

**HYPERMEDIA CAT ENCYCLOPEDIA FOR CHILDREN****SITI HANISAH BINTI MAJID**

A thesis submitted in fulfillment of the  
requirement for award of the degree of  
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## **ABSTRACT**

Creating courseware as a learning tool is one of the common way to ease the learning process of the targeted user and the people that using the application. Hypermedia Cats Encyclopedia for Children (HCEC) is developed as a standalone application and the targeted user is the twelve years old children to encourage them in learning about the animal especially cats and for the children that loves to read and can use this application and help them from bringing the bulky encyclopedia book. This application can help the children in their learning process and allure them to have the passion in reading. This application is focusing on implementing Human Computer Interaction (HCI) strategies with its heuristics and combine with specific golden rules from Shneiderman that related with the application for the children. Rapid Application Development (RAD) is a development lifecycle designed to give much faster development and higher quality results than those achieved with the traditional lifecycle. That is the main factor that this type of methodology is chosen to develop this application though these two semesters.

## **ABSTRAK**

Courseware dijadikan sebagai alat bantuan belajar adalah salah satu cara yang umum untuk memudahkan proses pembelajaran untuk pengguna yang disasarkan kepada kanak kanak terutamanya pelajar Sekolah Kebangsaan Beladau Kolam yang menggunakan aplikasi. Hypermedia Cats Encyclopedia for Children (HCEC) yang dibangunkan sebagai aplikasi tunggal dan pengguna yang disasarkan adalah pelajar berusia dalam lingkungan 11 hingga 12 tahun untuk mendorong mereka dalam belajar tentang haiwan khususnya kucing dan bagi pelajar yang suka membaca dan boleh menggunakan aplikasi ini dan membantu mereka dari membawa buku ensiklopedia yang besar dan tebal. Aplikasi ini dapat membantu anak-anak dalam proses belajar dan menarik mereka untuk menanamkan minat untuk membaca. Aplikasi ini menumpukan pada pelaksanaan strategi Human Computer Interaction (HCI) dengan heuristik dan menggabungkan dengan peraturan tertentu dari Shneiderman yang berkaitan dengan aplikasi untuk kanak kanak. Rapid Application Development (RAD) merupakan pembangunan atau cara yang digunakan untuk membangunkan aplikasi ini. Metod ini direka untuk memberikan perkembangan dan pemantapan supaya projek yang dibangunkan menggunakan masa yang sedikit dan kualiti hasil lebih tinggi daripada yang dicapai dengan cara tradisional yang lain. Faktor inilah yang menjadi fokus untuk membangunkan sistem ini dalam dua semester ini.

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# **CHAPTER 1**

## **INTRODUCTION**

This chapter will provide a brief overview of the entire project including the objective of the project, scope, problem statement and organization of the thesis.

### **1.1 Introduction**

Hypermedia Cat Encyclopedia for Children (HCEC) is a standalone application system that specifically for children. This encyclopedia is built for the children as a medium for them to know more about cat's background, habits and the way to keep cat. Hypermedia is a term that has been around since the 1940's. It refers to information linked together in an easily accessible way (Schauland, 2010). In order to create an interactive and informative learning tools specified group of users (children), this project also focus in implementing Human Computer Interaction (HCI) strategies. Using HCI strategies, it will help the user to understand more and can use the application with ease.

This system is a standalone application that will be developed using Adobe flash CS4 and Adobe Photoshop to edit the picture and Adobe Illustrator to create the object and the graphic. They are the simplest and the common software that are commonly use to develop the courseware. As this is use the HCI strategies, all icons, buttons and the interface will be develop and tally with HCI strategies as mentioned by Ricardo Baeza-

interface will be developed and tally with HCI strategies as mentioned by Ricardo Baeza-Yates and Berthier Ribeiro-Neto that emphasize the importance of visualization in connecting the user and the computers. They said that the tools of computer interface design are familiar to most computer users today: windows, menus, icons, dialog boxes, and so on. These items will make use of bit-mapped display and computer graphics to provide a more accessible interface than command-line-based displays. A less familiar but growing area is that of information visualization, which attempts to provide visual depictions of very large information spaces.

## 1.2 Problem Statement

For current system, the children only have to read and view the information about the encyclopedia manually in books or in the articles of the magazines. They also have to read the information that commonly will bring boredom atmosphere. The text and the pictures that are used in the animal's encyclopedia in books just use static pictures to illustrate the animals.

The student of Sekolah Kebangsaan Beladau Kolam need to seek the information by turning pages of books and usually the encyclopedia book comes with hard cover and it is not so portable for the children to bring it. So the children need to carry that bulky book by themselves.

Children can seek the information through the internet. But the big problem is the internet and the information is messed up. Obviously it is hard for them to find out the information one-by-one on the internet and of course they need to find the information more than in one website. Most of the websites that serve the information are not well conducted as it uses wrong heuristic in designing the interface.

### **1.3 Objective**

- i. To develop hypermedia concept in developing encyclopedia-material for cats
- ii. To help student of Sekolah Kebangsaan Beladau Kolam to know about cat in an encyclopedia as a learning tools for the children.
- iii. To implement and use Human Computer Interaction strategies to develop the system.

### **1.4 Scope**

Hypermedia Cat Encyclopedia for Children prototype focuses on:

- i. Hypermedia Cat Encyclopedia for Children, which is developed or improve the safety, utility, effectiveness, efficiency, and usability of the system.
- ii. Targeted users:
  - a. 11-12 years old children of Sekolah Kebangsaan Beladau Kolam
    - i. To attract the children to learn while enjoying the animation.
    - ii. Reduce time consuming for them to search the information on the internet.
- iii. Stand alone Application  
This encyclopedia use stand alone application for the children to run the application.

## **1.5 Organization of the Thesis**

This thesis consists of six (6) chapters. Chapter 1 will provide a brief overview of the entire project including objective of the project, scope and problem statement.

In chapter 2 briefly explains about manual process of the HCEC and background of the project studied. The other aspects that will be discussed is the comparison between the prototype system and the existing encyclopedia.

The methodology that is used for developing the application will be provided. Chapter 3 also details out the system development life cycle besides software specification that are needed for this project development.

Chapter 4 explains about implementations that are required to develop the system.

Chapter 5 will describes the output of the HCEC, the constrains in completing the project, the result and recommendations to further this research of the application.

Chapter 6 is about consisting of five chapters which each chapter describes the process in developing the project.

## **CHAPTER 2**

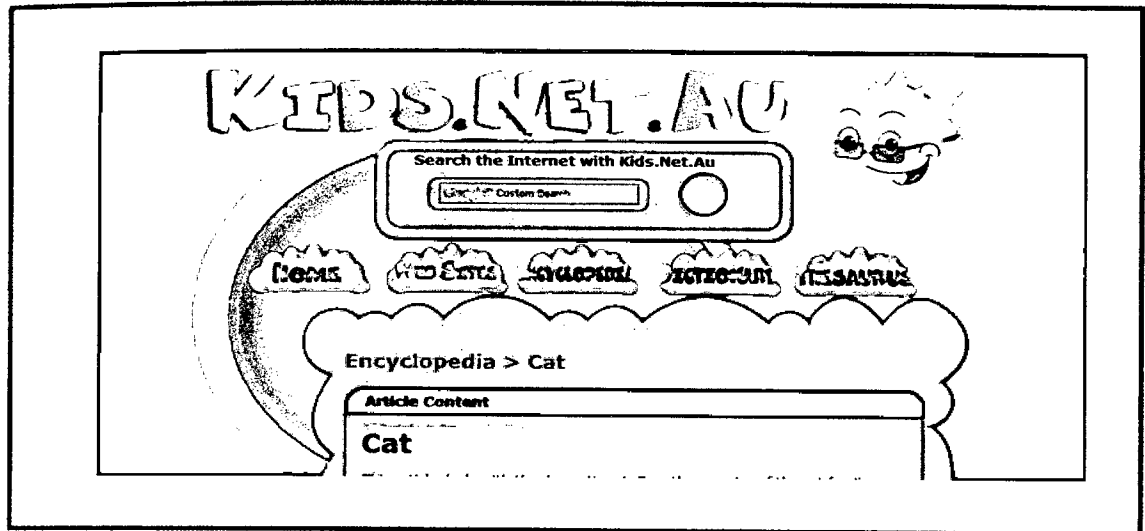
### **LITERATURE REVIEW**

A review of the literature has the following functions. First is to justify your choice of research question, theoretical or conceptual framework, and method; to establish the importance of the topic; to provide background information needed to understand the study; to show readers you are familiar with significant and/or up-to-date research relevant to the topic; to establish your study as one link in a chain of research that is developing knowledge in your field.

In this chapter, the focus is on the current system or application that existed. The literature review will cover an overview of the existing system, method used to implement a new system and the approach to developing the new system.

## 2.1 Study of existing system.

### 2.1.1 Current existing System 1: KIDS.NET.AU



**Figure 2.1:** The interface of Kids.Net.Au

This current encyclopaedia uses the basic blue colour as its background with the simple painted graphic of rainbows and the sun. It uses bright colour to handle the children's eyes browsing the information about cats. The interface comes with the menu header on the top of the page. The information about cat that is prepared for the children are not suitable for them. Too much word with unsuitable spacing will bring the boredom for them. Every paragraph also been included with the link that invites the user to click them and move to the other section or the other topics. These links which are green colour bring the unsuitable atmosphere for kids to read further. It also shows the inconsistency of choosing the colour of the font style which means that it do not follow the heuristic for the users.



## 2.1.2 Current existing System 2: Ducksters

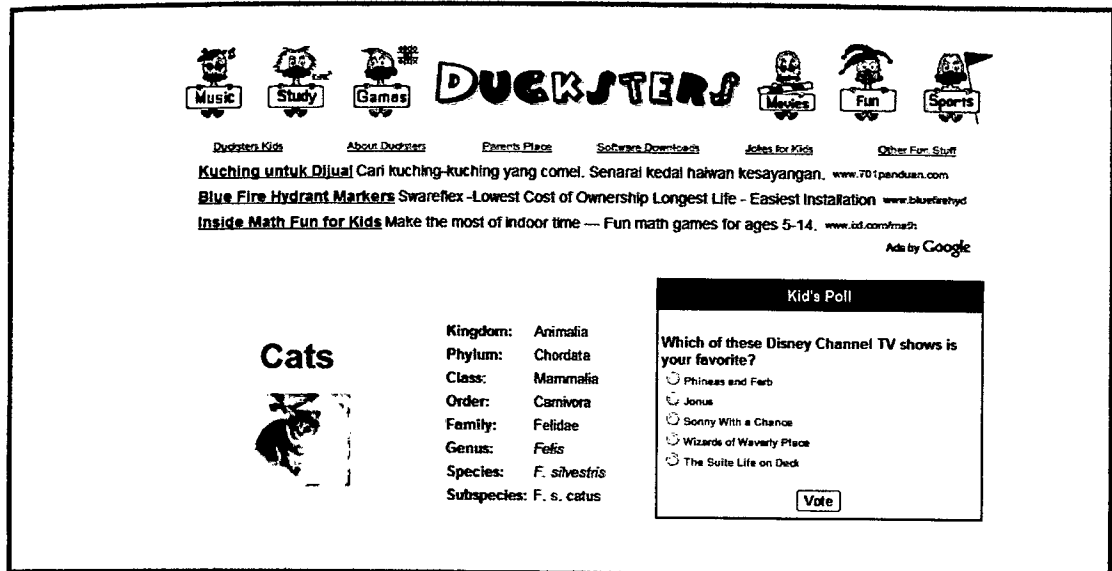


Figure 2.2: The menu bar of Duckster

The figure shows the menu bar of Duckster web page. It includes the menu that shows the module that it has. The icon and the graphic are so merely sketch that brings the boredom to the children to read them.

The cat is one of the most popular pets in the world. It is thought that cats have been kept as pets for thousands of years. Most people consider themselves cat or dog people depending on the pet they prefer, but many people like both dogs and cats.

There are lots of types, or breeds, of cats. Cats come in many different colors, sizes, with hair, without hair, and with or without tails.



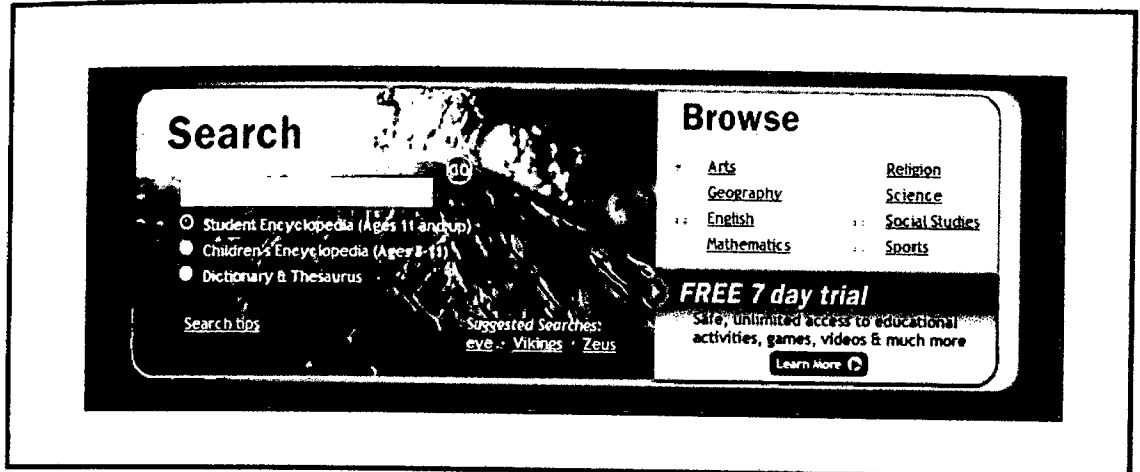
Cats are mammals. They usually weigh between 5 and 16 pounds, assuming they are healthy. An unhealthy fat cat can weigh quite a bit more. A cat that is kept indoors will typically live for 15 to 20 years. Cats have very good hearing. Their ears have 32 different muscles that enables cats to point them in any direction to hear even better. Cats are extremely agile and also have good night vision. These characteristics make cats good hunters.

Cats first became so popular as pets because they are skilled at catching

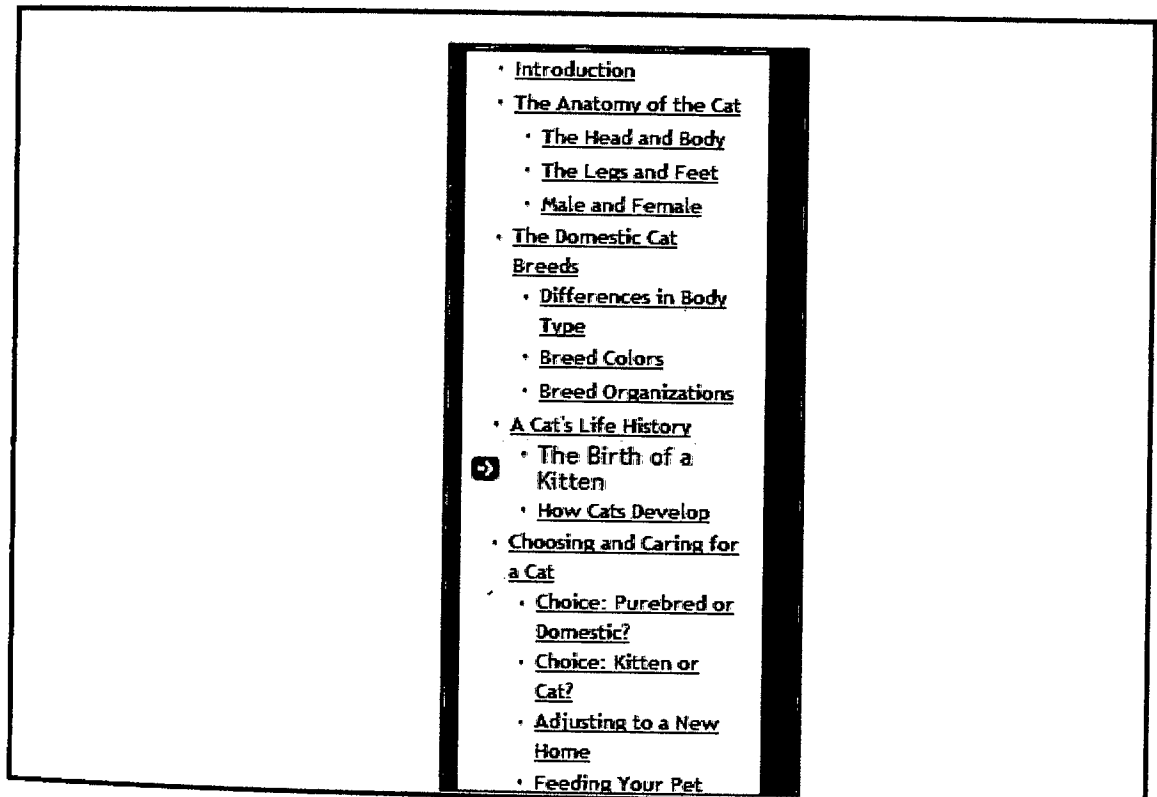
**Figure 2.3:** One of the cat's picture

Children love cartoon-like display. It can attract them more. The background has uses white colour. The information is short and use unsuitable type of font for the children usability. The menu use the cartoon-like icons which use the plain colouring technique that excluded extruded shapes, shadows, bevelled effects, shiny gradients and floating effect.

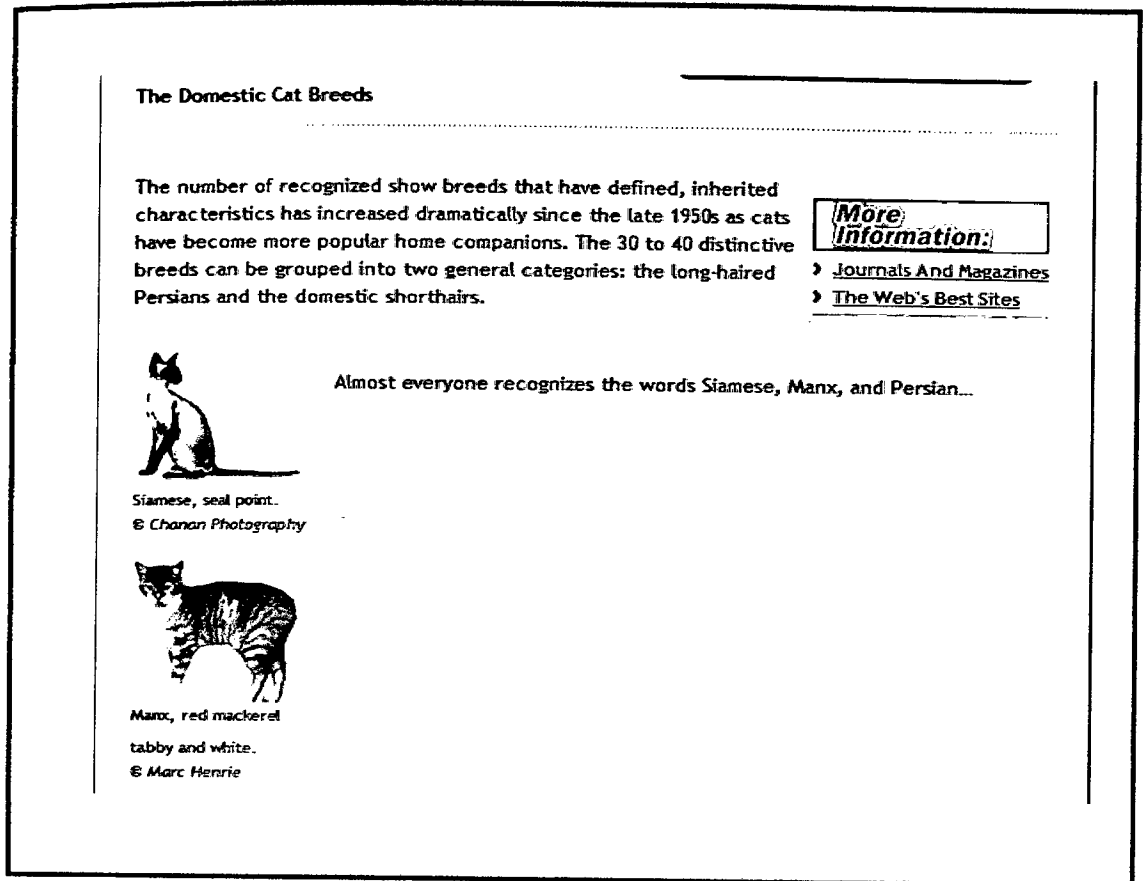
### 2.1.3 Current existing System 3: Encyclopaedia Britannica Kids.



**Figure 2.4:** The option for the children to view the encyclopaedia based on their ages.



**Figure 2.5:** The menu bar.



**Figure 2.6:** The interface of types of cats

This system use the consistence type of fonts, colours and design. The left menu is well conducted and easy to be understood with the roll-out effect for the children to specify what are they looking for in searching the information about cats. The links to every pages will change its colour if the user has visited it and it will reduce short-term memory load. For the picture section, it use attractive graphic of types of cats around the world with their species. The background is dark blue. It looks bored with dull yellow header. The content is satisfying as the information is widely established.

**Table 2.1 : The comparison of existing systems.**

	<b>KIDS.NET.AU</b>	<b>DUCKSTERS</b>	<b>ENCYCLOPEDIA BRITANNICA KIDS</b>
Targeted user	For kids	For kids of all ages	Divided to two sections: <ul style="list-style-type: none"> <li>• For kids ages 11 and up</li> <li>• For kids ages 8-11</li> </ul>
Picture's use	There's no a single picture of a cat	There are some pictures about cat in the webpage.	The pictures of cats are visible for kids but in a small size.
Interface's consistency	The interface is familiar and predictable	Use same fonts and colours. The terminology is translated correctly.	The menu bar using same fonts and size.
The existence of locus control	The user cannot control the system	The user cannot control the system	User cannot control the system
Alluring metaphor	The interfaces just show the information in words.	No direct manipulation style.	This technique is applicable in this system. The user can easily concentrate on their task
Compelling content	The content just a moderate information	The interface is not enjoyable to use.	Too many writing on the interfaces.
Attractive graphic	The colour used cannot captured the user's eyes.	The graphics use are small and not	The graphics used are symmetrical and well-aligned.

		attractive enough.	
Appealing animation	No animation.	No animation.	No animation.

## 2.2 Development Approach

### 2.2.1 Human Computer Interaction

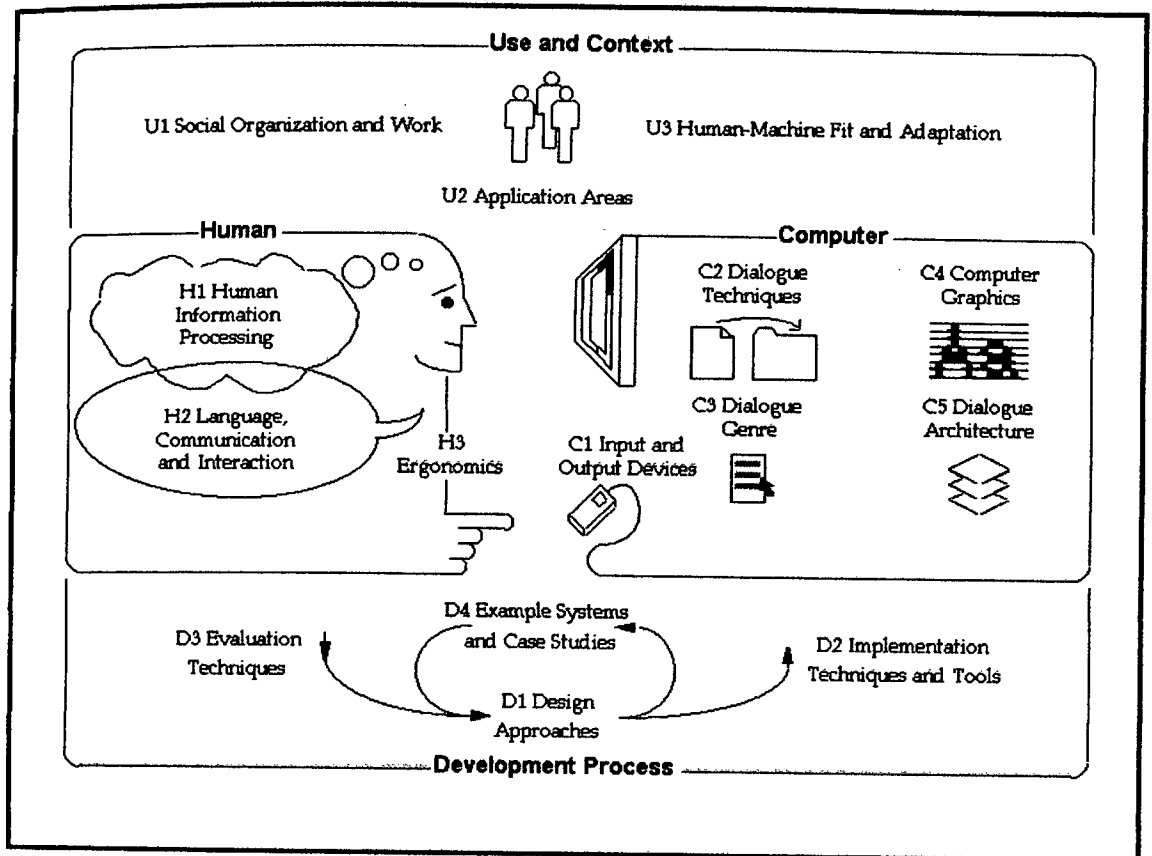
Many people nowadays rely on intuition to make computer works as maximum as possible. They want the computer to work on their task on ease. But for the others, in can be uncomfortable sail with unseen difficulties occur everywhere.

For adults, using computer become a problem when they have the computer-use with an emotional trauma. For the young, techno-phobia is not an issue. But there is added pressure elsewhere, in wanting to be like everyone else during their formative years. (Mckay, 2009)

Human Computer Interaction brings the meaning of a set of processes, dialogues, and action through which a human user employs and interacts with computer (Beacker and Buxton, 1987). It is also a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them (ACM SIGCHI, 1992).

The strategy brings the approach to design computer systems that support people to help them carry out their activities productively and safety. Role in design and development of all kind of system such as useable, safety, functionality, office system

and entertainment. Its goal is to develop or improve the safety, utility, effectiveness, efficiency, and usability of the system that includes computer.



**Figure 2.7 :** Human-Computer Interaction (Hewett, 1996).

**Figure 2.7** shows the field of human computer interaction. The process consideration of five interrelated aspects of human-computer interaction: (N) the nature of human-computer interaction, (U) the use and context of computers, (H) human characteristics, (C) computer system and interface architecture, and (D) the development process (Hewett, 1996).

Complex dialogues lead into considerations of the systems architecture necessary to support such features as interconnect able application programs, windowing, real-time response, network communications, multi-user and cooperative interfaces, and multi-

tasking of dialogue objects (C5). Finally, there is the process of development which incorporates design (D1) for human-computer dialogues, techniques and tools (D2) for implementing them (D2), techniques for evaluating (D3) them, and a number of classic designs for study (D4). Each of these components of the development process is bound up with the others in a relationship of mutual, reciprocal influence whereby choices made in one area impact upon the choices and the options available in the others.

There are heuristics and golden-rules that are related with the principles in human computer interaction. In his book, Ben Shneiderman has stated the golden rules in designing the user interface:

- i. Strive for consistency
- ii. Enable frequent users to use shortcuts
- iii. Offer informative feedback
- iv. Design dialogs to yield closure
- v. Offer error prevention and simple error handling.
- vi. Permit easy reversal of actions
- vii. Support internal locus of control
- viii. Reduce short-term memory load