Design Limitations of Human Computer Interaction for Elder Users

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Abstract— Different modern techniques are introduced in market, but mostly are not adopt by every person due to their complexity. Some technical person and youngsters utilize these technologies for their benefits, but these are being ignored by elder peoples. Due to some effects of aging like regression in memory, lack of management capability and cognitive effects they cannot interact with computer interface. However, there is a lack of set of design strategies and design approvals of Computer Interaction interfaces that competes elder's needs. To improve the quality of life of elderly is an important issue within our society for both development and research. For this purpose we made a survey and fill up a questionnaire to know the difficulties of elderly users and find out their problems

Index Terms— Reusability engineering, cognitive Theory, Computer Interaction interfaces, Aspect of aging,

1 Introduction

Human–computer collaboration (HCI) inquires about the configuration and utilization of PC innovation, concentrating especially on the interfaces between individuals (clients) and PCs. Scientists in the field of HCI both watch the courses in which people communicate with PCs and configuration advances that lets people interface with PCs in novel ways. As a field of examination, Human-Computer Interaction is arranged at the crossing point of software engineering, behavioral sciences, outline, media studies, and a few different fields of study. The Association for Computing Machinery characterizes human-PC communication as an order concerned with the outline, assessment and usage of intuitive registering frameworks for human utilization and with the investigation of real phenomena encompassing them. An imperative feature of HCI is the securing of client fulfillment (or essentially End User Computing Satisfaction). "Since human–computer collaboration concentrates on a human and a machine in correspondence, it draws from supporting learning on both the machine and the human side. On the machine side, methods in PC representation, working frameworks, programming dialects, and advancement situations are pertinent. On the human side, correspondence hypothesis, realistic and mechanical outline disciplines, phonetics, sociologies, intellectual brain research, social brain science, and human elements, for example, PC client fulfillment are important. Also, obviously, building and outline routines are pertain.

1.1 Objectives of HCI

Points HCI to support the collaboration in the middle of clients and PCs by making PCs extra usable and responsive to the necessities of the clients particularly, HCI has intrigues in

1. Demonstrate a comprehension of rules, standards, and hypotheses impacting human PC cooperation.
2. Recognize how a PC framework may be adjusted to incorporate human assorted qualities.
3. Select a powerful style for a particular application.
4. Design fake ups and complete client and master assessment of interfaces.
5. Carry out the progressions of trial configuration, convenience and exploratory testing, and assessment of human PC connection frameworks.
6. Use the data sources accessible, and be mindful of the techniques and innovations supporting advances in HCI.

1.2 General aspects of aging

Much the same as your body, your eyes and vision change after some time. Maturing changes in different parts of the eye can bring about various detectable contrasts in how well you see. While not everybody had encounter the same level of indications, the accompanying are normal age-related vision changes. As you age, you require all the more light to see and also you did in years past. Brighter lights in your work territory or by your perusing seat had help make perusing and other close undertakings less demanding.

Printed materials are not as clear as some time recently, to some extent on the grounds that the lens in your eye turns out to be less adaptable with time. This makes it harder for your eyes to center close protests with the same capacity you had when you were more youthful. You may see extra glare from headlights around evening time or sun reflecting off of windshields or asphalt amid the day, making it harder to drive. Changes inside of the lens in your eye cause light entering the eye to be scattered instead of concentrated absolutely on the retina. The ordinarily clear lens situated inside your eye may begin to stain making it harder to see and recognize certain shades of hues.

With age, the tear organs in your eyes had created fewer tears. This is especially valid for ladies after menopause. Thus, your eyes may feel dry and chafed. Having a satisfactory measure of tears is a vital component in keeping your eyes solid and keeping up clear sight.

1.3 Vision and aging

Much the same as your body, your eyes and vision change after some time. Maturing changes in different parts of the eye

International Journal of Scientific & Engineering Research Volume 6, Issue 11, Novermber-2015
ISSN 2229-5518

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Printed materials are not as clear as some time recently, to a limited extent on the grounds that the lens in your eye turns out to be less adaptable with time. This makes it harder for your eyes to center close questions with the same capacity you had when you were more youthful. You may see extra glare from headlights around evening time or sun reflecting off of windshields or asphalt amid the day, making it harder to drive. Changes inside of the lens in your eye cause light entering the eye to be scattered as opposed to concentrated definitely on the retina. The typically clear lens situated inside your eye may begin to stain making it harder to see and recognize certain shades of hues.

With age, the tear organs in your eyes had delivered fewer tears. This is especially valid for ladies after menopause. Therefore, your eyes may feel dry and aggravated. Having a sufficient measure of tears is a key component in keeping your eyes solid and keeping up clear sight.

1.4 Memory and aging

Working memory can be likened with awareness. People are aware of and can screen just the substance of working memory. All other subjective working is escaped perspective unless and until it can be brought into working memory. The impediments of human working memory are both understood and broadly acknowledged. Working memory is fit for holding just around seven things or components of data at once. Moreover, on the grounds that working memory is most regularly used to process data in the feeling of arranging, differentiating, looking at, or chipping away at that data in some way, people are likely just ready to manage a few things of data all the while when needed to prepare as opposed to simply hold data. Any connections between components held in working memory themselves oblige worm king memory limit, lessening the quantity of components that can be managed all the while.

2 Background Theory

We have studied different related research material about interface concering performance, accuracy, error rates and easinass of use. We have selected interface design for elders as the most important field of study because now a days it become an important topic. Before the selection of this topic we have consulted HCI related professors and experts in this field. For defining guidelines a brief study has been made.

Mostly survey has been conducted for analysis. Many types of techniques have been utilized for conducted survey. Many types of questions are asked from people based on the layout of interface, its intuitiveness, ease of use, instructivness and its performance, preference of the specific technology and reasions behind this. They are filled it by focusing that what they have problems and what they want to add this.

3 METHDOLOGY

We conduct a survey and fill up a questionnaire from hundred people's .Our questionnaire based upon the following categories, like ease of use, feature involving simplicity, client guidance, insignificant memory load, insignificant action, consistency, response as well as bugs and freedom.

Category "Ease of use" shows the most important questions about the quality of interface. In this category question related to feasibility, simplicity, clarity and easiness of practice asked to the elder user. Category "Ease of use" shows the most important questions about the quality of interface. In this category question related to probably program that able to connect to the interface, simple to operate process, least actions and utilization without guidelines are asked to the elder user.

Category "Ease of use" shows the most important questions about the quality of interface. In this category question related to disparity, equally likeness of incidental and customary buyers and recovers errors quickly as well as rapidly are asked to the elder users.

Category "Features involving simplicity" shows the most important questions about the quality of interface. In this category question related to Learnability, Effectiveness, Memorability, Problems Accuracy and Subjective Fulfillment about interface are asked to the elder users.

Category "satisfaction" shows the most important questions about the quality of interface. In this category question related to satisfaction, recommendation, need, working way and attractiveness about interface are asked to the elder users.

Category "similarity" shows the most important questions about the quality of interface. In this category question related to movement with mechanism of cursor, significance of control entry, perfect coding and natural wording are asked to the elder users.

Category "Client Guidance" shows the most important questions about the quality of interface. In this category question related to slipup message, cancel choice, showing of mistaken section and section of amendments about interface are asked to the elder users.

Category "Client Guidance" shows the most important questions about the quality of interface. In this category question

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International Journal of Scientific & Engineering Research Volume 6, Issue 11, Novermber-2015
ISSN 2229-5518

related to control section, help, showing the fulfillment of converting and about showing of repeated faults, are asked to the elder users.

Category "Client Guidance" shows the most important questions about the quality of interface. In this category question related to restart choice, undo to switch control activities and about control client originated are asked to the elder users.

Category "Insignificant memory load" shows the most important questions about the quality of interface. In this category question related to utilization of truncation and condensation entering hierarchic information accessible direction data and about hierarchic menus are asked to the elder users.

Category "Insignificant memory load" shows the most important questions about the quality of interface. In this category question related to stressed chosen information manual of information showing existing position in menu structure and about length of information are asked to the elder users.

Category "Insignificant memory load" shows the most important questions about the quality of interface. In this category question related to menu determination utilization of short codes or Long code identification of upper and lower case and about additional verbal marks is asked to the elder users.

Category "Insignificant action" shows the most important questions about the quality of interface. In this category question related to associate section of interrelated information entry of grateful information nonattendance values and about basic key activity are asked to the elder users.

Category "Insignificant action" shows the most important questions about the quality of interface. In this category question related to function keys to control activity comprehensive search and replace capacities menu purposed by specifying and menu.

Category "consistency" shows the most important questions about the quality of interface. In this category question related to consistency of appearance planning stable reply reliability of configuration in information field and consistent arrangement are asked to the elder users.

Category "consistency" shows the most important questions about the quality of interface. In this category question related to consistency of classification and logos control vocabulary text according to user guidance are asked to the elder users.

Category "Response as well as Bugs" shows the most important questions about the quality of interface. In this category question related to timely replies happening of faults occurrence and clarification recoverance of previous state are asked to the elder users.

Category "Freedom" shows the most important questions about the quality of interface. In this category question related to education purposes specific flexibility selection of information according to user handle to model are asked to the elder users.

4 RESULTS AND DISCUSSION

As we know category "Ease of use" was divided into three parts. In first part according to the elders that they are less satisfied from feasibility, simplicity and comprehensive of interface. Elder users are more satisfied to turn into practiced on when using program. In second part elder users are less satisfied that their interface has no program that are helpful for continue to connect, it's not simple to operate, more actions required to complete a task and they not easily utilize it without guidelines. In third part elder people are less satisfied that they feel many inconsistency when using the interface and not easily and they do not quickly recover the errors and elders are strongly agree that both incidental and customary buyers like interface.

In category "Features involving simplicity" elder users are less satisfied by learnability, effectiveness and subjective fulfillment of interface but user feel more problems and required more memorability for using interface.

In category "Satisfaction" elder users are not strongly agree to recommend this interface to their partner interface not work according to their need and they are less satisfied to use this and are strongly agree that they have to need it and its attractive to use.

In category "similarity" elder users are strongly satisfied that movement of cursor is well suited, control matched to client expertise, coding perfect and interface use natural wording but are weakly satisfied from the consequences of control entry.

Category "Client Guidance" also divided into three parts first elder users are softly satisfied that slip-up message are supportive and they are strongly satisfied from cancel choice, mistaken section showed and alteration.Second elder users are strongly agree from response to control section, help and fulfillment and they agree that repeated faults showed. Finily elders users are strongly satisfied from restart choice and undo to switch control activities and elders are weakly satisfied to succession control client originated.

Category "Insignificant memory load" was divided into four parts. First elders are satisfied from utilization of truncations and abbreviations, support hierarchic information, accessible direction and strongly agree to hierarchic menus to successive determination. Second elder users are strongly satisfied from the highlighted information and showing current position but are the directory information and short information. Third elder users are less satisfied from letter codes outlined precisely, short codes and supplementary verbal marks but strongly satisfied from identification of upper and lower cases. Fourth elder users are softly agreed from consolidate section of related information, obliged information enter one time and default values.

Category "Insignificant action" function key regulate control activities, global hunt and supplant capacities, Menu determi-

International Journal of Scientific & Engineering Research Volume 6, Issue 11, Novermber-2015
ISSN 2229-5518

nation by indication and menu determination by keypad passage. Category "consistency" elder users are softly agreed from reliable configuration with in information field and consistent mark arrangement. And users are softly agreed from consistency of the classification control vocabulary. Category "Response as well as Bugs" elder users are softly agreed from happening of faults. They are strongly satisfied from timely replies, occurrence and clarification and recoverance of previous state.

Category "Freedom" elder users are softly agreed from specific flexibility and handle to model. They are strongly satisfied from education purposes and selection of information according to user.

6 CONCLUSIONS AND FUTURE WORK

Our exploration, we presumed that the senior individuals are very little fulfilled from the interface, they are utilizing. The products are not being created by and inabilities identified with that age. The fundamental purposes behind not utilizing these interfaces are the absence of possibility, ease of use, understandability, consistency and recoverability. Alternate reasons are the abundance of many-sided quality and prerequisite of more memory. We prescribed that decrease in items per operational page ought to be 5+-2 capacities that lessen unpredictability, Consistency interface of diverse programming form and keep operation territory in the focal point of working page.

Recognized the inadequacy of the term direct instruction and has recommended active teaching as a broader term that describes the ideal way to teach. Instructors whose students learn effectively are active in presenting concepts, providing appropriate engagement and practice activities, and monitoring those activities carefully. These teachers understand the characteristics of their students and actively look for ways to determine whether their students understand what they are doing. They assume partial responsibility for their students' learning and are prepared to reteach when it is necessary to do.

The majority of the elder user's perspective is that a button should be used to execute one function. For instance, utilization of shift key to change functions of button need more short-term memory to work and the elder user may confront challenges to utilize it. Single task for every page decrease unpredictability of use as well as diminish consideration load for more elder users. Utilizing of home screen that incorporates rundown data of everything, for example, a sites primary page requires more consideration and short-term memory to comprehend and perceive what to do. For instance primary screen of Facebook site, there are numerous consideration focuses and numerous operations which could be connected to inside one and only page, this sort of configuration may make trouble for elderly users when utilizing it.

Furthermore push affirmations of activities by users to forestall unintentional activities at any conceivable time to anticipate unintentional activities that may cause mistake message for or sudden input, affirmations ought to be utilized. This may be drowsy for general client, however for the elderly user. They had feel more restrictions and course stream of software and keeping them from errors. In a complex assignment that clients is obliged to finish numerous sub undertakings, orderly wizard may be obliged to diminish memory and consideration load.

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