

# Considering the Effective Online Learning Design: Distance Learning and Digital Divide in the Pandemic Era

RR. Siti Murtiningsih<sup>1,\*</sup> Hastanti Widy Nugroho<sup>1</sup> Ahmad Samawi<sup>2</sup>

<sup>1</sup>Faculty of Philosophy, Universitas Gadjah Mada

<sup>2</sup>Faculty of Education, Universitas Negeri Malang

\*Corresponding author. Email: [stmurti@ugm.ac.id](mailto:stmurti@ugm.ac.id)

## ABSTRACT

The year of 2020 is a year of global health crisis that left an impact on social and economic life. The COVID-19 pandemic has changed the pattern of human life and the way of interaction between people, including the education. The application of distance learning models during social distancing now becomes a necessity. However, its application is not that easy, given the vast conditions of the region in Indonesia with a variety of conditions. Various parties felt pessimistic about the application of this distance learning model. The raised common reason is always related to infrastructure and facilities. The question arises whether the digital divide in distance learning only related to infrastructure issues. This research is trying to identify several perspectives on the possibility of designing some interesting online learnings in order to achieve the target of learning achievement in the midst of this pandemic situation. There are many ways to design the online learning. Therefore, this study gained its context, how to improve learning standards, by making breakthrough approaches in the educational process. And the most important thing is how to keep the students involved in the online learning process. Two-way communication is an important challenge that must be considered for online learning. Without the effective interaction, it will be difficult to know whether the students are seriously involved or not understanding the material. A new accountability procedure is needed to ensure the function and position of education as a tool of knowledge transfer goes well.

**Keywords:** *Distance Learning, Digital Divides, Learning Design, Education in The Pandemic*

## 1. DISTANCE LEARNING: DEFINITION AND SYSTEM

By using e-learning, for example, academic institutions do not need to require students to be present at lectures any longer. Students can set their own pace, studying whenever they can. In today's competitive business world, this makes it easier for students to manage their schedule to learn, gather with their families and perform other obligations. Students who live far away from established colleges and universities, as well as those who require a more flexible learning system than traditional lecture and classes, can take advantages from this system. They can learn anywhere and anytime in the world, provided that they have access to an internet.

This kind of learning also can be extremely helpful for those who want to pursue higher education for their preferment as well as for students who want to study while working. Distance learning, as implied by the name, is a learning system by which students can study remotely. By using various tools, ranging from online

and offline modules, face to face lectures, telephone support and virtual classrooms, distance learning does not demand students to attend classes and lectures any longer (Anderson, T., & Dron, J., 2010).

Distance learning, also called distance education, e-learning, and online learning, has two main elements, i.e. physical separation between teachers and students during instruction and utilization of various technologies to make student-teacher and student-student communication easier. This type of learning—that allows education processes are conducted virtually—is made possible by the Internet (Bates, T., 2005). According to *the Merriam-Webster dictionary*, the basic distance definition of distance learning is a method of study where teachers and students do not meet in a classroom but use the internet, email, mail, etc. to have classes. This definition helps establish the basic premise of distance learning, which is that the educator(s) and those who are learning are not physically present in the same location. In addition, it also sets up some of the solutions that are used to enable distance education, such

as the internet, email, and traditional mail. Today, distance learning is often considered to be synonymous with terms like “e-learning”, “online learning”, and “virtual classrooms”. However, this is not strictly true. While e-learning or online learning is a form of distance learning, the broader definition also includes old-style correspondence courses, where the material is sent through the post (Moore, Michael Grahame and William Anderson, 2012).

When defining distance learning, it can also be useful to cover some key characteristics. According to *the Encyclopedia Britannica*, distance learning has four key characteristics, regardless of the model being used, and these are: Carried out by institutions, as opposed to non-academic self-study. Characterized by the creation of a learning group, consisting of teachers, students, and resources. Features an inherent geographic separation between learners and teachers. Individuals within the learning group stay connected via telecommunications.

These key characteristics help to separate formal distance learning from practices like people voluntarily learning information in their spare time, in an unstructured way. The reference to staying connected via telecommunications also helps to ensure that modern internet-based methods and more traditional mail-based methods are both included (Holmberg, Börje, 1995). When attempting to answer the question “what is distance learning?”, it can also be useful to define some of the key types or models of distance education. Below, main types of distance learning.

### ***1.1. Synchronous Distance Learning***

Synchronous distance learning which refers to a type of learning where the learning group – comprised of both the teacher and the students – interacts at the same time, albeit from different geographical locations. With this model, students are usually required to participate in learning activities at a set time, with this being facilitated by digital technology. Another way to think of synchronous distance learning is by viewing it as a form of ‘live’ education. By having students participate at the same time, it can help to provide a clear structure and may also enhance interaction within the group. Examples of synchronous learning activities include group chats, webinars, and other forms of video conferencing.

### ***1.2. Asynchronous Distance Learning***

In contrast to the previous model, asynchronous distance learning is a type of distance education where learning takes place on a more individual basis, rather than through shared live group sessions. Generally, structure is still provided in the form of clear deadlines for completing tasks, but students complete these in a time that suits them. Asynchronous study tends to provide a greater degree of flexibility, as learners are not required to participate at the exact same time, although

this can reduce interactions within the learning group. Educational materials may take the form of written content, pre-recorded video lessons, audio recordings, and either mail or email correspondence.

### ***1.3. Paced Distance Learning***

With paced distance learning, the defining feature is that the lessons are completed by all students within the same basic time frame. In the majority of cases, this means that students will have the same start date, the same end date, and the same deadlines for specific tasks or pieces of work to be completed by. Paced courses are especially prevalent with institutions that offer a combination of both distance and in-person courses. The ability to keep the learning group together in terms of how quickly they progress through a course can be classed as a potential advantage, although there is also the risk of holding certain students back.

### ***1.4. Self-Paced Distance Learning***

As you might expect, self-paced distance learning refers to distance learning models where the students are given the freedom to go at their own pace. This means that the total time taken for the course can differ significantly from one student to another, depending on factors like ability, amount of free time available, and overall engagement. The main advantages here are freedom and flexibility, and self-paced courses also help to avoid situations where learners with a high level of interest and aptitude are held back. This model also allows for students to enroll at different times. However, the lack of structure can make interaction among students more difficult (Anderson, T., 2008).

Thus, distance learning can be briefly described as any form of learning where the teachers and students are not physically present in the same location. However, some definitions do go further, creating a distinction between unstructured self-study and more structured, organized distance education. Today, it tends to be facilitated through digital technology, although more traditional mail-based models are still technically examples of distance learning.

## **2. THE FUTURE OF DISTANCE LEARNING: VIRTUAL CLASSROOM**

Virtual classroom is an online space that substitutes many functions of a physical classroom. A virtual classroom advances engagement and collaboration through various tools and features. Learning and teaching process can be performed in many ways, either in supplementary or fully digitalized ways. The virtual classrooms make learning and teaching process more interactive, comfortable and familiar. Therefore, virtual classrooms become a popular way to overcome main problems of distance learning.

Many online courses are usually performed by giving students some pre-recorded contents that can be studied at leisure and tasks that need to be submitted online. That is certainly easy and comfortable but missing something. A lot of online learning reduce encounters between students and teacher. By contrast, even though conducted remotely, a virtual classroom still brings together students and teacher in an online conference so that the teacher can interact with their students in real-time. This type of classrooms also allows students to collaborate with their peers. This means still can be advanced to facilitate learning and teaching process for the ever-increasing digital natives who may want to enhance or replace traditional learning models (Kett, Joseph F., 1994).

A virtual classroom that simulates a physical classroom is usually synchronous. It means that the educator and the learners present in an online conference to interact in real-time. However, many virtual classes also have pre-recorded components. Like real classrooms, virtual classrooms are flexible and can be adjusted to the style and needs of all users. A virtual classroom often includes the following features: 1) Videoconferencing that facilitates communication between the teacher and students and between students and their peers. 2) A digital whiteboard to give real-time explanations and/or collaboration. 3). Chat room to facilitate a low-bandwidth communication. 4). Participative controls allowing students to “raise their hands” if they want to give oral commentary or question. 5). Sub-chats or group chats allowing students to collaborate in small groups online (sometimes also called breakout rooms.) (Walsh, T., 2011).

As a flexible remote learning model, virtual classrooms have various forms and functions. It can serve as an optional supplementary resource or a main recourse. And given that each group has their own need, virtual classrooms built on the same platform have to be customized. Therefore, virtual classroom can be realized in many forms according to the needs of teachers/lecturers and students. It can be an enriched model, rotation model, full-online model, flex model and à la carte model. An enriched classroom model is one that is mostly taught online with occasional offline meetings as a supplement. In many cases, the offline component takes the form of one-on-one meetings with teachers or instructors for getting face-to-face assistance and in-person consultation. The rotation model combines virtual learnings and offline meetings in a fixed schedule. This model is typically set for single-subject classes at higher levels like high school or university. This model frequently serves as part of a flipped classroom where students do their primary learning at home – usually online—and attend the classroom for review and reinforcement.

Full-online model is a virtual classroom that does not include a real-life version. If learning and teaching process uses this model, students and teachers will only

interact with each other in a virtual classroom. It does not include offline meetings at all. Even many full-online courses are asynchronous and have no real-time interactions at all. Flex model applied to distance learning usually allow students to visit the virtual classroom at any time. Students are suggested to work digitally on their own or in small groups. The teacher will be available periodically, either online or in-person. The flex model become a popular model for non-traditional learners that may not be comfortable to formal learning model. The flex model, as suggested by the name, provides a great deal of flexibility so that the students can choose the most suitable learning method for themselves. À La Carte Model is one that combines various digital teaching models and makes multiple channels available to students. (Peters, O., 1994).

Virtual classrooms solve many problems in education that have gone unaddressed for a long time. There are some reasons why we need to continuously develop and implement virtual learning model: 1) Educators can enrich existing classes with virtual lessons, especially as part of a flipped classroom or blended learning. 2) Virtual education methods make learning and teaching process more inclusive and accessible to students who have different abilities or cannot to physically attend classes. 3) By using virtual learning method, teachers/lecturers can extend the course without reducing the interactivity or collaboration of synchronous lessons. 4) Using a virtual learning infrastructure allows teachers and learners to maintain educational continuity in the face of school closures, especially long-term closures (Taylor, J. C., 2001).

We also can take many advantages from virtual classroom. In light of the ever-growing need for innovation in education, educators and institutions are forced to continuously improve their method and infrastructure. Schools should try to look for the best system in order to get desired learning outcomes. While virtual learning models cannot be suitable for every situation, they have a big deal of advantages and can overcome many challenges of distance learning. As previously mentioned, an effective virtual classroom should have multiple communication channels, ranging from instant messaging, voice chat, to videoconferencing. Ideally, virtual classroom also provides students and teachers a shared workspace to maintain engagement with the course materials and allow students to collaborate with their peers real-time. It is made possible by using shared chats, files, and digital whiteboards to work together on solving problems and reinforcing course materials. And to simulate group work, breakout rooms allow students to work in pairs or small groups similar to group work in a physical classroom.

One of the disadvantages of digital learning is the use of pre-recorded materials which make learning and teaching process more teacher-centered. Standardized

teaching materials like texts and videos are of course convenient and easy to teach, but they are harder to be adjusted to individual students' needs. A virtual classroom –especially a live one– can overcome this problem by providing students various options so that the learning and teaching become more student-centered. Just like a real classroom which has a whiteboard, virtual classrooms also have a feature allowing teacher and students to present, review, and reinforce educational materials. However, that feature has more advantages than physical whiteboard that only can be used to write. By using that feature, teacher or students can share links, files, and embedded media to make educational content more varied. A classroom, either brick-and-mortar or virtual one, filled with warm and friendly people is much better than an empty or automated space. A virtual classroom, however, allow teacher and students to interact with each other in various ways, ranging from chat, voice call, to videoconference, without worrying other people will disturb the interaction. Therefore, virtual classroom become a safe and comfortable learning space

### **3. THINGS NEED TO BE CONSIDERED IN VIRTUAL CLASSROOMS**

There are several things need to be considered to make an effective virtual classroom.

#### **3.1. Messaging**

It is the minimum requirement need to be meet for communication. Students should be able to write a message directly to their instructors and to each other to ask questions, participate, and collaborate. In some circumstances, text-based communications may be all you need. An ability to read the text at one's own pace – or re-read as necessary – can be helpful to improve understanding and retention. However, it also depends on how much text can be shared and how easy the text shared be misunderstood based on its tone or style.

#### **3.2. Voice Chat**

Compared to the text message, voice chat is faster and offers a more natural learning experience. It also allows participants to interact with a real person on the other end of the line. Furthermore, voice chat does not require strong connections as video does. However, while it allows more natural communication than messaging, it lacks the visual sign that video or in-person communication has.

#### **3.3. Video Streaming**

Even though videoconference has been around for a long time in the business, but it's only designed to facilitate small groups of collaborators. Most classes are usually larger than videoconference can cover. Therefore, some classes attended by tens, hundreds, or

even thousands of learners use video streaming as a medium. Streaming video to a virtual classroom is the same as an educator walking into class to teach in person. Most students will not be able to actively participate under this system, but that makes all students having more streamlined online experience.

#### **3.4. File Sharing**

Almost all communication platforms have a certain type of file sharing features. However, a virtual classroom should make sure that it has an integrated, two-way sharing system by which teachers can share assignments and resources with students and students also can submit their works to the teacher at the same platform.

#### **3.5. Participation Management**

Refers to students' ability to "raise their hands" or give other signs indicating that they would like to participate in a conference. This is an effective mechanism to give students opportunities to offer input, asking/answer questions, and contribute to the class as a whole. Participation management also give the teacher an authority to switch student's channel on and off so that the teacher can silence disruptions. The only disadvantage of this system is that students always have to get permission from the teacher before speaking up (Terry Evans, M. H., David Murphy (Ed.), 2008).

Apart from the five things above, there are several other things that also need to be considered. First, Digital Whiteboarding. Digital whiteboard is a software that emulates a whiteboard in brick-and-mortar classroom. It allows teacher/students to write, draw, annotate just like in a physical whiteboard, even allows teacher/students to present pre-made contents like power point slides, images, and videos. To get the best outcome from digital whiteboarding, teacher is suggested to have a touchscreen device. Second, Student Groups. To complement virtual classroom, student have to able work together with their peers in a group. Therefore, students should be able to make a student group where they can work together with their peers to explore and reinforce the materials taught in virtual classroom. However, setting up how students interact with each other will depend very much on the features of virtual classroom platform used. In some circumstances, it may be enough for them to simply share a digital whiteboard. In other cases, however, student may have to communicate more directly as part of a breakout room.

### **4. CONCLUSION**

Virtual classroom certainly has some drawbacks. A good virtual classroom is not a perfect class but a class that can overcome its own limitations by supplement devices such as Google Drive, Google Classroom, or Zoom. Although integrating some systems into a virtual

classroom increases complexity and requires users to learn more systems, it can make the classroom to have better performances. In recent time, distance learning is increasingly needed and we have no more reasons that learning and teaching process has to take place in the same physical space. A more connected classroom can give teachers and students more flexibility in learning and teaching process. Virtual classroom is an ideal solution to get a more connected class allowing teacher and students to involve in a learning and teaching process from any places and any time. They can learn or teach while traveling and exploring the world.

## REFERENCES

- [1] Anderson, T. (2008). *Theory and Practice of Online Education* (2nd ed)
- [2] Anderson, T., & Dron, J. (2010). Three generations of distance education pedagogy. *The International Review of Research in Open and Distance Learning*, 12(3), 80–97.
- [3] Bates, T. (2005). *Technology, e-learning and distance education*: Routledge Falmer.
- [4] Ellen L. Bunker, "The History of Distance Education through the Eyes of the International Council for Distance Education," in Michael Grahame Moore, William G. Anderson, eds. *Handbook of Distance Education* pp 49-66
- [5] Garrison, D.R. (2011, 20 May). *E-Learning in the 21st Century: A Framework for Research and Practice*. New York: Taylor & Francis
- [6] Honeyman, M; Miller, G (December 1993). *Agriculture distance education: A valid alternative for higher education?* (PDF). *Proceedings of the 20th Annual National Agricultural Education Research Meeting*: 67–73.
- [7] Holmberg, Börje. (1995). *Theory and Practice of Distance Education* (2nd ed)
- [8] Jedlicka, J. S., Brown, S. W., Bunch, A. E., & Jaffe, L. E. (2002). A comparison of distance education instructional methods in occupational therapy. *Journal of Allied Health*, 31(4), 247-251.
- [9] Kaplan, Andreas M.; Haenlein, Michael (2016). "Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster". *Business Horizons*. **59**(4): 441–50
- [10] Kett, Joseph F. (1994). *Pursuit of Knowledge Under Difficulties: From Self-Improvement to Adult Education in America*
- [11] Larry Cuban. (1986). *Teachers and Machines: The Classroom Use of Technology Since 1920*, pp 11–
- [12] Moore, Michael Grahame and William Anderson (2012). *Handbook of Distance Education* (2nd ed.). Psychology Press.
- [13] Moore, Michael G.; Greg Kearsley (2005). *Distance Education: A Systems View* (2nd ed.). Belmont, CA: Wadsworth
- [14] Major, C. H. (2015). *Teaching online: A guide to theory, research, and practice*. (Johns Hopkins University Press).
- [15] Peters, O. (1994). *Distance education and industrial production: A comparative interpretation in outline* (1973). *Otto Peters on distance education: The industrialization of teaching and learning*, 107–127.
- [16] Saba, F. (2011). *Distance Education in the United States: Past, Present, Future*. *Educational Technology*, 51(6), 11.
- [17] Stubblefield, Harold W. and Patrick Keane. (1994). *Adult Education in the American Experience: From the Colonial Period to the Present*
- [18] Tabor, Sharon W (Spring 2007). *Narrowing the Distance: Implementing a Hybrid Learning Model* *Review of Distance Education*. IAP. **8** (1): 48
- [19] Taylor, J. C. (2001). *Fifth generation distance education*. *e-Journal of Instructional Science and Technology (e-JIST)*, 4(1), 1-14.
- [20] Terry Evans, M. H., David Murphy (Ed.). (2008). *International Handbook of Distance Education*. Bingley: Emerald Group Publishing Limited.
- [22] Walsh, T. (2011). *Unlocking the Gates: How and Why Leading Universities Are Opening Up Access to Their Courses* (Princeton University Press, 2011)
- [23] Vaughan, Dr Norman D. (2010). "Blended Learning". In *Cleveland-Innes, MF; Garrison, DR* (eds.). *An Introduction to Distance Education: Understanding Teaching and Learning in a New Era*. Taylor & Francis p.165
- [24] Von V. Pittman, *Correspondence Study in the American University: A Second Historiographical Perspective*, in Michael Grahame Moore, William G. Anderson, eds. *Handbook of Distance Education* pp 21-36