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# Towards An Optimal Blended Learning Model During Disrupted Education Periods

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## Abstract

This paper studies the application of alternative instruction models such as online and blended learning to compensate for the closures of Higher Education Institutions (HEIs), including colleges and universities in the Middle East following the COVID-19 pandemic outbreak. Online learning was introduced as an immediate alternative to complete academic semesters by offering courses via distance learning modes. However, the review of relevant literature, surveys, and studies showed that complete online learning does not bring the optimal results in the Arab learning settings. Surveys conducted in the UAE, Saudi Arabia, and other countries revealed that complete online learning proved insufficient from the viewpoint of students, parents, and educators. Blended Learning Models (BLMs) are presented as a midway between full face-to-face and online instruction modalities. This study examines the different types and models of blended learning and how they are perceived by students in different educational contexts. This study aims to set the features of developing an optimal model of blended learning and how it can be implemented in the Arab HEIs. This study provides pedagogical implications and insights into how to apply an effective blended learning model to reinforce knowledge construction not only during disrupted education periods but also as an optimal educational construct aimed to foster students' autonomy and to help them to take charge of their own learning. Whereas this modality can be introduced at the school level, its application could be more efficient at the university level.

Keywords: Blended Learning; Constructivism, COVID-19 Pandemic, Distance learning, Online Learning;

## Introduction

The outbreak of the Covid-19 pandemic had an immediate impact on education globally, and its repercussions impacted all education cycles from kindergarten to university levels. Resorting to distance or online learning was an immediate necessary alternative to compensate for the classes students had missed due to school closures and necessary social distance precautions. However, this alternative was facilitated within the contexts that have robust technological infrastructure, trained teachers, and enough resources to avail online teaching and learning instruments to students and teachers; unlike those that were disadvantaged by poverty, poor infrastructure, and limited resources. Hughes (2020) named the digital divide among students in different settings as the "Mathew Effect" which states that "students in privileged learning environments, already at an advantage, will benefit further from access to a robust remote learning ecosystem, suffering few deficits in their learning"." (p. 6). Even though access to technology is prevalent in the UAE, norms and attitudes must also be considered.

As preventative measures are still in place throughout the UAE, resorting to online learning is not optional for many academic institutions; it is the most possible alternative mandated by the status quo represented in the outbreak of COVID-19 and its global impacts on economic, social, and educational aspects. This learning model is seconded by many educators like Cai & Wang (2020) who argue that online learning improves students' autonomous learning abilities and enhances their self-confidence and self-reliance to complete corresponding exercises independently. To achieve this, HEIs have to modify their pedagogical approaches to overcome monotony and keep students engaged in new learning activities. It also requires significant curriculum adaptations, immediate and appropriate teacher training relevant to the proper execution of classes, and application of different assessment techniques that integrate assignments and projects in the study plans besides formative and summative tests (Hughes, 2020). It moreover requires additional communication between students, teachers, and parents to acclimate students to the new teaching modes and to keep parents aware of the roles they have to undertake. Following the introduction of vaccines, COVID-19 has become under control in many parts of the world, and schools and universities have gradually begun to apply blended learning as one step toward resuming complete face-to-face teaching.

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This paper addresses the different types of blended learning in an attempt to reach an understanding of the optimal blended learning model in Arab learning contexts. This study also provides pedagogical implications on how blended learning can be adopted as an optimal teaching and learning model not necessarily during disrupted education periods. Helping students to work independently allows them to take charge of their own learning and fosters their autonomy and responsibility as well.

## Theoretical Background

### *Online Learning*

The creation of the Internet in the 90s introduced the development of untraditional modes of learning like online learning (commonly known as e-learning). It enabled students to accommodate their learning according to their learning styles and time, convenience, and place limitations. It also allowed providers to improve and develop engaging learning content that met students' needs and business market. Due to the flexibility in the modality of learning that features online learning, it matches purposeful and disciplined students who are willing to take charge and responsibility of their own learning and are able to utilize available technologies to work independently.

To define terms, Glossary (2020, p. 1) views that "online learning is a method of education whereby students learn in a fully virtual environment. First introduced in the 1990s with the creation of the internet and utilized in distance learning, online learning (also called e-learning) is most prevalent in higher education, enabling students from different geographical areas to engage with an academic institution and other students online and learn flexibly, at their own pace, while working towards a degree or certificate". Online learning is also perceived as "an internet-based learning environment that can connect students of diverse backgrounds who boast different perspectives. A higher education institution will use a Learning Management System (LMS) to facilitate online learning, which can take the form of asynchronous or synchronous learning" (Glossary, 2020, p. 1).

Online learning has two fundamental categories: synchronous and asynchronous. Synchronous online learning is a real-time learning in which both "the learners and the teacher are online and interact at the same time from different locations. They deliver and receive the learning resources via mobile, video conference, Internet or chat. In this type of learning the participants can share their ideas during the session and interact with each other and they get detailed queries and solutions" (CommLab, 2020, p. 1). Recently synchronous online learning has gained more popularity because of improved technology and Internet bandwidth capabilities. It is facilitated through virtual classrooms, audio/video conferencing, Chat rooms, webinars, and application sharing. It also enables students to interact online simultaneously and participate in a course from a distance in real time (D'Agustino, 2021).

Conversely, asynchronous online learning is similar to self-directed and self-paced learning in which learners pause and resume their learning independently, and it is not necessary for the learner and the teacher to be online at the same time. Students can communicate with their instructors by using technologies such as email and discussion forums through which they can chat with instructors and co-learners. In some cases, students are provided with content and assignments and are given a time frame to complete course work and exams. Unlike synchronous online learning, the asynchronous model provides opportunity for students with time constraints or busy schedules to take online courses at their preferred time with no interruption of their daily commitments (Glossary, 2020).

Though online and distance learning share common features, they sometimes have some differences. Stauffer (2020) explains how online learning and distance learning are not identical or similar in terms of location and interaction. For her, online learning does not mean that students are completely physically detached from classrooms; they can work at classrooms using digital resources and online assessment. However, students in distance learning work at home and do the tasks assigned to them by the teacher digitally. In terms of interaction, online learning involves in-person interaction between students and their peers and the teacher on a regular basis; whereas in distance learning, students rely on digital forms of communication like discussion boards, video conferencing, or LMS for communicating with other peers or teachers (Stauffer, 2020).

### *Advantages and Challenges of Online Learning*

As argued by Mahlangu (2018), disruption of education as a result of COVID-19 pandemic revived online learning and introduced it as the immediate possible alternative to compensate students' absence from colleges and universities and inability to attend face-to-face (F2F) classes. This modality offers students additional opportunities to enhance quality of learning from different resources. It also "encourages student-faculty contact; encourages cooperation among students; encourages active learning; gives prompt feedback; emphasizes time on task; communicates high expectations; and respects diverse talents and ways of learning" (ibid, p. 19). In addition, it provides flexibility in offering courses and gives opportunities to benefit from current technologies and interdisciplinary approaches to teaching and learning. That is why it is not linked with disrupted learning conditions only; rather, many people resort to ICT-based education to enhance their qualifications, skills, and competences. In Finland and Greece, for example, online learning is considered an opportunity to combine family life and work with education (Mahlangu, 2018).

It is also because online learning is an affordable form of education at times when education for adults "appears to be burdensome for the family budget and therefore inadmissible for some families" (ibid, p. 20). Due to the flexibility in the modality of learning that features online learning, it matches purposeful and disciplined students who are willing to take charge and responsibility of their own learning and are able to utilize available technologies to work independently.

Conversely, application of full online learning is perceived to have some challenges. Besides the high cost of information and communication infrastructure and the dearth of technical expertise for students and instructors, Mahlangu (2018, p. 21) lists three other challenges facing proper application of online learning. They include "the lack of appropriate business models and educational models, making the study material or open contents developed difficult to follow, and as a result, reducing the enthusiasm of learners in their respective studies", "the lack of any clear quality assurance mechanism, which may result in unclear standards and by consequence, poor quality of distance education", and "the lack of support from the relevant governing bodies, which may be exhibiting poor participation, brought about by a lack of appropriate human and infrastructure capacity".

Other global concerns are signaled by Edutopia (2016), CAI & Wang (2020), and Hughes (2020) who argue that full online learning is compromising the quality of education. This is because online learning rarely allows students for having appropriate interaction practices. International students also encounter "culture-dependent social interaction differences in virtual learning environments, which may discourage them from succeeding in or even completing their online courses" (Mahlangu, 2018, p. 23).

Some studies signaled country-related concerns for online and distance learning. In Finland, for example, the challenges of online learning include "costs, lack of feedback and support, lack of face-to-face meetings, isolation, insufficiency of self-directed learning, family and work responsibilities, difficulty in network connections, and lack of education" (Arasaratnam-Smith & Northcote, 2017, p. 24). In Germany, online learning is not favored by German students because of the above reasons and due to lack of adjusted programs and lack of formal regulations. In Greece, the Greek students maintain certain beliefs about the negative image of online-education programs and absence of a system for recognition of prior learning and work experiences (ibid, 2017). In Hungary, online learning is negatively impacted by the cost factors, difficulties with technology, lack of relevant course content, negative learning experiences, insufficient self-directed learning skills, and negative image of distance-education programs (ibid, 2017). A further example is how distance learning is perceived by students in the United Kingdom. Students' concerns include difficulties with technologies, lack of support from employers, disability, and doubt about return on investment.

Although these countries are among the developed countries which have modern technical infrastructure, the concerns arising from students could say that the technical factor is a common challenge facing adoption of online learning in many HEIs. This is unlike the developing countries in African in which the challenges of online learning are multiplied and intensified. The issue extends beyond how to use technologies in education to the availability, accessibility, affordability, and acceptability of these learning facilities to achieve the expected learning outcomes. To overcome these challenges, blended learning is introduced to provide additional opportunities to improve teaching and learning processes.

### *Blended Learning*

The integration of technological component in the education cycles offered freedom and opportunities for instructors to diversify teaching methods and techniques in terms of what to teach, how to teach, and where to teach. The outbreak of COVID-19 at the end of 2019 and the inevitable disruption of face-to-face instruction required out-of-the-box solutions to complete the academic year and help students pursue their study. Blended learning is an evolving educational concept that involves the positives of face-to-face learning and the advantages of virtual or online learning. It is not an innovation but a natural by-product of the digital domain that creeped in educational institutions.

Blended learning, sometimes referred to as "Hybrid learning", and the two terms are used interchangeably and without a broadly precise difference between them (Means, et al., 2013). As a mix of face-to-face and online learning, where "the merging of physical and digital learning spaces to complement one another to personalize the learning of all students based on authentic human circumstances and prevailing local technology" (TeachThought, 2021, p. 1). This understanding is further elaborated by Horn & Staker (2014, p. 1) who view that "blended learning is an education model where students use asynchronous online studies in tandem with in-class learning in such a way that the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience (Horn & Staker (2014).

These definitions could indicate that blended learning leverages a combination of self-paced online learning along with face-to-face instruction. It also involves the "courses that integrate online with face-to-face activities" or the "courses that are taught both in the classroom and at a distance". In addition, it covers "mixing or combining instructional technology with actual job tasks in order to create a harmonious effect or learning and working" (TeachThought, 2021, p. 1). To sum up, blended learning covers any course which has both e-learning and an instructor-led elements, and that modern technologies

are integral parts of this learning modality. These merits make blended learning viable for students who have time limitations, location barriers, and cannot attend regular classes physically (Capytech, 2021).

## Characteristics and Benefits of Blended Learning

Blended learning has further features and attributes that distinguish it from absolute online or distance learning modes. It allows teachers for providing attention-grabbing content to activate students' engagement. It enables them to apply modelling and chucking strategies for helping students develop new skills.First, it helps teachers to apply different evaluation and assessment strategies that check for understanding and achievement of learning outcomes. Moreover, it provides teachers with opportunities for interacting with students beyond class times and location, in facilitating content and providing guiding instruction whenever necessary. This enhances scaffolding of knowledge and encourages learners to connect their understanding with meaningful scenarios (TCI, 2021).

Gupta (2021, p. 1), in addition, listed seven features of blended learning over online learning. First, it helps students to benefit from both in-person and virtual learning strategies, for it takes every type of learner into account and meets the learning styles of each learner. Second, it reduces costs on students who can take some courses from home. Third, it facilitates monitoring learning improvement. Students can review feedback from instructors and monitor the improvement in their academic levels. Fourth, it helps students to learn at their own pace and listen or watch online lectures whenever they are ready to learn. For part-time learners, blended learning provides an alternative for them to pursue study and meanwhile fulfill work commitments. Fifth, it helps teachers to customize teaching according to the levels of students and the skills that need more enhancement. They can develop different learning channels to cater for students' learning styles and demands. Sixth, it provides flexibility for students to listen to online lectures and prepare questions to discuss in the face-to-face class. Finally, Gupta (2021) argues that blended learning increases knowledge retention and activates the senses of students to retrieve acquired knowledge easily.

Similarly, ELM (2021) points out that blended learning has additional advantages over absolute online learning. First, it accounts for those who prefer the familiar traditional classroom, those who would rather learn online, and those who try a mixture of both. The teaching content can be customized to each learner and optimized for the subject matter.

## Blended Learning Models (BLMs)

It is difficult to define specific models of blended learning since they vary by content, scale, technology, learning spaces, learning outcomes, age of participants, and their educational levels. Blended learning is a flexible learning modality, which improves learning outcomes and allows teachers to adapt the learning process to cater for the school, classroom, and students' needs. TeachThought (2021) identifies 12 types of blended learning namely outside-In, Supplemental, Inside-Out, Flex, Lab Rotation, Station Rotation, Individual Rotation, Self-Directed, Project-Based, Remote, Flipped Classroom, and Mastery-Based as shown in figure 1.

The 12 BLMs integrate independent learning in the educational process. Students can do some tasks in class and complet the other tasks online. They mainly differ in the types of tasks to be done independently, the role of classroom instructor, and the assistance students get when they do some tasks online. The integration of physical and digital spaces helps to personalize the learning of students based on authentic human circomstances and prevailing local technologies. In all cases, the role of classroom instructor as a facilitator is necessary and unavoidable.

Horn & Staker (2014), grouped the different types of blended learning under four models namely Rotation Model, Flex Model, A La Carte Model, and Enriched Virtual Model as shown in figure 2.

The four groups of blended learning models proposed by Horn & Staker (2014) are not fixed or static but provide an

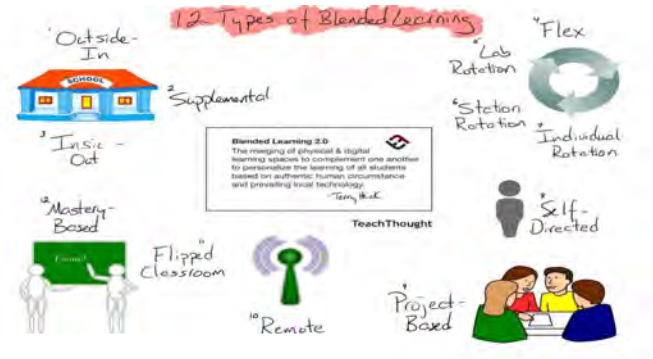


**Fig. 1: Types of blended learning (TeachThought, 2021, p. 1)**

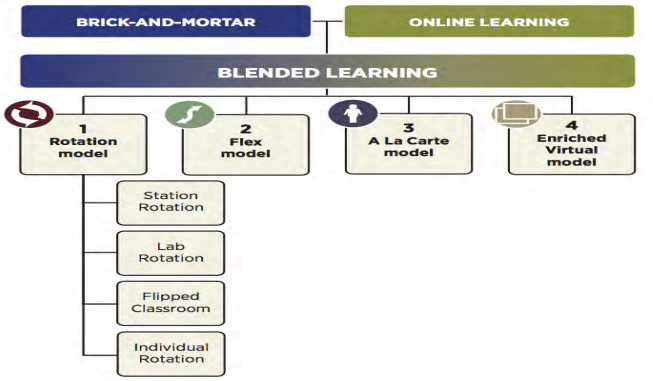


**Fig. 2: Models of blended learning (Horn & Staker, 2014, p. 1)**

understanding of what blended learning really looks like, given the availability, accessibility, and affordability of educational technologies and students' needs. Each model requires different levels of teacher responsibilities, administrative requirements, and instructional emphasis. They also offer flexibility for schools and teachers to shift from online learning to face-to-face instruction based on their discretion and students' progress. These are the different blended learning models as explained by Horn & Staker (2014).

1. **Rotation Model**: This model allows students to rotate on a fixed schedule or shift from one activity to another as per the teacher's discretion of learning modalities. Students mostly learn in the brick-and-mortar campus, and they might do one task online but the other tasks are completely controlled by classroom teacher like group work, full class instruction, group projects, or individual assignments. This model has four sub-divisions:
   a. **Station Rotation**: This model allows students to rotate through stations or shift from one activity to another based on a fixed schedule pre-set by instructor. Rotating through stations is not optional in this model and "all learners take part in the instructor-led elements together, and they complete all the e-learning elements. In other words, they all do the same thing" (Capytech, 2021). Station Rotation therefore is characterized by the fixed schedule that guides the blended learning activities.
   b. **Lab Rotation**: This model allows students to rotate to a computer lab for online learning station. It is entirely digital and requires the least instructor interaction. It takes place either before, while, or after classroom instruction and after getting the necessary knowledge and information from instructor. This model provides enough opportunities for students to apply what they learn in class and reinforce it through additional online resources. It is characterized by the use of computer labs like learning enhancement centers.

   **cFlipped Classroom**: In this model the subject content is presented and taught by the instructor online, and then students go to school for face-to-face, teacher-guided practice, application, or projects. The primary delivery of subject content is online; whereas application of activities and projects is done in traditional classes. Besides application and practice, attending classes on campus could be for class discussion, group work, delivering insights related to higher-order thinking, and troubleshooting specific misunderstanding. Therefore, the traditional roles for each space (classrooms and home) are flipped – studying at school and learning at home.

   d. **Individual Rotation**: In this model, each learner's pathway is personalized to his/her learning capabilities, knowledge and goals. Students attend instructor-led sessions based on their personal needs and follow the tasks assigned to them. They may attend the sessions related to the parts of a project assigned to them and may not attend the other sessions. Each student has an individualized playlist and does not necessarily rotate to each available station or modality but rather has a personalized schedule that better meets the needs of each student. By the use of a specialized software, students are sorted into unique educational pathways based on their needs and learn through independent study, small homogeneous groups, collaboration, and individualized orientation and interventions from teacher.
2. **Flex Model**: This model offers flexibility to assist returning students and those who are older in age and could not complete their high school education or university degrees. TCI (2021, p. 1) explains this model as: "while educators construct learning opportunities for their students and support their progress as needed, individual learners proceed through modules on their own. In-person components of the model can be used for intervention opportunities, breakout rooms, lab exercises, and collaboration". It is therefore characterized by its versatility to meet the needs of students in the formal and informal learning contexts.
3. Students therefore move on an individually customized, fluid schedule among other modalities. There is always a teacher available on the brick-and-mortar campus to provide assistance via "face-to-face support on a flexible and adaptive as-needed basis through activities such as small-group instruction, group projects, and individual tutoring" (TeachThought, 2021, p. 1). This model is similar to Inside-Out blended learning and is characterized by its versatility to meet the needs of students in the formal and informal learning contexts.
4. **A La Carte Model**: This model is similar to self-directed, independent learning in which a student selects an individual, supplementary course (mostly elective courses at university levels) from a menu of a la carte options for independent study. This model differs from full online classes in that students take other courses on the brick-and-mortar campus yet they study this a la carte course online with the help of a teacher on record to provide individual support. The place is not the element that makes the difference but the face-to-face instruction which is not applied in this model. Another form of a la carte model is when students attend a series of online lectures and receive a participation certificate which does not contain any results or grades since no exam was taken at the end of a la carte course.
5. **Enriched Virtual Model**: This model is often applied with courses that require independent research work after

attending training session on a face-to-face basis. Students take the learning sessions on the brick-and-mortar campus and then complete the rest of their study remotely with the same teacher on record for providing any help when needed. This model differs from flipped model in that students seldom have face-to-face meetings with their teacher. It differs from full online courses in that attending face-to-face learning sessions is not optional but required before doing the rest of the course independently (Horn & Staker, 2014).

This variation in models of blended learning reflects the flexibility they have for students with different competencies, knowledge, time limitations, location barriers, learning needs and goals.

## Application of Blended Learning

In China, the government applied flexible learning during educational disruption. It adopted the slogan "Disrupted Classes – Undisrupted Learning" (Huang, et al., 2020). This flexible learning modality offers choices in the educational environment by customizing courses to meet the direct needs of students and by choosing class times and location and the requirements for entry and completion dates. This modality also encourages students to become more self-determined, learning to become more self-directed, teachers to become more as facilitators, and students to become more independent and autonomous (Huang, et al., 2020).

The flexible learning approach adopted in China relies on eight interrelated features:

1. ***When and where the learning occurs***. It means that the teaching and learning modality is flexible and can be done anytime and anywhere via electronic devices.
2. ***What and how students learn***. It means that students can propose the learning content relevant to their needs and future work. They can also discuss with their instructors the most appropriate teaching modality they prefer.
3. ***How instruction is delivered***. It means that students can access the learning materials anywhere either through campus-based learning or web-based learning, or use a combination of both.
4. ***What strategies could be used for organizing learning activities?*** It means that several teaching inquiry-based approaches can be applied including regular tutorials, seminar groups, independent study, student-led discovery approaches, experiential learning, and educational gamification.
5. ***What types of learning resources should be provided to students?*** It means using diversity of Open Educational Resources (OERs) that can be used off-campus like podcasts, narrated screen capture, and full videos of lectures and software.
6. ***What technologies are truly useful for learning, teaching, and administration?*** It means using a variety of technical tools "to help learners generate content and interact with peers, such as blogs, wikis, social networks, and emails" (Gordon, 2014).
7. ***When and how assessment and evaluation is provided***. It means that many assessment techniques are applied including presentation, research papers, team projects, peer assessments, standardized tests, e-portfolios, and learning analytics approaches which collect students' learning traces and provide comprehensive reports on their academic achievement.
8. ***What kind of supports and services should be provided for students and instructors?*** It refers to the types of support students can get during flexible learning modes. These could include help desks, face-to-face or online meetings with tutors, group help sessions, and video-based real-time chatting tools (Huang, et al., 2020).

### Blended Learning in Arab-Learning Contexts

The Arab learning contexts have their unique features that differentiate them from other settings, given the sociocultural implications and understanding of what learning should be like. Having direct contact with and getting information from a more educated individual like a teacher or an instructor is vital in the Arab culture (Schleicher, 2020). Students feel they are supported and that a safe net is there to help them when they struggle with learning content or lag behind when they do not understand content material or procedures. For them, neither complete face-to-face instruction nor complete online learning could bring the optimal results as shown in a number of studies.

In a study conducted by Ahmed & Ibrahim (2019) in Egypt, researchers applied experimental research in which the controlled group was taught traditionally through daily face-to-face teaching for eight weeks; whereas the experimental group was taught for the same period through blended learning modes. Students took the theoretical explanation of concepts in class through the brick-and-mortar delivery mode and then completed their assignments independently with more collaboration with peers and with additional technical support from instructors. The study showed statistically significant difference between the two groups in favor of the experimental group in lexical, grammatical, morphological, syntactic, and pragmatic skills. These results could say that students benefit much from blended learning modes in which they are given opportunity to work independently and with their peers.

At the University of Bisha in Saudi Arabia, Anas (2020) conducted a study to understand the perceptions of Saudi students on blended learning environments. The data were collected through a survey in which students responded to the impact of integrating technologies in the curriculum and allowing students for more independent work beyond

traditional teaching in class. Approximately 86% of the respondents believed that integrating audio, video, and illustrated materials in the curriculum for students to use independently enhanced their language skills and improved their proficiency. This possibly implies that face-to-face teaching is necessary for the Arab students to get clear directions on how to pursue their study independently. It also shows that blended learning is represented in provision of technical element in teaching but not showing whether these facilities are used by students independently or on campus under the supervision of their instructor.

A third study conducted by Al-Ebaikan (2010) at a number of Saudi universities, she concluded that blended learning environment offers female Saudi students opportunities and flexibility to continue their higher education while maintaining their own cultural values and traditions. For her, blended learning is a feasible solution for women in Saudi Arabia, given the advanced technological infrastructure the Kingdom currently has.

In another study in the United Arab Emirates (UAE), TRA (2021) conducted an online opinion poll to investigate parents' and educators' preferences between remote (online) learning, blended learning, and face-to-face learning. The sample included 400 participants categorized as 67% female and 33% male; 82% parents and 18% educators; 47% participants from Arab nationalities and 53% participants from non-Arab nationalities. The analysis showed that 48% of participants preferred face-to-face teaching in comparison to other modes of teaching and learning; 31% of them preferred blended learning; and 21% favored online learning. This could possibly indicate that a part of the Arab culture is to have guided learning in which the teacher is the main facilitator and that blended learning is given more advantage than complete online learning in Arab learning contexts.

## Optimal Blended Learning Models in the Arab Learning Contexts

Devising a Blended Learning Model in a certain context is factored by many sociocultural conditions; individual differences; students', parents', educators' and stakeholders' perceptions; as well as availability, accessibility, and affordability of technical learning resources.

This step allows for offering a blend of online and face-to-face instruction in which a proportion of the course content is delivered online whereas other parts are delivered through face-to-face meetings. As explained by Horn & Staker (2011), blended learning approaches do not eliminate the need for teacher guidance and face-to-face instruction. Instead, they enable students to learn "at least in part in a supervised brick-and-mortar location away from home and at least in part through online delivery with some element of student control over time, place, path and/or pace" (p. 3). Having regular


**Fig.3: Enriched BLM for research-based courses – adapted from (B.L.U., 2021)**

meetings with the course instructors is necessary in the Arab culture and students feel they are guided and oriented on the tasks they should fulfill independently. Based on this, the researcher in this study provides these blended learning models that could be applied by universities and HEIs in Arab learning settings and probably other contexts that have similar features.

## Enriched BLM for Research-Based Courses

With research courses that depend mostly on students' review of literature, collection of data, and writing of theses or dissertations, an optimal blended learning model is the Flex Model. Based on duration of the course, students couldattend some time at the beginning of each semester to share the research outline and stages they will cover independently during a certain period of time with their supervisors. This period is very necessary and essential since it allows supervisors to guide students on their research progress and eliminates misconceptions and repetitive work. During this period in which students work independently outside the HEI, they still have regular contact and discussion with supervisors through platforms like TEAMS, ZOOM, WhatsApp, and Skype. This BLM offers students opportunities for self-directed learning, for reviewing relevant literature and evaluating resources, and for dedicating more time to writing, editing, and proofreading. Figure 3 shows this model.

This BLM is an alternative to both full-time online learning and full-time face-to-face instruction at a HEI. Students who undertake research courses are mature enough to manage their learning and benefit from diversity of resources to enrich their knowledge and implement their research. This model does not eliminate the role of the supervisors; rather it allows students for more self-directed learning opportunities. The lecturer works as a facilitator and a guide who provides help, support, and orientation whenever requested.

## BLM for HEIs with International Students

Academic institutions and universities with international students who are residing in their home countries are more likely to develop an appropriate BLM that is convenient to students, and that considers their needs and the limitations

**Fig. 4:** *Teaching in a smart lab (BLM, 2021)*

of time and place they have. Colleges and universities should create virtual, smart classes in which classroom walls are covered with cinema screens for instructors and lecturers to interact with students. This model is a simulation of real classes since students can interact with each other and with their teachers very smoothly. Since all classes will be virtual, class timing can be adjusted to fit most students and all exams can be conducted online, while the instructor monitors students. Plagiarism and cheating technologies like Respondus Lockdown Browser can also be activated. Figure 4 shows an example of a virtual smart classroom.

Figure 4 represents a true example of teaching in a smart lab. All students can be seen in front of a teacher the same as they are in real classes, and the instructor does not have to sit in front of a computer all the time to teach them. A teacher also can use the smart board or white board easily, can solve long mathematics problems, can draw maps or diagrams, and can display PowerPoint presentations simultaneously. Beyond class times, students can still approach their instructors and discuss with them any topic using online chatting and discussion platforms.

## Conclusion

The objective of this paper is to provide an understanding for academic institutions and HEIs in the Arab-learning contexts on how to apply BLMs in their colleges and universities during disrupted learning periods. The studies conducted in the Arab settings show that students cannot compensate face-to-face instruction. They and their parents believe that actual effective learning cannot take place through full online learning. The role of a teacher is vital and cannot be compensated, as they trust the knowledge they get from a more knowledgeable person such as an instructor; therefore actual effective learning cannot take place through full online learning. To accommodate students' learning preferences and the limitations imposed by pandemics, BLMs can be used as an effective alternative modality and a mid-way between the two other learning modalities: face-to-face and online learning.

The BLM has more advantages over full online learning. As explained by (Priscila, 2021), BLM is well-suited for large groups because it does not require students to be present at the study location all the time or during the whole period of study. It allows them for more preparation and for getting feedback from their peers before attending face-to-face classes. In addition, it enables employees to set their own pace and study schedule based on their commitments and time constraints. However, one of its drawbacks is that it requires efficient technical infrastructure and provision of required training to both students and instructors on how to utilize different technical resources in the teaching-learning processes.

The BLMs proposed in this paper are the result of practical application of them at one of the HEIs in the UAE. They increased students' interest to pursue undergraduate and graduate studies. They also increased their motivation to use technology-based resources. Besides, there is significant reduction in costs allocated to transportation, accommodation, and other expenses.

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