**Intelligent UI/UX for Human COMPUTER INTERACTION IMPROVEMENT IN PERCEPTION FOR KIDS**

**SUBMITTED BY:**

NAHIDA AKTHER ASHA: 19-41190-2

Fayeaz Ahmed: 19-39360-1

MD. KAMRUZZAMAN KHAN NABIL :19-39384-1

**SECTION: f**

**Supervised by:**

DR. AFZORA NAHAR

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**ABBREVIATIONS**

|  |  |  |
| --- | --- | --- |
| HCI | : | Human computer interactions |
| UI | : | User interface |
| UX | : | User experience |

**1. INTRODUCTION**

Human-computer interaction (HCI) research focuses on the interactions between humans and computers in the designing and using of computer technology. The main goal of HCI is to make computers more user-friendly for humans. Every aspect of HCI is considered, from the user's perception and world interaction with technology to the computer and technology itself. Poor design can cause unexpected difficulties. Computer Interaction with children needs slightly more attention and an innovative approach. Using intelligent UI/UX designs (considering kids' psychology) in Software and Websites can effectively help improve human-computer interaction for children.

**1.1 Importance of the proposed research**

The importance of the proposed research is immense. Nowadays, technology has gone to a higher level. Our life has also been attached to technology in a significant way. Every technology is making our life easier in its path. HCI is also a technology that makes the interaction between people and computers. The interaction of people with products, methods, or gadgets is referred to as HCI [1]. It is a massive field in engineering. Over the course of its existence, the discipline of HCI has expanded not just in terms of interaction quality but also in terms of specialization [2]. UI/UX makes things easy to access, understand and use, which might be complex. When intelligent UI/UX is done in HCI, it improves its work and makes things easy. We don’t know how to use computers by born; we learn. The computer is something new for a kid, and it might be difficult for them to use it. Kids learn things in different ways. They can’t remember stuff as an aged person can. So, the interaction between kids and computers should also be further. It should be more focused on fun, easy to use, and easy to learn, not like other regular interactions focused on user experience and productivity [3]. Using intelligent UI/UX to improve HCI in perception for kids will benefit them. We can use different colors and symbols to make them easy to use. We can use other cartoon characters, which can also help. It is essential to understand what will be easy and understandable for kids.

**1.2 Limitation of this research**

There can be some limitations to this research. Most of the kids who go to school use computers for learning and playing games. They don’t have to know many computer features, and if the computer is complicated to use, they can’t use it. So, the interaction between them and the computer should be simple.

**1.3 Problem statement**

The main problem is how to improve computer interaction with kids by improving the UI/UX by keeping it as simple as possible. Children cannot comprehend anything complex as their brains are still in a developing period. Regular computers can have a very complex interface and user experience, proving to be challenging for children.

**1.4 Research questions**

The following question will help fulfill the purpose of the research.

|  |  |  |
| --- | --- | --- |
| **Research Problem** | **Research Questions (RQ)** | **Research Objectives (RO)** |
| How to enhance the user interface or experience in human-computer interaction for children? | * What are the approaches to improve the user interface so that children can understand computers easily? | * Use of colors and symbols to make the interaction more attractive and visual. |
| * How are children adopting these approaches? | * Engagement and improvement of understanding of children. |
| * Why UI/UX is different for adults and children? | * Different levels of brain development at different ages. |
| * Why UI/UX for improving human-computer interaction are so important for kids? | * Better brain development and interaction for children. Sparking a better growth of knowledge. |
| * How does it help every sector besides children if UI/UX will user friendly? | * Different types of people of all ages and levels of IQ can interact with computers. |

**1.5 Research Objectives**

Based on the research questions as mention above, the following objectives have been set for the present research:

1. Use of colors and symbols to make interaction more attractive and visual.
2. Engagement and improvement of understanding of children.
3. Different levels of brain development at different ages.
4. Better brain development and interaction for children. Sparking a better growth of knowledge.
5. Different types of people of all ages and levels of IQ can interact with computers.

**1.6 Scope of this research**

This essay aims to determine how to enhance the user interface or user experience in human-computer interaction for children or kids. In order to accomplish this goal, the following scopes of work have been set.

* Develop a more visually attractive UI
* Easier UX
* Interactive experiences
* Understanding the brain development

**2. BACKGROUND**

HCI revolves around bridging the gap between humans and computers in whatever way is feasible [1]. As we know how important technology is, we also know how much it's essential to learn it. The computer is a very effective tool for learning. Piaget demonstrated that children lack knowledge and experience and experience and perceive the world in different ways than adults.[4] Kids can't use computers as an adult person uses. So, their UI/UX design should be different from elders. It is important to make tools that are for kids. Many of the old rules change when designers enter the world of children, and vice versa, when children visit the laboratory.[4] When a kid starts interacting with computers from a young age, it builds some extraordinary quality in them. They get problem-solving abilities, the ability to think more, increase their Creativity, learn more, broaden their interest in learning. When they grow up, they will be experts in many things, know better how to use a computer. In social contexts, disabled children can connect with peers and live independently; children living in isolated or neglected areas can receive an education. Children mainly on the road can create a safe path and communicate with their relatives.[5] In 2020 Because of Covid-19, many schools started taking classes online. At that time, Intelligent UI/UX in HCI could play a significant role. Using UI/UX in HCI can help them. They can do their classes without any difficulties. Parents will not have to worry about assisting them. Kids can also learn many extra-curricular activities from computers. Many apps are designed with UI/UX, which can play an essential role in learning. HCI UI/UX brings many facilities for children with disabilities also. Some scholars have attempted to generate ideas about new technology by exploiting children's playful use of video cameras [4]. Intelligent UI/UX is undoubtedly the best use in HCI perception for kids. This technique can be used in various applications and will be very useful.

**3. METHODOLOGY**

The Case Study Methodology of Empirical Research has been applied. This section provides a detailed discussion of this research method's selection and the protocol defined for carrying out the case studies.

**3.1** **Case Study research method**

An empirical method might be characterized as the research method. It is another prominent data collection method in an empirical research study. [7] Empirical research is a type of research where conclusions are solely based on concrete data. It is based on scientific experimentation and evidence. Nowadays, many excellent empirical research results are published in peer-reviewed journals. There are several types of methodologies in Empirical research [6]. The case study provides a flexible approach that does not necessitate a clear separation between the investigated object and its surroundings, allowing them to be used inside the case study framework [7]. Moreover, case studies contain the essence of many other research methods such as experiments, surveys, correlational research, systematic literature reviews, interviews, and focus groups, which are all a part of case study research.

UX remains a major point of contention for most Web sites and applications. However, when kids are the audience, Concepts and solutions of UX must address their specific concerns and needs to make computer interaction more user-friendly for kids.

**3.2** **Relevance of case study method for this research**

This research aims to design intelligent UI/UX that is more user-friendly to help improve Human-Computer Interaction for children.

It is well known that the amount of time children spend on computers has tripled in the last few years. They spend more than 60% of their time on the computer. As a result, it is necessary to examine research on the children's interface and theories on the child's general psychological and physical development to better understand our role [8]. Case studies focus on a specific group of people, organizations, or events to investigate the reasons for underlying concepts [6], which is needed to study different ages of children's psychology. On the other hand, A case study survey design is one in which a researcher samples a population and then utilizes questionnaires or interviews to ask questions about a topic or issue to conclude population patterns [9]. That will help collect some more data to improve the HCI for kids.

**5. WORK SCHEDULE**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Tasks** | **1-3** | **4-6** | **7-9** | **10-12**  **Weeks** | **13-15** | **16-18** | **19-21** | **22-24** |
| Proposal writing |  |  |  |  |  |  |  |  |
| Data collection |  |  |  |  |  |  |  |  |
| Data analysis |  |  |  |  |  |  |  |  |
| Initial report |  |  |  |  |  |  |  |  |
| Final report |  |  |  |  |  |  |  |  |
| Typing |  |  |  |  |  |  |  |  |
| Final review |  |  |  |  |  |  |  |  |
| Submission |  |  |  |  |  |  |  |  |

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