

# A Study on Whether the Education Imparted During the Pandemic, Has a Better or Worse Impact on High School Students

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## Abstract:

The Covid – 19 pandemic has affected various aspects of life in the diverse ways, including the education system and the students. Furthermore, a general hypothesis was formed about the online study of the high schoolers, that they had less cognitive skills than others who did offline schooling. In order to ascertain, whether or not the hypothesis is true, the following study was undertaken. It was designed to examine the impact of the pandemic on the four cognitive abilities — concentration, problem-solving, planning, and memory. As part of the study the high school and under graduate students in their final year, were subjected to four different tasks. The task scores were then tabulated and analyzed. The results indicated that, the memorizing and concentration skills were far better for the children, who had graduated from high school before the pandemic, in comparison to the better capability in planning and problem-solving aptitude of the high schoolers studying online. While the analysis provided limited evidence to the fact that, the students studying online had learnt lesser or more than the other group of respondents and the online system of study had better or worse impact on them. But definitely it did point out, that the students studying online were ready to face challenges head-on.

**Keywords:** Cognitive skills, Cognitive skills' importance, Concentration, Memory, Cognitive Skills - Planning, Cognitive Skills - Problem Solving,

## Introduction:

The pandemic was very difficult for the entire human race, with the Covid – 19 viruses spreading rapidly and killing millions of people. One of the worst affected were the students, who had almost forgotten how to get dressed up with crisp uniforms & to attend school. They became unknowingly the worst prisoners of fate.

The older kids have adjusted to the concept of education through online platform, but what about the little ones, who were supposed to be in the kindergarten's, away from their comfort zones and adjusting to a new environment, making friends, sharing food / possessions and learning many more exciting things for the first time from a stranger, whom we call a teacher. For them will it be again the same as it was before the spread of this deadly virus, once the virus ceases to exist.

The shift of the education platform from traditional system to the online system was brought into effect, when the cases of Corona infected patients started increasing alarmingly. Most of the high school

students were either writing their final papers at that time in their respective schools, organized internally or were writing them at examination centers, organized by the various boards of education, at that time of the year. Government took a stand for the future of these children that they wouldn't have to take their rest of the papers and would be promoted on the basis of their previous marks obtained from schools and thus cancelled all the exams for the safety of students.

Thereafter, decision was taken by most of the private schools and some urban government schools to resume the next academic year through online interface. Few of the educators were given extensive training either internally at the school level or through courses designed by government and non-government organizations, to manage this overwhelming situation. But most of the teachers were asked to gear up themselves, if they liked to continue their jobs. The result was an introduction of an unstructured messy system, which resulted in a huge disappointment for the teenage high schoolers.

In matter of six to seven months the entire system was finally set and both the educators and the children molded themselves and accepted the change. But did the education system change for the better or for worse? This question could be only answered in the future, when the affected children graduate their high school and enter the colleges for pursuing courses of their choice. Only then, the measurement of their effectiveness would be possible in comparison to the young people from their senior batches, who were part of the traditional system of education.

## Literature Review

### *What are Cognitive skills?*

The word “cognition” is derived from the Latin word “Cognos ere” which means “to know” or “to recognize” or “to conceptualize”. It simply means the ability of the brain to reason, think, manipulate information, take decisions, memorize, concentrate, plan, and execute complex tasks, interpret situations and act accordingly.

### *Why are cognitive skills important?*

Many studies have been conducted and it has been proved that the cognitive skills help determine the learning abilities of children of all ages. Studies show that if the cognitive skills are strong, learning is faster and easier and if they are weak, learning becomes a challenge. Many studies have shown correlation of difficulties in processing speed to ADHD (Attention-deficit/hyperactivity disorder) and reading disorders. This can be substantiated by the work carried out by **Stenneken et al.**, who compared a group of high-achieving young adults with dyslexia (a learning disorder that involves difficulty in reading due to problems in identifying speech, sounds and learning how they relate to letters and words) to a matched group of normal readers.

**M. Bhat et al.**, conducted an experiment to understand the six components of reasoning ability, to show their impact on the disparity in academic achievements of close to 600 high school students. The results of the experiment exhibited that, amongst the six components, deductive reasoning had a reliability coefficient of 0.49, followed by cause-and-effect reasoning around 0.26, inductive reasoning 0.16, linear reasoning 0.05, conditional reasoning 0.03 and analogical reasoning 0.02 on academic achievement.

Every skill is therefore important in the overall development of a child. So, if even one of one's skills is weak, the grasping, processing, retaining, or using any information is obstructed. It is important to note learning is a continuous process, if we do not learn the basic alphabets, we would never form words, in

turn do not make sentences and would never be able to talk or for that reason do not process what someone else's speaks.

#### ***The four cognitive skills studied:***

**Concentration:** It is the ability to focus on an object or action or surroundings or thoughts for a particular amount of time, without losing interest or getting distracted.

**Memory:** It is the capability to store information for a shorter or longer period of time depending on the importance of the information. The short-term memory can be improved by repetitive actions.

**Planning:** The ability to interpret a task and make a step-by-step strategy to execute.

**Problem-Solving:** Understanding a problem, breaking it up to make others understand and giving a workable solution.

#### ***Can the cognitive skills be altered?***

Experiments conducted by many researchers, have shown that cognitive abilities can decline due to many factors, which are either or not under our control. The most important factor is the process of aging.

But it is yet unclear, whether the recent pandemic causing lockdowns and absence of human interactions could be one of the causes for the decline or for that matter enhancement in the abilities. Further, it is also a question of debate, if the online education system is contributing to any kind of change to the said abilities.

#### **Comparison of traditional and online system of education:**

Many researchers and psychologists over the years have devised various methods / tools to understand / identify the personality traits of individuals, in turn relating them to the career choices perfect for them. They all have strong beliefs on these systems in place to give the best results. The philosophy being, it is good to follow something, which is already structured, regulated and accepted by everyone.

Just like getting ready in the mornings, going to school, attending the morning assembly, attending subject classes one after the other with one or two breaks for eating & sharing snacks / breakfast / lunch in a group, being part of group discussions, internal as well as external workshops, projects, indoor – outdoor sports & games, debates, going on field trips, being part of cultural events, doing experiments & many more such interesting activities. The teachers were trained, the examination & assessment criteria were in place from decades, and everything was perfectly set.

But the pandemic happened, which was not under the control of anyone. In the beginning for few months, the situation was confusing. The education system was under turmoil. Educationists were trying to assess the situation and were trying to devise something workable. They suggested to shift to digital platform. Most of the schools were not equipped with teachers, who knew how to handle online classes or infrastructure to conduct exams or assessments through the digital mode.

Everyone wanted to go back to how it was, but were under the constant fear of the virus, which was spreading rapidly. They were between family members, friends, acquaintances, who were suffering from the effects of the fatal Corona Virus. Day in and day out the cases increased, lockdowns were announced and followed; markets were closed with just the essential services available for emergency. Many companies turned to work from home, others had to close down. Many lost their jobs; many others faced pay-cuts. Even schools couldn't give salaries to their staff, as parents stop paying fees.

Something had to be done for everyone. So, to help the children not to suffer, it was decided that the classes would be done through the digital platform. There were many glitches in the beginning to connect with the children, the same way they would have connected physically. There after teachers, children, parents and others related slowly got used to the fact that learning has to be through this online mode.

During the study it was noticed that there was a lot of difference between the traditional system and the online system. First and foremost, the traditional system believed in discipline, students getting dressed and attending school before time, to be able to participate in the morning assembly and attend the class. But, in the online system, most of the students would join in the scheduled class much after their teachers had started the session, also, as it was from home, most of them didn't even bother to put on their uniforms.

Second, during assessments, children would prepare and go to the school, but in online system most of them would either cheat through the material they have with them or through the numerous search engine available.

Third, as they had to be physically present in traditional system, they were bound to follow certain rules and regulations, otherwise they have to face consequences, but the online system had so many loopholes, user friendly with the tech-savvy children, most of them didn't even bother to answer their teachers during classes, let alone switch on their cameras to show their presence, giving lame excuses of some or other type of glitches.

Fourth, the children were exposed to many things in practical sense in traditional system, which allowed them to understand complex things easily, as compared to the students of online system, who constantly had to believe what they were told, or what they read through books with them or articles available online.

There are many more things which are comparable as well as un-comparable. But the general opinion is that the online system has made the present generation of youths and children very progressive. Undoubtedly, most of them have become more than capable to take big decisions. They have seen many ups and downs, making them believe in themselves and in the concept of the survival of the fittest. Even though they are immature and vulnerable, it is an undeniable fact that they have developed a new confidence and have become truly independent.

### **Research Methodology**

To understand the entire issue from the perspective of the children, a survey was conducted. The participants included 42 high school respondents, among them 28 were presently in high school and the rest 14 were under graduates in their final year of college. Only students from urban schools were considered where the digital system of education was in progress from the very beginning of the concept. Potential participants were excluded if they didn't want to participate in more than two tasks or didn't want to respond at all or who feared to expose themselves to the external world. A sports room of a school in Mumbai, India was converted into task room for the experiments, where all the covid related restrictions were strictly followed.

At their assigned time, participants arrived at designated location for the study. Each participant was given written testing instructions, which were also read aloud. A small booklet with front page asking for details like name, school, sex, age, year of graduating high school, final exam percentage, was given

to each one of them to fill. To get information on the cognitive abilities under study, four different tasks were conducted separately for each of them to respond.

The first task was to test the concentration speed and accuracy. A room with 30 unrelated objects kept on a table was organized. The respondents were asked to enter the room, look at the objects for 30 seconds and then come outside and write on the first page of the booklet, all that they could identify and remember.

For the second task, all of them one by one were given an audio device to listen to. The audio device had 30 words in English, played twice for each of them. The task was to memorize the words and use them to form meaningful sentences on second page of the booklet. This was to test their memory.

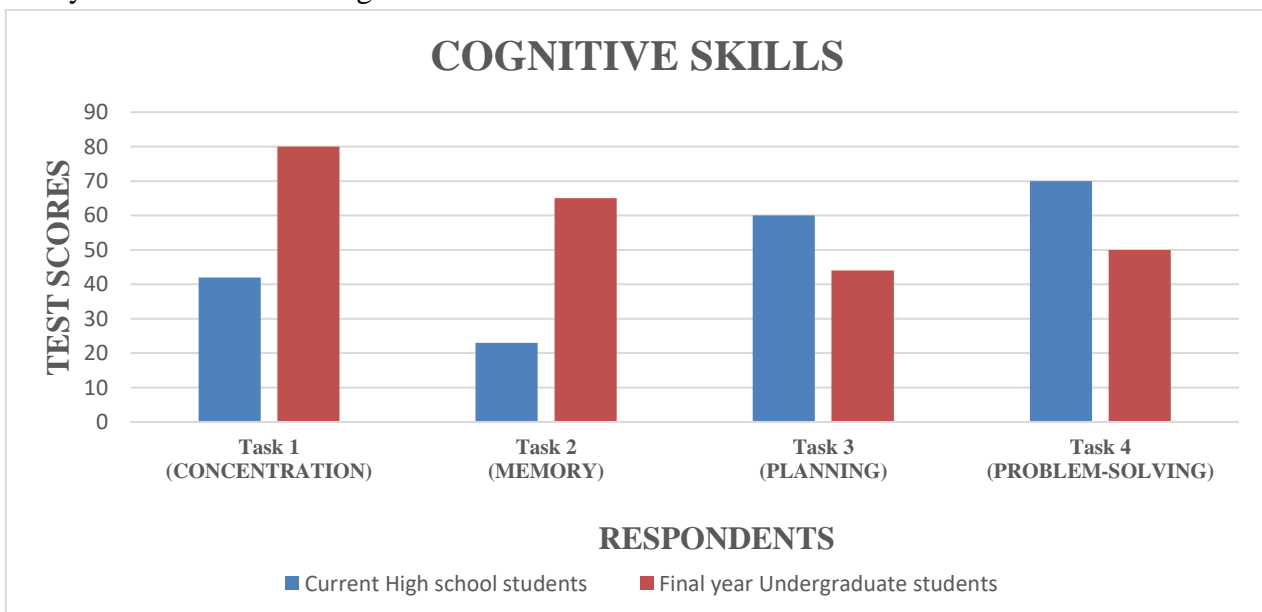
The third task was to write about their reaction to a situation presented before them, to understand their effectiveness in planning. The situation was that, if they were the only person left in their city, due to the aftermath of the pandemic, what would be their first few steps to save themselves and reunite with all of them who left.

And finally, the last task was to be able to create a structure with pieces of wood. A model drawing was given to them and good and bad both kinds of wooden pieces were given. They had to use all of them, with the condition that all the broken pieces used would be concealed in such a way that, at the end, the structure should look perfect.

During the start of the first task, every participant was informed that they would have a limited amount of time to complete the task, and they were not to share anything in regard to their tasks with any other participant whether they had completed or simply given up. All the booklets containing the data was collected, tabulated and analysed.

## Results

The hypothesis of the study was that, due to the effect of the pandemic the cognitive skills of the current high school students would be much inferior to that of the final year undergraduate students. But the results were not in favour of the hypothesis. The findings of the memory and concentration skills of the undergraduate students were far better than that of the high schoolers. And, the findings of the tasks related to planning and problem-solving abilities of the present high schoolers in comparison were relatively better than the undergraduate students.



The results obtained may or may not be similar if the tasks were conducted on a different set of similar age group students, depending on various unknown circumstances. It is also quite possible the cognitive skills might differ if the testing conditions or tasks are altered.

### Conclusions

The results of this study provide some very interesting facts and insights of cognitive skills of students, contrary to the presumption that the present-day high schoolers are not ready for their future studies and careers. This study and further such studies in future will contribute to the fact that the education system whether for good or bad is changing rapidly and the students are open to adapting the new perspective with open arms.

It is not known what the future holds for this generation of students, whether or not they would be able to successfully transit into their desired careers, but the choice is undeniably theirs to make.

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