

Effect of Hybrid Learning in Higher Education

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Abstract—In recent years, thanks to the development of information and communication technologies, the computer and internet have been used widely in higher education. Internet-based education is impacting traditional higher education as online components increasingly become integrated into face- to- face (FTF) courses. The goal of combined internet-based and traditional education is to take full advantage of the benefits of each platform in order to provide an educational opportunity that can promote student learning better than can either platform alone. Research results show that the use of hybrid learning is more effective than online or FTF models in higher education. Due to the potential benefits, an increasing number of institutions are interested in developing hybrid courses, programs, and degrees. Future research should evaluate the effectiveness of hybrid learning. This paper is designed to determine the impact of hybrid learning on higher education.

Keywords—E-learning, higher education, hybrid learning, online education.

I. INTRODUCTION

IN recent years, thanks to the development of information and communication technologies, the computer and internet have been used widely in higher education. So, higher education has been started to show globalization trend [1].

When teaching and learning in both in-classroom and out-of-classroom are electronically supported and facilitated, it is called e-learning included web-based learning, computer-based learning, virtual classroom opportunities and digital collaboration [2]. The popularity of online learning can be attributed to different factors including the availability and use of new technologies, a changing student population, an increased societal focus on lifelong learning, and growing educational requirements for professional licensing and career advancement [3]. In addition, another factor that has contributed to the rapid growth of internet- based education is its potential to facilitate learning giving students increased responsibility for their own learning, and producing a more individualized environment to suit students' differing needs and styles [4].

The online learning environment is different from that in traditional classrooms. Communications in traditional classrooms are primarily verbal, with visual cues and body languages transmitted in a real-time, while online communication occurs in virtual time in written text format without the aid of any body language [5]. In a small group work, it may be advantageous for groups to initially meet FTF

to reach a consensus; on the contrary, discussing a complex case study that requires reflection and negotiation may be better accomplished through an online discussion board. So, the integration of the two educational environments provides the more educational possibilities [6].

A. Definition of Hybrid Learning

Internet-based education is impacting traditional higher education as online components increasingly become integrated into face- to- face (FTF) courses [7], [8]. The goal of combined internet-based and traditional education is to take full advantage of the benefits of each platform (i.e., online and face- to- face) in order to provide an educational opportunity that can promote student learning better than can either platform alone [9]. Courses and programs include internet-based and traditional education components. These are called as hybrid, web-enhanced, mixed mode or blended [10].



Fig. 1 The components of hybrid learning

Hybrid delivery does not replace either approach –online or FTF– but builds from each to create new and more effective learning spaces [11]. Also, the concept of hybrid learning is not simply a combination of online and FTF instruction, but it focuses on optimizing achievement of learning objectives by applying the “right” learning technologies to match the “right” learning to the “right” person at the “right” time [12]. Blended learning is both simple and complex. It is simple, because blended learning is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences. Also, there is considerable complexity in its implementation with the challenge of virtually limitless design possibilities and applicability to so many contexts [7].

Hybrid learning includes the reconceptualization and redesign of a course or program for delivery in a blended environment. There is no one formula for designing blended courses; actually, hybrid learning designs vary widely depending on the nature of the course content, the audience or students, the goals of the course, the instructor, and the technology available [13], [14]. For instance, hybrid simulation enables the opportunity for student to perform higher training of technical and non-technical skills in a realistic context [15].

FTF oral communication and online written communication are blended into a unique learning experience congruent with the context and intended educational purposes [16]. To conduct a hybrid course, an instructor reduces FTF classroom

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meetings and replaces a significant amount of that instructional time with online learning activities [17]. Hybrid learning is fundamental redesign that transforms the structures of, and approach to, teaching and learning. The key assumptions of a hybrid learning design are:

- Thoughtful integration of face-to-face and technology mediated learning
- Fundamentally rethinking the course design to optimize student engagement
- Restructuring and replacing traditional class contact hours
- Optimizing technology resources not adding an additional expensive layer [11], [14].

B. Advantages of Hybrid Learning

1. Institutional

- Lower 'front end' design requirement compared to online courses
- Greater frequency of content refresh and increase in course re-design
- In many courses the outcomes are more complex and too expensive to obtain through distance learning and are better served through blended learning
- Meets the demands and needs of today's learners for increasingly flexible and effective learning spaces
- Maximizes the use of physical resources
- Fosters academic excellence and innovation

2. Learners

- Increased accountability and ownership of learning at a more realistic level of learner autonomy (control and responsibility)
- Increased engagement and enhanced faculty interaction
- Improved learning outcomes through alternative and enriched pedagogical approaches
- Content can be developed in ways that meets the unique needs and styles of a variety of learners
- Face-to-face component provides the social contact and encouragement learners need or want when they attend post-secondary education
- Online component encourages learner independence and facilitates increased self-directedness rather than encouraging dependency, which tends to occur when content is delivered solely through face-to-face instruction
- Extends learning through innovative use of online resources

3. Educators

- Allows educators to separate rote content focusing on lower-order thinking skills, which can be easily taught online, from critical thinking skills, which many instructors feel more comfortable addressing in the classroom
- Offers personal benefit to educators in terms of their comfort level
- Faculty/course rejuvenation [11].

C. Challenges of Hybrid Learning

1. Learners

- Need for substantial study and time management skills expectation that online learning, with fewer face-to-face classes, will be less work
- Adjustment to synchronous and asynchronous learning activities
- Obtaining physical resources (computers, high-speed internet, etc.)
- Transition from passive to active, collaborative learners
- Learning to use more sophisticated technologies [11].
- Lack of peer contact and interaction [18].

2. Faculty

- Resistance to change
- Managing risk factors
- Scarce resources for course redesign
- Developing skills in both use of tools and pedagogy of online learning [11].

3. Educators

- One of the major disadvantages is that effective online learning will take time to implement properly.
- Adoption of the conversational framework would require interactive lectures/ tutorials that are extended to online discussions [11].
- Staff need to be trained and to develop online facilitative skills and policies need to be written and implemented [19].

D. Effect of Hybrid Learning in Higher Education

The United States Department of Education reported recently that it's found some evidence to support the notion that blended learning is more effective than either face to face or online learning by themselves. Further, between online and face to face instruction, online is at least as good and may even have the advantage in terms of improving student achievement and potentially expanding the amount of time (and quality time) students spend learning [20].

Research results also show that the use of hybrid learning is more effective than online or FTF models in higher education [21], [22]. In order to understand the impact of hybrid learning many researchers look at students' attitudes and satisfaction related to the two modalities. For instance, the results obtained by Buzzetto-More and Guy (2006) suggest that the use of online courses in higher education increases students' course satisfaction [1]. Similarly, Elsissy (2013) concluded that hybrid lecture instruction approach might be a superior option for undergraduate students with learning of basketball course [22]. Even though some case studies reported that outcomes were very similar for hybrid learning courses versus FTF or online courses, online students seemed to have a higher preference for peer interaction, competition, interaction with the instructor, independence, and clear goal-setting than their counterparts in the FTF section [5]. In another study, Park (2011) conducted that the hybrid format for the lab-based class provides positive experience in student's learning. She also

announces that they perceive in large part the 50/ 50 hybrid delivery format (50% online + 50% FTF) is a better instructional approach than the traditional 100% F2F delivery [23]. Another research was conducted by Cottrell and Robinson was interested in the possibility of using blended approaches to reduce faculty time, re-focus student time and using blended learning as a way to admit more students to a given academic program. And students reported preferring the blended learning approach and classroom time was reduced [24]. The other study investigated the association between the learning outcomes of students and two teaching modules: traditional face-to-face and hybrid flexible delivery. Results indicated that the hybrid flexible delivery model is more positively associated with students' final marks and improved learning outcomes [25]. Similarly, Humbert and Vignare (2005) shared the results of the first year of pilot case study to introduce blended learning to the Rochester Institute of Technology. They found positive results. Students seemed to like blended learning and believed faculty were offering more instructional strategies and resources using blended learning. Students also viewed positively the increased and improved student to student communication [26].

Uzun and Senturk (2010) also found that the blended group was more successful than the traditional group in terms of both course achievement and attitudes towards [10]. In the same way, Riffell and Sibley (2005) found that students enrolled in a hybrid course that integrated online learning management systems had higher estimates of learning activity, higher degrees of satisfaction, and higher communication with teachers than in courses not using the portal. In the other hand, most faculty noted increased interaction and contact among their students and between the students and themselves in a hybrid course [27]. In the research conducted by Stewart and colleagues, a blended learning approach resulted in a higher level of performance of newborn examination on standardised assessment [28].

In consequence of these potential benefits, an increasing number of institutions are interested in developing hybrid courses, programs, and degrees [29]. Thus educational institutions are moving toward the use of the Internet for delivery, both on campus and at a distance [30].

Nevertheless, some research results are not positive. In one current study, a recent experiment of a course taught in all three modals concluded that fully online was the best of all the approaches better than hybrid and face-to-face [31]. Wu and Hiltz (2004) founded that online discussions were meaningful, but no evidence was shown to support the hypothesis that blended was significantly better than fully online [32]. At the same time, Vaughn and Garrison (2005) did not find any evidence that hybrid learning improved student cognitive presence [13]. Akkoyunlu et al (2008) also found no significant differences between students' achievement level according to their learning styles in a blended learning environment [33].

Instructional technologists might also argue that educational improvement comes from more highly interactive technologies, like gaming and simulations [34]. Johnson

(2002) also found that planning and developing a large-enrollment hybrid course takes two to three times the amount of time a traditional large-enrollment class would take, with many activities being completed before the beginning of the semester. The author concluded that accessibility to course content and connectivity with students increased in the hybrid format, while no differences were found in terms of effectiveness of instruction [35]. Otherwise, in another study conducted by King (2002) one key limitation of the hybrid model is that it is affected by computer worms, power failures, and other technology problems [36].

II. CONCLUSION

The use of technology and online learning in higher education has increased in recent years. These changes are having an impact on traditional education as they become integrated into FCT classes. Evidences indicate that hybrid learning is truly a unique learning environment. Educationally useful research on blended learning needs to focus on the relationships between different modes of learning (for example, face-to-face and on-line) and especially on the nature of their integration. Integrating a variety of teaching modalities and approaches can increase student self-confidence. Future research should evaluate the effectiveness of hybrid learning. So that, this may help educators to design optimal learning environments.

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