VIETNAM NATIONAL UNIVERSITY, HO CHI MINH

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INFORMATION TECHNOLOGY

HUMAN-COMPUTER INTERACTION

# Group07 - PA1

## Report: Product Research & Interface Analysis

**Course: CSC12106 — Human-Computer Interaction**

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# 1 Product: Lazada E-commerce Platform

## 1.1 Introduction

In this analysis report, we will evaluate the user interaction and experience of Lazada, an e-commerce platform.
By applying fundamental concepts from Human-Computer Interaction (HCI), we will examine how Lazada caters to users' needs based on human capabilities, user mental models, interaction metaphors, and usability. The objective is to gain insights into the effectiveness and usability of Lazada's platform for online shopping.

**Product Name: Lazada**
**Domain: E-Commerce**

## 1.2 The users of product

- **General Consumers:** These individuals visit Lazada to shop for a wide range of products, including electronics, fashion, home goods, beauty products, and more. They may have varying levels of online shopping experience and preferences.
- **Business Owners:** Lazada also caters to business owners and entrepreneurs who utilize the platform for selling their products. These users may require additional features and tools for managing their online stores, inventory, and customer interactions.
- **International Users:** Lazada operates in multiple countries across Southeast Asia, serving users from different cultural backgrounds and regions. These users may have specific localization needs, such as language preferences, local currency, and shipping options.
- **Deal Hunters:** Lazada attracts users who are looking for discounts, promotions, and flash sales. These users are often motivated by getting the best deals and may engage with the platform during specific sale events.

**It is important to note that Lazada's user base is extensive and diverse, and the platform aims to provide a seamless experience for all users, regardless of their specific needs and preferences.**

## 1.3 Core use cases of the product

### 1.3.1 Product Search and Purchase

**Context** Users typically engage in this use case when they want to find and purchase specific products.
**Situation** Users can be in various contexts, such as sitting, standing, or lying down, using devices like smartphones, tablets, or computers.
**Method of User Interaction**

- Users interact with the product by launching the Lazada app.
- They enter keywords or browse categories to search for products of interest.
- Users can refine their search through filters such as price range, brand, and customer ratings.
- They view product details, including images, descriptions, specifications, and customer reviews.
- Users may engage in comparison shopping by opening multiple product pages simultaneously.
- To make a purchase, users add the desired product to the cart and proceed to the checkout process.
- During checkout, users input their delivery address, select a payment method, and review the order before confirming the purchase.

### 1.3.2 Wishlist Creation and Management

**Context** Users often engage in this use case when they want to save products for future reference or potential purchase.
**Situation** Users can be in various contexts, such as leisurely browsing or conducting research for upcoming needs.
**Method of User Interaction**

- Users interact with the product by logging into their Lazada account.
- While browsing products, users can add items to their wishlist for later consideration.
- Users can create multiple wishlists based on their preferences (e.g., "Home Decor," "Electronics").
- They can access and manage their wishlists by adding or removing items, organizing them, or sharing them with others.
- Users can set notifications or reminders for wishlist items, such as price drops or restock notifications.

### 1.3.3 Order Tracking and Delivery

**Context** Users engage in this use case after making a purchase and wanting to track the progress of their orders.
**Situation** Users can be in various contexts, such as eagerly awaiting the arrival of their purchased items.
**Method of User Interaction**

- Users interact with the product by accessing their Lazada account or using the order tracking feature without logging in.
- They navigate to the "My Orders" section, where they can view the status and details of their recent purchases.
- Users can track the shipment progress by clicking on the tracking number provided.
- They may receive notifications or emails with updates on their order's status, such as order confirmation, shipment dispatched, or estimated delivery date.
- Users can also communicate with the seller or Lazada's customer support through the platform's messaging system regarding order-related queries or issues.

## 1.4 Customer Support and Returns

**Context** Users engage in this use case when they encounter issues with their orders, require assistance, or want to return products.
**Situation** Users can be in various contexts, such as experiencing delivery problems, receiving faulty items, or needing to clarify product details.
**Method of User Interaction**

- Users interact with the product by accessing the customer support section or contacting the seller directly.
- They can initiate support requests through various channels like live chat, email, or phone.
- Users describe their issues or concerns, providing order details and any necessary evidence, such as photos or videos.
- They can track the progress of their support requests and receive updates or resolutions through the platform.
- If required, users can initiate the return process for eligible products, providing reasons for the return and selecting return options (refund, replacement, etc.).
- They may print return labels or coordinate pickup schedules for returning the items.

**Conclusion** These core use cases of the Lazada e-commerce platform involve users interacting with the product's interface through various devices, searching for products, managing wishlists, tracking orders, and seeking customer support. The context and situations can vary depending on the users' needs and preferences, but Lazada aims to provide a seamless and intuitive experience for users across different scenarios.

## 1.5 Analyzing the Benefits and Drawbacks of Product's Interface

### 1.5.1 Human Capabilities

**Benefits**

- **Perception:** Lazada utilizes a visually appealing interface with high-quality product images, allowing users to quickly perceive and evaluate items they are interested in purchasing.
- **Attention:** The platform captures users' attention through personalized recommendations, flash sales, and promotional banners, facilitating product discovery and engaging users.
- **Memory:** Lazada offers features such as recently viewed items, saved searches, and wishlists to help users remember and revisit products of interest during their shopping journey.
- **QR Code Scanning:** In the Lazada app, users can use the QR code scanning feature to quickly access a specific product. For example, when users see an advertisement or a product on a website or magazine, they can use the QR code scanning feature to scan the code of that product and be directly taken to the product page in the Lazada app, making it easy for them to find and purchase the product quickly.
- **Image Recognition:** Humans have the ability to quickly recognize and process information from images. In the Lazada app, the image recognition feature can be applied to help users search for products that they do not know the exact name of. For example, users can take a photo of an item or a product they want to find, and the Lazada app will use image recognition technology to display similar or related results. This helps users to search for products more easily without needing to know the exact name of the product.
- **Gesture-Based Interface:** A natural ability of humans is to use gestures and interact with objects in space. In the Lazada app, users can use gestures such as swiping, dragging, and tapping to navigate, interact, and operate on the app's interface. For example, users can swipe horizontally to navigate through product categories, drag to view detailed product images and tap on buttons to add products to the shopping cart. This leverages the natural ability of humans to interact with the digital environment and creates a comfortable and intuitive user experience.

**Drawbacks**

- In some cases, the visibility of certain information, such as shipping fees or additional charges, may not be prominently displayed, leading to potential surprises for users during the checkout process.
- The feedback button for each product card is very small, so if users use their phone with one hand, it is easy to accidentally press it and directly enter the detailed information page even if they don't intend to.

### 1.5.2 User Mental Model

**Benefits** Lazada's interface incorporates intuitive design patterns, such as standard icons for cart and search, and familiar layout conventions similar to other e-commerce platforms.

- **Search and Navigation:** Lazada provides a search bar, category browsing, and filters that align with users' mental models of finding products based on keywords or exploring specific categories.
- **Product Organization:** The platform employs clear product categorization, sorting options, and filtering features, allowing users to navigate and compare products based on their mental models of organization.
- **Cart Checkout:** Lazada's inclusion of a cart and a step-by-step checkout process aligns with users' mental models of collecting items for purchase and completing a transaction.

**Drawbacks**

- However, new users may occasionally feel overwhelmed by the vast amount of product information, promotional banners, and recommended items displayed on the homepage, potentially causing difficulties in their initial navigation and exploration of the platform.

### 1.5.3 Interaction Metaphor

**Benefits** Lazada incorporates various interaction metaphors that enhance user understanding and navigation, creating a more immersive and intuitive experience:

- **Online Marketplace:** Lazada adopts the metaphor of an online marketplace, simulating the experience of shopping in physical marketplaces. This metaphor allows users to easily grasp the concept of multiple sellers, diverse product choices, and competitive pricing. Users can explore different "stalls" (seller profiles) and "aisles" (product categories) to find desired items, mirroring the experience of browsing through a real marketplace.
- **Ratings and Reviews:** Lazada leverages the metaphor of social proof by incorporating customer ratings and reviews. This metaphor enables users to make informed decisions based on the experiences and opinions of previous buyers. By integrating reviews and ratings into the product pages, Lazada emulates the practice of seeking recommendations and feedback from other shoppers in a physical store, enhancing user confidence in their purchasing decisions.

These interaction metaphors employed by Lazada contribute to a more engaging and intuitive user experience, leveraging familiar concepts from offline shopping and leveraging social influence to aid users in their decision-making process.

**Drawbacks**

- However, one potential drawback is the presence of an abundance of promotional content and advertisements throughout the interface. While these promotions serve as a revenue source for Lazada and its sellers, they can sometimes distract users and increase the time required to find their desired products. The prominence of ads and promotional banners may divert users' attention away from their original intent, leading to a longer browsing experience or potentially hindering the efficiency of their search process.

### 1.5.4 Usability

**Benefits**

- Lazada maintains consistency in its interface elements, such as the placement of navigation menus, search bar, and cart across different pages, allowing users to develop a mental model of the system's behavior.
- Consistent labeling, icons, and color schemes contribute to a cohesive and familiar user experience.

**Drawbacks**

- Lazada offers a wide range of products and categories, which can lead to a complex navigation structure. Users may find it challenging to locate specific products or navigate through multiple layers of menus, resulting in frustration and difficulty in finding what they are looking for.
- Users may encounter occasional delays or loading issues when accessing the platform during peak times or slow network conditions. Delays and loading issues can negatively impact the overall usability of the platform. Users may become frustrated and impatient when they have to wait for pages or content to load, leading to a suboptimal user experience.

## 1.6 Different Types of Users and Possible Contexts of Difficulties and Hindrances

### 1.6.1 Inexperienced Online Shoppers

- **Context:** Users who are new to online shopping or unfamiliar with e-commerce platforms may face difficulties navigating Lazada's interface and understanding the various features.
- **Possible Difficulties:** Users who are new to online shopping or unfamiliar with e-commerce platforms may face difficulties navigating Lazada's interface and understanding the various features.
- **Hindrances:** Lack of clear instructions or tutorials for new users could impede their ability to utilize Lazada's interface optimally. Complex or overwhelming interfaces may deter them from fully exploring the platform.

### 1.6.2 Users with Limited Technological Proficiency

- **Context:** Users who have limited experience or comfort with technology may encounter challenges while using Lazada's interface.
- **Possible Difficulties:** These users may have difficulty navigating through the platform, understanding terminology, or performing tasks that require technical skills, such as managing accounts, tracking orders, or initiating returns.
- **Hindrances:** Lack of user-friendly interfaces, complex terminology, or unclear instructions can create barriers for users with limited technological proficiency. Complicated account setup or verification processes may hinder their ability to fully utilize the platform.

### 1.6.3 Users with Slow Internet Connections

- **Context:** Users who have slow or unreliable internet connections may experience difficulties while accessing Lazada's interface.
- **Possible Difficulties:** Slow loading times, unresponsive pages, or frequent connection interruptions can impede users from browsing products, completing purchases, or tracking orders efficiently.
- **Hindrances:** Heavy reliance on images, videos, or other media-rich content within the interface can significantly slow down page loading times, making it challenging for users with slow internet connections to access the platform seamlessly.

#### 1.6.4 International Users

- **Context:** Users from different countries or regions may encounter challenges related to localization and cultural differences.
- **Possible Difficulties:** Language barriers, unfamiliar currency conversions, varying product availability, or differences in shipping options can pose difficulties for international users.
- **Hindrances:** Inadequate language support, unclear currency conversion information, or limited international shipping options can hinder the user experience for international users, making it harder for them to find and purchase products.

#### 1.6.5 Users with Accessibility Needs

- **Context:** Users with disabilities or specific accessibility needs may face difficulties if the interface is not designed to accommodate their requirements.
- **Possible Difficulties:** Users with visual impairments may struggle with inaccessible screen readers or a lack of proper text alternatives for images. Users with motor disabilities may find it challenging to navigate the interface or interact with small touch targets.
- **Hindrances:** Inaccessible design, lack of proper keyboard navigation, insufficient color contrast, or non-compliance with accessibility standards can hinder users with accessibility needs from fully utilizing the platform.

**Addressing these potential difficulties and hindrances would require Lazada to prioritize user research, usability testing, and iterative design improvements. By considering the needs and challenges faced by different types of users in various contexts, Lazada can enhance its interfaces and interactions to provide a more inclusive and user-friendly experience.**

# 2 Product: Google Maps

## 2.1 Introduction

In this analysis report, we will evaluate the user interaction and experience of Google Maps, the best online mapping and navigation service in the whole world.
By applying fundamental concepts from Human-Computer Interaction (HCI), we will examine how Google Maps caters to users' needs based on human capabilities, user mental models, interaction metaphors, and usability. The objective is to gain insights into the effectiveness and usability of Google Maps' service for mapping and navigating.

**Product Name: Google Maps**
**Domain: Online mapping and navigation service**

## 2.2 The users of product

Google Maps caters to a wide range of users, including:

- **General Users:** Everyday individuals who require navigation assistance, whether they are commuting, traveling, exploring new places, or seeking local information.
- **Business Users:** Business owners who utilize Google Maps to manage their online presence, attract customers, and improve discoverability.
- **Developers:** Developers who integrate Google Maps into their applications, websites, or services to leverage its mapping and location-based functionalities.

## 2.3 Core use cases of the product

### 2.3.1 Commuting

**Context** Users rely on Google Maps for real-time traffic information, directions, and alternative routes.
**Situation** They interact with the product's interface while driving, walking, or using public transportation.
**Method** Touch Gestures, Voice Commands, Text Input, Search-suggestions

### 2.3.2 Traveling and Exploring

**Context** Users utilize Google Maps to find points of interest, plan itineraries, and discover local attractions.
**Situation** They typically interact with the product's interface while sitting or standing and may use additional features like Street View.
**Method** Touch Gestures, Voice Commands, Text Input, Search-suggestions and Auto-Complete, Contextual Interactions, Gestural Controls, Menus, and Buttons, Multi-touch Navigation

### 2.3.3 Local Search

**Context** Users search for businesses, restaurants, services, and other local information using Google Maps.
**Situation** They interact with the interface to input search queries, view results, read reviews, and access contact information
**Method** Touch Gestures, Voice Commands, Text Input, Search-suggestions

### 2.3.4 Business Management

**Context** Business owners use Google Maps' interface to manage their business listings, update information, respond to reviews, and monitor customer interactions.
**Situation** They typically interact with the product's interface while sitting or standing and may use additional features like Street View.
**Method** Touch Gestures, Voice Commands, Text Input, Search-suggestions, Contextual Interactions, Multi-touch Navigation

**Methods of User Interaction with Google Maps' Interface**

1. **Touch Gestures:** Users can interact with the Google Maps interface by using touch gestures on their mobile devices or touch-enabled screens. They can zoom in or out by pinching or spreading their fingers, pan the map by swiping their fingers across the screen, and tap on specific locations or icons to access additional information or perform actions.

2. **Voice Commands:** Google Maps supports voice interaction, allowing users to navigate the interface and perform various actions through voice commands. Users can use voice prompts to input destinations, ask for directions, or search for specific places. Voice-guided navigation also provides turn-by-turn instructions and prompts while driving.

3. **Text Input:** Users can interact with Google Maps by entering text-based queries or addresses. They can input specific locations, search for businesses, or enter keywords related to their desired destination. Text input can be performed through virtual keyboards, physical keyboards, or voice-to-text conversion.

4. **Menus and Buttons:** Google Maps' interface includes menus and buttons that allow users to access additional features, settings, or options. Users can tap on menu icons or buttons to open dropdown menus, access search filters, switch between different map layers (e.g., satellite view, traffic view), or customize map preferences.

5. **Gestural Controls:** Google Maps supports certain gestural controls that enable users to perform actions using physical movements. For example, users can shake their devices to provide feedback or report issues, tilt their devices to adjust the viewing angle in 3D mode or rotate their devices to change the map orientation.

6. **Search Suggestions and Auto-complete:** Google Maps provides search suggestions and auto-complete functionality, where users can interact by selecting from suggested search terms or addresses as they type. This feature assists users in quickly finding relevant locations and reduces the effort required for inputting complete search queries.

7. **Multi-touch Navigation:** Users can perform multi-touch gestures on the Google Maps interface, such as using two fingers to rotate the map orientation or swiping with two fingers to tilt the map view. These gestures allow for more advanced map manipulation and exploration.

8. **Contextual Interactions:** Google Maps leverages contextual interactions by providing contextual menus or information based on user actions or location. For example, when tapping on a specific place or icon, a contextual menu may appear with options like "Call," "Save," or "Share" for that location.

**These methods of user interaction enable users to navigate, explore, search, and interact with the Google Maps interface in various ways. By supporting a range of input methods, Google Maps caters to different user preferences and devices, enhancing the overall user experience.**

## 2.4 Analyzing the Benefits and Drawbacks of Product's Interface

### 2.4.1 Human Capabilities

**Benefits**

- Google Maps provides real-time traffic information, directions, and alternative routes, leveraging users' ability to make informed decisions based on current road conditions and estimated travel times.
- The interface utilizes visual representations of maps, landmarks, and icons, leveraging users' visual perception and spatial cognition for navigation and exploration.

**Drawbacks**

- Users with visual impairments or limited motor skills may encounter difficulties in interacting with the interface, as it heavily relies on visual perception and touch-based interactions.
- Some users may struggle to interpret and understand certain map elements or symbols, affecting their ability to navigate effectively.

### 2.4.2 User Mental Model

**Benefits**

- Google Maps aligns with users' mental models by representing the physical world through digital maps, incorporating familiar symbols and directions.
- The interface provides search functionalities and map-based results, supporting users' mental models of searching for local information and discovering points of interest.

**Drawbacks**

- Users may encounter situations where they struggle to understand or interpret certain map elements, causing a mismatch between their mental models and the interface.
- The complexity of traffic situations or unexpected changes may challenge users' mental models in understanding real-time updates or alternative route suggestions.

### 2.4.3 Interaction Metaphor

**Benefits**

- Users interact with the Google Maps interface through touch gestures, voice commands, and text inputs, providing a diverse range of interaction options to suit individual preferences.
- The interface combines direct manipulation (e.g., touch gestures for panning and zooming) and indirect manipulation (e.g., voice commands for search), offering users flexibility in navigating and exploring the maps.

**Drawbacks**

- Understanding and effectively utilizing both types of interactions (direct and indirect manipulation) may introduce cognitive load and confusion for some users, especially those with limited technical skills or cognitive abilities.
- Users may experience challenges in switching between different interaction modes, which can disrupt their flow of navigation or exploration.

### 2.4.4 Usability

**Benefits**

- The Google Maps interface features a clear visual design, intuitive navigation paths, and voice-guided directions, enhancing usability and ensuring a smooth navigation experience.
- Additional features such as search suggestions, auto-complete, and review aggregation improve the discoverability and efficiency of finding local information.

**Drawbacks**

- Users may encounter difficulties discovering and accessing certain features or settings, leading to suboptimal experiences and reduced usability.
- Small buttons or icons on the interface may be challenging to tap accurately, particularly when on the move or when precision is required.

**By analyzing the benefits and drawbacks of Google Maps' interface based on fundamental HCI concepts, we can identify areas for improvement and optimization. Addressing the drawbacks and building upon the strengths can enhance user interaction and experience, making Google Maps more inclusive, intuitive, and user-friendly.**

## 2.5 Different Types of Users and Possible Contexts of Difficulties and Hindrances

- **Elderly or Visually Impaired Users**
  These users may face difficulties in reading small font sizes or interpreting complex map visualizations. Google Maps' accessibility features like voice-guided navigation can help mitigate these challenges.

- **Users in Low Connectivity Areas**
  Users in areas with limited internet connectivity may face difficulties when relying on real-time updates or accessing certain features. Offline maps and limited functionality can address this issue to some extent.

- **Non-Technical Users**
  Users who are less familiar with technology may find it challenging to navigate and explore Google Maps' advanced features. Simplified user interfaces or guided tours can assist these users in understanding and utilizing the full capabilities of the application.

- **Multilingual Users**
  Users who speak languages other than the primary language of the interface may encounter difficulties in interpreting and inputting information. Providing localization options and accurate translations can enhance usability for these users.

- **Users with Physical Disabilities**
  Users with physical disabilities may face challenges in interacting with touch-based interfaces or using fine motor skills. Providing accessibility options like voice control or compatibility with assistive technologies can address these difficulties.

- **Users in Complex Urban Environments**
  Users navigating through densely populated areas or complex urban environments may encounter difficulties due to crowded map layouts, overlapping information, or inaccurate location data. Improving map visualization, highlighting key landmarks, and addressing data accuracy issues can alleviate these challenges.

- **Users with Limited Spatial Awareness**
  Individuals with limited spatial awareness may require additional guidance and visual cues to navigate effectively. Google Maps can enhance the user experience by providing clearer directions, audible prompts, and landmark references to support users with limited spatial abilities.

- **Multitasking Users**
  Users who need to use Google Maps while performing other tasks, such as driving, may face challenges in safely interacting with the interface. Implementing voice commands and minimizing distractions can help users maintain focus on their primary tasks while utilizing Google Maps.

# A Appendix

- This template is **NOT** the official template of HCMUS.