# Implementation of New Design Patterns for Designing Culture Based User Interfaces

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**ABSTRACT—**Culture influences the usability of user interfaces. When taking into consideration sound effects of culture inside human computer interface, it's so essential to recognize that the functions and significance of design pattern techniques for scheming and building culture based user interfaces. The use of appropriate design pattern in this category focused on the, user friendliness, colors to be used so that various types of user belonging from a particular culture will use the product with satisfaction. To develop usable culture based interfaces the study of user behavior is of significant importance that uses system. In this research ethnography approach has been used. Users and their behaviors also observed, as well as interviewed. By isolating the fundamental messages behind what they said and wants to develop insights into the essence of these messages to form a hypothesis on the ideal form of the users' activity and experiences. Ethnography provided an answer to all these questions by observing the concerning culture and interviewing the intended users.

**Keywords:**-Ethnography, Cognitive, HCI, CBUI, CCD, CBD

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## 1 INTRODUCTION

Design patterns are hypothetical to intend an excellence in patterns to educate spanking new designers in order to plan, standardize and develop the system designs. Logically, a design method comprises a series of syntactic notations and a set of laws that preside over how to utilize every notation. That is also demonstrated that problems crop up in a design subsequently how to renovate them and how to consider a design. It is feasible that the large number of the designers do not consider on the subject of the notation through which they are building the design. The design compositions which are well defined always have a productive impact on software advancement moreover interface designing. Software engineer who is well known with a better quality set of design formations all the time prefer to apply these design formations aptly according to the necessities and terms of a specific culture [1].

## 2 HYBRID APPROACH DESIGN PATTERNS

A hybrid technique is an innovative form of designing method that has achieved elevated usability by means of joining the attributes of computational along with cultural design patterns. The most important objective of a fusion design pattern is to strengthen the effectiveness of a construction that cart out interactive tasks for a precise culture. A hybrid reproduction developed like a fresh pattern or augmentation in an accessible set of archetype when the capacity of the system in addition to gratification of the end user belonging from a representative culture is of foremost apprehension.

Culture slanting users predict that the interface must be organized in an established mode so the interface should symbolize the expectations fittingly. to manufacture an exceptionally utilizable user interface, it is momentous to keep usability professionals or premeditated users from the preliminary phase of the design and expansion method. Culture focused designs are utilized to position the culture of the relevant user's next to the core of the progress. It is used to manufacture culture based user interface that convinces the uniqueness of culture by scrutinizing the anticipated culture's priorities. [4].

It is established that pattern compilation focused just on top of composition troubles not only on scrutiny issues. But the developed UI construction provided a set of theoretical mock-ups that used as construction slabs to generate User Interfaces stipulation through study. In fastidious, hybrid design prototype gave conceptual qualifications for essential User Interface necessities, like that:

➢ How to explore?
➢ How to categorize?
➢ What to observe?
➢ What to carry out?

It is as well documented that the comparatively casual metaphors about Culture Based User Interface (CBUI) design patterns utilized nowadays not appropriate meant for each culture. A predetermined set of patterns has been dignified so the culture based user interfaces developed by the designers to increase the level of ease and convenience user.

## 3 USE DESIGN PATTERNS RELATIONSHIP

Hybrid strategy has highlighted another significant feature of the design patterns that known as pattern permutation. With joining dissimilar design patterns the designers have consumed design pattern associations by sharing those patterns in an array to manufacture an efficient architecture resolution [2]. User Interfaces based on design patterns are confirmed clarifications to a consumer dilemma that arises in a range of perspectives and projects. The developed documentation of design patterns as well as the pattern-directed approaches is applicable; it has taken as for granted. Pattern Directed plus Model Supported User Interfaces always aimed to be reconciled, combined into a solitary frame so the pattern determined along with sculpt based strategies for making CBUI.

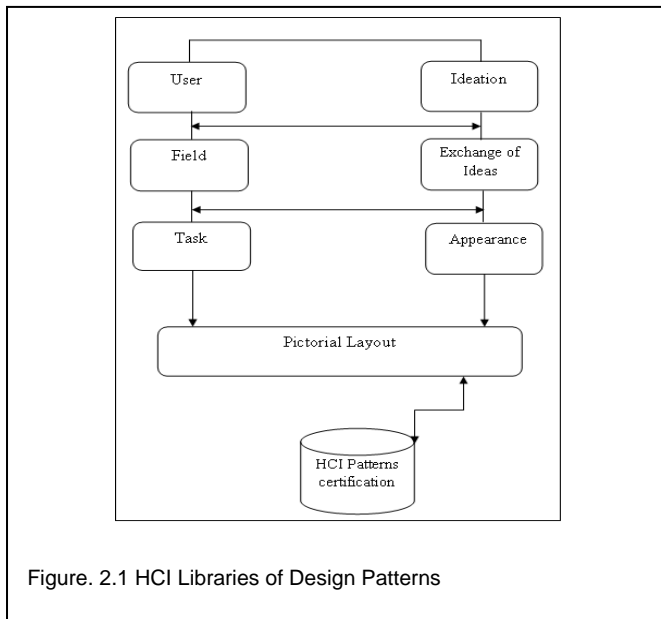intricate the technique of designing a Culture Based User Interface.



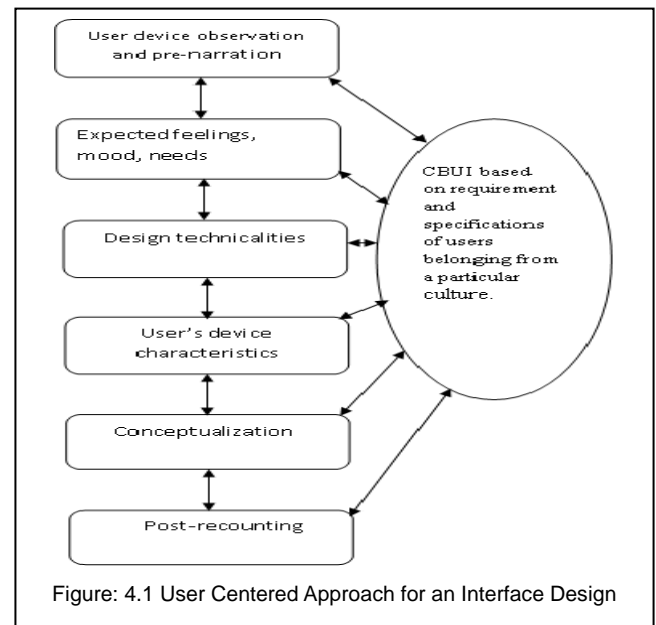Figure. 2.1 HCI Libraries of Design Patterns



Figure: 4.1 User Centered Approach for an Interface Design

The citations about Human Computer Interaction patterns utilized like formation chunks for building and conversions. This procedure moved in a stream till the closing manufacture of the user interface design. after that a mode of identifying and relating patterns all over the production and modification of the representations. The Pattern Wizard supports the developers of CBUI in choosing as well as constructing patterns and converting the variety of replica to a solid CBUI. This methodology combines the entire elements of the CBUI in singly and integrative creation in favor of the manufacturing pattern determined plus culture supported CBUI's.

## 4  CULTURE'S POSITION in MANIPULATING INTERFACES:

Customs has become one of the majority imperative issues of functional systems for designing in the time of internationalization [8]. CBUI direct to a well define design determined approach, which is formed via experimental valuation of usability and convenience. An objective of Culture Based User Interfaces is to build such kind of artifact that permit an end user to execute jobs by a least amount of trauma and highest of effectiveness.

As a result, Culture Based User Interface which is actually user centered would demonstrate elevated usability in particular objective culture. On the other hand, the majority of the programmers have not been emphasizing on CBUI and usability issues. Culture Based Design techniques accentuate in intensity awareness of the user and their requirements and in the surroundings. Infrequently culture is inspected at all levels talked about which is unlucky from the time when culture proceeds as a guideline for suitable performance, describes standards and deeply background [5]. Subsequently diagram will

The devices of intended users have been acquiesced in detail to monitor the expected reaction and requirements of that fastidious user. After that design technicalities have shaped according to the symptomatic of the device. Then at the fifth one phase of the designing conceptualization have been completed. at the ending stage of the development post linking have performed to estimate the anticipated design with the archetype.

## 5  THE GOAL OF RESEARCH

It is based on the preceding body of information the research has performed with following reasons as a resource of inspiration.

- To present the user with an obvious and constant conceptual construction.
- To do a good number of tasks with the slightest amount of prompts.
- To equivalent the appearance with the capabilities of the user.
- To take in only the components that are most essential for communication.

## 6  DEVELOPED METHODOLOGIES

Relations between designs patterns must acknowledged by following a line of investigation strategies. This research employed a mixed method approach. Finally, a comparative analysis evaluated the validity of patterns across cultural contexts. Design configurations developed the certification and conservation of presented system via enhancing an overt requirement of rank and object communications along with their elementary intent. Ethnographic design pattern presented a fresh instrument for conveying design

compositions in accordance to the demands of about an exact culture. Design patterns provided a recognizable terminology for designers to switch over information, manuscript and explore design alternatives. The tremendous design pattern proficiently raises the status of prospects for the intended culture. The proper use of design patterns represented a reusable foundation of experience meant for the creation of reusable software. The design patterns preceded as construction blocks for accumulating culture oriented designs.

## 7 ETHNOGRAPHIC DESIGN PATTERNS

Ethnography was developed as a qualitative research method used in the fields of cultural anthropology and sociology to understand how people actually live or work. This method is applied to the areas of marketing and design research to gain a deeper understanding of users, isolate latent user needs by observing users and their behavior, as well as interviewing them. Then to build a concrete image of a product or service by creating prototypes that simulate the interface between the product or service and users. A complete and thorough observation of the intended users has also been done to uncover the some hidden issues in the actual design process phase.

- ❖ Interact with the user
- ❖ Observes the user's natural environment
- ❖ Build a simulation
- ❖ Analyze the collected data
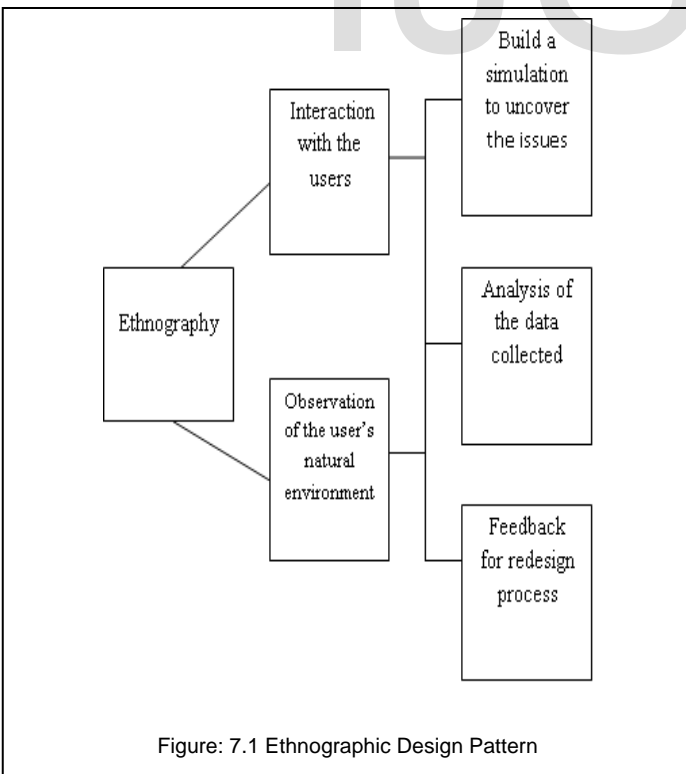- ❖ Feedback for redesigning



Figure: 7.1 Ethnographic Design Pattern

In ethnographic process the whole process worked out step by step before moving to the next stage to collect and take previous information along with. In

first step we have to interact with the user from a specified culture than we have to move on to the further stage to observe the user's natural environmental behavior. At these two phases work has been done for sufficient amount of time to gather more suitable information. Then the work goes on further through three stages the first one is simulation, at the first stage a simulation was build to uncover some hidden issues then move to the next stage to analyze the data. At the last stage some features has been added which entirely changes the working of proposed model known as feedback for redesign process. By adding some additional features feedback might be gain from the user to enhance and improve the working of the final product.

## 8 ETHNOGRAPHIC DESIGN PROCESS

Ethnographic research is involved in determining the setting for research, rather than just data. It is not an easy topic to get a clear meaning on, largely because of its 'contextual' nature [7]. In relations of method, ethnographic has most of the following features:

1. Data are congregated from a variety of causes, but opinion may be relatively familiar dialogs are one of the major and frequent concern.
2. The approach to data collection is "amorphous", in a sagacity that it does not comprise following through a comprehensive plan set up at the origination, categories are not used for understanding what community utter and act totally pre-given or fixed.
3. Focus is frequently a minute amount of situations, possibly a cluster of people, of relatively small scale. Undeniably, in life antiquity research may even be a particular discrete.
4. Scrutiny of data encompasses reading of the imports and tasks of human being dealings and mainly takes the form of vocal images and explanations.

## 9 CULTURE CENTERED DESIGN

Interface design should be stranded in cultural standards and supporting principles articulated by the civilization [9]. In HCI literature, culture is distinct as values and behavior shared by a group of individuals. Culture includes social information and sympathetic; ways of knowing, thinking and doing; confidence and temperament; and customs and habits common by a public of people and accepted on through common transmission. The evidence in the writings and the scholar's experiences proposed that here is need of in detail examination, suitable systems to help out originators in the midst of how ethnicity can intentionally incorporated in the edge design [3].

It is recommended that designers "would do well to deliberate their own national orientation and to understand the favorite structures and developments of other cultures". Suggested culture-centered project is to please users' first basic requirements, and tiresome to fulfill intellectual, demonstrative and cultural needs to

accomplishment the peak level in Maslow's order of human needs, self-actualization. Only all the way through a recovered understanding of people's sensorial insights and civilizing ethics, must be capable to transfer into an innovative pattern of superiority wherever goods have supplementary significance, assembly user's accurate wants and building their familiarity further substantial [6].

It is clinched that traditionally determined design and evaluation of CBUI usability converge in the representations of Culture Centered Design, Applications, and Applicable Approaches which are entrenched in customarily specific contexts. Beliefs can distress the usability of user edges. Culture Centered Design is a phenomenon, and it depends on implementation, design and evaluation of that design. Applications concerned with intended users, demands, performance and social dealings that administer human activity in an agreed time and dealing [10]. Applicable Approaches concerned with three strategies, ethnography, cognitive strategy and design patterns. Requirement engineering claimed that congregation good user data is hard and user data can lead to misapprehension of user needs. Once an interface expensive understands the client's design specifications and the user's cultural requirements then designing process became easy and successful [5].

The design patterns exercise used for identifying interfaces of projected cultural compliance recommends set of reusable elucidation to resolve problems. Use of design patterns enhanced the traceability techniques from requirements elicitation to the phase of interface design. With adding up, design patterns summarize more multifaceted technical conclusions such as the allocation of space within the screen or else the most proper interaction apparatus depending on the condition. The solution is based on conceptual models, simply comprehensible by analysts, users, and independent accomplishment is desirable. The utilization of patterns consists in the replication of an elucidation applied to analogous problems in parallel of field and of analyst's prior expertise. There are quite a lot of works to mock-up interaction based patterns from element based process to object oriented or tasks oriented techniques.



## 10 RESEARCH OBJECTIVES

The objective of this research is to resolve whether or not single side of every cultural dimension's dichotomy raises the common usability of user interfaces. There are as lots of arguments against as sustaining the adjustment of culture hooked on user interface design. One argument suggests that it is essential to equivalent the subjective cultural outline of the interface to the cultural outline of the users in the sense to improve usability and presentation. In contrast, the interface design characteristics required designing interfaces to accommodate.

## 11 CONCLUSIONS

The design patterns are the instruments which have been used to utilize and analyze the user basic demands from perspective cultures. The developed methodology forms the new basis for designing the culture based user interfaces. The research work is providing ground work for expanding research on human computer interaction as well as user satisfaction from concerned culture. Hence such kind of studies of user satisfaction is providing the basis for best usage of available resources.

It is not extremely easy to calculate the expectations and needs of the each type and class of users concerning the usage of software plus its interfaces. it is as well very complex to reviewer their expectations and precise approach for a pre-determined job sets other than this technique should be an optimistic footstep on the method to increase the user communication with the system. it shall also be a obliging method in modifying the majority of the user technological needs.

## 12 FUTURE WORK

Lastly, CBUI is concerned about design stuffs such as usability heuristic should be tailored to correctly reflect new move toward visibility demands. The use of a CBUI procedure is that the user interface possibly will be separated into more than a little output mechanisms, every of them planned on speckled workspaces. In such conditions the end user must have to work in a number of those spaces; according to the visibility heuristic, the user should be trained not simply in relation to the components of the system ordered on secretive space but also in relation to all those parts positioned on other general spaces.
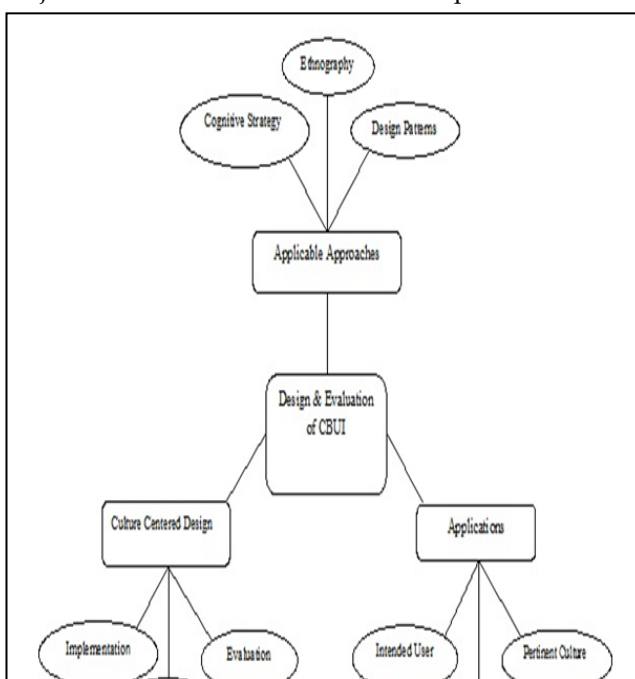
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