Google I/O Conference 2015
To Elevate Focus On Design

During the 2014 I/O conference, Google launched - Material Design, which is a visual language for users that synthesizes the classic principles of good design with innovation and possibility of technology and science. The recently held I/O conference (2015) website is a product which is built on this new visual language. After a year of public use, the website provides a perfect opportunity to understand and evaluate this language. In addition, it has provided an avenue to validate the theory and rationale based on which it stands. The overarching goal in developing the visual language was to unify the design across all Google products and help users understand their actions in a natural way. In addition, Material design, isn't about how to use color, categorize timing or standardize the elevation of an object. It is built to combine classic design details and create a purposeful user experience. It has been created to give the charge of control to the users and make them feel powerful.

The Google I/O 2015 website, stands as gateway for users across the world to be part of the conference. A place which acts as a hub for learning new features across Google products. The website intends to provide information regarding the conference, using its new visual language.

As a product evaluation team, our intention was to test and understand the usability of the Google I/O 2015 website and as a larger goal contribute towards improving the visual language. We’ve identified essential components that aren’t already included in the website, proposed additional features to existing ones to enhance user experience by performing rigorous testing in the field to understand user needs and behaviors.

**METHODODOLOGY**

To test the website’s features, we have conducted a usability test where users were asked to complete a set of tasks, which would evaluate different features of the website via one of the three different methods listed.

- Silent Observer
- Think-Aloud
- Constructive Interaction

Users were asked to complete a Pre-Task Questionnaire in order to receive demographic information. In addition, in order to maintain the internal validity of the study, all instructions were provided via Google Forms and Google Documents. On completion of the pre-test questionnaire, users were asked to complete a test of tasks via one of the above mentioned methods. Post which they were asked to complete a Post-Task Questionnaire which recorded their views and opinions about the website.
Overall, we tested the website using 7 participants from with varying demographics. The following links provide the respective information:

- Pre-Task Questionnaire
- List of Tasks
- Post-Task Questionnaire

Detailed information was recorded while the users were completing the tasks to map the intent and behavior of users. Upon completion of the post task questionnaire, an interview was conducted which verified the information collect and extracted views at a deeper level using the data collected via the post-task questionnaire.

Responses from both the questionnaires can be accessed [HERE](https://terpconnect.umd.edu/~rbondili/)

**RATIONALE FOR QUESTIONS IN PRE-TASK QUESTIONNAIRE**

Apart from collecting demographic information to understand user population and cultural aspects, the questions were intended to identity the comfort level of users in using computer systems and Google products. This was intended to verify the time users had spent to familiarize themselves with the new visual language as it had been implemented across all Google products for at least 12 months. A question collecting information regarding the background of participant in terms of development and design of computer systems was asked to triangulate results obtained after completing the usability tests.

**RATIONALE FOR QUESTIONS IN POST-TASK QUESTIONNAIRE**

The website is built on the principle that design should be bold and intentional to make core functionality immediately apparent and provide waypoints to the user, the first question intends to test and benchmark this principle. As an extension, the website intends to provide the power to control in the hands of the users thus ensuring that the user feels confident and improving the usability. The second question, validates this by recording the user confidence after the user has used the website. The other three questions were intentionally designed to be open ended, providing an opportunity to the user to freely express opinions and thus maximize on the data collected in both depth and range.

**RATIONALE FOR USABILITY TASKS**

The first task intends to test the accessibility of the feature to change timezone. Usability of the new filter design was tested using the second task. Documentation support and feedback provided to the user was examined with the third task. Error prevention and user beliefs were accounted for using the fourth task and finally the rendering of the website and crux of material design was tested using the final task.
Observations

Interesting information emerged as a result of conducting observations and interviewing the seven users who conducted the usability test on the Google I/O website.

To explain the results, we’ve divided the following into two sections namely, Favored Features and Potential Improvement. Here we define an observation to be favored if actions performed by the users made them confident, if users were able to find the intended information during the first attempt. Potential improvement observations are classified to be sections where users weren’t sure about their actions and used terms such "I think, I might find it over here.", “I’m assuming this information can be found in this section”, “I’m not sure about my action, I’m hoping I can find it over here.”

A compilation of the results has been presented via a visualisation created using Google Material charts. The purpose of presenting these observations is to ensure the company understands user behavior and patterns at ground level and can work towards improving the usability of the website and enhance user experience.

Favored Features

● Ease of finding intended information under particular sections, spoke about the excellent information hierarchy present on the website. Positive feedback from 85% of the users was recorded during the interviews and observations. Statements such as “Ah! That was super easy” and “Agenda can found under schedule” acted as data points that validated the well structured information hierarchy.

● The aesthetic design of the website was approved and recommended by all the users. The following comments were collected regarding when asked about the initial impression users had when they viewed the website.

“There are neat tabs given to navigate the necessary things”;
“Neat. Concise. Great color scheme.”;
“Very pretty design”;
“It was pretty intuitive and followed Google standard design”;
“It seemed very sleek and chic and technological. not your standard top bar/footer navigation website”;
“It looked polished & functional”;

In addition to the above mentioned, positive reinforcement was received regarding the aspect that the website was intuitive to use which act as strong data points to validate the material design theory that
works towards presenting information to users in a natural way their brain works and expect everyday things to function.

**POTENTIAL IMPROVEMENTS**

- None of the users observed the conference schedule information which was located ONLY on the launch page. On an average, users spend 2.3 minutes to find the information, thus working against providing them a pleasant experience.
- The feature to change timezone and thus modify schedule was missed by 71% of the users. This demonstrates the low contrast ratio used to present the information. Comments such as “Oh! I didn’t notice that at all”, “Where was this feature?” showcase the feeling presented by the users.
- Placement and design of the filter didn’t seem to fit the conventional behavior. There were several instances where users described the feature by the following “That’s weird”, “I cannot understand how to use this”, “I didn’t notice this feature at all”, “Using this isn’t clear”.
- Missing placeholders and scroll feature while finding information regarding off site events was another area users had trouble. Statements such as “Why Doesn’t this rotate”, “Seriously, this doesn’t pan”, “I have no clue which city is this”, “Thank God! My geography is good” provide insights that accessing this feature made users uncomfortable.

Usability tests are powerful for they provide avenues to improve our understanding of human behavior patterns. With our behaviors and preferences being based on a number of different aspects such as sociality, norms and culture, it is critical for designers and developers to understand human behavior in order to make continuous progress and improve user experience on their systems.

Raw data collected from questionnaires has been sorted for viewing and gaining deeper insights. We highly recommend accessing the information collected from our field study. It can be accessed over [HERE]

A compilation of the above mentioned can be found using the visualization attached with this report.

Filenames

- Potential Improvements
- Favored Features

**INTERPRETATION: SYSTEM STRENGTHS**

**READABILITY**
Positive feedback regarding readability was provided by all users. Interviews where specific details were asked relieved that providing large font sizes across the website improved usability. In addition, critical information such as venue details had sufficient contrast ratio allowing the users to read text easily. Furthermore, on testing the website for accessibility via the WAVE tool, the results displayed numerous features included for assisting people with accessibility issues, such as combining color with elements like sharps, patterns, texture or text which leveraged multiple ways of conveying information. In addition, it was mentioned that language was understandable by anyone, anywhere, regardless of their culture. Overall, positive feedback regarding readability across the website reinforced the design ideology that, language across the system should be clear, accurate, and concise which in turn makes interfaces more usable and builds trust.

**Coherent Motion**

Results from the questionnaire indicated that most of the users (6/7) after using the website for a few minutes were confident about their actions. On further investigation, users mentioned that they felt powerful about their actions and felt they were in control of the website. Just as the shape of an object indicates how the object might behave, the animation and motion across the website when a user made an interaction described the intention with beauty and fluidity. In addition, the act of interaction was a process of releasing energy into the system and the radial animation was a response by the website indicating that it had acknowledged the input. This act of response provided by the website gave users the sense of control and increased their confidence thus in turn worked towards improving the usability of the system. To explain further, the natural acceleration and deceleration when an action was performed was smooth. In case of drawing attention to an object for specific purpose, (Using the checkbox ) a variation in speed was created thus naturally drawing the user’s attention towards it. In addition to ink-like surface reactions, the website contained action buttons (FAB) which would lift up when touched, indicating an active state. On touch, the user could generate new or transform the action thus making the user feel powerful.

**Visual Aids**

All the images used across the website act as meta data providing visual cues to the users. Furthermore, they are certainly more than decoration. They act as a powerful tool that help the users communicate and differentiate the sections in the website, which reduces the time required for understanding the content of a webpage. By being bold and intentional the imagery helps in engaging the user. The selected photographs enhance the usability of the system by expressing personal relevance and delightful information. In addition, by being dynamic and context-relevant they act as predictive visuals thus improving the usability of a feature substantially. By being focused either to a single entity or an overarching composition all images convey the concept clearly to a user in a memorable way. Most of the images create an immersive story and sense of context through visual storytelling, for example the image used at the registration and travel details section.

**Meaningful Transitions**
This was another critical factor that contributed towards building the user confidence. Transition between two visual states was clear, smooth and effortless. For example, while shifting between the tabs in the Schedule section. The well designed transition helped the users to focus their attention by providing visual connections between transition states through color and persistent elements (Radial Outward Flow). This added a sense of clarity and delight to a transition thus providing visual continuity which increased the usability of the website. In addition, the order and timing of element movement ensured that motion supported information hierarchy, conveying information regarding the content that is most important by creating a path. Furthermore, the path traveled by the elements made sense. This consistent choreography, aided the user in understanding the website.

**Crafted Patterns**

The time invested in understanding the details of user needs and crafting a delight experience to improve the website’s usability is evident in both range and depth. Be it the attention to detail while displaying timestamp within the current day in the schedule tab or the mechanism placed to address errors via clearly communicated pop-up dialogs, guidance for users to resolve the issue and preserving as much user-entered input as possible via intelligent automatic data entry. In addition, by placing a conference brand launch screen, the website reduces the perceived loading time, giving the user a better experience. Furthermore, while loading images, the website changes the opacity, exposure and saturation rendering the images at a faster rate. The website makes conscious decisions while visualizing images providing a progressive fade-in thus reducing the time required for loading the images and in turn improving the usability of the website.

**Smart Notifications**

Acting as avenues informing users about critical information, dialogs are used sparingly ensuring they do not interrupt the user. By demarking the prominence of a notification, the website allows users to focus on the context. In addition, the description provided support the users to confirm their decision. For example, the dialog that appears at the bottom left of the screen while adding an event to the schedule.

**Suggested Improvements**

The following suggestions to improve the website’s usability are a product of performing rigorous tests and detailed interviews of system users.

- Incorporating Search Function
  
  Most of the users requested a search bar which allow them to find information they intended to at a faster rate.
● Re-Designing and Repositioning Filter
None of the users from the usability test noticed the filter which was placed at an unconventional spot. They expected it to be horizontal at just below the tabs in the schedule page. In addition, upon usage, they were confused with the radio-button styled icons which performed like checkboxes. Furthermore, most of the users requested for a demarcation between the different sections of the filter.

● Improving Consistency of Response Reaction
Feedback upon moving from the Onsite to Offsite sections could provide users confirmation of their action. With this inconsistency, the ideology that the user should feel powerful and confident about their actions would confuse the users.

● Display Conference Schedule Prominently
Critical information regarding the schedule of the conference could be displayed prominently across all pages. Currently it is displayed only on the launch page at the top left corner in small font and low contrast ratio which does not catch the attention of the user.

● Including placeholders and Pan Feature on Globe
None of the users were satisfied with the usability of the globe while looking for information regarding cities that streamed the Google I/O conference. Primarily because it did not contain any placeholders identifying the cities on the globe though it contain a clickable feature. In addition, since the website is a product of Google which also developed navigation applications such as Google Maps and Google Earth that contained a pan feature, the unavailability of the same on the website would add coherence.

In addition to the above, a few other features such as improving articulation of finding venues for streaming the conference and including information regarding academic passes under travel details were suggested by the users.

SUMMARY

Principles such as material is metaphor - which is the unifying theory of a rationalized space and a system of motion, are ingrained in the website. It is inspired by the study of paper and ink, yet it is technologically advanced and open to imagination and magic. The surfaces and edges of the website provide visual cues and use familiar tactile attributes that helps users quickly understand the context. The flexibility of the website design, be it motion, font family or transitions, all of them create new affordances that supercede those in the real physical world, without breaking the rules of physics.

The I/O website, which is built using a visual language that synthesizes classic principles of good design with the innovation and possibility of technology upholds its intent across the website. In addition, the I/O conference is a central hub for designers and developers across the global to unify, communicate their
ideas and the website is a medium through which people across the world can experience the conference virtually. Maintaining its integrity is critical and the current website certainly lives up to the expected standard.

Across the website there are foundational elements of print-based design. These elements contribute towards improving the usability of the website by creating hierarchy, meaning and focus. The emphasis on user actions make the core functionality immediately apparent and serve as guides to the user. All the action takes place in a single environment which supports the user in sense making and contributes towards making the website usable. Across the website the feedback provided to the user is subtle, yet clear. The transitions which guide the user by creating a visual continuity are efficient and coherent.

That being said, there is always scope for improvement. Primarily because we humans aren't rational and we keep seeking decisions that aren't in the best interest. Our believes and values are always changing and so is our perception of objects. With these changes occurring, the website apart from incorporating the mentioned suggestions would also require adjustments to meet the changing human needs. The website which is built on the idea - physics of things, doesn't try to copy the real world via its animation or motion. Rather it works towards making things natural for our brains, for our minds while unleashing things that software can do which is be totally mutable, transformable and create a seamless experience for the user improve the usability.

APPENDIX 1: COMPARISON OF DIFFERENT TECHNIQUES

Usability test for the website were conducted via seven users. The representatives were people who used computer systems regularly thus to some they knew the functionality of the website. In order to improve the quality of the test conducted, a broader variety of users from different age groups and varied technical knowledge could be used to increase the validity of the test. In addition, by posting the instructions and questionnaire via a computer system and using a single trained usability tester to support all users while they were completing the tasks ensured that uniformity was maintained thus increased the internal validity of the test.

<table>
<thead>
<tr>
<th>Silent Observer</th>
<th>Think Aloud</th>
<th>Constructive Interaction</th>
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<tbody>
<tr>
<td>Data collected by the usability tester, observing users while they were performing the tasks contained opinions from the perspective of the tester.</td>
<td>This method provided information at depth. Users were speaking their intentions and assumptions while completing the tasks. This information was useful especially to understand the nature in which users viewed the data.</td>
<td>Pairing of users to complete this task is certainly the most critical part for this method. Interesting results emerged when the pairing was set perfectly. The saying “Half Knowledge Is Most Dangerous” came to life during this task.</td>
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<td>During the post task interview, there were several instances, where users intention differed</td>
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Overall, all three methods used during the usability test are of significant importance as bring in different forms of information. Creating the environment in which the usability test are conducted are critical in maintaining the integrity of the test. In addition, establishing a rapport with the users while conducting the interviews is crucial.

**REFERENCES**

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- Google Design Sprint Methodology  