

# Report

IBM Built-A-Thon 2023

## IBM Cognos Analytics

### Unveiling the virtual Classroom: An In-depth Analysis of the Online Education System.

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#### **Introduction :**

The rise of online education springs from the increasing significance of collaborative learning and the innovation of computer mediated communication (CMC). Collaborative learning is a method of teaching that has evolved to challenge the traditional behaviorist approach. The behaviorist approach, which subscribes to the philosophy of objectivism, believes in a single reality and absolute knowledge.

#### **Objectives**

Education system is conducted with online and offline in two modes. Online classes was very much needed during the pandemic. In this project a deep analysis of the online education system is done. The different attributes such as a number of members in the family, no of subjects to be attended, internet speed, location, age, gender are considered and in-depth analysis is done.

Online education varies depending on the student demographic, internet facility in the locality. Effectiveness of the class to know whether the elderly persons monitoring. Economic status of the family is also considered.

#### **Some of the advantages of Online Education**

##### **1. Anywhere...**

The main advantage of asynchronous online learning is that it allows students to participate in high quality learning situations when distance and schedule make on-ground learning difficult-to-impossible. Students can participate in classes from anywhere in the world, provided they have a

computer and Internet connection. In addition, the online format allows physically challenged students (and teachers) more freedom to participate in class. Participants access the Virtual Classroom through their computers instead of having to “go to class” physically.

Anytime, Any Pace...

The Virtual Classroom is accessible 24 hours a day, seven days a week. Time efficiency is another strength brought by the online learning format. Asynchronous communication through online conferencing programs allows the professional juggling work, family, and study schedules to participate in class discussions. There is no question about doing the work; just do it at the times that are more convenient. Students can access their courses at any time of day or night. Further, they have continuous access to lectures, course materials, and class discussions. This is particularly convenient for those who may need to reread a lecture or take more time to reflect on some material before moving on.

Synergy

The online format allows a dynamic interaction between the instructor and students and among the students themselves. Resources and ideas are shared, and continuous synergy will be generated through the learning process. Each individual can contribute to the course discussions and comments on the work of others. The synergy that exists in the student-centered Virtual Classroom is one of the most unique and vital traits that the online learning format possesses.

### **Weaknesses of Online Learning**

1. Technology

#### *EQUITY AND ACCESSIBILITY TO TECHNOLOGY*

Before any online program can hope to succeed, it must have students who are able to access the online learning environment. Lack of access, whether it be for economic or logistic reasons, will exclude otherwise eligible students from the course. This is a significant issue in rural and lower socioeconomic neighborhoods. Furthermore, speaking from an administrative point of view, if students cannot afford the technology the institution employs, they are lost as customers.

#### *COMPUTER LITERACY*

Both students and facilitators must possess a minimum level of computer knowledge in order to function successfully in an online environment.

#### *LIMITATIONS OF TECHNOLOGY*

User friendly and reliable technology is critical to a successful online program. However, even the most sophisticated technology is not 100% reliable. Unfortunately, it is not a question of if the

equipment used in an online program will fail, but when. When everything is running smoothly, technology is intended to be low profile and is used as a tool in the learning process.

### **Literature Review**

**There are 3 stages of activities in online model learning that refer to ICT-based learning.**

- 1. Seeking Information**
- 2. Acquisition of information.**
- 3. Synthesizing of knowledge constructs [1].**

### **Software and Hardware requirements**

#### **Software Requirements**

**Operating System: Windows**

**IBM Cognos software**

#### **Hardware Requirements**

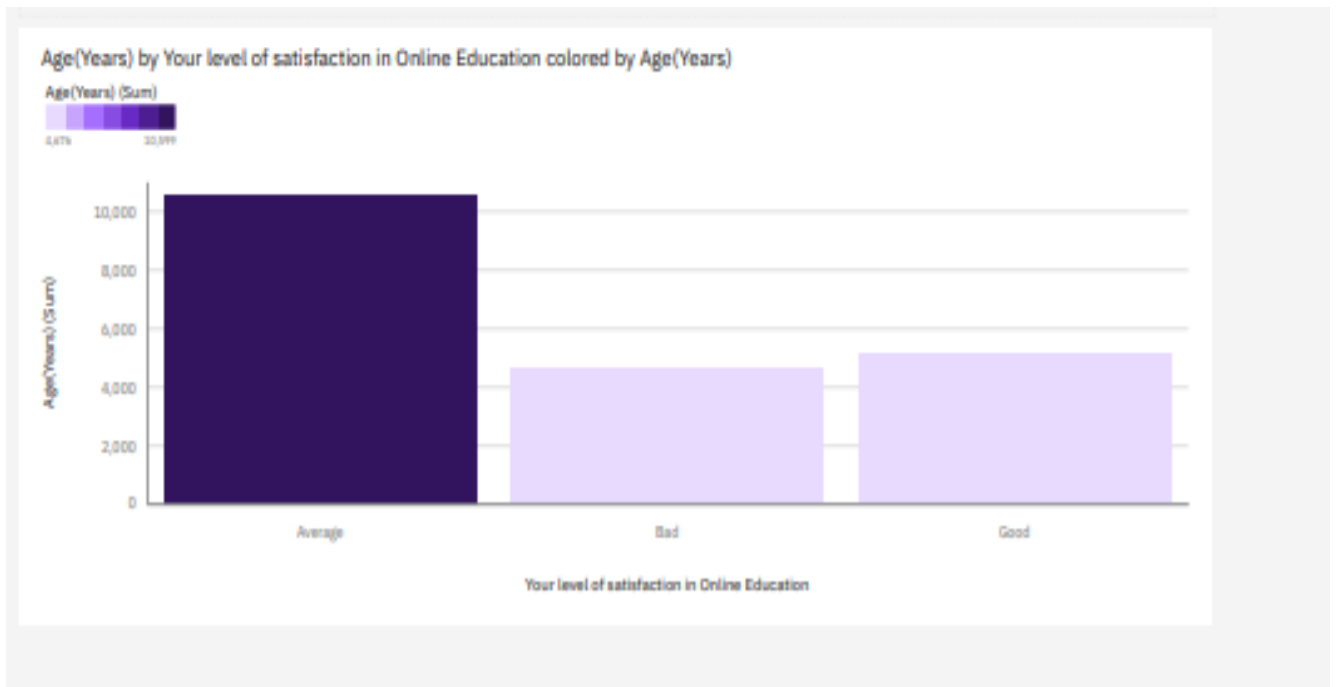
**System: Pentium IV**

#### **Dataset**

**The dataset used is Online education Review from kaggle website**

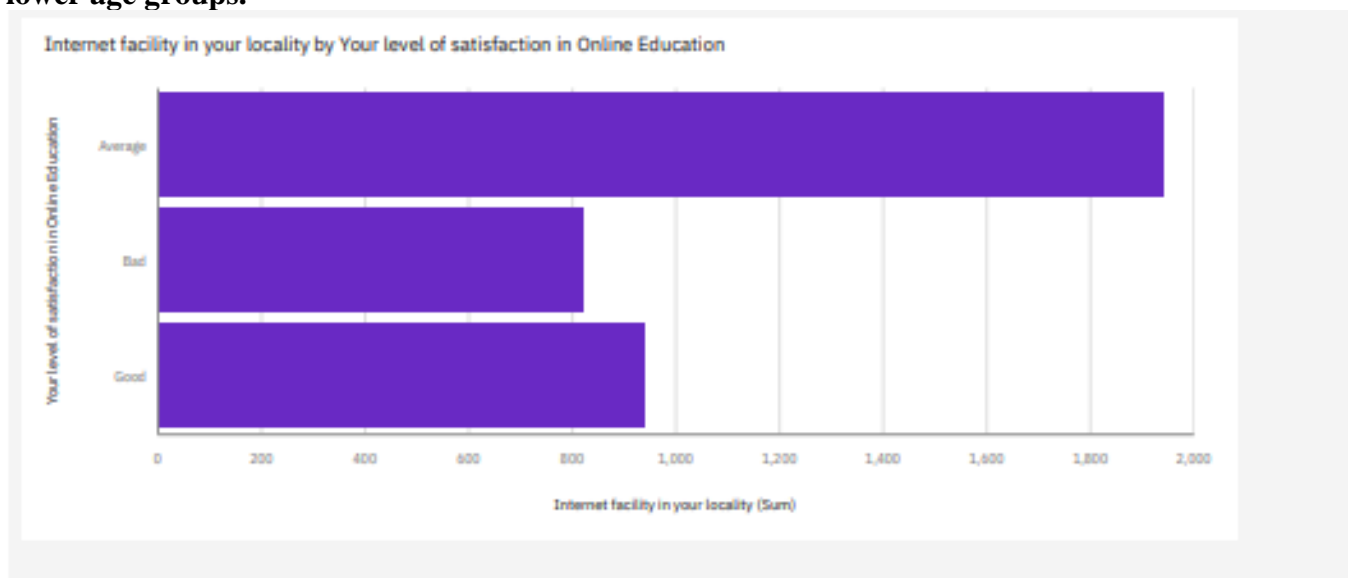
#### **Data Visualizations**

**Different visualization were created**



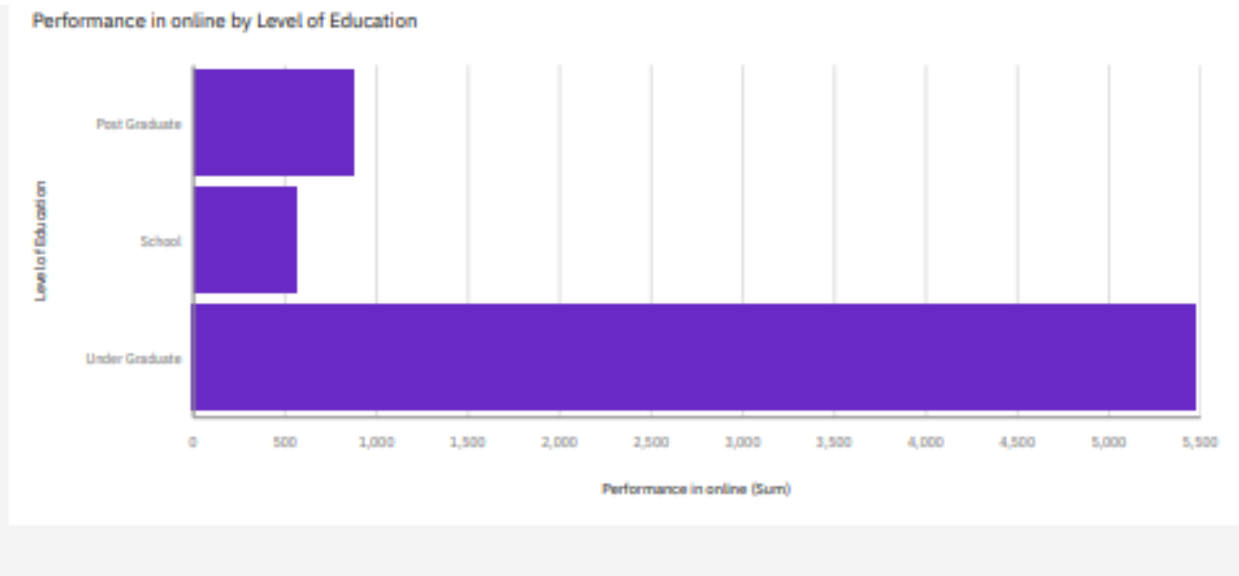
**Fig.1**

In the above fig.1 the level of satisfaction is average for higher age groups and it is bad for lower age groups.



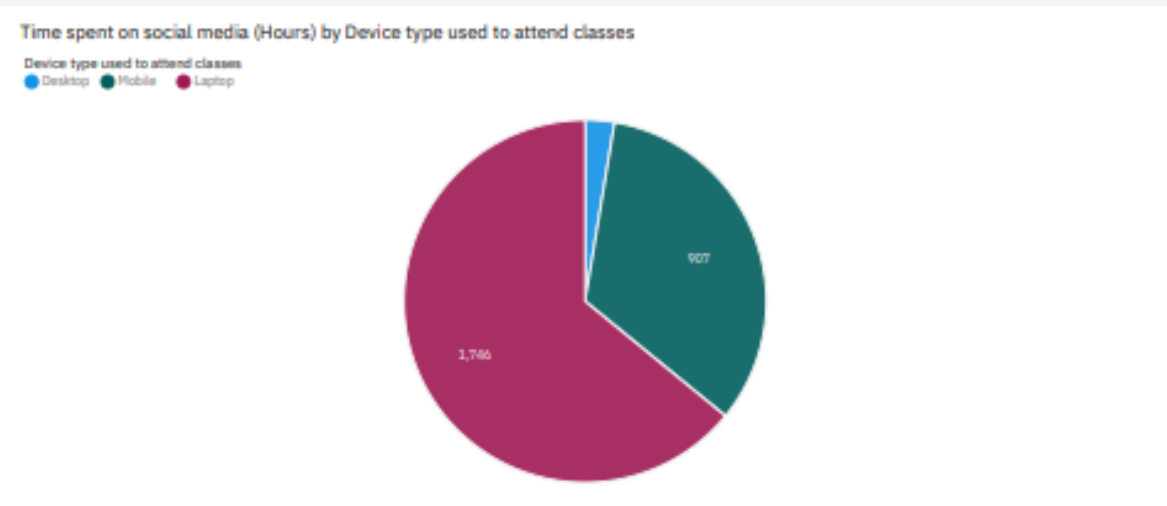
**Fig.2**

Figure 2 depicts as the level of internet increases the level of satisfaction is average. If the internet in the locality is not good the level of satisfaction of online education is bad.



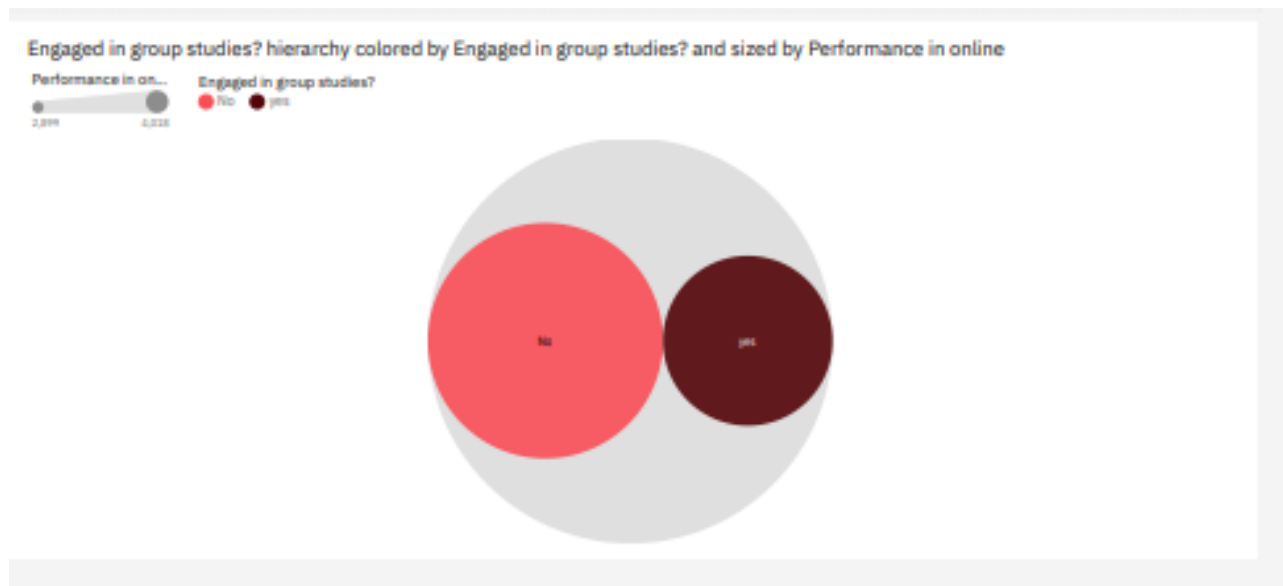
**Fig.3**

**Figure 3 shows the performance of online education is good for under graduate student. Performance of online education in school is not good.**



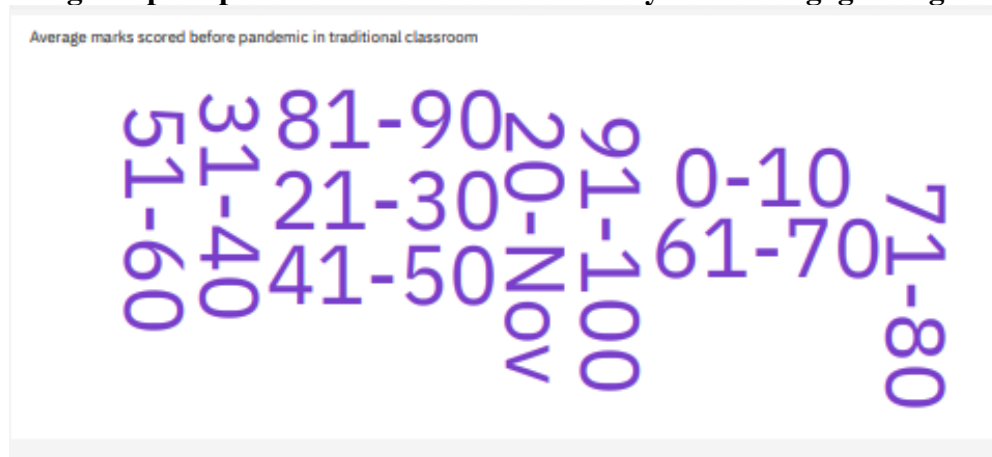
**Fig.4**

**Time spent on social media is more when students use laptops then compared with mobiles. Since they can minimize the screen, and can be used anywhere.**



**Fig.5**

**In fig 5 depicts performance is better when they are not engaged in group studies.**



**Fig.6**

**The figure 6 shows the average marks scored before pandemic in traditional classroom .**

Economic status, Home Location and Performance in online

| Economic status | Home Location | Performance in online |
|-----------------|---------------|-----------------------|
| Middle Class    | Rural         | 2,124                 |
|                 | Urban         | 4,262                 |
| <b>Summary</b>  |               | <b>6,386</b>          |
| Poor            | Rural         | 227                   |
|                 | Urban         | 85                    |
| <b>Summary</b>  |               | <b>312</b>            |
| Rich            | Rural         | 27                    |
|                 | Urban         | 192                   |
| <b>Summary</b>  |               | <b>219</b>            |
| <b>Summary</b>  |               | <b>6,917</b>          |

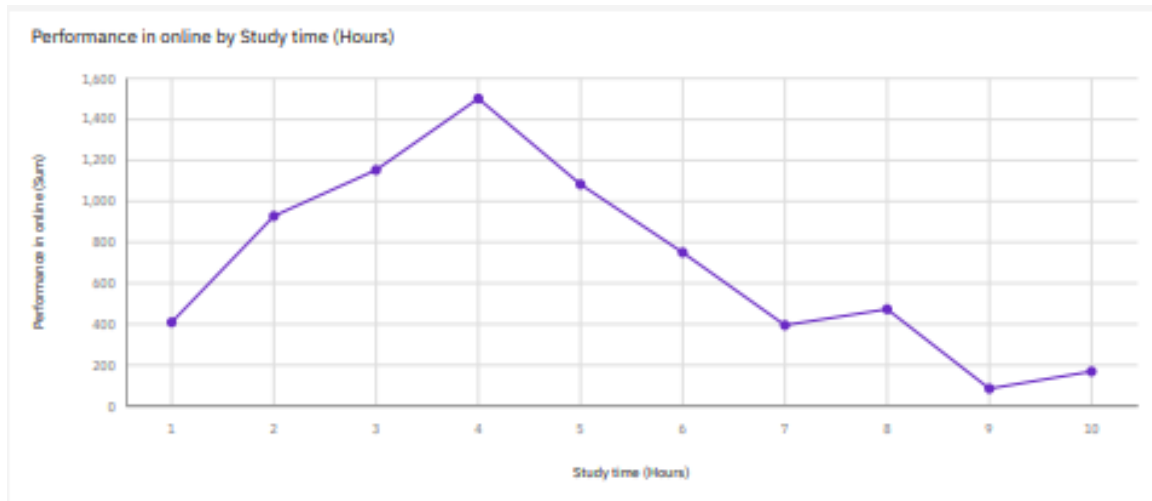
**Fig.7**

The figure 7 shows middle class status performance in online course is highest.

Family size by Home Location



**Fig 8**



**Fig 9**

**Less the study hours better is the performance in online education .**





**Fig.10**

**This Fig.10 shows as the sleeping hours is less performance in online studies is no good .**

### **Conclusions**

Level of satisfaction of online education is good for higher age groups that is undergraduate. If the internet facility is good then the level of satisfaction is average. Less the study hours, better is the performance in online education since it is noticed that, since the time spent on social media is more, when the study time is more. Performance of online education is good in middle class families compared to rich & poor.

### **References**

1. Hsu, Carol, and James Backhouse. "The implementation of online education on campus." *AMCIS 2001 Proceedings* (2001):

