Making Online Education Effective

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The purpose of this white paper is to present options for making online education effective. There are pros and cons of online methods and this paper deals with both the advantages and the limitations of online education. This paper presents on an online survey, followed by recommendations to make the online education more effective.

It is the eleventh paper in a series of thoughts collected, organized, and promoted by the Quality in Education Think Tank (QiETT) of the International Academy for Quality (IAQ).

The first paper addressed a broader scope of topics and put into perspective the overall field of "Quality in Education", which set a common ground for further reflection and guidance of QiETT activities. The forthcoming papers, such as this one, focus on more specific topics and delve deeper into particular topics based upon the collection of international inputs from quality and education experts.

To date, this collection of white papers comprises the following titles:

1-"Quality in Education: Perspectives from the QiETT of IAQ"
2-"Large Scale Training of Quality Professionals"
3-"Inclusive Quality of Education"
4-"Continuing Education in Quality Improvement for Healthcare Professionals and its effects on organizational improvement"
5-"Current Societal Challenges to Quality and Quality Management in Higher Education"
6-"Applying Quality Theory to Educational Systems"
7-"Training and Teaching Statistical Methods for Quality"
8-"Simple Hints to Help Trainers Improve Training Quality"
9- "Student Quality Circles: A Step Towards a Total Quality Society"
10- "Solving Problems in Education Using Quality Tools"
11- "Making Online Education Effective"

1. Evolution of Education

Education is an essential factor for the sustainable economic development of a nation with education being essential for both the productivity and creativity needed to achieve economic growth. In addition, education is essential for both an equitable income distribution and social progress (Illhan 2001). With education, citizens can be both more productive as an employee and better citizens.

The ways of conducting education have changed as the needs of society have changed. In addition, technological developments have also resulted in changes in the ways in which education is conducted.

There are multiple ancient education systems in different parts of the world. In India, there was a system of mentorship as part of an education system called Gurukul, where Gurus where the educators (Nachimuthu 2006). This contrast with feudal Europe, where education happened at universities, which were controlled by churches (Dawson 2010).

According to Singh, "Pious and learned Muslims (mu' allim or mudarris), dedicated to making the teachings of the Koran more accessible to the Islamic community, taught the faithful in what came to be known as the kuttāb," which could be anything from a mosque, shop, or a tent (2021). In China, academies with scholars were founded over 2,000 years ago, with the Academy of the Gate of Chi providing scholars with borth a place to live and support (Needham 1956).

Modern traditional school and university education offer formal learning. Formal learning has structured objectives and learning time (Rogers 2014). Learning in traditional schools and universities takes place in a classroom and the learning is assessed through the use of exams. There are many new and innovative approaches to education that may be used in a traditional education setting. For example, PBL (project based learning) is where students complete their training and then apply what was learned in an actual project (Kanigolla, Cudney, and Corns. 2013). Case studies may also be used with a group reading a text with a case study and then discussing the case study (Dew 2015). Learning may even involve the playing of games (Heineke 1997).

Education may also be conducted when the learner is not present in a classroom with an educator. This is referred to as distance education and may consist of methods such as satellite, pre-recorded videos, CD-ROM, or internet (Rooney & Scott 2003). According to Keegen, distance education has a separation between the educator and the student, but there is an exchange of information between them (1980). Correspondence courses were the main form of distance education for around 100 years; however, this changed with the opening Open University in 1970. Since then, distance education has greatly expanded (Keegan 1996).

Online education is a type of distance education that uses ICT (Information and Communication Technology), which pertains to both computers and other forms of communication technologies. An online program of study may be 100% online or a hybrid version called blended learning, which is a combination of classroom and online learning (Mortera-Gutiérrez 2006). An online course may also be a standalone course that is not taken as of a program of study such as a degree; such online courses are typically taken for skills training. Another type of online education is a MOOC (massive open online course). A MOOC is a free online course that may have tens of thousands of learners enrolled (Meisenhelder 2013).

2. Impact of COVID-19 on Education and Training

The COVID-19 pandemic and resulting lockdowns presented schools and universities with an unprecedented challenge. Different countries reacted differently to the change with some delaying the start of school and others ending the school year early. On average, a 40 days of instruction were lost due to delaying the start of a school year and an average 55 days of instruction were lost when a school year was in progress (UNSECO 2020) and 1.38 billion learners have been impacted (see Fig. 1). In response to the pandemic, booth schools and universities have needed to shift to online learning using a mix of technologies.

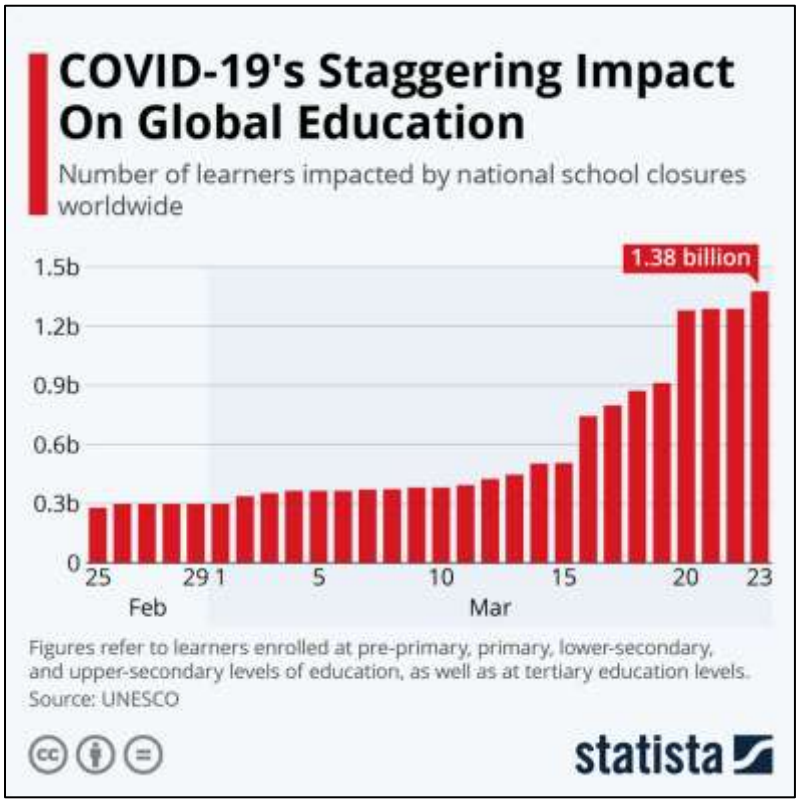

Figure 1: Effect of the COVID-19 on the students
©2020 statista. Reprinted with permission
https://www.statista.com/chart/21224/learners-impacted-by-national-school-closures/

3. Current State of Online Education

There are differing opinions on the merits and demerits of the online mode of education and training. Informal interactions with various stakeholder also gave an impression of different expectations. As such, it was decided to conduct a formal survey. The survey was covered all major states in India with participation of all stakeholders such as students, teachers, business leaders, and parents. Survey was conducted in February and March 2021 when the first wave of Corona was perceived to be over and the second wave had not hit the country, yet.

A questionnaire was prepared and circulated to more than 150 people and 53 people responded. The survey focused on perceived benefits and challenges. 92% of the respondents had direct or indirect experience with the online education. The remaining 8% of respondents made the

observations based on what they 'heard' from others in their organizations or society. A profile of the people who responded in terms of their qualifications and their professions is shown in Fig. 2.

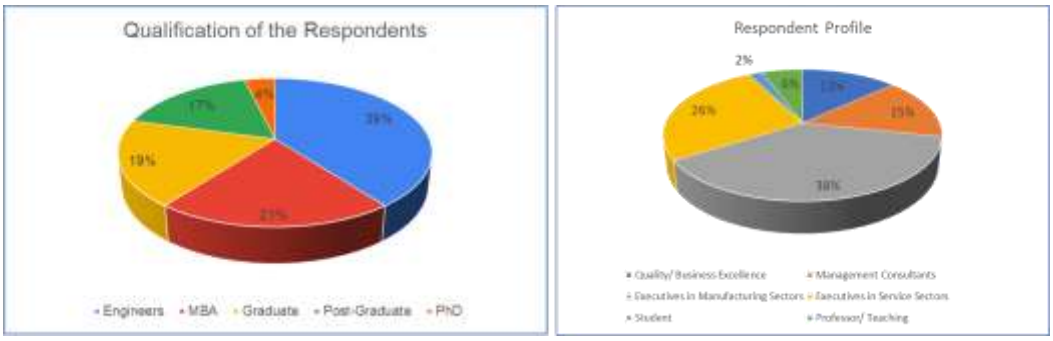

Fig. 2: Profile of people who responded to the survey.

i. Which method of education will be their first choice: classroom, online or hybrid?

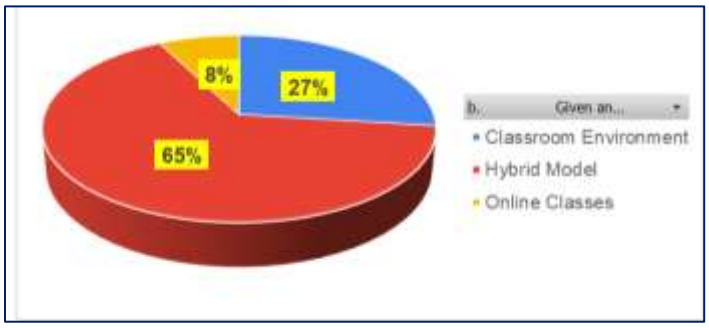

Fig. 3: Pie chart on first choice for education mode

As shown in Fig.3, More than two third people preferred hybrid and surprisingly, only 8% people were fine with 'pure' online education methods. Probably, the physical and emotional touch is missing the online education. Hence, there is a general preference for hybrid or classroom types of training.

ii. Which type of education and training is more suitable to online mode?

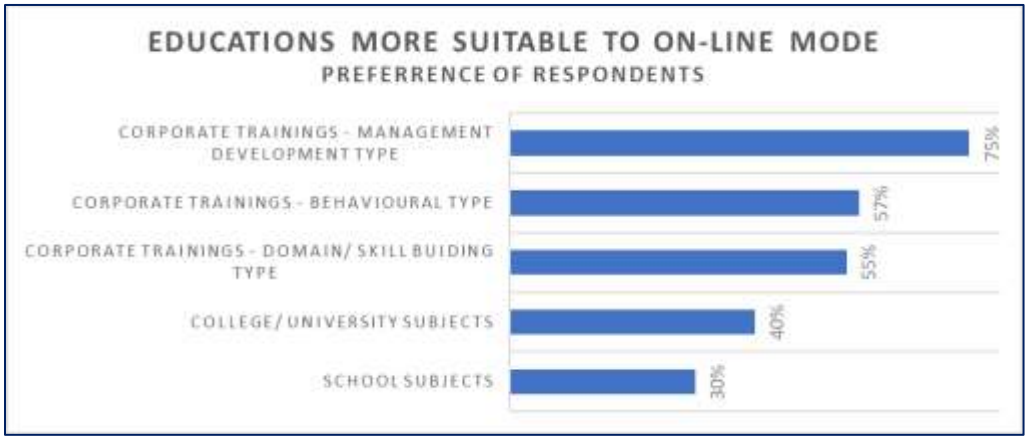

Fig.4: Suitability of online education for various education levels

As observed in Fig.4, corporate trainings seem more suitable for online mode compared to school/ university courses. This may be due to differences between education and training

concepts. Corporate trainings are much more practical and focused on real life issues relevant to the learner. Whereas education of school and university are too non-productive, theoretical, and not linked to the real world from the students' perspective.

iii. What are perceived benefits of the online mode?

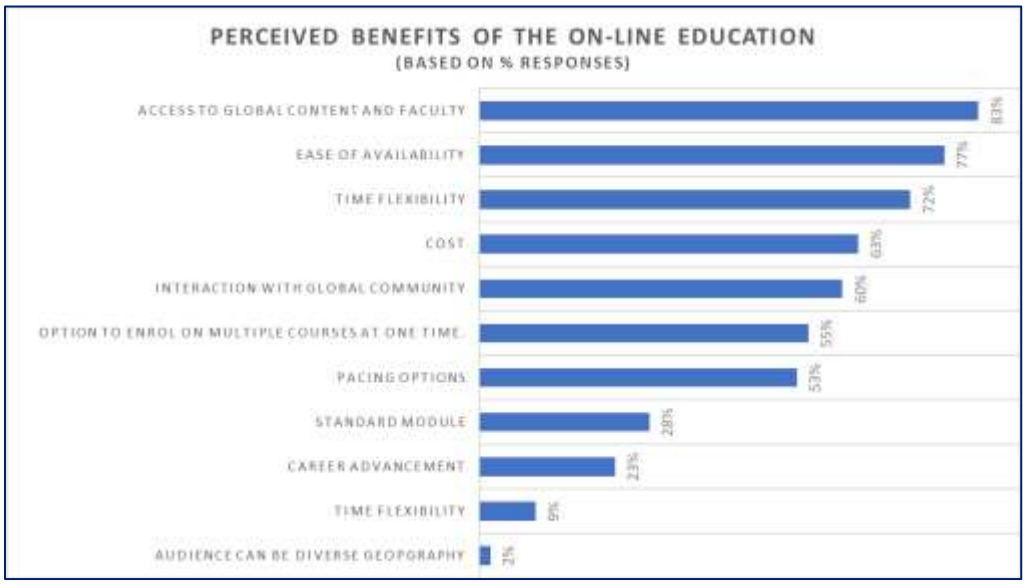

Fig. 5: Perceived benefits of online education

Fig. 5 shows that respondents feel the following key benefits of the online mode of education:

- Access to global content and faculty: Courses can be chosen from anywhere in the globe as per comfort and convenience.
- Ease of availability: Many Universities and consulting organizations now offer their courses online, including options such as assessment and certification.
- Time flexibility: Students can choose timing as per their convenience. This becomes more important for working executives who want to learn new methods and skills, without affecting or discontinuing their work responsibilities.
- Cost: Online methods are relatively less expensive compared to the conventional classroom method of education.

Most of these benefits are for working professionals and may not be fully applicable to school or university students. Students are not working and sitting at home all day. Self-learning during their daytime is difficult with so many distractions in homes compared to the more intense and focused interaction in the classrooms. This is a serious challenge.

iv. What are typical challenges in the online mode?

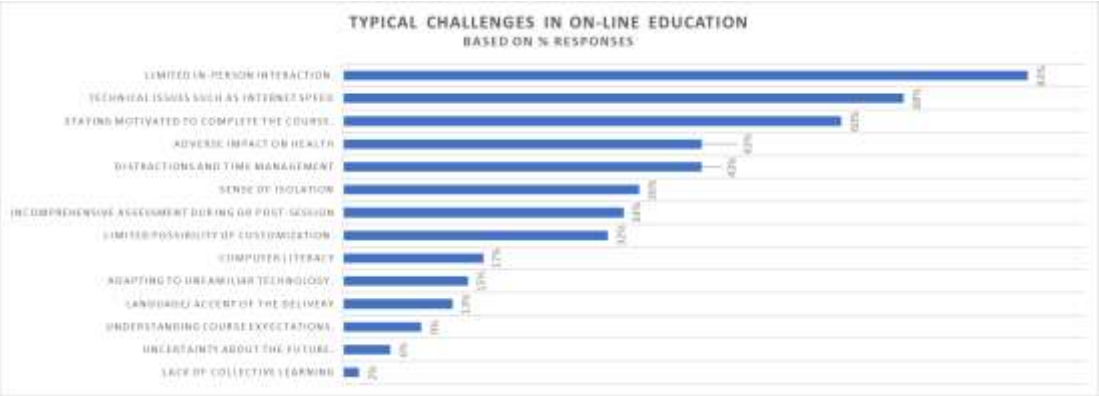

Fig.6: Typical challenges in online education

- As can be seen from Fig.6, respondents of the survey perceive the following key challenges for online education:
- Limited interaction: Usually, it is one-sided communication from the instructor to the students. Opportunity for two-way interaction is absent or very limited.
- Technical issues: Often, there are disturbances/ discontinuity in the video/ audio due to issues such as latency in internet speed. This leads to loss of focus and concentration.
- Staying motivated: It becomes difficult for students to remain engaged and motivated, if the courses are longer than a week. This results in lower attendance in later part of the courses.
- Health issues: Online education needs students glued to the laptop/PC/ mobile phone spend long-hours sitting in the same posture. This affects health adversely in terms of backache, strain on the eyes, etc.

v. What are your suggestions to improve the online education system?

Respondents have given the following suggestions:

- More interaction opportunity with the students. Base module can be recorded in audio/ video mode. Separate sessions can be planned for open Q&A (question and answer sessions) and discussions. Plan to have short quizzes at the end of each module to simulate interest in addition to better learnings.
- Industry specific case studies and examples will help, context is important. Explore feasibility of discussion in sub-groups (something like private breakout rooms) with separate case studies.
- Blend more human interfaces along with technology. Add simulation and enable stronger in-classroom experience with co-participants. While imparting knowledge and cognition are important, the human brain needs emotion and feelings to learn. Online programs should not be perceived like a ‘robot’ based training, only focused on knowledge sharing. Approach using KYS (know your students) by understanding their profile, conducting quick surveys to gain an understanding the needs and expectations of the students can help bring some ‘ice-breaking;’ a quiz in the beginning of the session and frequent quizzes/ game plays/ simulations etc. during the session can also help. Intermediate assessments at periodic intervals may help, too.
- Hybrid mode (with a combination of classroom and online sessions) is better than only online mode.

- Make the sessions more experiential learning, with cases and simulations.
- Use online collaborative tools/ interactive platforms.
- Use of technology such as AR (Augmented Reality) and VR(Virtual Reality)
- User based customization may be attempted, wherever possible.
- Limit the group size to a reasonable number. Interaction becomes difficult when the group size is too large.
- Video formats are better than just reading from a book/ PowerPoint.
- Improve credibility of external acceptance when certification is involved. The examination and assessment process needs to be revisited to give confidence to all the stakeholders.

4. Conclusion

Online education is gaining wider acceptance, especially due to constraints posed by the COVID-19 pandemic. There are several advantages of online education methods and a shift from classroom methods to online learning methods is certain. However, the human and emotional touch are left out in this form of education, yet they are very important for both learning and understanding the context and application of the learnings. Empathy for the customer (students, teachers, and other stakeholders) needs to be built into the design and execution of online learning approaches.

A hybrid mode consisting of online learning with interactions will help in ensuring better delivery of the contents and will be easier for understanding by the students.

Technology platforms for better interaction need to be exploited. Augmented Reality (AR) and Virtual Reality (VR) can be used, as needed. This is relatively new concept and has the potential of reducing distractions and improved engagement and interaction. Challenge will be the costs associated with this technology (e.g., costs for glasses, controllers, etc.). It will probably be used for corporate

5. Acknowledgments

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