

# **Open Planner: Using Google Calendars for Cloud Based Personal and Collaborative Lesson Planning**

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**Abstract:** Google Apps for Education offers many new technologies that are not only changing the way we teach but also the way we collaborate and plan. Google Calendar in particular can allow for cloud based storage of lesson plans that can be organized and set to be readily available on any given day, year after year. Yet even the small amount of time and practice it may take to learn how to use a new technology can create a large chasm between digital natives, comfortable with exploring a new product, and those not ready to leave the comforts of familiarity and migrate to the digital world. This usability study aimed to evaluate the usability and intuitiveness of a module prototype, designed to teach educators how to use Google Calendar as a cloud-based lesson planner, in order to determine how to make the module more approachable to new learners. Participants were asked to “think aloud” as they performed a series of tasks and explored the module in an effort to gain an understanding of how users might perceive the learning module and any potential areas that might inhibit learning. Data were gathered on participants as they interacted with the module, on any frustrations, confusions, and overall impressions. The results of the study highlighted areas of concern, frustration or confusion which helped further shape the design of the module and provide possible implications or generalizations that may be made when designing future training modules.

## **Introduction**

Modern technology has opened the door to a new era of teaching. The Internet alone provides unlimited resources available at the touch of a button, but with these new technologies comes a need to be able to effectively absorb how to use, filter, organize, and annotate these resources. The classroom is no longer confined to four walls, teachers are continually learning how best to bring in outside resources and use multimedia to engage students in new and deeper ways. Collaboration is key as we find we can work closely with not just the people across the hall, but also those on the other side of the globe. All of this change however creates a challenge for teachers who are trying to figure out how to store, organize and share these new types of lessons that are full of various web links, video clips, and different file types.

While this new technology may be at the heart of this challenge, it also provides multiple solutions. Google Calendar in conjunction with Google Apps can be used as a digital lesson planner that houses all digital worksheets, videos, presentations, files, and flipcharts for any given lesson. New technology can

also be used to organize these lesson plans and resources so they are readily available year after year from any computer or device with Internet access. In addition these lessons are easy to share or collaborate on. New or substitute teachers could potentially be handed the lesson plans of master teachers, making it possible for them to “follow” an experts Google Calendar just as they might follow their Twitter feed.

But with so many learning management systems out there, is Google Calendar really the right way to go? In addition to being free, Google Apps are beneficial for a variety of reasons. The applications have been found to help increase collaboration and productivity in a variety of higher educational settings (Herrick, 2009; Lewis & Kimmel-Smith, 2011; Thurber, 2009) and Hargis and Wilcox (2008) argue that these tools encourage connecting internal and external people. In a study of university faculty and staff transitioning from Oracle to Google, Lewis and Kimmel-Smith (2011) found Google Calendar to rate higher than Oracle Calendar in the areas of ease of access, use, and feature set; they added that because Google Apps is constantly updating, newer and potentially better features become available.

Although the research suggests that Google Calendar has helped support collaboration and productivity in educational settings, there are no current studies analysing the use of Calendar as a collaborative lesson planner and file organizer. Moreover, Poparad (2012) notes some of the difficulties encountered during transformation to Google Apps, including the reluctance of individuals to change their current working system despite the drawbacks. This underscores the belief that a new idea not only has to be sound, but it also has to be presented in as clear, simple and straightforward manner as possible to limit any fear, uncertainty or doubt learners might have. A usability study was thus conducted to help confirm that a training module designed to help orient teachers to using Google Calendar to store lessons plans be developed in an understandable and effective manner to best support learners. The purpose was to evaluate and improve the usability of the online instructional module prototype in order to help orient teachers to learn to use Google Calendar as a lesson planning tool.

## **Methodology**

### *Module Development*

The learning module was built into a free Weebly website. This website housed graphics and information regarding a number of brief reasons why someone might want to learn to use Google Calendar as a lesson planner, how-to videos and slides along with downloadable/printable PDFs with step-by-step procedures. Additional information was also provided on alternative ways one might think about using Google Calendar. The initial prototype also housed the informed consent for the study along with the feedback survey.

### *Usability Testing Interview Procedures and Methods*

The study was rolled out in two testing cycles with three participants in each cycle. Minor development and changes were made to the module after each testing and more significant changes came after analysis of the first cycle of testing. Interviews were scheduled both in person and remotely via Google Hangouts. Participants computer screens and conversation between interviewer and participant was recorded using Quicktime. Using the Concurrent Think Aloud (CTA) method, which involves asking

participants to think out loud as they perform different tasks, and the Concurrent Probing (CP) method which allows the interviewer to ask follow up questions as participants are thinking aloud or performing tasks (Bergstrom 2013). Participants were tasked with describing their thoughts, impressions, feelings, and any questions or confusions that came to mind as they walked through the module and were asked to perform anticipated scenarios that actual users may face. Participants looked at an introduction page, a training page, a resource page and other ideas page. The interviewer provided participants with directions and probed with questions encouraging the participants to explain what they were doing, seeing and thinking. The interviewer collected field notes and made observations of participants who took part in face-to-face sessions. Dialogue from the interview was transcribed and sorted for commonalities. Participants also completed a post survey in which they answered demographic, Likert scale and open ended questions related to themselves and their perceptions of the module.

### *Technology*

Participants for the in person testings used a provided MacBook Pro laptop to look at the module/website. The screen of the computer and audio of the interview were recorded using Quicktime. Participants in the remote testings used their own personal computers and Internet connection. Remote participants joined a Google Hangout and “shared” their computer screens during the usability testing so that the interviewer could see and record with Quicktime what they were looking at and which parts of the module they were interacting with. The survey and questionnaire used during the testing was done via Google Survey after recording had concluded.

### *Participants*

The subjects of this study came from a sampling of educators across different contents and grade levels as well as professionals with varying levels of familiarity with Google Calendar. A male architect, a male high school technology teacher and a female elementary school teacher were asked to participate in the first round of usability testing. The architect was deemed appropriate for this study with a background in not only visual aesthetics and design, but he also had limited experience with Google Calendar. In addition, he had no knowledge of the purpose of the module or prior experience with instructional design or usability studies. His perspective not only provided insights on the design of the module but also was potentially reflective of how usable the module might be to someone with limited exposure to Google Apps. The two educators who both were familiar with the instructional design process along with the concept of usability testing and were comfortable with Google Apps and Calendar in an educational setting. Their perspectives were meant to provide insights on to how usable the module might be in an educational setting.

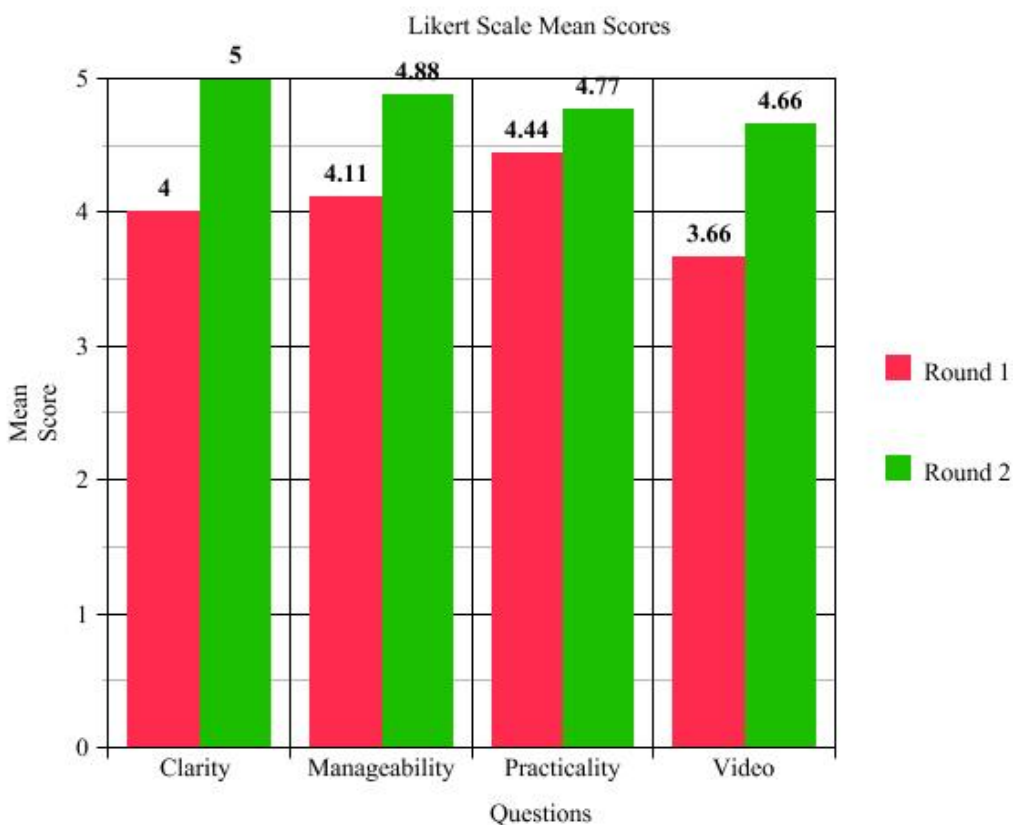
The second round of testing included a female yoga instructor, a male high school arts teacher and a male college professor. The yoga instructor was deemed appropriate for the study as she had no prior experience using Google Calendar nor an understanding of the instructional design or usability study process. Her perspective was meant to provide feedback on how the module might appear to someone with limited experience using Google Calendar. The two educators were meant to provide additional feedback on how useful or relevant the module and training might prove in their locus of control.

### **Findings/Results**

### Quantitative Results

Based on post survey five-point Likert scale questions, with five being the most favorable, the three initial participants scores garnered a mean score of 4.00 in questions related to clarity of the module, a 4.11 in questions related to manageability of the module, and a mean score of 4.44 in questions related to practicality or usefulness of the module in everyday life. The video received the lowest score, a mean value of 3.66, in regards to clarity and appropriateness.

With the three participants in the second round of testing the scores went up in all areas, a mean score of 5.00 was reported in questions relating to clarity of the module, a 4.88 in questions related to manageability of the module, and a mean score of 4.77 in questions related to practicality or usefulness of the module in everyday life. The video again received the lowest score, a mean value of 4.66 in regards to clarity and appropriateness. However, though still the lowest score, it showed a full point improvement to the first round.



**Figure 1** Mean ratings from rounds 1 and 2

### Qualitative Results

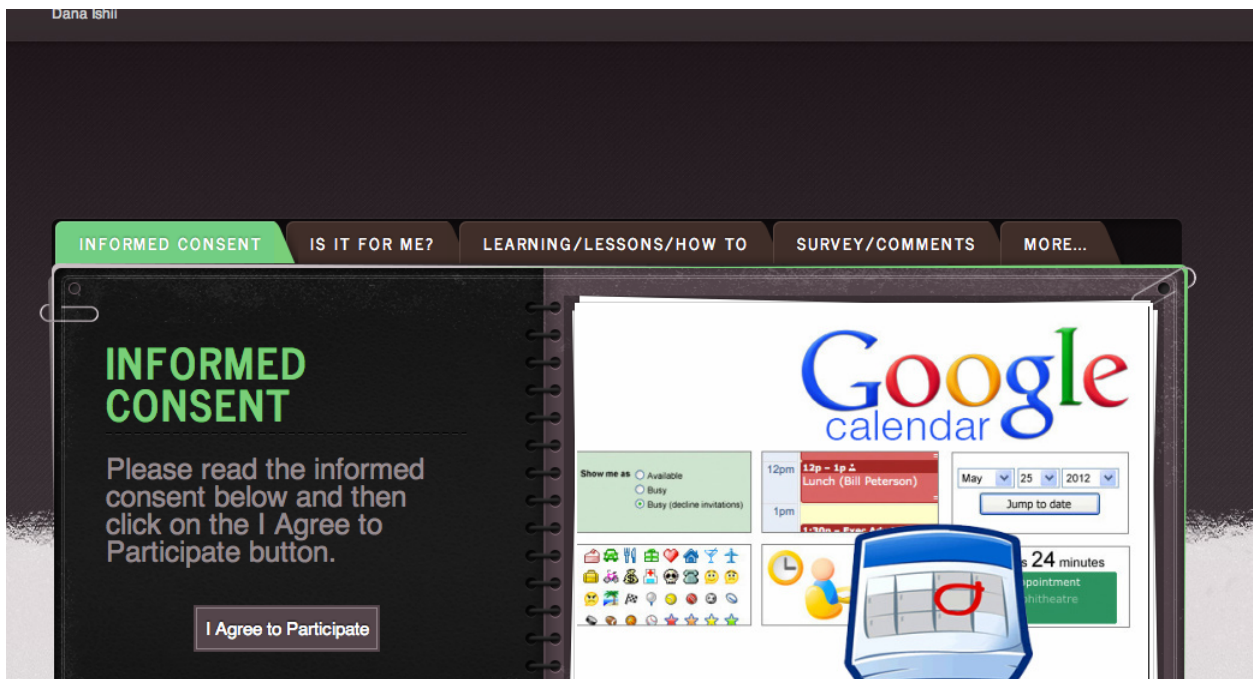
Throughout the study participants also provided feedback on the module in regards to questions that they had, thoughts, interpretations and general impressions of the module. They also answered open ended survey questions at the end of the interview process. Field notes were also taken during the

interview process in regards to participants behaviors and interpretations. The data were grouped into two categories related to Module Design and Complications/Confusions.

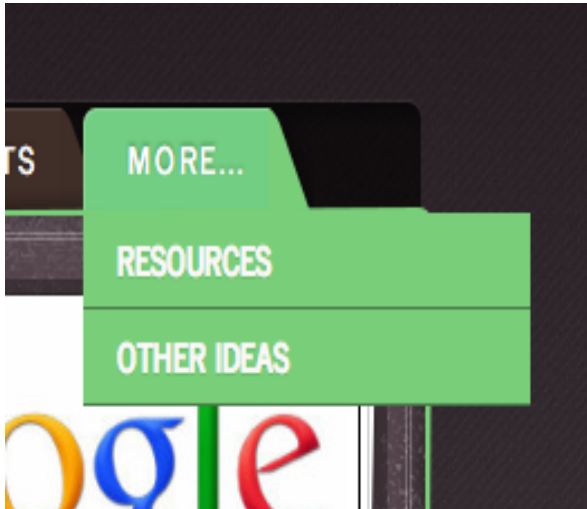
Comments relating to Module Design included statements about the module being “logical, simple, easy to follow” and “appeared to be designed for people with limited time.” The navigation was “clear and understandable, it seems difficult to get lost.” Statements about the information included that it was, “given in clear, appealing, bite-sized tidbits” and one participant stated, “I never felt overwhelmed by the information.”

Other statements relating to Complications and Confusions included multiple participants stating trouble understanding there was “content below the initial screen.” They would have liked to see “more details and instructions of where to go next.” The video was stated to be “ok, but a bit long,” the speed at which the slides auto advanced also proved bothersome and some of the text was said to be difficult to read. One participant found the “More” tab to be confusing in that clicking on “More” only provided a drop down menu whereas other tabs had taken the user to a new page. Other comments included concerns about hosting the online survey and the IRB Informed Consent in the training module as they interrupted the participants experience of viewing the module as it would be seen in the real world.

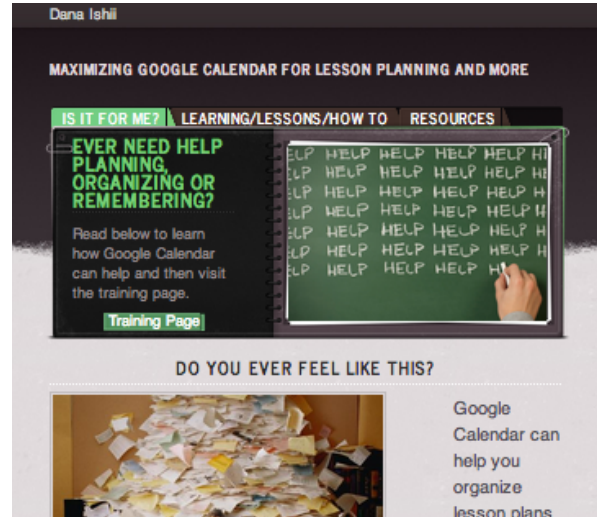
Figure 2 shows an early iteration of the module with the IRB Informed Consent as the home tab, the screenshot showcases how the screen appears as it opens on the screen for users. Many users did not initially realize there was content below the opening screen that required the user to scroll down the page. Figure 3 showcases how the more tab included the dropdown menu which stood out to some users as the rest of the tabs were clickable page links. Figure 4 shows a later version of the website in a scaled down model to highlight how the ideal site might appear on a user’s screen to mitigate the problem of users not knowing there was content below the banner.



**Figure 2** First module prototype



**Figure 3** More drop down tab



**Figure 4** Second module prototype

### *Analysis of Results*

The overall response based on the usability recordings, field notes and survey responses suggested the module would be acceptable as a training site for teachers motivated to learn how to use Google Calendar. The findings indicated that the participants could identify the purpose of the website, its intended audience and how to go about finding training and needed information. Participants found the website to have “good stuff” or be a “good start.” Multiple participants noted that they liked having different options for viewing the videos and learning how to use the calendar as one participant noted “people learn in different ways, the slides didn’t work for me, but I could follow the video.”

For learners who were more reluctant or hesitant to learn there were some potential issues or areas of concern identified during the study. Four out of six participants struggled with the initial layout of the website. The large header of the page design made it difficult to know that there was information below and that they were supposed to scroll down the page. While this only posed an initial minor problem and all participants were able to eventually navigate the website independently with no trouble, this issue was prevalent enough that it would be best to modify the website to eliminate this confusion. Other issues with the layout of the website included the fact that the initial prototype had a “More” tab which had a drop down menu, all other tabs on the site served as links to new pages and this tab required users to mouse over it and then select the desired new page. Because the video received the lowest scores in favorability it would be best to also strive to make it shorter and potentially more engaging or visually appealing. Another option would be to break it up into different tasks or segments so that users

could watch only the sections that applied to them.

## **Implications Discussions**

As module designer and usability study tester it was easy to make minor adjustments and changes to the module after each testing. A usability study, unlike other types of research, does not require that a given number of people must confirm that a problem in the site exists. A typo for example or dead link does not require multiple people validating the error; these types of problems can often be fixed within seconds of the conclusion of the test. However at the same time, with this rapid-prototyping approach, because the module that one participant looks at may be slightly different from the module the next participant views, Likert scale questions about overall impressions may not accurately represent the module. Thus it can be difficult to make blanket statements relating to the overall perceptions of the module. This evaluation design system is more optimal for fine tuning and creating a more presentable, usable and or appealing website. The researcher is able to ask for clarification about how or why a user feels or thinks a certain way. Looking only at the Likert scale data one might conclude the module was fairly clear and manageable with scores above 4.0, however the interview process and usability testing more accurately highlighted specific frustrations, errors participants saw, and or recommendations for improvements. While these may have been minor enough frustrations for an early adopter or someone motivated to interact with the module, they may be big enough frustrations for someone less inclined to learn a new technology or skill. Traditional post module surveys and Likert scale type questions do not always identify problems or positive aspects in enough detail, usability studies can allow more from breadth and details.

## **Conclusion**

Usability studies provide for a rapid real time awareness of how something is perceived, interacted with and used. In a relatively short amount of time valuable information can be gained about relatively easy fixes, clarifications or adjustments that could be made to a product in efforts to make it more user friendly and approachable. The usability process encourages a developer or designer to be more comfortable sharing unfinished work, it builds failures into the development process and welcomes them as an opportunity for growth. This 'living (and working) in beta' mentality is more suitable to the rapidly developing and changing world of technology we live in today as it recognizes that minor corrections and adaptations can always be made to a product.

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