Different E- learning methods– Statistical case study

Dr.Ambika N

Assistant Professor

Sivananda Sarma Memorial RV College

Abstract

Education is one of the essential ingredients in a human's life. An educated individual will be able to create a difference for himself and the society. Computers are improving one's life by providing a wide range of services. The education sector is one of this kind. The learner benefits from using different technologies. These methods aim in helping them to educate themselves better. Different methodologies like youtube videos, ppt, peer learning, and tutorials are part of scholar life. The contribution is a case study portraying the essence of these new activities. The statistical analysis is performed over the collected data.

Keywords – HCI, Education, learning methodology, statistical approach, ANOVA

1. Introduction

Human Computer Interaction (HCI) (Hewett, et al., 1992) instruction needs to reflect multidisciplinary starting points in PC and human science and past, regard the unpredictability in hypotheses, strategies, and instruments, for the plan, execution, and assessment of intelligent frameworks. HCI has been creating at extraordinary speed and is coordinating new teaches as well as by venturing into different controls. HCI is aiding the academic domain with its features. The videos, audios, and different web content are helping the student and faculty fraternity to learn better. Educating oneself can be done in many ways. The learners opt for different methodologies to enlighten themselves. Some of the techniques include attending offline classes, opting for online class sessions, learning from audio and videos. The learner has to make his options based on -

- List different methods available - The scholar has to jolt down various techniques accessible in his learning. The genuineness of the content can have to be verified. The Human Anatomy Education Channel was dispatched on YouTube (Jaffar, 2012) to assist understudies with bettering accomplish their life structures learning objectives. Recordings were transferred on a week-by-week premise to the Channel by the start of the subsequent term, in the long run arriving at a sum of around four hours of video playing time. In the study, understudies reacted to things in a mysterious structure created by the creator. They were into talking with a center gathering of companions. The understudies who refined them to meet the destinations of the invigation. Of the 91 understudies

who took an interest in the review, 6% consistently utilized YouTube as an online source in clinical examinations. The others distinguished the recurrence of use as regularly.

Training is either completed by formal tutoring or by paid private coaching. The structure of the model (Kim & Lee, 2010) is like the model of public arrangement or personal merchandise. The family unit is permitted to enhance the shared adaptation with extra buy in the private market. The paper uses two informational indexes. The original set is the Survey on Private tutoring directed by Korea Institute for Consumer Protection in 1997. It has data on every youngster remembering the presentation for school and the private mentoring consumption for every kid. The informational collection utilized is the 1998 Annual Urban Household Expenditure Survey (UHES) by the National Statistical Office of Korea. Around 75 percent of family units in both datasets have positive private coaching consumption.

Companion learning is an umbrella idea for a gathering of approaches that incorporates assembling or combined knowledge. A semi test configuration (Pålsson, Mårtensson, Swenne, Ädel, & Engström, 2017) was utilized, including an intercession and examination bunch with gauge and subsequent assessment. All undergrad nursing understudies going to their first clinical practice at a college in Sweden were welcome to partake. The essential investigation was aimed to treat and incorporated all subjects as allowed with accessible fourteen days result information. Two understudies were missing at the hour of the pattern information assortment, and of the 85 understudies who stayed, 70 (82%) addressed polls at both gauge and development.

- Opting mix and match - The student can pick his choices by understanding the genuineness of the option. The user can choose multiple options to take advantage of various resources. The scholar can select the ratio in which he has to use the available resources. Discussing the learning with the peer or the tutor will aim in enhancing the learner's knowledge.
- Jolting down notes - The available resources like videos and audios can be downloaded and made useful again. Web addresses are composed utilizing Microsoft Producer, a free module for Microsoft PowerPoint 2003. Microsoft Producer encourages a consistent combination of one video feed, and two sound feeds. It also supports Microsoft PowerPoint slides and static or live- Web pages. Any of these parts unite with adaptable introduction designs, including a discretionary chapter by chapter list, safe progressively. The user can also use the attached notes (in any form) for deep learning. This method will help the learner to learn better.

The work divides into seven sections. First section details about the HCI domain and its importance. Some suggestions are provided to the learners to enhance learning. Literature survey summarizes the contribution provided to HCI domain. Section three details the survey conducted considering HCI techniques. The work is concluded in segment four.

2. Literature Survey

The section provides a detailing of the contributions made by various authors to HCI domain. The trial part of the course was updated to coordinate the Web address intercession (Day & Foley, 2006). Similar themes were shrouded in a similar request, with everything except three in-class addresses supplanted by Web addresses. Time spent watching Web addresses deduces a planned measure of in-class time for control reasons examined beneath, comparing to seven fewer class gatherings. Class participation is required. After evaluating the Web lecture and LHW(s), each class meeting utilized the rest of the ideal opportunity for different active learning exercises. These exercises included task-related gathering introductions, little breakout bunch conversations, and introductions, overhaul meetings, plan scrutinizes, plan audits with HCI specialists, pretending exercises, conversations with neighborhood HCI professionals, and others. The

learning movement uses three modes. Educator guided is an in-class studying meeting that is a guide by the teacher. The teacher chose various UIs speaking to a range of plan quality. Gathering movement is an in-class evaluating meeting did by gatherings of four understudies. Understudy gatherings could locate their UI to study or select from a set gave by the teacher. Gathering individuals cooperated investigates the UI, scaffolded by the educator, and instructing colleagues. Each gathering gave a short introduction supporting their plan scrutinizes. Singular action is the place the understudies independently found a designation for the UI Hall of Fame/Shame outside of class and afterward introduced and legitimized their determination to the lecture. It fundamentally talks about the candidates. It decided in favor of the best three UIs in every classification.

The contribution (Greenberg, 1996) presents HCI as a convenience building measure that incorporates the plan, execution, and assessment of interfaces. Upon finishing the course, understudies will comprehend what is implied by an acceptable scheme and will have experienced planning frameworks that are usable by individuals. Understudies will know contemporary procedures for actualizing interfaces and will have applied these to building applications through paper models and graphical UI toolbox. The course unfurls by analyzing plan, execution, and assessment as a persistent, incorporated, and iterative cycle. Hypothetical class addresses enlarge by contextual investigations of interface victories and disappointments. The understudies are relied upon to give instances of issues they have had with PCs and add to the class conversation. Understudies will likewise apply the hypothetical information figured out how to the arrangement of tasks that brings them through a whole plan, usage, and assessment cycle.

The creators present the logical difficulties that African HCI scholastics face and approach (Lazem & Dray, 2018) to restrict the HCI educational program, primarily from blending the notes taken by the participants. Members shared nearby models in which simple replication of Western innovations without consideration regarding social models also, subtleties has frequently prompted disappointment. The participants detailed having huge classes of up to 100 college understudies. They additionally talked about the number of or even most educators training HCI in African colleges were not well prepared to do as such, inadequate with regards to formal HCI instruction or past industry practice. Given examination, they concurred that Africa needs its own nearby living educational plan materials, academic models, and conveyance methods with the goal that educators set to confront the previously mentioned relevant difficulties. To help unload the idea of limitation, they propose consolidating the nearby living educational program into the structure by Smith's definition proposed by Churchill. A Localized Living Curriculum (LLC) would give materials in the neighborhood language(s), including contextual investigations from the nearby set up to make it real and functional learning encounters for understudies. Parts for HCI teachers in HCI educational program restriction would remember the Redefinition of HCI for the nearby culture, Embedding HCI in nearby public associations, and Rollout of confined HCI and convenience rehearses.

A planned practice with regards to the class actualized practice-based learning (Culén, Mainsah, & Finken, 2014). The understudies approached materials, for example, scissors, paint, texture, paper, apparatuses like sawing machines, mallets, pincers. The number of understudies was ten. The instruction group was two in-house instructors and one from the school of architecture. All through the course, the in-house instructors have transferred writing of pertinence to a dropbox. This writing secured a scope of various topics, for example, plan thinking, plan human sciences, contrasts between cooperation configuration rehearses inside plan and HCI, administration plan, participatory assistance configuration, plan research, and an article concerning the scheme of wearable innovation. The model portrayed before which the understudies are utilized to, the time between the instructors and the understudies spent on talking about different points, plan thoughts, and on giving input on plans in progress. To additional help the real commitment and hands-on rehearses, the understudies approached to finish two undertakings during the semester. The point of the principal venture was to plan a display tending to the exercises and examination enthusiasm of the gathering for the plan. The subsequent undertaking was to scheme an establishment for the library. The intuitive

establishment had as an objective to present those assets and administrations, accessible through the division's library, which typically stays covered up or under-utilized.

The understudies are steadily acquainted with understanding the effect that plan and convenience have on a client's insight (Faiola & Matei, 2010). They urge to envision use situations and gadgets that are developing in intricacy and variety of capacity. The assignment of rethinking the way toward planning is profoundly portable and multifunctional PDA. The understudies originally obtained are satisfactory hypothetical information on planning another age of compact media-based figuring gadgets. The class venture zeroed in on affordance scheme where groups of three or four understudies assembled were dependent on their different ranges of abilities, sexual orientations, and social foundations. The overall issue of space was identifiable with the plan of a cell phone. The work incorporated a PDA with conferencing alternatives, three uber pixels computerized camera, an advanced camcorder with MPEG pressure, and video telephone conferencing alternatives. To start with, understudy groups made sure to examine information about expected business sectors, clients, and the social and social setting encompassing the distinguished issue space. Next, groups planned creative and reasonable models that mirrored their answer for the physical affordance issue.

The report (Myers, et al., 1996) portrays the verifiable and scholarly establishments of HCI and afterward sums up chosen solution bearings in human-PC association research. Some of the credential topics undergo an examination. General Access to Large and Complex Distributed Information are sensational changes occurring in the sort of individuals who access the accessible data and the kinds of data included. Training and Lifelong Learning incorporates both the turn of events and assessment of new instructive innovations, for example, mixed media frameworks, intelligent recreations, and PC helped instructional materials. Electronic Commerce spins around the expanding are part of the calculation in financial life and features focal HCI issues that go past ease of use to worry with protection, security, and trust. End-client programming subject talks about the standards and strategies for HCI to the plan of programming dialects and programming frameworks for end-clients ought to bring to everybody the capacity to program Web pages and work area applications. Data Visualization territory centers around graphical components intended to show the structure of data and improve the cost structure of access. PC Mediated Communication goes from work that prompted uncommonly successful applications, for example, email to that associated with more up to date types of correspondence employing PCs, constant video, and auditory cooperations.

3. Learning adoption –A case study

Human-computer Interaction usage has increased in from of terminals, tablets, mobile phones, etc. According to the reports in September 2020, the use of tablets is 2.63%, mobile is 50.33%, and desktop is 47.04%. The case study is conducted to understand the habits of the learners. To analyse the usage of technology by the students, 727 responses are collected. I have used quantitative research methodology and heterogeneity sampling in this work. Various streams of students have provided their inputs and their usage. Students are using different methods to cater their needs. These methods have helped them to learn technology better. Figure 1 provides the statistics of different streams of students using the technology.
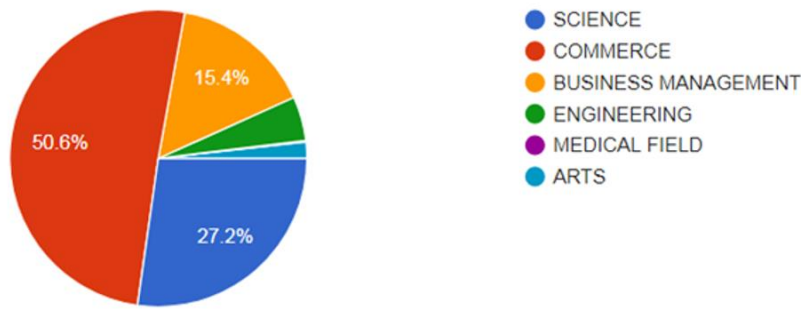
Figure 1. Pictorial representation of the different streams of learners

The learners are into learning using different methods-

- Powerpoint slides - PowerPoint (James, Burke, & Hutchins, 2006) conveys an introduction in different manners shown on the screen of the introduction PC or tablet, Printed for dissemination as paper archives, Distributed as records for private review, even on PCs without PowerPoint, Packaged for circulation on CD or an organization, including connected and implanted information, Transmitted as a live transmission introduction over the web, Embedded in a website page or blog, Shared on informal communities, for example, Facebook or Twitter, Set up as a self-running unattended showcase and Recorded as video/sound to be appropriated concerning some other video. The statistics of 2020 (Khatri, 2020) show that out of 3.773 billion Internet users and 2.789 billion is active on social media, 4.917 billion uses mobile. In the survey 260 learners are taking the aid of ppt in learning.

- Youtube videos - They have helped a majority of learners in their schooling. YouTube (Burke & Snyder, 2008) gave a free Web-based stage that permitted individuals to transfer, view, and offer video cuts on the portal, and share them over the Internet through other Web destinations, cell phones, websites, and email. By giving a system to sharing the individual, article, recent development, or instructive recordings posted by clients of the Website, YouTube offers the general public occasions to become lay telecasters. Anybody with Internet access can watch recordings on YouTube. The client enrollment transfers a video. The views (IQBAL, 2020) are 308.7 million in 2020. The expectation can reach 342.3 million by 2021. In the survey conducted, nearly 61.1% users are using the technology.

- Peer learning- It is one of the conventional delegate models (Boud, Cohen, & Sampson, 2014) in which senior understudies coach junior to more inventive learning cells in which understudies in the year structure associations to help each other with both course substance and individual concerns. It ought to include the sharing of information, thoughts, and encounters between the members. It is a method of moving past free to related strategy. Understudies become familiar with a lot by disclosing their plans to other people and by taking an interest in exercises in which they can gain from their friends. They create abilities in arranging and arranging learning exercises, working cooperatively with others, giving and accepting criticism, and assessing their learning. It is turning into an inexorably significant piece of numerous courses. It is in an assortment of settings and orders in many nations. In the survey, around 19% are using this methodology.

- Tuitions – The little gathering instructing (Steinert, 2004) requires the understudies to be available in a similar room on the web/disconnected. They incorporate the utilization of shut email organizations, intranets, and web conversation gatherings. It empowers the understudies and instructors to collaborate a ways off. The innovation implies the conversation can occur over a more extended timescale. An educator may decide to arrange and partition a large gathering of understudies into the arrangement of little ones. The strategies create scholarly understanding, seasoned capacities,

individual and expert development, uphold autonomy, create a convention of working aptitudes, and reflect rehearses. The survey portrays that 11.8% adopt this method to learn new methodologies. Figure 2 provides the various methods used by the students in learning new technology (HCI domain).
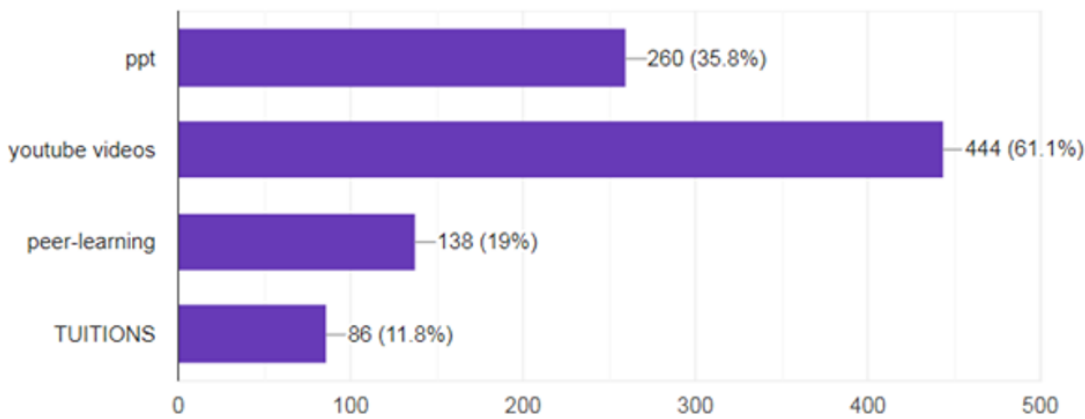

Figure 2. Graphical representation of usage of different learning methods

The learners aid this present technology to learn better. The survey tells that 28.6% take 30 minutes, 26.1% take 20 minutes, 19.8% take more than 30 minutes, 19% of users require 15 minutes and 6.5% require 10 minutes to understand the new technology. Figure 3, provides the figures relating to time spent by the learners to understand the new technology. Figure 4, representation of one-way ANOVA. Table 1. Representation of data summary. Table 2. One-way ANOVA table. Table 2. Chi-suare test.
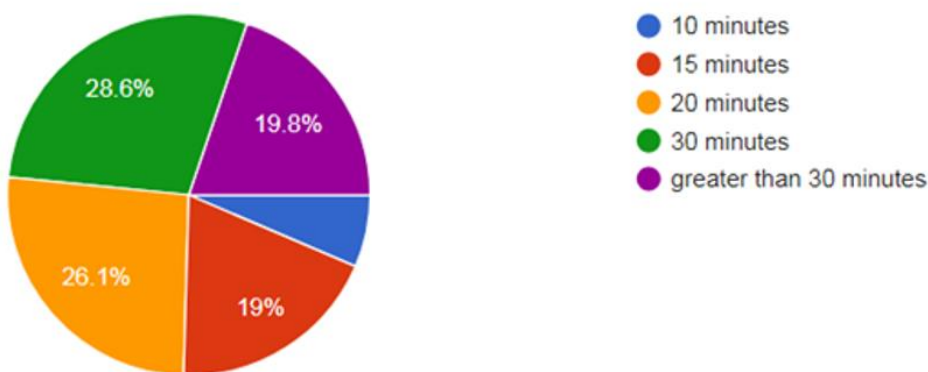

Figure 3. Graphical representation of learners spending time to understand the latest technology

Variance results

Table 1. Representation of data summary collected

Data summary				
Groups	N	Mean	Standard Deviation	Standard Error
Students stream of study	6	104.6667	148.6347	60.6799
Percentage secured	4	181.5	173.909	86.9545
Learning methods	15	48.2	81.1262	20.9467
Time taken to learn	5	145.2	62.5516	27.9739

Table 2. One-way ANOVA table

One-way ANOVA Table					
Source	Degrees of freedom	Sum of squares	Mean square	F-stat	P-value
Between groups	3	75869.8378	25289.9459		
Within groups	26	308985.6463	11884.0633	2.1281	0.121
Total	29	384855.4841			
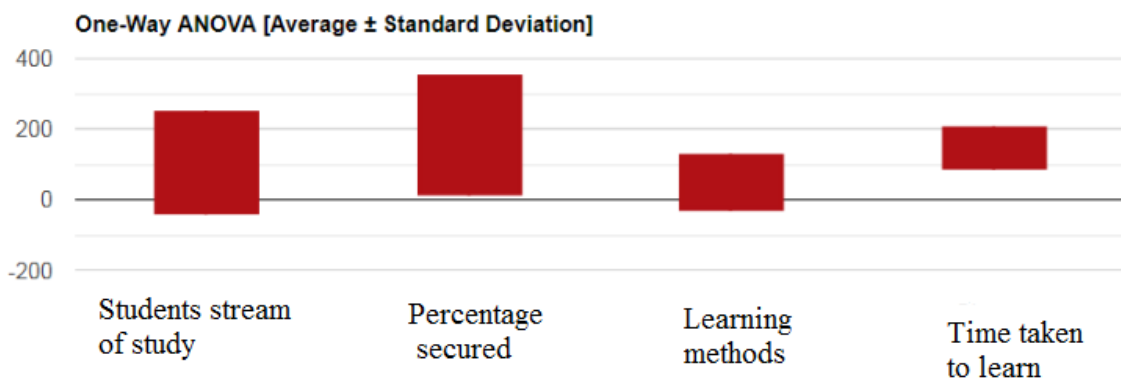
Figure 4 One-way ANOVA

Table 3. Chi-square test

Chi-square calculation results			
Categories	Observed value	Expected value	Chi-square component
Students secured more than 80%	9	229	211.3537
Students scoring between 61-80%	338	405	11.084
Total	347	634	222. 4377

4. Conclusion

E-learning is gaining a lot of importance with the advent of technology. The learners not only gain knowledge using these technologies, but it also empowers the understudies and instructors to collaborate a ways off. It ought to include the sharing of information, thoughts, and encounters between the members. It is a method of moving past free to related strategy. Hence the methodologies add value to their learning. The survey conducted implies that 35.8% use ppt, 61.1% use youtube videos, 19% are into peer learning, and 11.8% have opted to get tutoring.

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