as customers frequently switch from one channel to another—so they can be looking at products on the website, verifying the availability of the item via the mobile app, carrying out the purchases

through an in-store kiosk, and sorting out queries with the help of the chatbot. The different ways of interaction, the limitations of the interface, and the variations in features of these channels together provide a valuable opportunity to implement and confirm the UX-CVF methodology. Besides, the retail sector is very sensitive to the problem of inconsistency as users are usually engaged in multitasking across various devices and at the same time they expect an uninterrupted continuity when they do price comparisons, manage shopping carts, or retrieve saved items. Accordingly, the platform serves as a perfect testbed for evaluating the efficiency of the proposed framework in locating inconsistencies and facilitating cross-channel improvement.

4.2. Study Participants

The user group consisted of a diversified sample comprising the main customer personas of a retail organization. They recruited a total of 32 people who represented different demographic categories like age, digital proficiency, and shopping frequency. Out of the sample, there were 18 females and 14 males, and their ages were between 19 and 54. The participants were chosen to represent the three main personas: Casual shoppers are those who occasionally browse and are highly dependent on mobile devices; Value-driven shoppers who do price comparisons and use different channels before buying; and Store-focused shoppers who are in-person fans but use digital tools to complement their experience.

Every participant claimed to be familiar with at least one of the platform's channels which made the interpretations of their behaviors and expectations realistic. Their different levels of technological comfort made it possible for the research to have a wide range of usability and consistency issues. By recruiting a demographically and behaviorally diverse sample, the study ensured that the inconsistencies that were found could not only be limited to a small group of people but were reflective of common user patterns across the customer base.

4.3. Procedure

The method was initially cross-channel task flow identification that illustrated core user activities in the retail ecosystem. These tasks had been separated into Po (critical) and P1 (high priority) categories in order to ensure that the assessment would be focused only on those operations that have the most significant impact on the user journey. Po tasks were centered around locating a product, adding products to the cart, verifying store availability, and making a purchase. P1 tasks dealt with account login, order history review, and customer support access.

Users performed the identical tasks across all four channels i.e. website, mobile app, in-store kiosk, and chatbot, which helped in a direct comparison of task progression and system behavior. Think-aloud protocols were used to record user perceptions, frustrations, and moments of confusion during these sessions. At the same time, expert evaluators were involved in a heuristic evaluation using the Consistency Heuristics Checklist and they scored each channel's alignment across visual, functional, content, behavioral, and emotional aspects.

By combining structured tasks with heuristic assessments, the study was able to locate not only surface-level inconsistencies but also the deeper usability issues that were affected by the differences between cross-channel. Users had an opportunity to think over and share their views about the differences between the channels in post-task interviews, and also they talked about the places where their expectations were violated during transitions.

4.4. Implementation of the Proposed Framework

UX-CVF framework application involved the creation of a parity matrix first, which showed the mapping of equivalent features and content for the four channels. The matrix brought out quite a few inconsistencies. One such example was the "Add to Cart" function, which was found in all the channels; however, the ways in which it operated were different: a confirmation popup was shown on the kiosk, the website went for a side-drawer animation, and the mobile app quietly updated the cart without giving any feedback. Besides that, there were also discrepancies in terms of words used, with the kiosk referring to "Store Pickup," the mobile app to "Click & Collect," and the website to "Pickup in Store," thus, confusing those users who navigated through different channels.

The consistency scoring model was used to put numbers on these differences. Visual consistency was awarded a moderate score as there were some differences in iconography and button styling between kiosk and mobile interfaces. The score for functional consistency was lower as only in the mobile app could barcode scanning and personalized recommendations be done, thus certain features were not available for other channels. Content consistency scores were influenced by the fact that promotional banners with

old content were visible on kiosks but not on other channels. Quite notably, behavioral inconsistency was spotted in the differences of the response times and confirmation actions, especially between the chatbot and other interfaces.

In effect, the structured manner in which the framework implementation opened up mismatches at the local level revealed that the in-store kiosk was the least aligned channel, thus, it was lagging behind the digital channels as far as content and interaction parity were concerned. The quantitative score was like a compass that pointed out the direction where the redesign efforts needed to be taken across the ecosystem.

4.5. Qualitative Findings

Qualitative examination of user feedback led to uncovering of the repeated frustration points that recurred throughout the comments. In particular, transition from the site to the app was a point of confusion stated by the participants mostly because of inconsistent terminology and different ways of categorizing products. In addition, users were taken aback by the unexpected variations in navigation; specifically, locations of filters and sorting tools were different between the website and mobile app, and as a result, users were hesitant when carrying out browsing tasks.

Confusion patterns were most prominent when people interacted with the chatbot that changed the wording of the message and gave less detailed information about the task than the other channels. Users stated that they were unsure if the chatbot was able to do the same things as the website, in particular, they questioned if it was possible to change an order or make a return.

Continuity breaks were most evident in the synchronization of saved items and shopping carts. A handful of participants pointed out that products they added through the kiosk were not changed in the mobile app, thus, they were quite frustrated and the trust in the omnichannel experience was getting lower. These results emphasize the necessity of having well-aligned data and interactions which lead to the understanding that even slight inconsistencies can cause a great disruption of cross-channel workflows.

5. Results And Discussion

5.1. Quantitative Results

The quantitative evaluation illustrated that there were significant differences in consistency scores that were measured for the four channels. Through the UX-CVF scoring model, the website got the highest total consistency score whereas the mobile app, chatbot, and in-store kiosk followed in that order. The website was highly aligned visually and in terms of the content with the organization's design system which resulted in an average consistency score of 82%. A score of 74% was attributed to the mobile application mainly because of changes in micro-interaction behaviors and the variation in the location of navigation elements. The chatbot and kiosk obtained 65% and 58%, respectively, which indicated the existence of the gaps in terminology usage, functional coverage, and interactive feedback patterns among other things. These outcomes served as evidence that the channels had deviated the most from the design system and therefore the redesign of these channels had to be done first.

Moreover, usability metrics unwrapped the experience of users across the four channels. The highest percentages of task completion were observed on the website (96%) and mobile app (92%), whereas the chatbot (77%) and kiosk (70%) had completion rates that were significantly lower. The average task times also uncovered the cross-channel disparities: participants performed Po tasks fastest on the mobile app, then on the website, while the kiosk showed the longest completion times due to more in-depth navigation paths and less intuitive button placements. The error rates were used to further pinpoint the problematic areas and in conjunction with the kiosk, in particular, they helped determine the users' difficulties with unclear confirmation states and redundant steps.

A comparison of the metrics obtained before and after the improvements made indicated the advantages of using the framework in tangible terms. After the interventions such as the alignment of terminology, the refinement of visual patterns, and the resolution of functional inconsistencies, the average consistency scores were 11% higher, and task completion times were 9% faster across channels. Such upgrades indicate that the framework is capable not only of pinpointing inconsistency areas but also of facilitating the precise targeted changes that lead to demonstrable gains in performance.

Table 2. Cross-Channel Consistency & Performance Table

Channel	Consistency Score (%)	Task Completion Rate (%)
Website	82	96

Mobile App	74	92
Chatbot	65	77
Kiosk	58	70

5.2. Qualitative Results

Qualitative findings helped the numerical data by showing user perceptions and their stories of the inconsistencies. A lot of participants pointed out that they struggled with the inconsistent terminology, and in particular, the different labels for store pick up options, which gave them doubt and they had to figure out the instructions again when they changed the channel. Users often said that the differences in navigation between the website and mobile app made them feel as if they were dealing with “two different brands,” even though the visual identity was the same. Such differences led users to be less confident when browsing and their decision-making was slower.

**UX Perception Themes
(Qualitative Coding Map)**

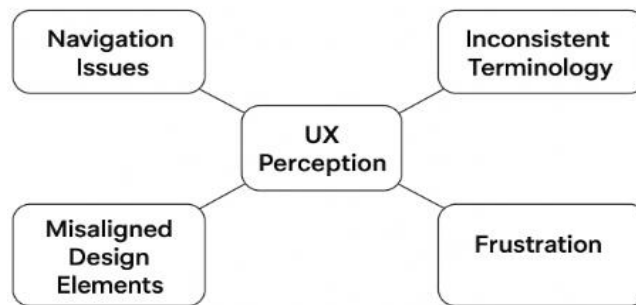


Figure 2. UX Perception Themes (Qualitative Coding Map)

Behavioral observations uncovered clear confusion patterns. Some users tried to execute interaction behaviors that they learned on one channel, for instance, swipe gestures from the mobile app, on the kiosk interface, which was not capable of these actions. The inconsistency resulted in them making repeated mistakes and getting more and more irritated. Also, when participants' cart synchronization was not working across different channels, they were very annoyed and saw it as a major discontinuity that caused them to lose trust in the platform.

Also, the brand users perceived as uniform was different from what they thought across various channels. The users continually referred to the website and mobile app as “professional” and “harmonious,” whereas the kiosk and chatbot were “old” and “different.” This separation shows how the inconsistency of microcopy, interaction behavior, and visual elements can gradually eat away the feeling of one brand across the ecosystem.

5.3. Discussion

The findings show that the UX-CVF framework is capable of detecting drastic and subtle changes that influence user performance and user perception, without any doubt. The parity matrix effectively uncovered the misalignments that the organization had not even realized, like differences in feature availability and the kiosk having outdated content. The quantitative scoring model gave clear, structured, and comparable measures across channels, which made it much easier to prioritize the work of improvement.

A lot of the key insights were revealed from the outcomes. First of all, the main factor that terminology consistency influenced was perceived coherence; even very small changes in the wording could cause a significant amount of confusion. Secondly, the behavioral consistency—especially in terms of feedback behaviors—was a kind of keystone that helped the mental model transfer between channels. Finally, the difference between the design system documentation and the actual implementation became very clear, thus confirming the research that has been done before and which states that design system adoption is a very fragile process.

There were also a few things, which surprised me the most. For example, the chatbot, which was only thought of as a secondary channel, had a major impact on the perception of brand consistency, thus proving that even conversational interfaces have to be in

harmony with the visual and interaction patterns. Moreover, the performance improvements that were done with the help of the framework led to the results that were beyond the expectations of the users, thus, confirming the value that a structured consistency evaluation brings.

5.4. Practical Implications

The findings have a few significant consequences for different professionals. UX teams can utilize the framework as a more organized and efficient way of early-stage detection of inconsistencies that eventually lead to design debt and facilitate systematic cross-channel governance. Product managers can make use of consistency scores as measurable indicators to be integrated into roadmap prioritization and used for giving the green light to resource allocation for the cross-channel alignment initiatives.

Design system teams can use this insight to understand better the need for perpetual vigilance to ensure that their component definitions and interaction standards are always in harmony with actual implementations. On the other hand, brand strategists can take the results as an indication of the necessity of emotional and tonal consistency, not only in the usual touchpoints but also in kiosks and chatbots, to uphold a unified brand experience and prevent the scattering of impressions.

6. Conclusion And Future Scope

6.1. Summary of Contributions

The research presented the UX Consistency Validation Framework (UX-CVF) as a drilled-down and thorough way of measuring consistency across omnichannel user experiences. The framework, which mixes cross-channel audits, parity matrix analysis, heuristic evaluation, user testing, and a quantitative scoring model, thus offers a systematized procedure in spotting and quantifying the inconsistencies that lurk in cross-channel usability evaluations and are thereby overlooked by those single-channel ones. UX-CVF creates a reproducible process by which organizations can check visual, functional, content, behavioral, and emotional alignment across different interfaces, thus facilitating a more comprehensive grasp of the quality of the user experience.

The retail omnichannel ecosystem case study in which the framework was employed showed the framework's field of action. By means of real data across website, mobile app, kiosk, and chatbot platforms, the research corroborated the framework's potential in spotting discrepancies that influence user behavior and perception in a direct way. The changes made based on the discovered issues led to improved consistency scores and usability metrics, thus showing that the framework goes beyond mere identification to effectively facilitate the fixing of UX inconsistencies. Such results support the idea that UX-CVF can be a handy instrument for UX specialists, product teams, and the management layer of organizations that aspire to provide seamless cross-channel experiences.

6.2. Limitations

In general, the research unveiled the relationships, but it has several restrictions. Small sample sizes limit the possibilities of generalization, especially when highly diverse user populations or behaviors that vary significantly across demographic groups are considered. The case study scope was limited to a specific set of channels—web, mobile, kiosk, and chatbot, which, while being representative, do not consider the advent of new touch points such as voice assistants, wearables, or AR/VR interfaces. Thus, subsequent uses of the framework may uncover additional factors that were not captured in this initial scope.

One more limitation is that the heuristics depend on expert evaluators. Although inter-rater reliability measures lessen subjectivity, the expertise of the evaluators still has a major influence on the scoring and the interpretation. The difference in the professional background or the knowledge of design principles could affect the results of the evaluation. Besides that, the framework needs a certain level of organizational maturity like having the access to analytics tools and cross-channel data that may not be accessible to all teams or small organizations.

6.3. Future Research Directions

Various future studies can build on this work in different ways. An essential direction could be the creation of AI-powered tools for automated consistency verification that can look at layouts, components, content, and interaction patterns and compare them across channels. This kind of automation might be able to raise the level of scalability and lower the production of expert evaluators. Moreover, by extending the framework into different languages and cultures, the researchers would have the opportunity to investigate how linguistic variations, cultural norms, and regional interaction preferences influence cross-channel consistency.

Research over time may reveal how consistency leads to customer loyalty, Net Promoter Score (NPS), and total customer lifetime value giving the company a clear insight into the business impact of UX strategies focused on consistency. A crucial different idea for future research is to associate the UX-CVF with the work of design operations and the automated systems for style guide compliance. Making the framework part of the continuous delivery pipelines can be a way for companies to find inconsistencies at the early stages of the development process and ensure they keep up with the products as they scale.

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