HYBRID, BLENDED, AND HYFLEX LEARNING AS FUTURE MODELS FOR EDUCATION[1]

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Abstract. The education system continuously adapts to address abnormal social fluctuations such as pandemic lockdowns, climate change, disasters, and social distractions during war, migration, and more. Remote learning methods have advantages and disadvantages, a topic of discussion among many educators. Education is a critical part of society, ensuring the well-being of humanity. Future models for education refer to potential changes and advancements in the structure, delivery, and access to education. This includes innovations in teaching methods, learning environments, technology integration, and overall educational systems. Future models for education may involve the adoption of new teaching strategies and approaches that cater to diverse learning styles and preferences. This could include personalized learning, project-based learning, and flipped classrooms, aiming to enhance student engagement, critical thinking skills, and knowledge retention. The future of education may shift towards more dynamic and interactive learning environments, which can involve the use of virtual reality, augmented reality, gamification, and immersive simulations to create attractive educational experiences. Education in the future might incorporate innovative technology as a crucial component of the learning process, the use of artificial intelligence, adaptive learning platforms, online collaboration, and digital e-learning resources for content distribution. Technology integration targets to make education more accessible and flexible to individual student needs. Research plays a crucial role in shaping the future of education by notifying evidence-based practices and guiding decision-making processes. The article is a short review that discusses and analyses the differences and preferences between remote digital methods applying during COVID-19 restrictions.
Keywords: Blended learning, hybrid learning, hybrid-flexible education, digital education

1. Introduction

COVID-19 is considered not only a health crisis, but a social and economic too (Kanwal 2022). The analysis performed by Future of Work Study 2022, indicates

that during the pandemic 94% of the world's organizations moved to hybrid work structure, and to the new, more efficient, and potentially long-lasting workflows and methods (Future of Work Study 2022). According to The Talent Tech Outlook 2022 study, in the post-pandemic period, 82% of employees preferred to work from home instead of going back to the office, as they have developed new routines in the two years of the pandemic (Roshni 2022).

"The future of work is hybrid. So, too, is the future of learning" (Benedicks 2022). Remote study and working from home became the new normal after COVID-19 (Delany, 2021; Bhatia & Mote 2021; Ordonez 2022; Roshni 2022; Kosteas et al. 2022; Eduljee et al. 2022; McIntosh & Lakey 2022). It is very possible that in a post-pandemic world the new normal will include a higher level of remote training (Kosteas et al. 2022), and online or blended learning may become predominant (Greere & Crozier 2022; Zhou & Song 2022). Many authors consider that high institutions will not return to the pre-COVID traditional learning programs and methods (Snelling 2022), and blended, hybrid and hyflex learning seems to be the future of higher education (Singh et al. 2021; Valeeva & Kalimullin 2021; Vilhauer 2021; Kohnke & Moorhouse 2021; Miller et al. 2021; Suwannaphisit et al. 2021; Greere & Crozier 2022; Kosteas et al. 2022).

The article reviews the education models of learning and shares the remote learning experience based on the available literature database. The aim is to outline the difference between hybrid, blended and hyflex approaches, which one working best and in which situation, the strong and weak points, and the new technologies that are applied.

2. Materials and methods

The search was conducted using data base of Taylor and Francis Group, Google and Google Scholar. The articles were chosen by similar title or keywords of interest. The next criterion was the data of publication. The searches were lead using the title of the article, headings of main sectors included in the paper, and different keywords.

3. Blended vs. hybrid learning vs. hyflex

Traditional face-to-face classroom learning motivate students to achieve more and develop interpersonal skills vital for the life, also boosts the confidence, allows students to be a part of group (Raouna 2022). Nevertheless, hybrid and blended learning models are important to sustain enrolment and permit students to continue learning securely during periods of crisis or instability (Rae 2021).

Hybrid learning is similar to blended and often both terms are used interchangeably, but there are differences. Blended and hybrid learning are two different approaches, in hybrid learning students choose whether to learn

in person or to join the lesson online from anywhere and anytime, while in blended learning is combination of distance and traditional face-to-face classroom learning (Neelakandan 2021; Pappas 2022). In blended learning, online learning plays a supplementary role to the classroom in-person learning, while in hybrid learning, online learning is a substitute to classroom learning (Pappas 2022). Hybrid learning combines in-person and virtual learning at the same time (Neelakandan 2021; Hogle 2022; Pappas 2022; Kotobee 2022; see fig.1 and table 1).

Table 1. Differences between Hybrid, Blended,
and Hybrid-flexible Learning

Differences	Hybrid Learning	Blended Learning	Hybrid-flexible
Learning process delivering	Replace a portion of traditional face-to-face instruction with online activities - video lectures, online discussions, projects.	Traditional in-class lessons with supplement learning online materials as quizzes, projects, tests. Internet online materials covered the learning topics in class.	Hybrid-flexible, or HyFlex courses, integrates face-to-face classes with an online learning experience. Learning synchronously - in-person with virtual learning at the same time.
Flexibility for the students	Attending in person or attending remotely.	Learners are present on some days and learning remotely on other days.	Students are given the choice to attend classes in person or via video conferencing software.
Modes	Online interactions can be synchronous or asynchronous.	Online interactions are asynchronous.	Online interactions can be synchronous or asynchronous.

When the study discipline involves competency or knowledge from several subjects, blended learning may be a suitable option; in the opposite case hybrid learning can be a better choice (Budd 2020).

Nevertheless, flexibility in course delivery is needed more than ever nowadays (Korson 2022). Hence, evolution and appearance of new approaches are continuously observed.

3.1. Blended learning methodology
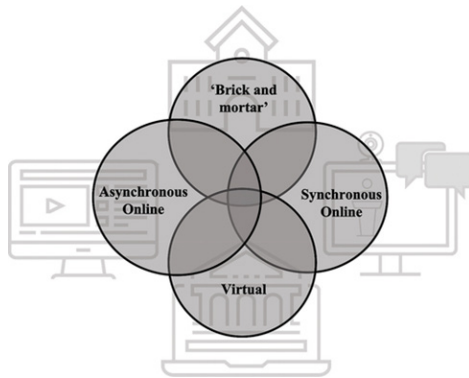Blended learning includes mixed methods/media/modes (fig.1; Korson, 2022).

Figure 1. Blended learning mixed methods/medias/modes (Korson 2022)

"Brick and mortar" (B&M) denotes a physical presence in an organization or a traditional face-to-face presence in the classroom. The term arose from a traditional street-side business that offers products and services to its customers face-to-face in an office or store that the business owns or rents.

During the pandemic of covid19, blended learning was applied to teach the medical students, comparing the effectiveness of traditional teaching with blended teaching based on the students' final grades was found it that blended learning was not less effective than traditional learning (Suwannaphisit et al. 2021).

3.2. Hybrid learning methodology

The requests of hybrid learning models are the continuing education and building better employee performance programs (Budd 2020). According to survey, 68% of students prefer having a combination of in-person and remote classes (fig. 2; Kotobee 2022).
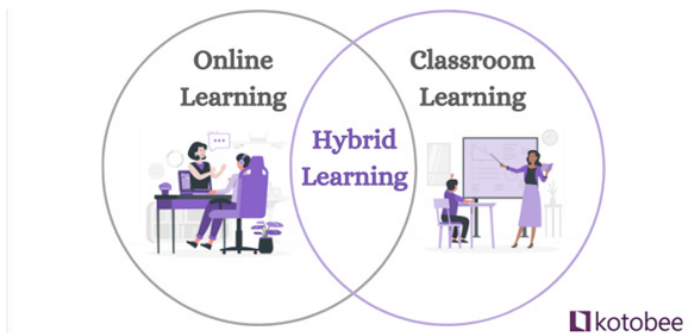

Figure 2. Hybrid learning happens both remotely and physically
at the same time (Kotobee 2022)

The important part of successful hybrid learning is to give an equal attention to both in-class and remote learners, focus on both (Kotobee 2022).

The delivery, fluidity of sessions, and the **internal** and **external** design of any virtual learning environment must base on the pillars of effective learning (Benedicks, 2022):

– *The cognitive domain* (what people think) – knowledge, meaning-making, collaboration, brainstorming, and problem-solving in pairs or groups;

– *The affective domain* (how people feel) – playing field, experiences, and working together on various tasks;

– *The psychomotor domain* (what people do) – getting people to practice their new skills.

The appropriate integration of a well-constructed internal design (learning content), and suitable questions, discussions, or collaborative activities (**external engagement**) are guarantee for learning success (Benedicks 2022).

Using a 40/20/40 Model

Further than the design considerations, when it comes to designing the session itself Benedicks, (2022) recommended 40/20/40 model:

– 40% *group collaboration* (**in the session**);

– 20% *getting content* "uploaded" into participants (**in the session**);

– 40% *individual work* (**in the session**).

3.3. Hybrid-flexible approach

In HyFlex courses students can attend either a physical class or a live-streamed virtual class, and instructors plan and design a course that involves those attending in person and that attending on-line, synchronously and asynchronously (Dhami 2021). HyFlex offers more flexibility for the students to take part of learning options in the best ways that work for them (Vilhauer 2021). The participants appreciate the HyFlex flexibility (Kohnke & Moorhouse 2021). Based on 47 research studies, the hybrid flexible approach compared to fully on-line or fully on site, synchronous hybrid is a more flexible and more engaging (Sanchez-Pizani et al. 2022).

HyFlex is based on few key principles (Beatty 2019):

– ***Learner Choice*** – providing flexibility to the students, a choice regarding how they will attend a given session, a mode of participation, face-to-face, online, synchronously, or asynchronously, and they can change the mode as often as necessary during the course.

– ***Equivalency*** – equivalent learning opportunities in all modes, all modes lead students to meet the learning outcomes for the course.

– ***Reusability*** – from diverse modes can entrance the results of the learning opportunities in another mode, e.g., discussion board posts, Padlet, Google Docs, or course recordings.

– ***Accessibility*** – all the participation modes are offered.

The hybrid flexible approach, having seminars synchronously face-to-face and on-line lessons was novel to UK institutions and has been adopted during the pandemic (Sanchez-Pizani et al. 2022). According to students' point of view, HyFlex mode is not as effective for teaching compared to face-to-face only modes, however, they understood why the university had opted for this approach (Kohnke & Moorhouse 2021).

4. Common pedagogical pratices for remote learning

– *Accommodate learning styles* – the four basic learning styles are: Concrete Experience (CE): feeling; Reflective Observation (RO): watching; Abstract Conceptualization (AC): thinking; Active Experimentation (AE): doing. Kolb believes that effective learning occurs by a cyclic process of experiencing, reflecting, thinking, and acting (Ruby 2018)*;*
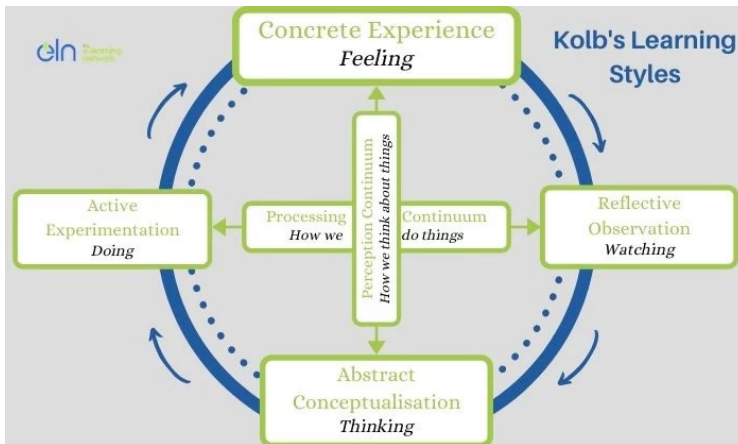

Figure 3. David Kolb's Learning Styles &
Experiential Learning Cycle (Ruby 2018)

– *Active learning strategies* – role-playing, case studies, group projects, think-pair-share, peer teaching, debates, Just-in-Time Teaching, and short demonstrations followed by class discussion (SERC 2022).
– *Collaborative learning* – an educational approach of using groups to enhance learning through working together. For example: Evaluating training systems; Different groups to solve a problem; Developing new products; Present the work of group, the solved problems, and present current concepts that they are working on; Build a collaborative learning community (Valamis 2022).
– *Differentiated instruction* – a teaching approach that tailors instruction to all students' learning needs, through content; process; product; and learning

environment (Tucker 2022; Weselby 2022). Every student has an individual learning style, and it is important for his/her motivation (Weselby 2022).

– ***Flipped classroom model*** – we used that approach successfully, online and in traditional lessons, it gives more experience and self-confidence to the students;

– ***Partner/group activities*** – separating students into different groups and giving tasks, develop in them the qualities of working in a team with a common goal;

– ***Project based learning*** – give opportunity to develop critical skills of communication, collaboration, creativity, and critical thinking (Rwigyema 2023). The IT based learning media are Google workspace for education, Any Desk and Canva Applications, which can create online, collaborative projects (Badri 2022);

– ***Short recorded lessons*** – all lessons during the pandemic were recorded and the students were able to watch them unlimitedly;

– ***Video communication*** – during the pandemic lockdown using video communication was the only possible way for discussing new thematic topics. It is a good virtual environment of Moodle (Big Blue Button), which allows normal interaction between the participants.

5. Conclusion

The pandemic ended, and the results are well-developed e-materials inserted on online platforms that allow remote online teaching and assessments. The e-management of education passes its exams and reveals the comfortable way of education delivery, and gives new experiences. The evaluation of students transforms 100% online, during session exams, colluviums, self-assessments, scheduling programs, etc. Digitalization entered traditional education and the old approaches and training will never be the same. However, the future models for education cover research about new approaches, assessing their effectiveness, and promotion of the best practices. Furthermore, it is essential for educators, researchers, policymakers, and industry participants to collaborate in order to drive innovation and continuously improve education.

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