

SURVEY ON HUMAN COMPUTER INTERACTION PRINCIPLES ON SUBSCRIPTION VIDEO ON DEMAND PROVIDER

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Abstrak

Interaksi Manusia Komputer merupakan proses atau kegiatan yang dilakukan manusia dalam berinteraksi dengan komputer, yang memberikan umpan balik melalui suatu antarmuka untuk memperoleh hasil yang diharapkan. Penelitian ini bertujuan untuk membandingkan kegunaan Netflix dan Disney+ Hotstar berdasarkan pengalaman penggunaannya dengan menggunakan Human Computer Interaction Principles (HCI). User Experience digambarkan sebagai pengalaman yang berkaitan dengan reaksi, persepsi, perilaku, emosi dan pemikiran pengguna ketika menggunakan sistem. Penelitian ini akan dilakukan dengan menggunakan penelitian kuantitatif melalui User Experience Questionnaire (UEQ). Terdapat dua UEQ, yaitu digunakan untuk pengguna Netflix dan untuk pengguna Disney+ Hotstar. Sebanyak 400 responden dimana merupakan 200 pengguna Netflix dan 200 responden merupakan pengguna Disney+ Hotstar yang memberikan data untuk penelitian tersebut. Untuk memastikan kekuatan data yang dikumpulkan, uji validitas dan reliabilitas yang ketat dilakukan dengan menggunakan Paket Statistik untuk Ilmu Sosial (SPSS). Hasil analisis menunjukkan bahwa seluruh data yang diperoleh dapat dikategorikan valid atau diterima.

Kata Kunci: *Interaksi Manusia Komputer, Netflix, Disney+ Hotstar, User Experience*

Abstract

Human Computer Interaction is the processes or activities carried out by humans interacting with computers, which provide feedback through an interface to obtain expected results. This research is to compare the usability of Netflix and Disney+ Hotstar based on its user experience by using the Human Computer Interaction Principles (HCI). User Experience is described as experiences related to reactions, perceptions, behaviors, emotions and thoughts of users when using the system. This research will be conducted by using quantitative research through User Experience Questionnaire (UEQ). There are two UEQ, one for Netflix's users and one for Disney+ Hotstar users. A total of 400 respondents, who were 200 Netflix users, and a total of 200 respondents, who were Disney+ Hotstar users, provided data for the study. To ensure the robustness of the collected data, rigorous validity and reliability tests were conducted using the Statistical Package for the Social Sciences (SPSS). The results of the analysis show that all data that has been obtained can be categorized as valid or accepted.

Keywords: *Human Computer Interaction, Netflix, Disney+ Hotstar, User Experience*

1. INTRODUCTION

The existence of television has played a significant role in people's entertainment lifestyle. Through television, people can access programs such as news, education, information, and television shows. Massive access to information from broadcast on television always appeases its users, starting from children to elders. Therefore, these programs had become a part of the people's life. Things started to change when the internet came into people's lives and introduced services that allow people to access television programs from anytime and anywhere. One of the internet services is a streaming platform that is also known as Subscription Video on Demand (SVOD) [1]. SVOD is a service that provides video entertainment where users can choose within a range of programs such as drama, serial, movies,

reality show and etcetera whenever they want to. It is also based on the Over The Top service where users are obligated to have a membership to access it within a certain period [1].

SVOD services in Indonesia are very diverse, in the first quartile of 2021 several SVODs are dominating in the Indonesia's market. These platforms are Netflix, Disney+ Hotstar, Viu, WeTV, and iQIYI. Among all SVODs in Indonesia, Netflix and Disney+ Hotstar have the largest growth in new subscribers [3]. Netflix has led 40% share of consumption in Share Premium Video Streaming among South East Asia countries. It's driven by the broad enthrallment internationally. The massive and escalative use of Netflix in Indonesia has been anticipated by the Ministry of Communications and Informatics as an extension of the Indonesian regulator / government [4]. One of Netflix's competitors, Disney+ Hotstar, has been growing rapidly during the pandemic. There are many users on this platform, Indonesia itself has 2.5 million users per 16 January 2021. Disney + Hotstar focuses on films from Marvel, Disney, Pixar, as well as exclusive films, drama, and shows from several countries, including Indonesia [5]. Therefore, Netflix and Disney+ Hotstar are the chosen platforms that will be discussed in this research.

Human Computer Interaction is the processes or activities carried out by humans interacting with computers, which provide feedback through an interface to obtain expected results. HCI developed as a discipline that discusses relationships between human-computers and the effects that occurred [6]. The key of HCI is usability, which means the system should be easy to use, provide security to the user, and easy to learn [7]. Jakob Nielsen stated that usability is an essential condition in order for a system to survive. If a system is not easy to use, it will influence the user's decision to use the system or not [8].

This research is to compare the usability of Netflix and Disney+ Hotstar based on its user experience by using the Human Computer Interaction Principles (HCI). User Experience is described as experiences related to reactions, perceptions, behaviors, emotions and thoughts of users when using the system. UX also serves in an effort to give a good initial impression to potential users and be able to compete with other competitors [9]. To compare various aspects from both platforms, this research uses Jakob Nielsen's usability heuristics for HCI. The use of Heuristic Evaluation is more related to providing feedback from application users that focuses on how well the interface meets the needs and preferences of the user [10]. We will provide two sets of User Experience Questionnaires (UEQ), each for Netflix and Disney+ Hotstar to users to choose based on their own preference.

Based on the research background above, we are eager to conduct research entitled "Survey on Human Computer Interaction Principles on Subscription Video on Demand Provider".

2. RESEARCH METODOLOGY

The population of this research is users of Subscription Video on Demand (SVOD), who are mainly users of Netflix or Disney+ Hotstar. This research will be conducted by using quantitative research through User Experience Questionnaire (UEQ). There are two UEQ, one for Netflix's users and one for Disney+ Hotstar users. Both UEQ will be distributed as a form of survey at the same time. In this research, we will use 200 respondents targeted to Netflix's users and 200 respondents targeted to Disney+ Hotstar's users. The UEQ will be in a closed-ended questions, which means that the respondent is given limited options so that respondents can choose one of the alternative answers. Every option is scored using the Likert scale with five points. Besides that, we will test its validity and reliability using Cronbach's Alpha formula with SPSS. Validity test result is based on statistical measures by setting the α level of 5%. If the value of r is >0.5 , meaning that the item is count as valid. The result of the reliability test can be seen from Cronbach's Alpha value. Cronbach's Alpha value between 0.60 and 0.80 means that the value is moderate and acceptable. In addition to that, we will also compare the results of both UEQ collected data in order to know comparison of Netflix and Disney+ Hotstar acceptability.

2.1. Research Flow

The flow is research will be displayed in Figure 1.

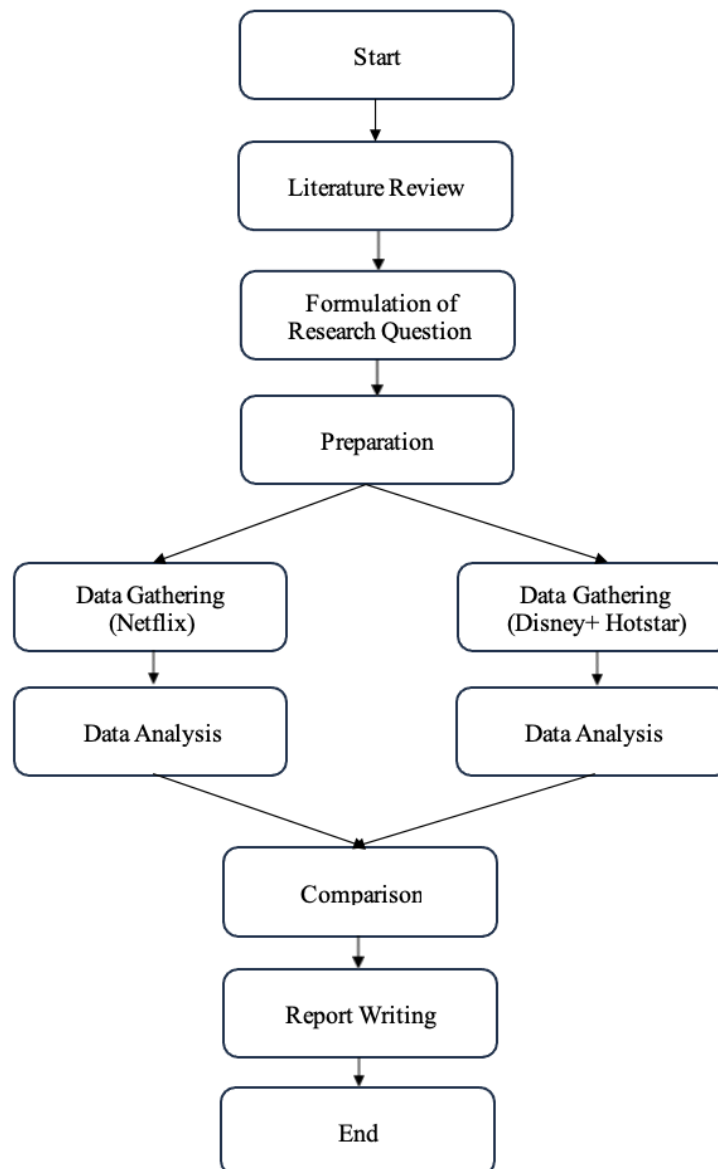


Figure 1. Research Flow

This research begins with a literature review in which we review references related to the research topic. Reviewed references are collected to provide solution and answer to the problems that have been formulated in research problems. As this research use User Experience Questionnaire as its data collection method, we will construct questionnaire that will be distribute to Netflix's and Disney+ Hotstar's users at the same time. Gathered data will be analyzed, compared, and compiled in the form of a written report

3. RESULTS AND DISCUSSION

3.1 Descriptive Statistics

A total of 400 respondents, who were 200 Netflix users, and a total of 200 respondents, who were Disney+ Hotstar users, provided data for the study. This survey was distributed online, targeting users of Netflix and Disney+ Hotstar. To ensure the robustness of the collected data, rigorous validity

and reliability tests were conducted using the Statistical Package for the Social Sciences (SPSS). These results provide the understanding of how reliable and trustworthy the survey is and the insights it provides. Based on the results of the validity test and reliability test of the 10 variables with 28 questions are as follows:

Table 1. Validity and Reliability Test Results of Netflix Data

Questions	Person Correlation	Cronbach's Alpha	Description
V1	.733**	0.953986611	Valid
V2	.700**	0.954301965	Valid
V3	.675**	0.954534275	Valid
M1	.585**	0.955454852	Valid
M2	.692**	0.954381327	Valid
M3	.636**	0.954954021	Valid
U1	.744**	0.953896955	Valid
U2	.674**	0.954559368	Valid
U3	.613**	0.955192197	Valid
C1	.736**	0.953980453	Valid
C2	.395**	0.95761841	Valid
C3	.704**	0.954265772	Valid
E1	.714**	0.954163684	Valid
E2	.763**	0.953706254	Valid
R1	.655**	0.954733093	Valid
R2	.743**	0.953906082	Valid
R3	.719**	0.954114427	Valid
F1	.726**	0.954074439	Valid
F2	.728**	0.954055182	Valid
F3	.642**	0.954920082	Valid
A1	.661**	0.954664124	Valid
A2	.744**	0.953890314	Valid
A3	.471**	0.956918057	Valid
HE1	.740**	0.953930398	Valid
HE2	.707**	0.95425378	Valid
HD1	.677**	0.954515167	Valid
HD2	.749**	0.953855128	Valid
HD3	.769**	0.953737292	Valid

Source: Processed Data by SPSS (2023)

Table 2. Validity and Reliability Test Results of Disney+ Hotstar Data

Questions	Person Correlation	Cronbach's Alpha	Description
V1	.644**	0.911911014	Valid
V2	.534**	0.913863684	Valid
V3	.639**	0.912092237	Valid
M1	.345**	0.916897468	Valid
M2	.563**	0.913331746	Valid
M3	.453**	0.915178767	Valid
U1	.649**	0.911989491	Valid
U2	.516**	0.914050237	Valid
U3	.656**	0.911706877	Valid
C1	.541**	0.913743849	Valid
C2	.393**	0.917299608	Valid
C3	.588**	0.912927205	Valid
E1	.602**	0.912674679	Valid
E2	.590**	0.912872568	Valid
R1	.614**	0.912479609	Valid
R2	.665**	0.911675789	Valid
R3	.608**	0.912557301	Valid
F1	.574**	0.913142046	Valid
F2	.637**	0.912142493	Valid
F3	.469**	0.914898267	Valid
A1	.536**	0.914036345	Valid
A2	.563**	0.913323712	Valid
A3	.274**	0.919605649	Valid
HE1	.582**	0.913015708	Valid
HE2	.659**	0.911734001	Valid
HD1	.563**	0.913443097	Valid
HD2	.582**	0.913024332	Valid
HD3	.649**	0.911903535	Valid

Source: Processed Data by SPSS (2023)

Based on the analysis of the data collected from the two questionnaires that have been conducted, we have run validity and reliability tests using the SPSS application. The results of the analysis show that all data that has been obtained can be categorized as valid. Based on the r table value, we determined that the minimum validity value is 0.138. Our validity test results show that all variables have validity values that are not smaller than 0.138, thus meeting the set validity standards. In addition, based on the Cronbach's alpha value, our reliability test results exceed 0.6, which indicates a high level of consistency between the questions in the questionnaire. Thus, the data we collected is reliable and relevant to be used in further analysis.

3.2 Results of Netflix Qualitative Survey Distributin

By proposing five specially designed questions, the qualitative research allowed Netflix and Disney+ Hotstar users to describe in detail their experiences, including usability issues they encountered, their preferences regarding the user experience and user interface, as well as their feelings while interacting with the apps. The results of these questions will provide valuable insights into how users actually interact with these apps. The following is an explanation of the results of distributing questionnaires with the application of qualitative methods of Netflix user experiences and user interfaces based on 10 principles:

1. How does the system ensure users are informed about the situation through feedback messages and offer solutions to potential problems? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
 - Through the Top Picks feature, Netflix offers feedback messages with content recommendations to enhance the user experience. An example of such a statement can be seen in Figure 2, In the "Top Picks" panel, users have the ability to curate whether the top picks are relevant to their preferences.

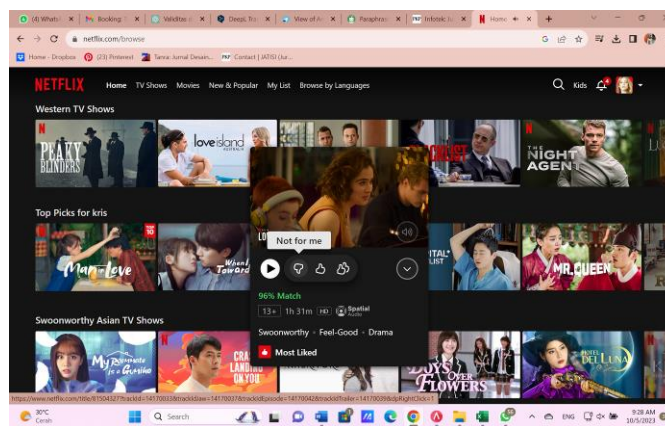


Figure 2 "Top Picks" Feature on Netflix

- "Because you watched" feature on Netflix makes sure I'm aware of similar content and offers solutions for further exploration.
- There is a "Trending Now" section to keep me informed of trending movies/dramas.
- Through "Continue Watching", I can know that the episode is over and I can choose to continue my watching.
- Netflix uses feedback messages to inform me about upcoming releases. An example of such a statement can be seen in Figure 3, when new shows are released, users are allowed to set up Netflix notifications to receive alerts when the new show becomes available.

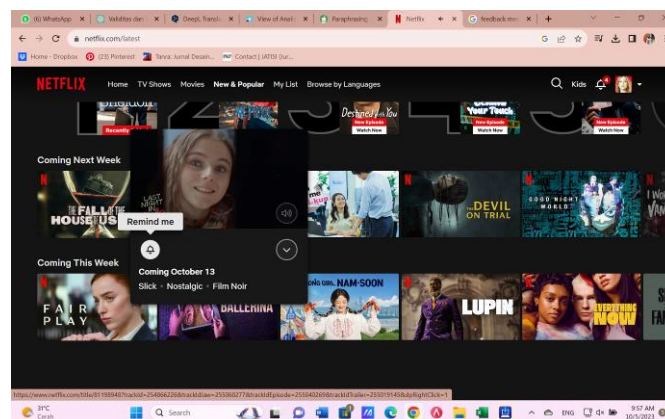


Figure 3 "Coming This Week" feature on Netflix

2. How does the system create suitable interactions with users through easy-to-understand terms and concepts and provide control and freedom, including the possibility to undo actions and prevent mistakes? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
 - Yes, I can easily find the cancel button on Netflix.
 - Netflix provides a user-friendly interface with clearly labeled buttons and menus for easy navigation.
 - Through the "My List" feature, Netflix lets me curate their own content library for easy access and personalization. An example of such a statement can be seen in Figure 4, in "My List" users are able to remove shows or movies that aren't relevant to their preferences.

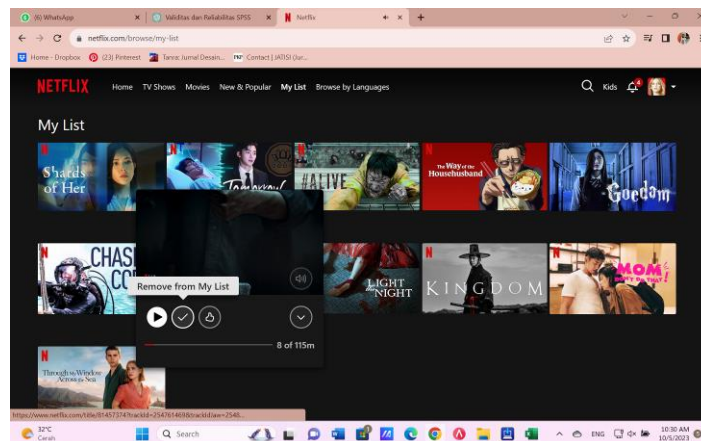


Figure 4 "My List" on Netflix

- I can set different types of languages for subtitles on Netflix.
 - I can control over my viewing experience with Netflix's "Skip Intro" and "Next Episode" features.
3. How does the system maintain interface consistency according to standards, while considering user-level variations? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
 - By updating every movie search that has been released. An example of such a statement can be seen in Figure 5, when users search for shows using specific keywords, related shows or movies appear, along with the "Recently Added" and "New Episode" label to inform users that they are newly added to Netflix.

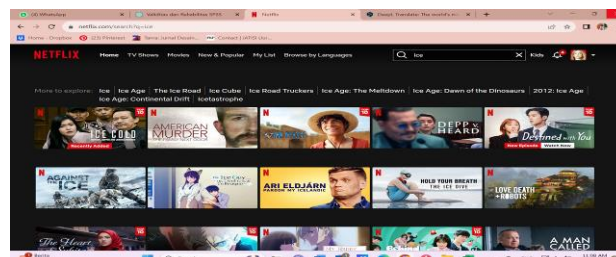


Figure 5 "Recently Added" and "New Episode" feature on Netflix

- Although there are many movies/dramas on Netflix, the app sorts them well. An example of such a statement can be seen in Figure 6, there are numerous shows from around the world, and one example is Netflix categorizing them based on their country of origin.

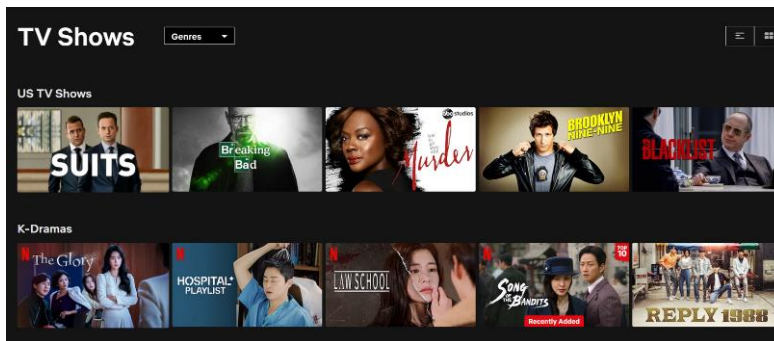


Figure 6 Categorized Shows on Netflix

- Netflix offers a consistent search function while personalizing content recommendations. An example of such a statement can be seen in Figure 7, when users search for "Modern Family" on Netflix and find that the show is not available, Netflix responds by recommending similar shows to meet their viewing preferences.

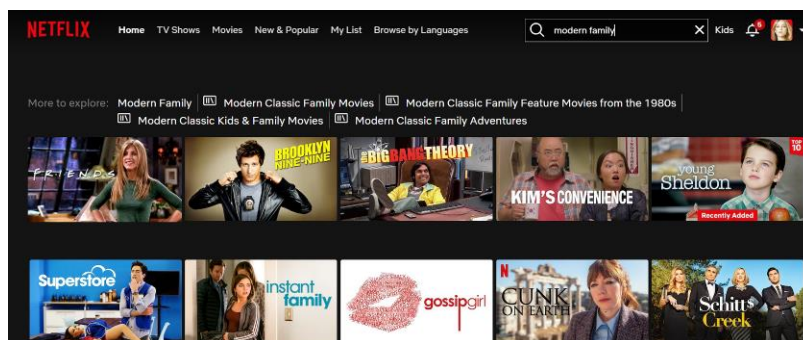


Figure 7 Search Results on Netflix

- Netflix maintains consistency through recognizable layout patterns.
- Netflix remain consistent when we use different screen from large monitor like TV to smartphone screen.

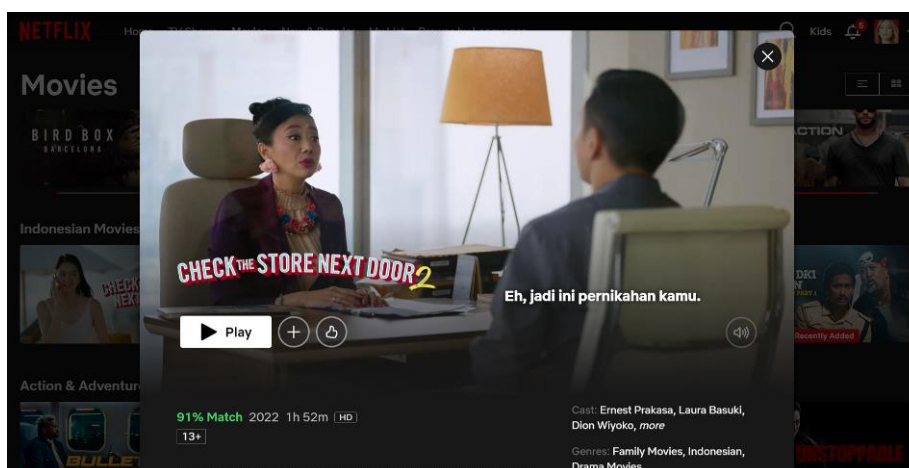


Figure 8 Netflix on Larger Screen

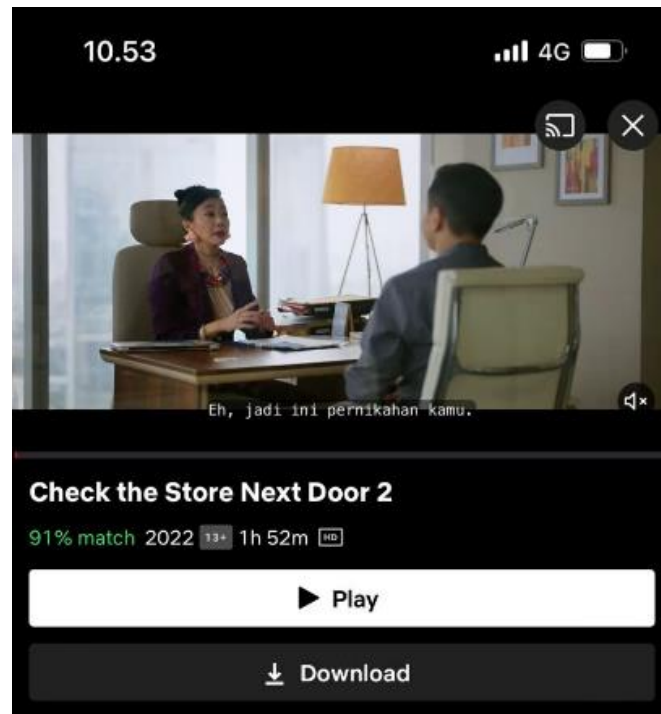


Figure 9 Netflix on Smaller Screen

4. How does the system anticipate and handle errors, including the presentation of error messages with clear language and suggested workarounds? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
 - Netflix guided me through the password reset process, addressing account security concerns. An example of such a statement can be seen in Figures 10 and 11. When users encounter issues signing in, whether due to a forgotten password or email, they can click on the 'Need Help' option and proceed to the email and password recovery page

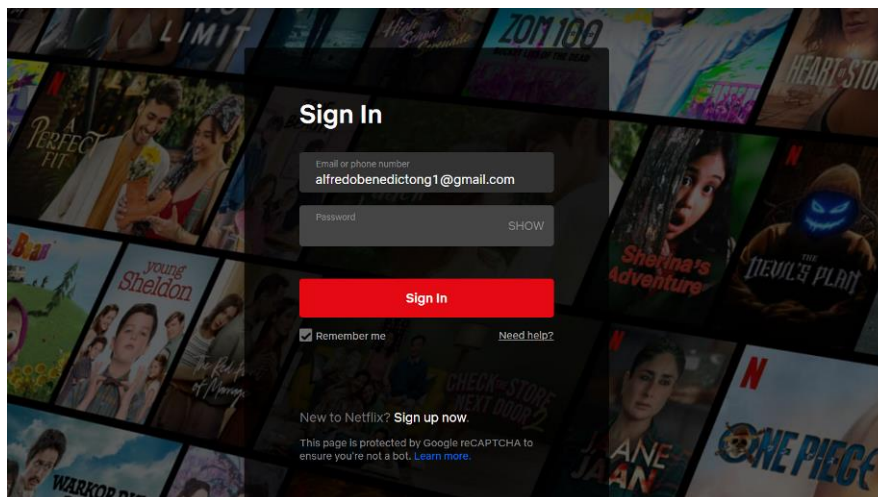


Figure 10 Netflix Sign In Page

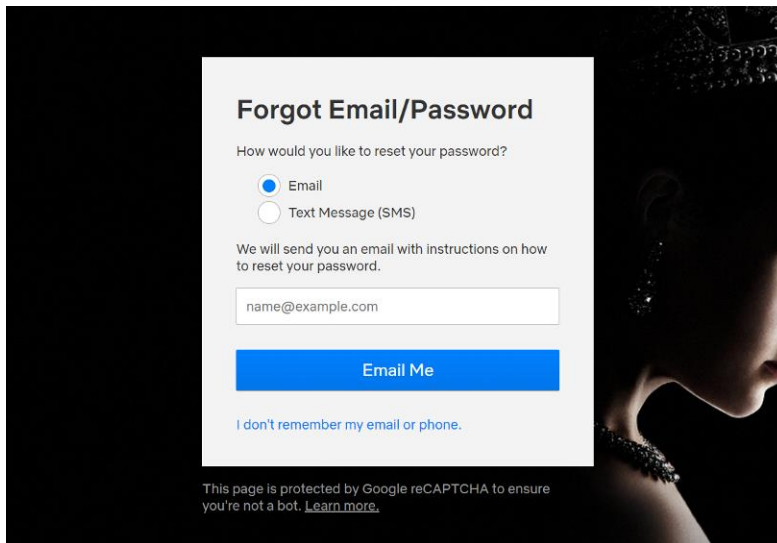


Figure 11 Netflix Forgot Email/Password Page

- When it crashed, I didn't feel confused because there was clear information available.
- When I realized I'd opened the wrong episode while watching, I could easily change episodes.
- I experience smooth content download and effective content download management.
- The solution provided by Netflix used simple language. An example of such a statement can be seen in Figure 12, Netflix ensures that the solutions and steps are articulated using non-technical terminology, thereby enabling individuals from diverse backgrounds to easily comprehend and follow them

Netflix says, 'This app is not compatible with your device.'

When trying to download the Netflix app, this message may appear on your Android phone or tablet:

This app is not compatible with your device.

This message usually means your device can't get the Netflix app from the Google Play Store because it isn't Play Protect certified.

To fix the problem:

Check your device's Play Protect status

1. Open the **Play Store** app.
2. In the upper right, tap your **Profile** icon.
3. Tap **Settings > About**.
4. Under **Play Protect certification**, check your device's certification status.

Figure 12 Help Center on Netflix

5. How does the system provide help and guidance to guide users in understanding and using the system effectively? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
 - When users sign up for Netflix, they are provided with a tutorial to help them choose a genre, and then there is a help center, customer support, and FAQ section available to provide further assistance when encountering issues.
 - Netflix provides guidance on using parental controls to restrict content for children, ensuring a safe viewing environment.

- As users scroll through Netflix in search of the right show or movie, the ‘More Info’ button proves to be very helpful.
- I can easily log out of devices that I no longer use
- Netflix offers a live chat or online support service where users can communicate directly with agents.

3.3 Results of Disney+ Hotstar Qualitative Survey Distributin

The following is an explanation of the results of distributing questionnaires with the application of qualitative methods of Disney+ Hotstar user experiences and user interfaces based on 10 principles:

1. How does the system ensure users are informed about the situation through feedback messages and offer solutions to potential problems? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
 - By providing feedback messages and contacting users via email.
 - There is a customer satisfaction survey to collect feedback on their experience.
 - Disney+ allows users to submit their issues through a form, where they can also attach files or images to provide additional information
 - Providing a help center or FAQ with relevant information
 - Using simple language to state error issues. An example of such a statement can be seen in Figure 13, Disney+ Hotstar provides simple, step-by-step guidance to help users when errors happen, making it easy to troubleshoot and enjoy their favorite content.

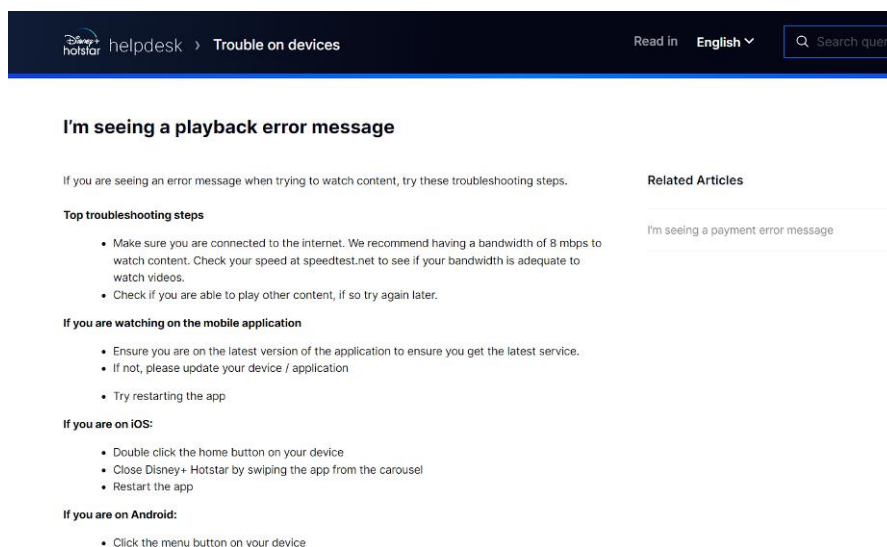


Figure 13 Disney+ Hotstar Helpdesk Articles

2. How does the system create suitable interactions with users through easy-to-understand terms and concepts and provide control and freedom, including the possibility to undo actions and prevent mistakes? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
 - It uses an intuitive user interface with clear icons and wording. An example of such a statement can be seen in Figure 14, in the “Help & Settings” page, the icons are designed for easy recognition, are closely related to their respective functions, and include short explanations of what users can control. Additionally, these icons have accessible buttons for user convenience.

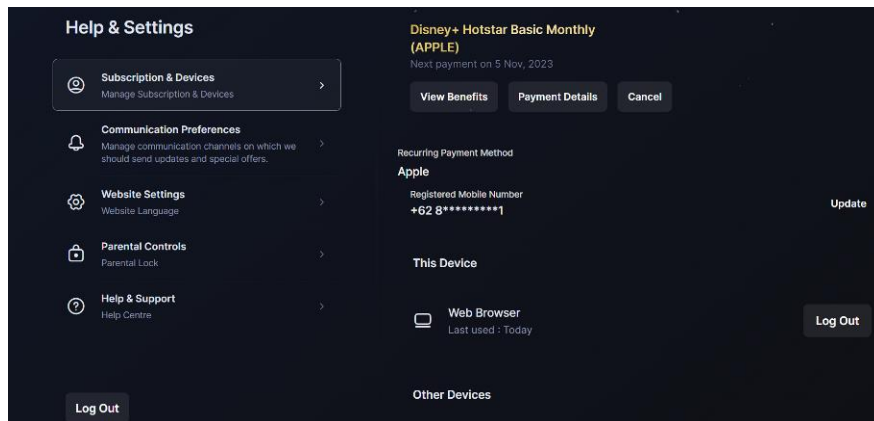


Figure 14 Disney+ Hotstar Helpdesk Articles

- Disney+ Hotstar has a main homepage with production company options like Disney, Marvel, Pixar, and etc. Allowing users to easily choose their preferred content category.
 - Provides a "Back" or "Cancel" option to avoid unwanted actions. Allow users to change language preferences.
 - When creating an account, the app helps users not to fill in the wrong information.
3. How does the system maintain interface consistency according to standards, while considering user-level variations? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
- In my opinion, the Disney+ interface is very consistent, but on the other hand they also give users access to personalize their profiles so as to take into account user variations.
 - Using a uniform visual style across platforms or apps. This statement can be observed in Figure 15 and 16, where the pages for series and movies share the same design.

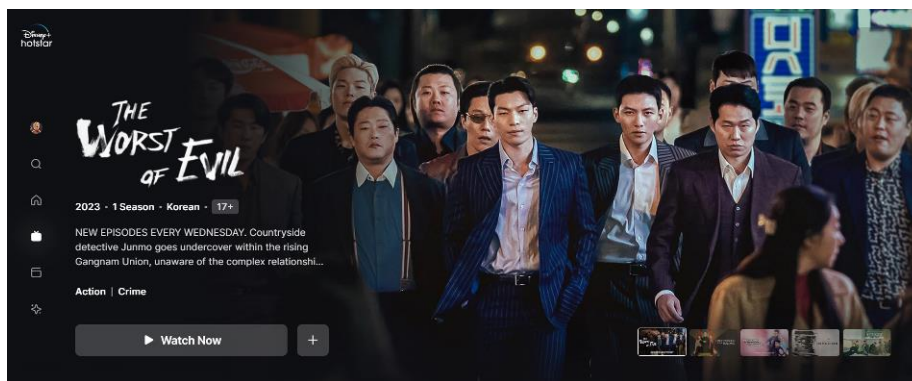


Figure 15 Disney+ Hotstar 'Series' Page

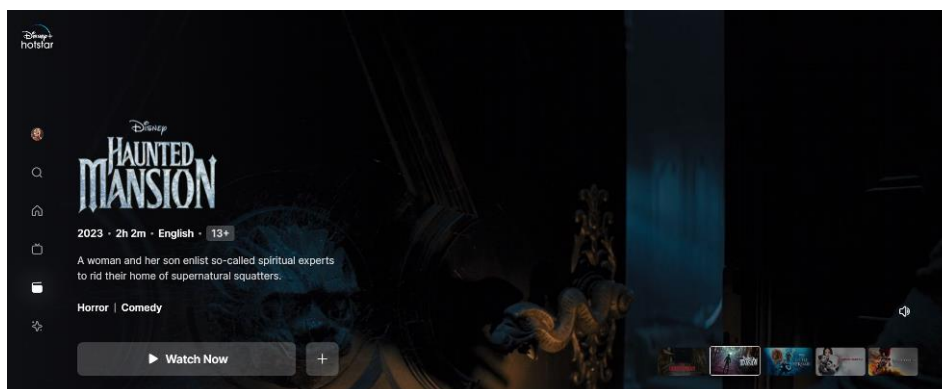


Figure 16 Disney+ Hotstar 'Movies' Page

- By providing accurate results from users searching for.
 - The application recognized my last watched episode number.
 - Recommending movies that are in the same genre as the user's watched movies.
4. How does the system anticipate and handle errors, including the presentation of error messages with clear language and suggested workarounds? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
- As a new use, Disney+ Hotstar offers me content in my preferred language, which it personalizes to my liking.
 - Disney+ guides me on how to solve common problems.
 - Using prominent colors or icons to flag errors.
 - Through FAQs, tutorials, and in-app tips, users are equipped with the knowledge to prevent or address common issues, contributing to a smoother viewing experience.
 - Using pop-ups or contextual messages to notify users of errors. An example can be found in Figure 17, where if users encounter connection problems on their devices, Disney+ Hotstar displays a message to inform them about the issue.

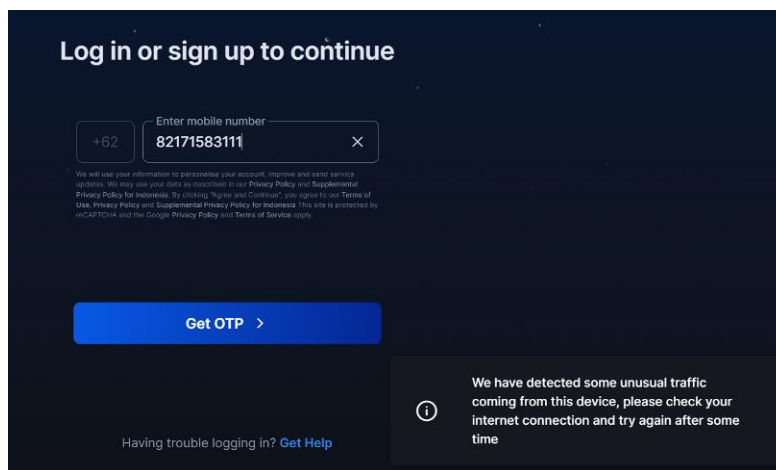


Figure 17 Disney+ Hotstar Login Page

5. How does the system provide help and guidance to guide users in understanding and using the system effectively? In the initial statement of the qualitative questions, encapsulated in five feedbacks, users commonly conveyed that:
- Include questions categories that answer common user questions.
 - Disney+ offers communication preferences where users can choose to receive updates and special offers from the application
 - Parents can set PINs to restrict access to certain content.
 - The system provides guidance and related articles that is easy to understand
 - Disney+ Hotstar allows users to choose the type of content ratings they want to be discoverable during the account creation process

3.4 Discussion

This study focuses on the usability of two SVODs, which are Netflix and Disney+ Hotstar. It employs mixed method analysis, quantitative and qualitative analysis, and ten principles of Human Computer Interaction by Jakob Nielsen. Several research studies by (Sari et al., 2021) (Maulani & Suprpto, 2021) (Yolanovia & Indriyanti, 2021) (Diniz et al., 2022) and (Sukmasetya et al., 2020) are discussed, each focusing on evaluating various academic systems or websites for usability. Based on previous data analysis of various usability metrics for Netflix and Disney+ Hotstar, it is evident that the two platforms exhibit slight differences in their user experiences. Netflix and Disney+ Hotstar have similar average ratings for several metrics: "Consistency and Standards" (Netflix: 3.61, Disney+ Hotstar: 3.55), "Error Prevention" (Netflix: 3.75, Disney+ Hotstar: 3.66), "Recognition Rather than

Recall" (Netflix: 3.88, Disney+ Hotstar: 3.77), "Flexibility and Efficiency of Use" (Netflix: 3.77, Disney+ Hotstar: 3.67), and "Aesthetics and Minimalist Design" (Netflix: 3.44, Disney+ Hotstar: 3.53). Netflix has a slightly higher average rating (3.84) for "Visibility of The System Status" compared to Disney+ Hotstar (3.87). Similarly, Netflix scores higher in "User Control and Freedom" (3.80) compared to Disney+ Hotstar (3.70). However, Disney+ Hotstar outperforms Netflix in "Match Between System and The Real World" with an average rating of 3.57, while Netflix scores 3.78.

4. CONCLUSION

Based on the results of the research that has been carried out, we can conclude as given the researchers used different methods such as User Experience Questionnaire (UEQ), Heuristic Walkthrough, Usability Testing, and qualitative analysis through ten principles of HCI by Jakob Nielsen to assess and identify usability issues in these systems and websites. This study focuses on the usability of two SVODs, which are Netflix and Disney+ Hotstar. It employs mixed method analysis, quantitative and qualitative analysis, and ten principles of Human Computer Interaction by Jakob Nielsen. Through qualitative research involving Netflix and Disney+ Hotstar users, their experiences and preferences regarding the user experience and interface are examined. Regarding Netflix, it's noted that the platform offers feedback messages through features like "Top Picks," "Because you watched," "Trending Now," "Continue Watching," and "Coming This Week." The system is considered user-friendly with clear navigation and controls, including "My List" for content curation and language customization. Consistency in layout and search, anticipating and addressing errors, and providing help through tutorials and support are also highlighted. Disney+ Hotstar, on the other hand, relies on feedback messages, customer surveys, and user issue submissions. It's praised for its intuitive interface, personalization, and language options, as well as providing "Back" and "Cancel" functions to prevent errors. Interface consistency, anticipating and handling errors, and guidance for content ratings and preferences are also key features. In sum, Netflix excels in visibility and consistency but slightly lags in matching real-world expectations. Disney+ Hotstar prioritizes personalization and error handling while maintaining a consistent and user-friendly interface.

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