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Article

The Effect of User Interface on Retaining New Users from Moving Away to

Similar Service (Personal Cloud Storages – User experience (UX))

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Abstract

In Information Technology, the User Interface (UI) is everything designed in an information device with which a person may interact. The user interface has been developed during many years from a very simple user interface to intelligent user interface. Information Technology played an effective role in these developments. The environment of the systems has expanded greatly, and the Internet has become a suitable environment for them. The means of social communication and electronic commerce, along with electronic marketing, e-payment, and others, which included users who cannot be interviewed and not limited to specific categories because they are in different geographical locations and have different experiences, cultures, possibilities and ages. This is a challenge for the user interface's designer to design interfaces that accommodate this vast diversity of users. In this paper, we are going to spot the light on the importance of the user interface in keeping new users continuity with the cloud services. Our experiments have been applied to a number of the new users of the personal cloud storage (Google Drive and Dropbox). The result showed that ease and the feedback are the most important principles to keep the users interested in the service.

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1. Introduction

User Interface Design (UID) is the design of user interfaces for machines and software, such as computers, home appliances, mobile devices, e-services and other electronic devices, with the focus on maximizing usability and the user experience [1]. It focuses on knowing what users might need to do and ensuring that the interface has elements that are easy to access, understand, and use to facilitate those actions [2]. The goal of UID is to make the user's interaction as simple and efficient as possible, in terms of accomplishing user goals [1], as well as to make it self-explanatory, efficient, and enjoyable (user-friendly) to operate a machine in the way that produces the desired result. This generally means that the user needs to provide minimal input to achieve the desired output, and also that the machine minimizes undesired outputs to the user [1].

Information systems research has long recognized that cultural differences can inhibit the successful use of information technology and its user acceptance [3] [4] [5]. The differences have mostly been analyzed on a national or an organizational level of culture, both of which are often closely intertwined.

In the question of the user interface for systems on the website, the cultural differences are more various. A website is much more than a group of pages connected by links. It is a space where different people such as a company's employees or individual's web users meet through the user interfaces to communicate and affect each other. That interaction creates a global experience for tasks to be done. The web designer should ensure that experience is as good as it can possibly be [6]. On the other hand, web user interface is the interaction between a user and software running on a web server. Web 2.0 refers to World Wide Web websites that emphasize user-generated content, usability (ease of use, even by non-experts), and inter-operability for end users [7]. A Web 2.0 website may allow users to interact and collaborate with each other in a social media dialogue as creators of user-generated content in a virtual community.

The main rule in designing user interface is to know the end user well [2]. It was a very import-

ant and critical task for success user interface. These users are company employees, managers, stockholders, and recently customers have been allowed to interact with the system. Nowadays with the services on the cloud, the users are located all around the world with different experience, knowledge, culture, and view. This makes designing user interface more difficult and challenging.

1.1. Development of Architecture of User's Interface

1.1.1. Traditional User's interface

Almost all software programs have a graphical user interface (GUI). Meaning that the program includes graphical controls, which the end user can select using a mouse or keyboard. Traditional user's interface is classified into three models [8]:-

1-Presentation.

2-Dialogue.

3-Application.

which include other models such as explicit models of the user, discourse and domain, input analysis and output generation, and mechanisms to manage the interaction, such as focusing and interpreting imprecise, ambiguous, and/or inaccurate input, controlling the dialog progression, or tailoring presentation output to the current situation.

1.1.2. Intelligent User's Interfaces

Artificial Intelligence (AI) in user interface has many contributions with intelligent interfaces, including the use of representation of knowledge for model based on UI development. It illustrates basic areas of intelligent interface:

•Analysis of input

•Generation" planning or realization".

•Modeling of the user.

Intelligent User's Interfaces (IUIs) are human-machine interfaces that aim to improve the efficiency, effectiveness, and naturalness of human-machine interaction by representing, reasoning, and acting on models of the user, domain, task, discourse, and media (e.g., graphics, natural language, gesture)"[8]. The intelligent user's interface can attract users by content, values, and techniques of working of the interface, so that, the designers should focus on content. Making this successful requires artificial intelligent techniques some of them are complex and other are simple [9]. Any intelligent system can perform the task of representation and simple algorithms in useful performance. The Architecture of Intelligent User's Interfaces (IUI) [8] has the following components:

- •Input processing.
- •Machine analysis.
- •Interaction management
- •Application interface.
- •Application interface and people.
- •Representation and interface.

Most researchers attempting to enhance the interface by following opportunities with the use of complex inferential machine, that machine does not deliver great value [9]. Overall, researchers can make plans by focusing on better UI design with taking into consideration the possibility of joining simple automation procedures into functions of UI.

1.1.3. Personal Cloud Storage

Personal Cloud Storage is a part of a wider definition called 'Cloud Computing'. Cloud computing as defined by the National Institute of Standards and Technology, is "a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) [10] [11].

Dropbox and Google drive are two of the most important personal cloud storage [10]. Dropbox gives users the capability of sharing entire folders with other Dropbox account users, which allows updates to be viewable by all collaborators. It has many advantages such as primarily in its ease of use, very intuitive interface and recovers deleted files in Dropbox easier than some other options [12]. Google Drive has built in document editor so that programs such as Microsoft Word are not required to be installed on the computer in order to edit the document. Also, allows comments to be left on any files stored [13]. Both storages have many users all around the world. As of March 2017, Google Drive has 800 million active users Compared to 500 million registered users for Dropbox in the same year [14] [15]. In this paper, we are going to focus on the user interface in both of them. Their advantages and disadvantages are out of the paper's scope.

2. Literature Review

The aim of Maybury's study [8] is to present the importance of intelligent user interface (IUI). The authors gave the outline of the theoretical foundation of IUI.

IUI becomes an important part of a different field that has the ability to implement many functions that meet needs of users according to the requirements and can improve the quality of interaction between users and system. Intelligent user interface always tries to achieve users' goals such as more effective interaction, efficient interaction and more interaction that is natural. The most benefits from IUI are reduced time, cost and expertise to develop the interface. The authors stressed that the motivation of IUI The authors stressed that the motivation of IUI is mention to the available materials on corporates, natural and global information networks is guiding that companies to looking for effective, natural interface to help companies to achieve their goals and support access to people information and applications.

The authors also said that the first interface named command line interface has advanced from initial it. This was the first generation, the second generation of the interface was called graphic user interface (GUI). The third generation is the intelligent interface that provides a number of additional benefits for different type users like adaptivity, task assistance, sensitivity, and context. [8]. Molina's work (2004) [16] was about model-based user interface development (MB-UID). The quality of traditional user interfaces was depending on a strong factor on the experience of the designers and their skills in the platform and development tools [16]. On the other hand, developing UIs of web interfaces, global systems, and wireless have extra concerns that establish a challenge per system. Molina summarized some problems of MB-UID using the Novak's rule:

"Automatic Programming is defined as the synthesis of a program from a specification. If automatic programming is to be useful, the specification must be smaller and easier to write than the program would be if written in a conventional programming language"

These problems were maintainability, scalabili-

ty, round trip problems, integration with artists' designs, lack of standards, lack of robust code generators, lack of integration with business logic, and lack of commercial tools supporting the methods. In the same time, there are some advantages for using MB-UID from Molina point of view, some of them are: higher abstraction level, better productivity, better quality, fewer errors, providing a precise engineering process, multiple device support, and less Time to Market. He concluded his study that new generation tools should address the previously quoted problems to overpass the Novak's rule. Ease of use is crucial to make work perceived as a non-time-consuming task.

Tanahashi and his co-researchers [17] presented in their paper a sketch of an interface design for an online visualization service. The general theory of cloud computing suggests that visualization, which is both data and computing intensive, is a perfect cloud computing application [17]. To make such a service is attractive to a wider audiences, its user interface must be simple and easy to use for both inexpert and expert users. Tanahashi and his co-authors saw that an interface supports visualization processes mainly directed by browsing and assessing existing visualizations in terms of images and videos will be very appealing to, in particular, inexpert users. In other words, the aim is to maximize the utilization of the rich visualization data on the web. Without losing generality, they considered volume data visualization applications for their interface design. They also discussed issues in organizing online visualization data and constructing and managing an execution cloud.

They expected such utilization of the cloud would become more common in the coming generation of web applications. Finally, they have identified a number of key components that are crucial to the strong realization of a usable system: a simple and intuitive interface, an efficient data indexing system, a suggestive visualization system allowing the user to refine its previous results in a relevant fashion, an efficient implementation of visualization techniques [17].

The aim of Sonia's study [18] was to address the security of system or network to find out how they affect the design interface in security man-

agement system. Software security assurance is a process that helps design and implements software that protects the data and resources contained in and controlled by that software. The software is itself a resource and thus must be afforded appropriate security [19]. Sonia and his co-authors presented in their paper four different approaches in security management system. The first approach was usable security; they suggested certain guidelines that the users should: be aware of security task, figure how to successfully perform those tasks, not make dangerous errors, be comfortable with the interface to continue using it, be able to tell when their task has been completed and have sufficient feedback to accurately determine the current state of the system. The Second approach was ecological interface design framework for designing complex socio-technical systems. The third approach was the Social Navigation; this was based on the human tendency to use cues from other people in order to make decisions about our own behavior. People use the social navigation on a daily basis. The last approach was Persuasive Technology; a new area of human-computer interaction. Considering these four approaches to interface design, the authors proposed the following initial set of design guidelines for security management interfaces: Administrators should reliably be made aware of the security tasks; should be able to figure out how to successfully perform those tasks; should be able to tell when their task has been completed; should have feedback to accurately determine the current state of the system and the consequences of their actions; should be able to return to a previous system state if a security decision has unintended consequences; should be able to form an accurate and meaningful mental model of the system they are protecting, should be able to easily examine the system from different levels of encapsulation in order to gain an overall perspective and be able to effectively diagnose specific problems. The interface should facilitate interpretation and diagnosis of potential security threats, able to easily seek advice and take advantage of community knowledge to make security decisions and the interface should encourage administrators to address critical issues in a timely fashion. They concluded their study that end-user is the main concern for the field of usable security.

The aim of the Doina's study [7] is to emphasize the connection between cloud computing and Web 2.0. Doina and his co-authors presented in their paper the advantages, challenges, and issue related to cloud computing. Cloud computing is a new method to add capabilities to a computer on the fly, without licensing new software, investing in new hardware or infrastructure, or training new personnel. The services are accessible anywhere in the world, with the cloud appearing as a single point of access for all the computing needs of the consumer. The authors presented the advantages of cloud computing such as price, simplicity, reliability, flexibility, focus, and collaboration. The issues related to cloud computing were privacy and security, emergencies, standards, legality, mentality, and pricing theory. They concluded that web 2.0 is the result of applying web technologies to the web, in which the user has final control over visual presentation and user interaction. Cloud computing is currently gaining popularity as an inexpensive way of providing storage and software [7].

2.1. User Interface Design Principles

"To design is much more than simply to assemble, to order, or even to edit; it is to add value and meaning, to illuminate, to simplify, to clarify, to modify, to dignify, to dramatize, to persuade, and perhaps even to amuse." - Paul Rand.

Sensenbach stressed in his study [20] that changing the design thinking to larger systems, rather than one-off screens, can be hugely transformative in how the designer approach new projects. The most important principles of user interface design are [21]

Clarity: Clarity is the first and most important job of an interface. It means people must be able to recognize what it is, care about why they would use it, understand what the interface is helping them interact with, predict what will happen when they use it, and then successfully interact with it. Clarity motivates confidence and leads to further use.

Interfaces exist to enable interaction: The act of designing interfaces is not Art. Interfaces are not monuments unto themselves. Interfaces do a job and their effectiveness can be measured. The best interfaces can encourage, suggest, confuse, and strengthen the user's relationship with the world. Conserve attention at all costs: Attention is valuable. It is not only when the users are happier, but also when the results are better. When use is the primary goal, attention becomes essential. Conserve it at all costs.

Keep users in control: Humans are most comfortable when they feel in control of themselves and their environment. The users should be kept in control by regularly surfacing system status, by describing causation and by giving insight into what to expect at every turn.

Direct manipulation is best: Design an interface with as little a footprint as possible, recognizing as much as possible natural human signs. Ideally, the interface is so slight that the user has a feeling of direct manipulation with the object of their focus.

One primary action per screen: It is recommended that every screen has been design should support a single action of real value to the person using it. This makes it easier to learn, easier to use, and easier to add to or build on when necessary.

Keep secondary actions secondary: Screens with a single primary action can have multiple secondary actions but they need to be kept secondary. The secondary actions should be kept secondary by making them lighter weight visually or shown after the primary action has been achieved.

Provide a natural next step: Very few interactions are meant to be the last. The next step for each interaction a person has with the interface should be designed carefully.

The appearance follows behavior: Humans are most comfortable with things that behave the way they expect. When someone or something behaves consistently with their expectations, they feel like we have a good relationship with it.

Consistency matters: Elements that behave the same should look the same. In an effort to be consistent novice designers often obscure important differences by using the same visual treatment (often to re-use code) when different visual treatment is appropriate.

Strong visual hierarchies work best: A strong visual hierarchy is achieved when there is a clear viewing order to the visual elements on a screen.

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Weak visual hierarchies give little clue about where to rest one's stare and end up feeling cluttered and confusing. In environments of great change, it is hard to maintain a strong visual hierarchy because visual weight is relative.

Smart organization reduces cognitive load: "Simplicity, smart organization of screen elements can make the many appear as the few" (John Maeda). This helps people understand the interface easier and more quickly.

The highlight, do not determine, with color: The color of physical things changes as light changes. As in the physical world, where color is a many-shaded thing, color should not determine much of an interface.

Progressive disclosure: Show only what is necessary on each screen. If people are making a choice, show enough information to allow them make a choice, then dive into details on a subsequent screen.

Help people inline: In ideal interfaces, help is not necessary because the interface is learnable and usable. Asking people to go to help and find an answer to their question puts the responsibility on them to know what they need.

A crucial moment: the zero state: The first time experience with an interface is critical, yet often overlooked by designers. In order to best help the users get up to speed with the designs, it is best to design for the zero state, the state in which nothing has yet occurred.

Great design is invisible: An interesting property of great design is that it usually goes unnoticed by the people who use it. One reason for this is that if the design is successful the user can focus on their own goals and not the interface. When they complete their goal they are satisfied and do not need to reflect on the situation.

Build on other design disciplines: Visual and graphic design, layout, copywriting, information architecture and visualization, all of these disciplines are part of interface design. They can be touched upon or specialized in. Do not get into field conflicts or look down on other disciplines: take from them the aspects that help you do your work and push on.

Interfaces exist to be used: As in most design disciplines, interface design is successful when people are using it. It is not enough for an interface to satisfy the ego of its designer, it must be used. From Tanahshi there are others principles [17]. Searching: this is achieved in a convention manner e.g insert any request into a search box or choose any items through indexed categories. Smart users select all the properties.

Suggestive Visualization: the initial searching provides users with existing visualization. The system then computes a new set of Visualisations that the user may prefer. Some visualization may include changes to the dataset, the function of transfer and viewpoint.

Iterative Interaction: there are two types of basic interaction in system: the first type is called direct change visualization parameters, it consider a common type of interaction with application of visualization, and the second type is choosing visualization from supporting collection of visualization.

In addition, Niall Mruphy set two main principles [22].

Directed interfaces: Some designed interfaces suggest a direction. The users have some options to break out the sequence but the question gives suggestion to the users to go the next appropriate action to provide the answer.

Compatibility: this principle has three levels; the first one is a compatibility between what user experts and what users get. The second one is compatibility between different products of the same type. The last one is between devices and its surrounding and the device with which it has to be cooperate

According to Larry Constantine and Lucy Lockwood [23] the principles of user interface design are intended to improve the quality of user interface design. Such as:

The structure principle: Design should organize the user interface purposefully in meaningful and useful ways based on clear, consistent models that are apparent and recognizable to users, putting related things together and separating unrelated things, differentiating dissimilar things and making similar things resemble one another. The structure principle is concerned with overall user interface architecture.

The simplicity principle: The design should make simple and common tasks easy, communicating clearly and simply in the user's own language,

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and providing good shortcuts that are meaningfully related to longer procedures.

The visibility principle: The design should make all needed options and materials for a given task visible without distracting the user with extraneous or redundant information. Good designs do not overwhelm users with alternatives or confuse with unneeded information.

The feedback principle: The design should keep users informed of actions or interpretations, changes of state or condition, and errors or exceptions that are relevant and of interest to the user through clear, concise, and unambiguous language familiar to users.

The tolerance principle: The design should be flexible and tolerant, reducing the cost of mistakes and misuse by allowing undoing and redoing, while also preventing errors wherever possible by tolerating varied inputs and sequences and by interpreting all reasonable actions.

The reuse principle: The design should reuse internal and external components and behaviors, maintaining consistency with purpose rather than merely arbitrary consistency, thus reducing the need for users to rethink and remember.

2.2. The criteria for designing cloud computing Cloud computing is considered as one of the most important favoured technology. It has the ability which can help users to achieve their needs. It is able to treat a number of issues related to users' needs [24]. "The open source cloud computing is a flexible paradigm which has reached heights by facilitating a large number of users with unlimited services."[25].

To design storages like Google drive and Dropbox should include high-quality criteria to achieve the goals. That criteria are considered important to accept and deal with them such as flexibility, scalability, ease of use, scalability, reliability, broad network access of infrastructure, location independence, reliability improves, economies of scale and cost-effectiveness [26] [24]. Another important criteria is the security criteria; It focuses on security-related capabilities which must be trusted [Kaur].

Cloud UI Design Mistakes to Avoid

Great user interface design for cloud applications is harder than it looks [27]. Some of the mistakes

that designers should avoid are:

•Focus on good look but it makes the product harder for the real pro to use. Beauty is only skin deep, even with UI skins.

•Continuous auto save: it is nice, but with products that have some administrative complexity a simplistic auto-save is a guaranteed disaster.

•It is so easy: it should not be so easy to lose the main function.

•None of that Big System Complexity: UIs that make it easy for the novice user often make it easy to generate complete chaos.

Google Drive and Dropbox Personal Cloud Storage

Dropbox and Google Drive are two comparable cloud storage services. A lot has used more than one device these days; tools like Dropbox and Google Drive can come in hands for sharing files across multiple devices. We can compare them in several principles: [28]

Storage Space: Dropbox offers 2 GB of storage for free while Google Drive offers 5GB for free.

Desktop Client: Both Drive and Dropbox offer very similar desktop clients. Both allow the users to see and access all of their files in a desktop folder. If users want more flexibility with their files, they need to go with Dropbox.

Web Client: Google Drive features a suite of apps including Docs, Spreadsheets, PicMonkey for editing images, and DocuSign for collecting and sharing signatures. Google Drive also comes with Google's powerful search tools. Users can specifically search through presentations, documents, spreadsheets, private files, shared items, and more. Drive's search taps into Google's Optical Character Recognition service and Images, making it possible to scan and search documents for text and images.

Support: Google Drive supports up to 30 different file types, all of which the users can open directly within their Web browser. Other than their standard text, audio, and video files, Google Drive also supports AutoDesk, Adobe Illustrator and Photoshop files. On the other hand, Dropbox does support many file types including PDFs, documents, video, photos, Photoshop files, and music. They can be viewed in the browser, but the users can't edit them online. Google Drive, for its ability to open and edit any type of file online.

Sharing Features: Both Google Drive and Dropbox are pretty good when it comes to sharing. A key difference: Drive only allows uses to share through its Web app, while Dropbox offers sharing directly from its desktop app.

Compatibility: Both services are available on iOS, Windows, Mac, and Android devices. But Dropbox has a slight upper-hand, as it's also compatible on Linux and Blackberry. But Google is working on developing Drive for Linux.

Security: Google Drive links to the Gmail account, the users can enable two-step authentication. Dropbox offers a similar two-step verification feature, where the users must submit their password in addition to a six-digit security code in order to sign in.

2.3. Summary of Literature Review

To sum up the most important principles of user interface, we will go through those that have been emphasized in the literature review:

The first group regarding the usage; the important principles include ease of use, must be simple and easy to use for both inexpert and expert users, inform users when their task has been completed with sufficient feedback, and aware them that end-user is the main concern for the field of usable security.

The second group regarding the learning; the important principles include providing the user with final control over his task, encourage, suggest, confuse, and strengthen the user's relationship with the world, easier to learn, and easier to add to or build on when necessary especially when the users will not be trained to use these systems.

The third group regarding behaviour; the important principles include very few interactions, humans are most comfortable with things that behave the way they expect, elements that behave the same should look the same. Finally, Simplicity, smart organization of screen, show only what is necessary on each screen, what user experts should be what users get, keep users informed, and reducing the cost of mistakes. Although, both of the personal cloud storage are similar in their facilities, the first time experience with a user interface is critical' as well as, 'the clarity motivates confidence and leads to further use'. These are the facts that our paper attempt to ensure them regarding the new user.

3. Research Methodology

3.1. The Methodology

We will use the qualitative methodology to investigate and analyze the user interface for both of personal cloud storage - Google Drive, and Dropbox- to find out what is the most important interface principles that encourage the new user to continue discovering and using the personal cloud storage. We will achieve that goal by doing experiments on a number of users who have not tried these stores yet, and ask them to perform the basic functions and record their opinions of dealing with the interfaces and where they prefer to stay in and know the reasons behind this choice. This methodology is using the User experience (UX). The main tasks in the personal cloud storage that the new user has to achieve in his/her first time in these storages are

1.[Upload]: Upload files, directories, photos, to the storage.

2.[Access]: Access to the files, directories, photos, from the storage from anywhere.

3.[Share]: Share files, directories, photos, to the storage, with anyone.

4.[Receive]: Receive files, directories, photos from the others to the storage.

5.[Editing]: Editing files in the storage.

3.2. Research Sample

The research sample consists of a random group of participants who have not yet used personal cloud storage. Fifteen of them are from the, Institute Of Statistical Studies and Research Cairo University, fifteen of whom are from the Agricultural Bank in Yemen and the last fifteen are from the Yemenia University. The sample varied in terms of general characteristics of age, gender, educational level, computer experience. Although these characteristics were not the subject of study in this research, however, researchers sought to diversify the sample to obtain their overall opinion without being influenced by specific characteristics.

3.2. Research Tools

The researchers studied the covered-up user interface design's criteria, identified the most important criteria for the design of the user interface, and examined the personal cloud storage. The researchers then identified the most important tasks that the new user is supposed to start with, and use experiments to ask the participants to accomplish these tasks, record their reactions, deal with the personal cloud storage, determine which storage they prefer to continue and why?.

3.3. Research Objective

When the designer starts designing the user interface for the particular information system, he has three advantages. First, he can understand the users' requirements very well by interviewing them. The second advantage is that there will be training for the users to use the system and understand the user interface. Finally, the users are forced to use the system, so they will do the best to understand it. In the cloud computing systems, where there are multiple options in everyone's way, the situation is somehow different. The designer cannot interview the users or know their characteristics. Moreover, there is no training for the system face as well as they are not forced to use the system. If the system is not clear, the user can just give it up and switch to another system with similar functions. The objective that we are trying to address is how to keep the new user in the system. The new users (visitor) have to discover everything in personal cloud storage by themselves to move from visitor to client. They like to know how to use the storage efficiently in short time. If the user interface is not clear and easy to use, some of them will switch to another storage because there are many in the cloud.

3.4. Aim of Research

With all the offers available in the user's hand, the designer of the user interface of the services



Fig.1. result of the experiments on Google Drive and Dropbox

on the cloud should be careful to build the user interface to a large degree of gravity and ease in order to keep their new users and do not let them move to similar services. The aim of this study is to find out the most important user interface design principles that encourage the new user to continue with understanding the facilities of the cloud services, for example, personal cloud storage.

3.5. Research Significance

It is important for the designer to ensure that the new users will continue using the service. Our research importance comes from the importance of keeping new customers in the service and not loses them especially that nowadays there are many options offering similar products. The research seeks to highlight the importance of retaining the new customer and not leaving it to competed service that may pose a serious risk to the survival of the system. Our research is based on the personal cloud storage, however the results can be applied to a similar system or product on the web.

4. Results and Analysis

Each author has tested a number of new users who have never used personal cloud storage before. They were selected from the various background, age, gender, and education. Total of 45 new users have been tested. The 45 new users have been tested to do the main tasks of the personal cloud storage, for example, uploading a file and image, sharing and receiving files with other users, and editing a file on the storage for both Google Drive and Dropbox. Their feedback, questions and comments were recorded. Figure no. 1 shows the result of the experiments to check what is the new users' preference to use from, Dropbox or Google Drive. The result showed that the 60% of the new users who have been tested (they have not tried these storages yet) prefer Google Drive while 40% prefer Dropbox. That means most of the new users preferred Google Drive and less of them preferred Dropbox. To sum up that, it is clear from the experiments that the majority of new users prefer to use Google Drive. They said that Google Drive has good quality design and it is easy to use according to their opinion. They also like to have feedback while they are doing their tasks to keep them in control and know what is going on.

5. Conclusion

We can sum up that it is both important and difficult to keep the already existing service users rather than to gain new ones. Our experiment investigated why users prefer a personal cloud storage more than the other. However, the results showed that the new user (visitor) always seeks the ease of use and the simple way to achieve its tasks. We can confirm that users usually focus on achieving their tasks in an easy way more than how the design of the user interface looks like. At the end, we can ensure that this result can be applied to any other service on the cloud; where there are many similar options available for the users. We have to emphasize on the fact that keeping the new users gives a good indicator to how successful the service is. On the other hand, losing users "users leaving" displays a warning that there is something wrong.

References

 Myers, B. ; Hodson, S. ; Pausch, R. (2000)
'Past, present, and future of user interface software tools' ACM Transactions on Computer-Human Interaction (TOCHI) Vol. 7 Issue 1 Pp, 3-28
Garrett, J. (2002) 'The Elements of User Experience: User-Centered Design for the Web and Beyond' (2nd Edition).

[3] Kappos, A., and Rivard, S. 2008. "A Three-Perspective Model of Culture, Information Systems, and Their Development and Use," MIS Quarterly (32:3), pp. 601-634.

[4] Leidner, D. E., and Kayworth, T. 2006. "Review: A Review of Culture in Information Systems Research: Toward a Theory of Information Technology Culture Conflict," MIS Quarterly (30:2), pp. 357-399.

[5] Katharina, R.; Abraham, B. (2013) 'Knowing what a user likes: A design science approach to interfaces that automatically adapt to culture' MIS Quarterly, 37(2):427-453.

[6] Williams, J. (2017) '10 essential UI (user-interface) design tips' available via

https://webflow.com/blog/10-essential-ui-designtips

[7] Bein, D.; Bein, W.; MaDIRAJU, P. (2009) " the impact of cloud computing on web 2.0 ".

[8] Maybury, M. (1998). 'Intelligent user interfaces: an introduction' In Proceedings of the 4th international conference on Intelligent user interfaces (pp. 3-4). ACM.

[9] Birnbaum, L., Horvitz, E., Kurlander, D., Lieberman, H., Marks, J., & Roth, S. (1997). 'Compelling intelligent user interfaces—how much AI?'. In Proceedings of the 2nd international conference on Intelligent user interfaces (pp. 173-175). ACM.

[10] Jiehui, J.; Jiyi, W, ; Jianqing, F,; Zhijie, L. (2011) 'A Survey on Cloud Storage' Journal of Computers, Vol. 6, No. 8.

[11] Aleryani, A. ; Alaraki, S. ; Mofleh, H. (2017) "The Usage of Personal Cloud Storage by Academician in Developing Countries (Opportunities and Challenges)" International Journal of Information Technology and Business Management, 29th May 2017. Vol.59 No.1

[12] Dropbox: https://www.dropbox.com/features[13] Google Drive: https://www.google.com/intl/en_US/drive/start/index.html

[14] Business Statistic available via https:// expandedramblings.com/index.php/dropbox-statistics/

[15] Google Drive 2: https://en.wikipedia.org/ wiki/Google_Drive

[16] Molina, P. (2004) 'A Review to Model-Based User Interface Development Technology 'Workshop on Making model-based user interface design practical: usable and open methods and tools, Madeira, Portugal. International Conference on Intelligent User Interfaces.

[17] Tanahashi, Y.; Chen, C.; Marchesin, S. ; Ma, K. (2010) 'An Interface Design for Future Cloud-based Visualization Services ', IEEE 2nd International Conference on Cloud Computing Technology and Science, Special Session Cloud Computing, HCI & Design: Sustainability and Social Impacts 12, 2010

[18] Sonia Chiasson, Robert Biddle, Anil Somayaji, 2007, "Even Experts Deserve Usable Security: Design guidelines for security management systems"

[19] Mercedes, K. ; Winograd, T. (2008) "Enhancing The Development Life Cycle To Produce Secure Software", Data & Analysis Centre for Software

[20] Sensenbach, R. (2016) 'Leveling Up: From UI to Product Design

Available via https://www.invisionapp.com/blog/ from-ui-to-product-design/

[21] Portman, J. (2016) 'The Core Principles of UI Design' available via

https://www.invisionapp.com/blog/core-principles-of-ui-design/

[22] Niall Murphy (2000) 'Principles of User Interface Design' Embedded Systems Programming

[23] Constantine, L. ; Lockwood, L, (1999) ' Software for Use: A Practical Guide to the Essential Models and Methods of Usage-Centered Design. ' MA: Addison-Wesley

[24] Zissis, D., & Lekkas, D. (2012). Addressing cloud computing security issues. Future Generation computer systems, 28(3), 583-592.

[25] Kaur, S., & Sood, S. (2016). A Survey Paper on the Evaluation Criteria of Open Source Cloud Computing Solutions.

[26] Voras, I., Mihaljević, B., & Orlić, M. (2011, June). Criteria for evaluation of open source cloud computing solutions. In Information Technology Interfaces (ITI), Proceedings of the ITI 2011 33rd International Conference on (pp. 137-142). IEEE.

[27] Taber, D. (2011) 'Cloud UI Design Mistakes to Avoid' available via

https://www.cio.com/article/2401232/

cloud-computing/cloud-ui-design-mistakes-to-avoid.html

[28] Rose, M. (2013) 'DickeyDropbox Vs. Google Drive: Which Cloud Storage Service Is Better?'Available via http://www.businessinsider. com/dropbox-vs-google-drive-2013-4