

Analysis of Failed Business Products – The HCI Perspective

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Abstract: Most of the leading companies have increased their success through the growing use of HCI methods to avoid wasting precious investment money from failed deployments of inferior technologies and to generate new revenue by identifying under-served needs and then envisioning, designing, and testing innovative products and services that fulfill the under-served needs effectively. Our work aims at Analyzing and Improving various systems where failure to implement principles of HCI leads to failure of the overall business product like Google wave, Google Plus, Google catalogs. The methodology that we followed is collecting various real-time examples where business products failed due to lack of user satisfaction, analyzing these case studies based on HCI principles, and trying to provide an effective solution to make the system more usable.

Keywords: User Satisfaction, Design Principles, Cognitive Science, Useful systems, safety-critical systems, design flaw impact, software defects, root causes.

I. INTRODUCTION

In today's world, various technologies and computer systems are evolving at a rapid rate and Users have millions of options to choose from according to their needs. Research on Human-Computer Interaction (HCI) mostly focuses on the relationship between technological and human behavioural aspects, hence including HCI principles while designing any interface or product will certainly help attend maximize user satisfaction.

II. CASE STUDIES AND ANALYSIS

A. Google Plus

Google+ was the company's fourth try at creating its own social network to rival giants like Facebook and Twitter. Its previous networks – Orkut (2004-2014), Friend Connect (2008-2012), and Buzz (2010-2011) – had far less success than Google had anticipated. Google+ was no different from any other social media platform, however, it did provide some interesting original features to go with traditional. Just like any other social media platform, users could easily create their profiles and customize them. Users could also invite friends, share different media with them and follow with what their contacts aka friends are up to. There were options to create groups as non-individual entities which can be followed by users with similar interests. This also helped businesses, bands, influencers, etc., set up a simple page and connect with their customers or fans. The new feature/concept that was introduced is "Circles". It was a simple drag-and-drop feature that allowed people to segregate their friends into different groups which would help them manage what content could be shared with each different group aka circle. The Circles would allow users to share the content based on whether it was hobby or work-related, supposed

to be seen just by friends or limited to the family, and many more. If the content is set to private it would be shared with everyone. However, it was very confusing to put people in the circle and get them out of the circle once you put them inside, and people also did not know what they were sharing with their circles. The settings were very confusing, and therefore, the concept of circles, though it was great, did not work very well, as even sharing posts and images was complicated. The answer to why Google+ failed could be attributed to its clumsy user interface, the user experience of the product itself, and its failure to understand the customer's wants and needs. It failed to build an emotional connection between the platform and its users. It was supposed to do everything simultaneously, but people did not want to do that. Google+ had a very complex design with complex functionalities too. The terminology "Sparks" was used to explain these features and it was still confusing to people. Google+ had a UI that included a complex design and wasn't easy to navigate. In today's era, the key to growing business online is mobile app development. Google+ failed to have a strong mobile presence. Google's focus at the time of its establishment was on its users, not the general public.

The predominant feeling of this product was that user research was done for internal employees and then put out for the users and the product was a google-centered design. According to one statistic, '90 perc. of user sessions on Google+ were less than 5 seconds for the social network.'^[1] This tells a story that Google+ has failed to understand users' needs and wants, and this is where user-centered design could have helped a lot. Google announced the decision to shut down the consumer's version of Google+ in October 2018. The reason for the same was stated to be – "low usage and challenges involved in maintaining a successful product that meets consumer's expectations." The Workspace version was kept active and later morphed into Google Currents. Google+ had a pretty good interface and some very cool features, However, most users have found them a bit too complicated. From this, we understand that only robust technology may not work for social platforms. A platform also needs to understand the user's behaviours, wants, and needs, and it also needs to cater to the user's experience.

B. Google Waves

Wave didn't launch as an MVP and was filled with lots of features that Google assumed people wanted. It was a complex product that required an investment of a user's time just to understand how it worked. It was once envisioned that Google Wave would be reinventing email, combining regular email with instant messaging and social media. Despite the immense hype surrounding Google Wave, many users found it too challenging and Google Wave fell flat. The promise was that Google Wave will redefine online communications. It would replace email. It would elevate our ability to connect with each other, and for the community to have an impact on society – whether it's solving serious social issues, fixing journalism, or whatever the expectations that Google had set were way too high. One of the main problems with Wave was that hardly anyone knew what Wave was or what to do with it. With barely any introduction of Wave concepts to the general public, next to no marketing, and no specific commercial targeting, this product was practically set up for failure. It was buggy, and the user interface was poorly-designed and bothersome to use. Users got tired of explaining to their colleagues and friends how Wave worked and how to use basic features. There was no notification system originally unless you installed a plug-in. For a collaborative app not notifying users is a big no-no. Once you did add someone to a wave, you could not remove them. For a collaborative app to have trouble adding users is again a serious problem, the app was invite-only, and users always complained about never having anyone else to Wave with. Google Wave was initially started to answer a simple question: "What would

email look like if it were invented today?” However, it was unable to meet even its short-term goals, with Google releasing a statement after only 50 days stating that “Wave has not seen the user adoption we would have liked.” Solution - Google could have trimmed the app down and allowed for integrating functions as needed to help improve Wave.

C. Google Catalogs

Google Catalogs was an e-commerce website that would work on tablet computers, and not all search features in Catalogs were supported. For instance, searching by price with the numeric range operator, like \$500 to \$1000, would be useful in a catalog search. But that operator was, developed after Catalogs.

UX Analysis: The catalogs on this application were nothing but several product categories. After choosing a product category users could choose a specific catalog. This would take them to the cover page of the catalog that they have chosen. Tapping on the “hotspots” for the products which they are interested in would link them to the merchant’s website for purchase. Users could click on a product of interest and a pop-up describing all the details such as price, description, images, and title of the product appeared for reference to the user. This pop-up was the sheet that users could share with other people via email. People can even buy products offline and a ‘Find nearby’ option was provided for getting the location of the store.

UI Analysis: In the earlier versions of this application, users were able to send product information and images to anyone with an email address, regardless of whether the person was using the application or not. Users were capable of building collages of their favourite products across catalogs on their Android-powered tablets or iPads. Additionally, users can build public collages that could be watched by anybody with the application. Once users had created a collage, they could share these with friends, in the same way, they could share product information and images.

Generating Revenues: Participating merchants were not required to pay any fees for their catalogs to be included in this application. Along with this, Users were not expected to pay to look through the collection of catalogs available on the app. They, however, should have a Gmail account to log in and save their favourites in mobile/tablet applications.

III. DETAILED ANALYSIS AND PROPOSED PROTOTYPE FOR GOOGLE CATALOGS

A. Design guidelines:

According to human-computer interaction, usability is the major factor that affects the user experience. Gone are the days of GeoCities sites with their hardcoded, never-changing HTML. Sites and apps today are dynamic and interactive. Our job as designers is to make it so that the interface through which they interact with our web UI design is as close to ideal as possible. Luckily, some nearly universal rules can help. We have put together what we think are the best design principles so that future web design projects can be enhanced.

- P1. Make everything the user needs readily accessible.
- P2. Add appropriate images/icons wherever necessary.
- P3. Give informative feedback.
- P4. Use recognition, not recall.

- P5. Keep things as simple as possible.
- P6. Support internal locus of control.
- P7. Reduce cognitive load.
- P8. Maintain consistency throughout the design.
- P9. Shorten the messages.
- P10. Check the button's placement.
- P11. Avoid visual complexity.

B. Design flaws for Google Catalogs:

Home page

- 1. Lack of visual images.
- 2. Unorganized categories.
- 3. Cart functioning is missing.

Item view page

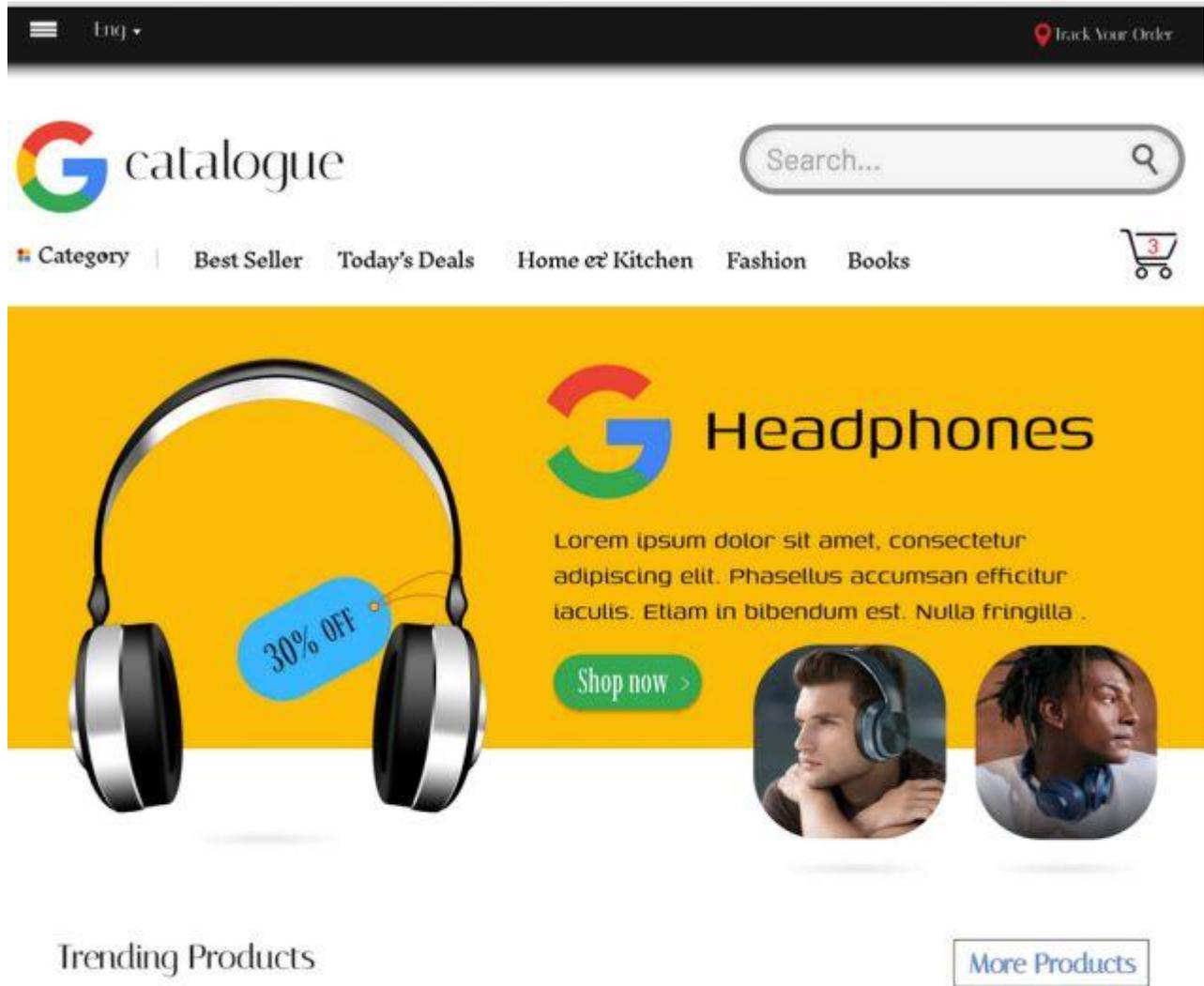
- 4. Checkbox and sorting features are unavailable.
- 5. A lot of information is in one place.
- 6. Hard to recognize the price of certain objects.
- 7. Comparison feature is unavailable.
- 8. Shearing feature is not available.
- 9. The positioning of the most important features is worse.
- 10. Unnecessary Zoom In and Zoom Out features.
- 11. Options with no label.
- 12. No Constructive feedback was given by the system.



3.1. Screenshot of the Home page for Google Catalogs.^[2]

C. Solutions with our guidelines

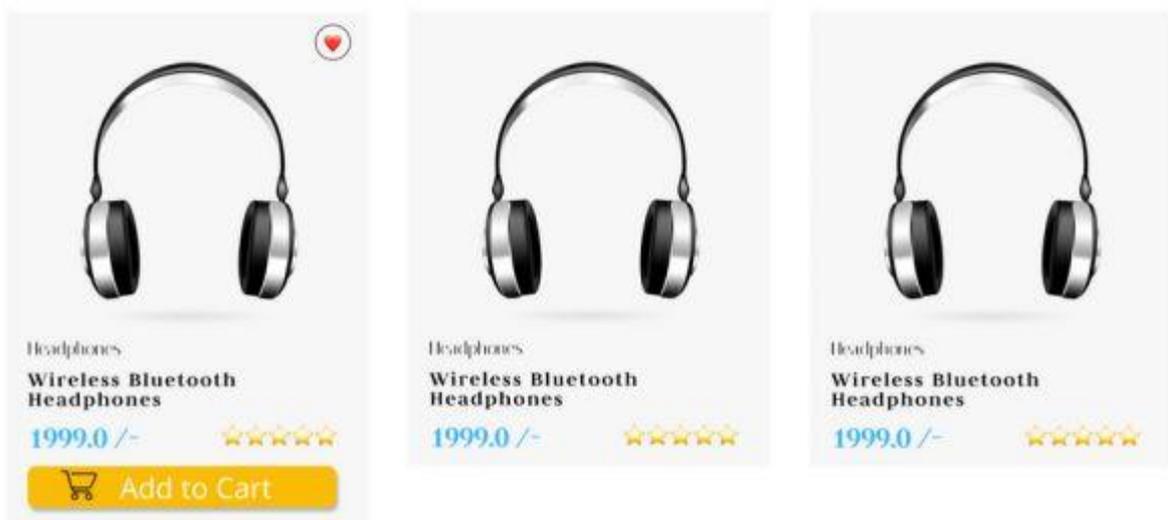
- Adding more images for the categorization of items. -P2, P4.
- Organize all options on one side of the screen. -P6, P8, P10.
- Adding a kart feature with several items selected. -P1, P4.
- Adding more filtering features. -P6.
- Reduce the amount of information in a visual format or well-organized manner. -P9.
- Keep the price aside from the image of the product and make it highlighted. -P11, P5.
- Make sure the user is able to compare products easily. -P6, P7.
- Adding sharing options or providing a hyperlink to the product. -P6.
- Keep all important features button handy and simple. -P10, P8.
- Don't create redundant options with the same functionality (except shortcut keys). -P7.
- Add options with proper labelling or add a relevant image for that option. -P4.
- Provide feature feedback for each product. -P3.
- Provide options for saving products for future use. -P4, P6, P8.



The header features a navigation menu with 'ENQ' and a 'Track Your Order' link. Below is the 'G catalogue' logo and a search bar. A category menu includes 'Category', 'Best Seller', 'Today's Deals', 'Home & Kitchen', 'Fashion', and 'Books', alongside a shopping cart icon with '3' items. The main banner is yellow and features a large image of headphones with a '30% OFF' tag. Text on the banner includes 'Headphones' and a placeholder paragraph: 'Lorem ipsum dolor sit amet, consectetur adipiscing elit. Phasellus accumsan efficitur iaculis. Etiam in bibendum est. Nulla fringilla'. A 'Shop now >' button and two circular images of people wearing headphones are also present.

Trending Products

[More Products](#)



Three product cards are displayed, each featuring a pair of headphones. Each card includes the text 'Headphones', 'Wireless Bluetooth Headphones', the price '1999.0 /-', a five-star rating, and an 'Add to Cart' button.

3.C.2. Proposed Prototype.^[3]

IV. CONCLUSION

The majority of the top businesses can boost their success by using HCI techniques more frequently to avoid spending valuable investment funds on the unsuccessful deployment of subpar technology and to create new income by recognizing the unmet demands of Users.

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