

**COVID – 19 and its Impact on Design Education;
Call for Creative Integration of Digital Technology for its Effective Online Delivery**

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Abstract:

It is now more or less certain that the education for the major part of the next semester will be "virtual" and the schools and universities will have to resort to online teaching. The design institutes will need to explore and adopt digital technology to reach out to their students. Its pedagogy founded on studio-based learning depends heavily on face-to-face teaching and constant interactions. Primarily a project-based education, it emphasizes learning with experience. Creating such a studio-based model online would require strong technical support and administrative assistance for the faculty member/s to guide and mentor each student as per her individual needs and pace. It demands to combine creativity with state-of-the-art computer programs. Each student will need to be provided with her own online studio space to upload and document the work. The online mode of education offers the students the required flexibility in terms of time and the pace of study. For successful online outcomes, it is important to develop a sense of community among its students. The design institute needs to explore a variety of online platforms, applications, and tools available to encourage and facilitate effective interaction. The institute and its faculty members may have to rewrite the content and develop new approaches to teaching.

Prelude:

The world is today facing the most crucial health calamity of the century. Characterized by the World Health Organization, WHO, as a pandemic, the coronavirus disease, COVID 19 is attacking societies at their core. Spreading rapidly across the world, it is killing people, spreading human suffering, and upsetting people's lives.^[1] More than 200 countries/regions have reported confirmed COVID-19 cases.^[2] Over 4.74 lakh people have lost their lives and over 9.19 million people are infected by the disease across the world.^[3] The coronavirus outbreak has today posed the greatest challenge to humanity. And it is more than just a health crisis. COVID-19 has severely demobilized the global economy. Many of the affected countries imposed partial or total lockdown to restrict the further transmission of the disease in the community. Millions of citizens are confined to their homes, shutting down businesses and ceasing almost all economic activities. The coronavirus

outbreak has pushed the global economy into a recession. In the USA itself, more than 36 million people have filed for unemployment benefits, which is almost a quarter of its working-age population.^[4] An estimated 140 million people lost employment in India during the lockdown. More than 45% of households across the nation have reported an income drop as compared to the previous year.^[5] These are expected to increase inequality, exclusion, and discrimination in the medium and long term.^[1] The pandemic is posing enormous health, economic, environmental, and social challenges to the entire human population.

“The coronavirus pandemic will forever alter the world order,” wrote the former U.S. Secretary of State Henry Kissinger in his article in Washington Post.^[6] It has created new paradigms for living in society. COVID-19 infection is changing the way we think and live. Businesses will no longer be as usual. Social, political, health, and even governance system would also change drastically. Several scholars are predicting a new world order.^[6]

COVID 19 and its Effect on Education:

Countries across the world have introduced several measures to prevent the spread of the epidemic. Most countries have introduced travel restrictions, both inward and outward.^[7] Healthcare systems and related facilities are being reinforced on war-footings. Social distancing, self-isolation, or quarantine, work from home are encouraged and enforced among the people.^[7] And with the view to reduce the spread of the COVID-19 virus among the younger and adult populations, schools, universities, and colleges are temporarily closed in most of these countries.^[8] In the middle of their academic session, education across the world has been hit particularly hard. These schools and universities have either canceled or postponed all campus activities and events.^[7] More than 1.53 billion students and youth across the planet are affected by school and university closures due to the COVID-19 outbreak, impacting 87.6% of the world’s total enrolled learners from over 184 countries.^{[9],[10]}

In India also, the schools and colleges have been completely closed since the second week of March. Classes were conducted online to complete the remaining part of the curriculum. The assessments too were completed online, devising individual methods and approaches. Annual exams have either been postponed or

canceled. Few of the colleges experimented with open book exams. And there is still uncertainty about the reopening of the schools and colleges. Admissions have yet to be completed for the next academic year. All these have caused a tremendous level of stress affecting the learning and psychological health of the students.^[7] With no immediate solution visible till now to stop the outbreak of Covid-19, the closure of the schools and universities will likely be further extended. These will not only have a short-term impact on the continuity of learning for these young learners but also engender far-reaching economic and societal consequences.^[11] The next full semester will likely be "virtual" as campuses will continue to be locked down, and the schools and universities will have to resort to online teaching.^[12]

The structure of schooling and learning, including teaching and assessment methodologies, was the first to be affected by these closures. With the view to limit the disruption of education, UNESCO recommended distance learning programs for the schools and teachers to reach learners remotely through open education applications and platforms.^[8] Faculty members are thus transitioning to online teaching platforms. The crisis has accelerated the adoption of digital technology. The centuries-old chalk–talk teaching model is now being transformed to the one driven by technology.^[11] Various e-learning solutions are explored that help engage with the students at the scale while tackling the digital divide. The mind-sets of students, teachers, and all the other stakeholders involved, are thus changing. The traditional teacher-centric education is now shifting to student-centric education.

Both the teachers and students were excited by the move to the online delivery mode. Faculty members planned and prepared their lessons to deliver online. Study materials and audio/video files were shared with the students over the Internet. It is easier for today's tech-savvy students to embrace online delivery option. This mode of education offers them the required flexibility in terms of time and the pace of study. The students can individually contact the teacher online for any queries/ discussions. And the platform provides lifetime access to the course material. However, it was soon realized that the "classroom" in an online class is far more impersonal than the physical one.^[12] It becomes monotonous and exhausting for the teacher to talk to a computer screen with occasional interruptions by disembodied voices.^[12] And it becomes stressful for the students to look at the phone or computer screen all day long. Unequal access to connectivity and the Internet is the main challenge in India.

Not every student has access to high-speed Internet, Wi-Fi, and/or the required online facilities. This leads to issues with attendance and participation in online sessions.^[13] Students are also cut off from university libraries, workshops, and laboratories. It was thus felt that the online mode of education offers a poor learning environment in general.^[13] The teacher misses out on the much-required feedback that face-to-face teaching offers that helps her constantly review, revise, and improve the course delivery for the students to remain in sync. Substantial learning is lost as the scope for interactions, debates, open discussions, and casual conversations with the students get reduced on the online platform. Students ask fewer questions online. In the absence of the classroom, the student misses out on learning new skills, peer reviews, and life experiences.

Design education:

With the view of developing a problem-solving design consciousness among its students, the design education emphasizes learning with experience. The pedagogy is thus primarily based on project-based education. Its curriculum blends design theory and hands-on practice. The curriculum is generally structured around studio-based learning to provide adequate scope for creative explorations and experimentations. The students here generate design solutions in the form of drawings, models, and/or prototypes. The pedagogy thus depends heavily on face-to-face teaching and constant interactions.

Design education is more than just an attempt to learn technical design skills. The objective here is to develop a creative and unique personality of the designer. With the emphasis on the design process and the depth of understanding, students learn ways of thinking and learning. It helps develop curiosity, observation, inquisitiveness, and empathy in these young minds. In the process, students use a variety of different methods, mediums, and tools. Drawing is one such medium used by the designers to communicate. They make extensive use of drawings and models to visualize and to communicate. With the focus on visual perception and in-depth understanding of the materials and processes, students here develop and refine their aesthetic sensibility. Originality, conceptual clarity, understanding of issues, and context are part of the criteria used to assess the student's work.

For the major part of their study, the students would be working on assignments or

projects, individually or in groups. And these assignments and projects would be based mostly on the real-life context. They will have their inherent ambiguity. The process of design begins with the phase of exhaustive research - majority field research based on interviews, observations, inquiry, and documentation. Design is a human-centered discipline that requires understanding and meeting with a variety of stakeholders involved. Its ideation and synthesis phase calls for exhaustive explorations and experimentations, the outcomes of which will be in the form of drawings and models. Design can be best demonstrated, thus 'making' being a critical element of design, visual perception, touch and feel are the vital feedback mechanisms for the designers. And the process of design is iterative and not well defined. Constant discussions and dialogue with the faculty member/s, fellow batch-mates, and stakeholders; presentation, display, peer reviews, and feedback, they are all integral to the design process.

The majority of the design institutes in the country follow the system of block schedule. The course modules are offered sequentially and in blocks, with the design projects scheduled mostly towards the end of the semester. By the second week of March, when the lockdown was announced and the institutes closed, the design students in most of these institutes had started their design projects. During the period of lockdown, as the students were working on their projects, it was a little easier for the faculty members to guide and mentor them through remote and online mode. Besides, the students have been provided additional time/ extension for submission so that they can develop/make their models/prototypes in the institute's workshops/labs when the institute reopens. The student's work is only provisionally assessed at this stage.

Design Education and its Online Delivery:

There are a variety of online courses on design, design thinking, design skills, and/or its various elements, on offer today. The duration of these courses ranges from one week to four years. And they range from certificate, graduate, masters to doctorate programs.^[14] The field of design is broad and varied, with numerous specializations. Many reputed design institutes from across the world are now offering these courses on design in a virtual format. Parsons New School of Design, USA, Central Saint Martins, UK, TU Delft, The Netherlands, etc. are few of the institutes offering online programs on different facets and elements of design. These courses combine

creativity with state-of-the-art computer programs. An array of software applications are used to create visual communications, to be then presented via electronic media. Students access lectures, assignments, and other course materials using learning management systems like the Blackboard, Webex, Google Classroom, etc. as well as email and even YouTube.^[14] Most online courses meet asynchronously — which means you can read materials, engage in discussions, watch videos, and participate in projects, blogs, and more any time of the day or night.^[15] Wherever required, online lectures and presentations are followed by studio time for more intense study and experimentation.

In the year 2002, the National Institute of Design in collaboration with Macmillan India Ltd. designed and offered an online program 'Graphic and Industrial Design of Packaging' as part of the institute's 'Good Design' series. While the content was developed and managed by NID, Macmillan India Ltd. provided the required technical support for the program. The program aimed to sensitize the participants towards appreciation of design and its various facets. Through lectures, presentations, assignments, and projects, it aimed to create awareness and insights about the issues concerning graphic and industrial design aspects of packaging. Question and answer sessions and live chats with the faculty members were an integral part of the program.

Preparing for Online Education in Design:

It is now more or less certain that the education for the major part of the next semester will be offered through online/virtual mode.^[16] It will be difficult for the institutes, especially the residential institutes to implement the tough social distancing requirements. The design institutes will have to work around whatever limitations of online education to retain the quality and standard of education offered. The course deliverables/outcomes in terms of knowledge, exposure, and experience gained by the student should be as expected, as that will be critical in her further progress and career. Students' level of engagement, involvement, and motivation will have to be maintained.

A studio-based model founded on face-to-face teaching is the heart of the design education. Creating such a model online would require strong technical support and administrative assistance for the faculty member/s to guide and mentor each student

as per her individual needs and pace. The size of the class should be kept small, around ten to fifteen students, to facilitate individual attention. Each student will need to be provided with her own online studio space to upload and document the work. As the students will be at their home and in different locations, the faculty member's communication/ instruction to the students should be precise and clear, to help students plan their time, efforts and resources. The faculty member may have to rewrite the content, learn new techniques, and explore and develop new approaches to teaching. Assignment/s will need to be clearly articulated with a specific framework, tools, and references to avoid any confusion. Its expectations and deliverables will also need to be specified along with the time frame. The faculty member/s would need technical support during various stages of the assignments to develop and record short but effective lectures, presentations, audio/video instructions, etc. for the students. The assignment/project brief should be such that it can be based on the student's local context. This would help students carry out the all-important field study easily and safely. Students should be encouraged to upload the work at every stage of the process up to the completion of the assignment/project. They should be encouraged and facilitated to learn and update their photography, digital visualization, and digital presentation skills. And they should be encouraged to create their own physical work cum studio space at home, however small that may be. The work thus compiled in the form of online portfolio, short video film, write-ups, and/or sketchbook would enable faculty member guide and provide practical advice, and also help document student's work that can be viewed throughout the semester. Every student should be encouraged to publish her work, experience, and reflections on online platforms.

As an online study the emphasis will be on the breadth and depth of design research, systematic approach, selection, and application of appropriate methods, reflection on the work, quality of analysis, inferences and insights developed, variety and quality of explorations, and synthesis and conclusion of the project. The online platform makes it easier to invite experts and guest speakers from across the world for a short presentation, lecture, discussion, and/or review of the work. As and when required visual examples of the past student work may be used to set the standards of expectations. And there are varieties of other resources available online that can be used as references.

Continuous interactions through the presentation, critique, peer review, feedback, brainstorming, informal conversations are vital for the student to learn and move forward. With the inherent ambiguity involved in the assignment, and the student being on her own at home, she would need handholding, careful mentoring, constant motivation, and monitoring to move forward. The advantage of the online platform is that the faculty member can give as much time as is necessary to each student and can bring her along at a pace suited to her as an individual.^[17] The students here don't need to compete against their peers for the faculty's attention. The institute should facilitate the use of different online platforms, applications, software, and tools available. Individual interactions with the faculty member; small group/peer interactions for quick discussions, feedback, and brainstorming, etc.; formal presentations to the larger audience or the class; they all should be encouraged, facilitated and planned. Student's participation in a visual critique would call for guidance and training to develop precise, well-formed, and guided questions, instructions, and/or suggestions.^[18] All these would help develop the much required shared vocabulary and a sense of community for successful online visual outcomes.

Conclusion:

The coronavirus disease, COVID 19, characterized by the World Health Organization, WHO, as a pandemic, has today posed the greatest challenge to humanity. The pandemic is posing enormous health, economic, environmental, and social challenges to the entire human population. More than 200 countries/regions have reported confirmed COVID-19 cases. The pandemic has forever altered the world order. It has created new paradigms for living in society. Schools, universities, and colleges are temporarily closed in most of these countries. Education of more than 1.53 billion students and youth across the planet are affected by this closure. The next full semester will likely be "virtual" as campuses will continue to be locked down. The schools and universities will have to thus resort to online teaching. The centuries-old chalk–talk teaching model is now being transformed to the one driven by technology.

Design education emphasizes learning with experience. Its pedagogy is primarily based on project-based education. And the curriculum is structured around studio-based learning to provide adequate scope for creative explorations and experimentations. The pedagogy thus depends heavily on face-to-face teaching and

constant interactions. However, the changed context has forced the design institutes to explore and adopt digital technology to reach out to their students. The design institutes will have to work around whatever limitations of online education to retain the quality and standard of education offered.

Many reputed design institutes from across the world are offering courses on design in a virtual format. The duration of these courses ranges from one week to four years. And they range from certificate, graduate, masters to doctorate programs. These courses combine creativity with state-of-the-art computer programs. An array of software applications are used to create visual communications, to be then presented via electronic media.

Creating such a studio-based model online would require strong technical support and administrative assistance for the faculty member/s to guide and mentor each student as per her individual needs and pace. The faculty member may have to rewrite the content, learn new techniques, and explore and develop new approaches to teaching. The assignment/project brief should be such that it can be based on the student's local context. Each student will need to be provided with her own online studio space to upload and document the work. Students should be encouraged and facilitated to learn and update their photography, digital visualization, and digital presentation skills. The work thus compiled in the form of online portfolio, short video film, write-ups, and/or sketchbook would enable faculty member guide and provide practical advice, and also help document student's work that can be viewed throughout the semester. A variety of different online platforms, applications, and tools available should be explored to facilitate individual interactions with the faculty member, small group/peer interactions for quick discussions, feedback and brainstorming, etc. as well as formal presentations to the larger audience or the class. Wherever required, students' access to studio and workshops should be suitably planned and provided within the guidelines of social distancing.

The advantage of the online platform is that the faculty member can give as much time as is necessary to each student and can bring her along at a pace suited to her as an individual. The students here don't need to compete against their peers for the faculty's attention. The students can individually contact the teacher online for any queries/ discussions. The platform provides lifetime access to the course material. It

is easier for today's tech-savvy students to embrace online delivery option. This mode of education offers them the required flexibility in terms of time and the pace of study.

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