

2.5

Evaluating the Impact of Hybrid-Flexible Courses and Programs

Highlights from Selected Studies

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The emergence of Hybrid-Flexible (HyFlex) instructional formats is relatively recent in higher education. (See Chapter 1.1. Beginnings for more of the HyFlex genesis story.) Many studies that have been reported in the literature and presented at professional conferences are descriptive case studies, telling the story of one instructor's implementation of HyFlex (or other term) with their own students at a single institution. Some studies report on broader adoption efforts in entire programs, or in rare cases, across an institution. Though fewer studies report the impact on student learning and associated metrics of interest (retention, passing grade rate, GPA, time to graduation, etc.), some have been published already, and more are expected in coming years. Several substantive Masters theses and Doctoral dissertations have been published, providing very thorough analysis of particular aspects of the HyFlex model and in some cases the impact on student performance.

This chapter highlights a small number of studies (13) that provide

partial representation of the literature that goes beyond the typical descriptive case study or limited literature review. Each study described below provides basic information: title, citation, and abstract, accompanied by a very brief discussion of relevance from my perspective. These summaries are not meant to be exhaustive, rather they are included to provide you with a general sense of what we (the instructional design and technology field) have reported and to provide you with a literature trail that should be easy to follow.

To supplement the literature summaries in this chapter, in this book's appendices I've included a more substantial and dynamic bibliography of the academic research associated with Hybrid-Flexible design, including some articles associated with closely-related designs. This bibliography should help you find the articles, chapters, or larger works that interest you, and then find them in your institution's library databases or online. Most are available in electronic format through standard online sources. (See Appendix A. Bibliography of Hybrid-Flexible Literature (using various terms).)

Lastly, if you know of other work that should be included here, please use the comment area below this chapter (on the edtechbooks.org/hyflex site) or contact me by other means.

2007: Student Participation in Small Graduate Seminar Classes

Title: Hybrid Classes with Flexible Participation Options - If you build it, how will they come?

Beatty, B. (2007, October). Hybrid Classes with Flexible Participation Options - If you build it, how will they come? *Proceedings of the Association for Educational Communication and Technology International Conference, Anaheim, CA.*

Abstract

This presentation reports on the participation patterns observed in four graduate courses offered at a large, urban, public university in 2006-2007. All courses were taught by the same instructor. This instructor has been using hybrid teaching methods for more than a decade at several levels of public education, and recently developed a hybrid course design encouraging flexible student participation patterns - the HyFlex course. All students in this study were enrolled in a graduate program in Instructional Technologies leading to a Master of Arts degree. In each course, a mix of face-to-face and online students used a course website (hosted in an open source Learning Management System) to share files, access course information, review past class discussions in various formats, and engage in occasional topical discussions. In addition, online students had the option to participate in live online sessions using a synchronous web conferencing tool. All students were invited to participate either in face-to-face sessions or through online activities in any given week of the semester, depending on their needs and desires. Student participation mode (in-class or online) did vary considerably from week to week in each course. Most students reported that they valued in-class activities and static website resources more than synchronous online sessions or multimedia archives of synchronous (in-class or online) activities. Students felt a strong connection to the course instructor, and most students reported that they met or exceeded their learning expectations. The paper includes a sample of student comments regarding the HyFlex course experience, with a link to raw (aggregate) survey data (Beatty, 2007).

Relevance

This study was the first to report the results from a HyFlex course implementation (using the HyFlex term specifically) and focused on one of the most important aspects of HyFlex, understanding student participation patterns when students have legitimate choices among

classroom, fully online, and any hybrid mix of the two. Limited to relatively small graduate seminars (average N=11), the overall participation pattern is reported to be approximately 60% classroom, 30% online (all asynchronous for this study) and about 10% non-attendance. A major challenge reported in these classes was having very few students – on average – participating in online asynchronous discussions from week to week, potentially limiting the effectiveness of this instructional activity in supporting deep learning. The study also reports the results of a student survey administered at the end of the class, but doesn't break down survey results by participation group in any way. The anecdotal comments of students from the survey provide a range of opinions about the students' HyFlex experience, identifying both strengths and weaknesses of the course design from their own perspectives.

2012: Managing Change: Implementing a Hybrid-Flexible type model in an institution

Title: Beyond Blended Learning: A case study of institutional change at an Australian university.

Taylor, J. A., and Newton, D. (2012). Beyond Blended Learning: A case study of institutional change at an Australian university. *Internet and Higher Education* 18(2013) pp. 54-60.

Abstract

Higher education institutions that teach both on-campus and at a distance are challenged to provide all students with equitable access to learning. While the concept of blending or converging learning environments supported by technology and Internet use is common in Australian universities, institution wide implementation is rarer. This

paper provides a case study of an Australian regional university that investigated institutional processes and teaching and learning approaches that would facilitate diverse students' equitable access to learning. This investigation identified facilitators and barriers to systemic implementation of blended learning. It was found that as teaching and learning environments are socially dynamic, strategic institutional change will only happen if there is a shared vision and energy that touches all parts of an organisation (Taylor & Newton, 2012).

Relevance

Though there are many case studies of Hybrid-Flexible type implementations in the literature, this study is unique in its primary focus on the institutional change aspects of a broad, multi-year implementation at a large public university. Using the term “converged learning” to label their approach to providing both online and classroom participation options for students, the authors tell the story of Southern Cross University’s journey from offering traditional online, classroom and blended courses towards teaching in a single, converged mode that combines all three formats into a single, newly defined mode. A special focus on the change process will be interesting to administrators and others interested in guiding an institution toward and through a major change effort associated with implementing a Hybrid-Flexible approach (by any name). The Converged Delivery implementation framework provides a high-level view of an institutional approach that would work at many institutions, if there were interest and capacity for substantial pedagogical change.

2013: Student Performance in a Large Undergraduate Statistics Course

Title: Student Choice, Instructor Flexibility: Moving Beyond the Blended Instructional Model

Miller, J., Risser, M. & Griffiths, R. (2013). Student Choice, Instructor Flexibility: Moving Beyond the Blended Instructional Model. *Issues and Trends in Educational Technology*, 1(1), 8-24. University of Arizona Libraries. Retrieved July 5, 2019 from <https://edtechbooks.org/-MkvN>.

Abstract

Due to the rapid increase in online course enrollments, online and blended education receives much research attention. However, a paucity of research exists for the Hybrid-Flexible (HyFlex) instructional model. This model allows students flexibility about how to participate in lecture and is geared toward providing students with educational choices and incorporating instructional technologies that mirror the personal technologies students use every day. This article outlines the development and testing of a modified HyFlex instructional model specifically designed for large, on-campus courses where students had three attendance mode choices (live online, face-to-face, or view a recorded session). To support curricular goals, the instructor implemented technology affording live lecture streaming, polling, and backchannel communication with negligible cost to students and little cost to the department. Highlighted results indicate the modified HyFlex instructional model had no negative impact on student performance in the class, both in overall learning and on individual grades. Furthermore, students greatly enjoyed the educational choices and overwhelmingly reported the incorporation of technology increased their participation in class and comprehension of course content. The authors discuss the findings, address study

limitations, and offer suggestions for future HyFlex research (Miller, Risser, & Griffiths, 2013).

Relevance

This study investigated the use of HyFlex in a large (N=161) undergraduate statistics course, comparing student performance in one section of the course delivered using a localized HyFlex approach to student performance in two others sections of the same course, similar in all aspects except for the instructor. This study details the use of several instructional technologies designed to increase student engagement in the live (classroom and online) participation modes. Three goals described by the authors include (1) provide students with attendance options, (2) serve more students with less space, and (3) standardize student experience across all participation modes. The study clearly reports the HyFlex design implemented by the research team, and explains the research conducted with useful detail. The main findings of “no significant difference” in student performance among those using different participation modes supported their decision to offer the HyFlex section to increase student flexibility in terms of accessing learning without sacrificing academic achievement or rigor. This study also reports student self-reported satisfaction scores on the use of various technologies, the overall course design, and includes a description of anecdotal evidence gathered through student focus groups. The authors explain several shortcomings they experienced, including technical challenges and problems relying on student self-reports of participation. However, based on substantially positive feedback from students and the evidence that academic achievement was not lessened, the authors conclude that the HyFlex approach is a very promising design to serve students better, especially in large undergraduate courses.

2014: Student Performance in a Large Undergraduate Business Course

Title: Academic Students' Satisfaction and Learning Outcomes in a HyFlex Course: Do Delivery Modes Matter?

Lakhal, S., Khechine, H. & Pascot, D. (2014). Academic Students' Satisfaction and Learning Outcomes in a HyFlex Course: Do Delivery Modes Matter?. In T. Bastiaens (Ed.), Proceedings of World Conference on E-Learning (pp. 1075-1083). New Orleans, LA, USA: Association for the Advancement of Computing in Education (AACE). Retrieved July 5, 2019 from <https://edtechbooks.org/-ysYq>.

Abstract

The Hybrid-Flexible (HyFlex) design model is a course design model that combines Hybrid learning in a Flexible way, such that students can either attend face-to-face class sessions, participate online or do both (i.e. alternate between face-to-face mode and online mode), according to their needs and availability, without learning deficits. Student satisfaction and learning outcomes (i.e. academic performance) should be the same regardless of the mode they choose. The aim of this study is to address these issues. A total of 376 students enrolled in a HyFlex information systems course responded to an online questionnaire. One-way ANOVA tests results revealed that no significant differences were found between students who chose different delivery modes on satisfaction, multiple choice test, and written exam scores. However, significant differences were observed on continuous assessment scores. The discussion relates to the importance of conducting other studies on this particular design model (Lakhal, Khechine, & Pascot, 2014).

Relevance

This study investigated the effectiveness of a large undergraduate HyFlex course (N=439) as measured by self-reported student satisfaction scores (measured with 15 likert-like scale survey items; N=376) and student grades on three types of graded activity: multiple-choice tests, written exams, and continuous assessment (sometimes referred to as “homework assignments”). The researchers were testing for equivalency in these measures among four student groups defined by participation pattern. A unique contribution of this study is the way student groups are defined, using standard definitions of classroom, online synchronous and online asynchronous students that all allow for a small amount of participation mode variance (20-30%) and a fourth group called “hybrid” which includes everyone else. The authors report that student’s self-reported satisfaction scores among the four groups showed no significant difference except for a small difference between synchronous online students and asynchronous online students in their agreement with the statement: “I am satisfied with the ease of use of the technological equipment during the course.” ((Lakhal, Khechine, & Pascot, 2014) Interestingly, the overall satisfaction score for this item on the survey was 77% in agreement, so even though there were statistically significant differences, a large majority of students agreed that they were satisfied with the technology used in the course. The authors report that there were statistically significant differences between the academic performance measure for continuous assessment (homework assignments) of online synchronous students compared to the online asynchronous students, with the online synchronous students having better scores. No data is shared about the nature of the continuous assessment approach, specific grading process, or actual scores, so this finding is interesting but may not be very actionable for other instructors or designers.

2015: Student Performance in a Large Undergraduate STEM Class

Title: Implementing flexible hybrid instruction in an electrical engineering course: the best of three worlds?

He, W., Gajski, D., Farkas, G., & Warschauer, M. (2015).
Implementing flexible hybrid instruction in an electrical engineering course: The best of three worlds? *Computers & Education*, 81, 59-68.

Abstract

This study explored a modified version of hybrid instruction, referred to as the flexible hybrid format, in a lower division electrical engineering course offered at a large public university. The objective of the study is to use longitudinal data to investigate the impact of class attendance, out-of-class study time, and motivation on student exam performance. Generalized least squares and fixed effects models were used in the analyses. It was found that class attendance was indispensable; it was associated with exam performance even when all essential course material was made available online and students generally rated the online instruction component to be of higher quality. The benefit of class attendance was then explained by the ICAP hypothesis and spaced learning practice and it was suggested that online education might be more effective in teaching relatively simpler contents. Out-of-class effort significantly predicated performance in previous weeks, but not in the final period. The harmful effect of cramming was cited to explain this phenomenon. Hence, by implication, time management might be an issue in a flexible hybrid environment. Finally, motivation was found to be a robust predictor of performance and its effect was the strongest when the course was at its most challenging stage. Besides, the relationship between motivation and exam performance was likely to

be bidirectional, as higher motivation resulted in better performance, which in turn further boosted motivation. Based on current findings, directions for future research were also suggested to verify our claims and improve our implementation (He, et.al, 2014).

Relevance

This study thoroughly examined the use of hybrid-flexible course design in a large (N=159) undergraduate engineering course; participants were largely male freshman students. The authors state that their rationale for their “flexible hybrid” approach was threefold: “(a) different students have distinct learning styles and preferences, (b) mismatches between instructional styles and student performances could hurt student motivation, and (c) multiple instructional channels support this diversity and hence potentially improve student satisfaction, motivation and performance.” (He, et.al, 2014, pg.60) The findings summarized in the abstract above (and fully explained in the published article) support several emphases of HyFlex design discussed in Chapter 1.4. Designing a Hybrid Flexible Course, most importantly the need for designing an engaged learning environment for all learners, especially when learning is difficult. It’s not enough to leave learners on their own to watch videos, read reference materials, complete problem sets and take quizzes online. This study suggests that in-class interactive engagement among students, TA’s and the instructor contributed to superior performance on the most difficult exam in the class. This could be interpreted as evidence that one of the most important challenges to HyFlex design and implementation is ensuring that online students can be (and are encouraged to be) engaged in interactive learning experiences that lead to the achievement of important learning outcomes. Especially when learning course content is difficult, and motivation to learn may be low, additional effort from instructors (and TA’s when available) to engage with online students may be helpful.

2016: Student Performance in Quantitative Graduate MBA Courses

Title: A blended model: simultaneously teaching a quantitative course traditionally, online, and remotely.

Lightner, C. A. & Lightner-Laws, C. A. (2016). A blended model: simultaneously teaching a quantitative course traditionally, online, and remotely. *Interactive Learning Environments*, 24:1, 224-238, DOI: [10.1080/10494820.2013.841262](https://doi.org/10.1080/10494820.2013.841262)

Abstract

As universities seek to bolster enrollment through distance education, faculty are tasked with maintaining comparable teaching/learning standards in traditional, blended, and online courses. Research has shown that there is an achievement gap between students taking courses exclusively offered online versus those enrolled in face-to-face classes. In an effort to mitigate these observed differences, the School of Business faculty at the research institution investigated various course models to meet the needs of a diverse, non-traditional, and multifaceted student population. Ultimately, a blended course model for statistics and quantitative method courses was developed that allowed students to choose between online, remote (via interactive television), and traditional course delivery modes each week. This model is more flexible and agile than existing blended courses that have more static components. Multiple regression analysis, χ^2 , and t -tests are used to demonstrate the efficacy of our model in maintaining student performance standards (Lightner & Lightner-Laws, 2016).

Relevance

This study examined the student success in an MBA Management

Sciences and Statistics course (a difficult quantitative course) at a large public university in the U.S.; students are largely non-traditional (average age 24 years, most working full time, many fully online). The rationale for using a HyFlex-type course was to “address the needs of the university’s non-traditional students, while maintaining student performance levels comparable to traditional course offerings.” (Lightner & Lightner-Laws, 2016, pg. 231). In other words, the authors report wanting to support student participation in the online mode (addressing the needs of non-traditional students) and close the achievement gap between online and classroom students (maintaining comparable performance levels). The results shared in this report include student performance in a single course offered five times during the study period (N=156). The student success measures showed that as just as many student completed the course successfully as before (approximately 90%) and that the achievement gap between classroom and remote or online students was effectively eliminated. (The historical achievement gap in student pass rate was reported at approximately 9%.) In this study, the authors conclude that classroom students performed just as well as before, and remote or online students performed significantly better than before, when they were constrained to traditional single mode instructional formats.

2018: Student Engagement in a HyFlex Program (Master’s thesis)

Title: Multimedia Students: Engaging across platforms. An Investigation of Student Engagement in the Media and Communication Master Programme at Malmö University

Meyer zu Hörste, H., and Vanderbeke, J. (2018). *Multimedia Students: Engaging across platforms. An Investigation of Student Engagement in the Media and Communication Master*

Programme at Malmö University. Master's thesis at Malmö universitet/Kultur och samhälle (2018)

Abstract

This thesis investigates student engagement in the Media and Communication Programme at Malmö University through the lens of audience- as well as learning theories. It has two main aims: Building a systematized theoretical framework to distinguish different nuances of audience activity in a cross-mediatic learning environment, and exploring factors influencing student engagement in our Media and Communication Master Programme (MCS). Constructivist Grounded Theory (Charmaz 2006) with a multi-method approach for data collection is applied to gather rich data and analyse it accordingly through coding processes and constant comparison. Following social constructivism, it argues that each student, actively constructing knowledge, has her own subjective learning preference. This thesis takes a non- normative stand on the subject.

A matrix of audience activity, grounded in audience theories and developed through the collected data, is established. In a second step this is used to illustrate the concepts participation, engagement and collaboration and then further employed to examine factors influencing student engagement. Thereby, the matrix is tested, refined and further developed. Through this approach eight states a student might be situated in while studying as well as possible barriers for student engagement were identified. Factors influencing student engagement this study found are the personal situation of the student, the access Hyflex education allows, possibilities and challenges of physical and virtual learning spaces, the interaction between teachers and students, the structure of the programme and how students are connected with each other.

By looking at student engagement in a media rich environment from an audience- as well as education-angle this thesis expands existing

research. It presents influencing factors for student engagement. More importantly the theoretical model is a useful tool to investigate different kinds of student activities and to develop educational media tools. It could also be transferred to research other audiences (Meyer zu Hörste & Vanderbeke, 2018).

Relevance

This study explores student engagement in a Hybrid-Flexible environment from not only a learning lens, but also from an audience lens, describing the course environment as “cross-mediatic”, which may be the first use of that term to describe a learning environment. Readers may also enjoy reading through approximately 90 pages of interview transcripts produced during the study. The six factors affecting student engagement and eight situational learner states reveal the complexity of student experience within a Hybrid-Flexible course environment and provide a sound theoretical foundation from which to build more understanding in our field through extended research in these areas.

2018: Student Perceptions of Community of Inquiry (Doctoral Dissertation)

Title: Differences in Students’ Perceptions of the Community of Inquiry in a Blended Synchronous Delivery Mode

Lafortune, A. M. (2018). *Differences in Students’ Perceptions of the Community of Inquiry in a Blended Synchronous Delivery Mode*. Université de Sherbrooke Dissertation.

Abstract

The blended synchronous delivery mode offers students flexibility to

access educational opportunities. In this real-time setting, the instructor is teaching in a room with face-to-face students while other students are attending from a satellite site via an online platform. Asynchronous learning activities are also taking place, usually online. In this context, just like in any delivery mode, all students should have access to equal learning opportunities; yet, studies, including this research, have found differences in face-to-face and online students' perceptions of the community of inquiry in a blended synchronous delivery mode.

The Community of Inquiry (CoI) framework was adopted as theoretical lens for this research. Developed by Garrison and Arbaugh (2007), it suggests that there are three elements essential to an educational transaction, namely the teaching presence, the social presence and the cognitive presence. Shea and Bidjerano (2010) later added a fourth presence, the learner presence. Research reveals that students who perceive all four presences to be strong are satisfied with their educational experience; however, research also shows that in a blended learning environment, there can be a difference between face-to-face and online students' perceptions of the community of inquiry. This means that both groups can have different learning opportunities.

Given that more post-secondary institutions are turning to distance education for various reasons (flexibility, access, enrolment numbers, and program diversity), it is essential to find out whether the blended synchronous delivery mode (BSDM) affects students' perceptions of the CoI. This research lays the foundation for a Master's thesis research project on students' different perceptions of the CoI in a BSDM. We examine the underlying principles of effective pedagogy, such as social constructivism and the CoI, the different distance course delivery modes available, and their advantages and challenges. The literature review on face to face (F2F) and satellite students enrolled in a non-F2F course reveals that both groups may have a different perception of the CoI presences. To verify this hypothesis, a

study was conducted at the Cégep de la Gaspésie et des Îles (CGÎM). Over the winter 2017 semester, participants enrolled in three different courses taught in the BSDM mode in the nursing program at the CGÎM answered a questionnaire measuring their perceptions of the four CoI presences. The questions helped gather both quantitative and qualitative data for the mixed-methods study detailed in this proposal. From a total of 45 participants, 20 were attending their course in person while 25 were at a satellite site.

Using a mixed approach, this research measured and analyzed differences in face-to-face and online students' perceptions of the community of inquiry in a blended synchronous delivery mode. To measure students' perceptions of the four presences, we used a questionnaire elaborated by Garrison, Anderson and Archer (2000) and later revised by Shea and Bidjerano (2010). Four specific research questions were addressed. First, we looked at whether face-to-face and online students had a different perception of the distinctive elements of the teaching presence. Then, we looked at whether face-to-face and online students had a different perception of the distinctive elements of the social presence. Third, we looked at whether face-to-face and online students had a different perception of the distinctive elements of the cognitive presence. Finally, we looked at whether face-to-face and online students had a different perception of the distinctive elements of the learner presence. We examined both overall scores for each presence, as well as the distinctive elements of each of the four presences.

For the first research question, we found that face-to-face participants perceived a stronger teaching presence. More specifically, they felt that the instructor better communicated course topics and due dates, that they helped them learn and provided helpful feedback. No statistical difference was found for the second research question. Our third research question revealed that face-to-face students felt more motivated to explore content-related topics than the online students, while students at the satellite site found that online discussions

helped them appreciate different perspectives more than face-to-face students did. The fourth research question revealed that face-to-face students know how to evaluate the quality of their work, are aware of their strengths as well as weaknesses in a learning context, and take the time to review the material related to the work to be done - more than online students do.

The results of this research suggest that in a blended synchronous delivery mode, face-to-face and students at a satellite site can have different perceptions of the four presences. This means that this type of delivery mode does not necessarily offer both groups equal learning opportunities. The teachers' and students' comments provide rich insight on why this may be. More work should be done on the relationship between this delivery mode and the community of inquiry. Further research may examine the emotional presence, and the relationship between the Cognitive Load Theory and the blended synchronous delivery mode. Finally, the questionnaire based on the Community of Inquiry framework elaborated in Garrison et al. (2000) and later revised by Shea and Bidjerano (2010) could be used in professional development; for example, in instances of teacher training (Lafortune, 2018).

Relevance

The abstract above summarizes the major findings presented in this study. Perhaps the greatest relevance to those considering or implementing HyFlex courses in the blended synchronous format (aka. BSDM) is the in-depth look at design factor designed to support the establishment of an effective community of inquiry in the learning setting (course). Many of the design elements reported were effective, but additional suggestions for further design enhancement are also provided.

2015: First Generation Students in HyFlex Courses (Doctoral Dissertation)

Title: A Quantitative Inquiry into First Generation Students' Readiness for Distance Education.

Love, S. (2015). *A Quantitative Inquiry into First Generation Students' Readiness for Distance Education*. n.p.: ProQuest Dissertations Publishing.

Abstract

First Generation Students (FGS) enrollment in post-secondary universities and colleges has increased. Many of the First Generation Students also enroll in distance education courses because of the flexibility and conveniences distance education courses provide. But are FGS ready to take distance education courses? Do FGS have the same level of non-cognitive skills and attributes as their Non-First Generation Student counterparts? This quantitative study sought to examine FGS student readiness for distance learning courses. Based on the results, recommendations for Administrators, Faculty and instructional designers were provided (Love, 2015).

Relevance

This study attempts to answer three questions in the general context of online and/or hybrid courses, including the specific context of HyFlex courses (N courses = 903). The primary measure used to assess student readiness was the SmarterMeasure™ student readiness indicator.

The three research questions are:

1. How do First Generation Students (FGS) and non-FGS differ in

- terms of student readiness?
2. What relationship is there between student readiness and success in online and/or hybrid courses?
 3. How do FGS and non-FGS differ in terms of the relationship between student readiness and success in online and/or hybrid courses?

One of the most interesting findings in this study is the difference between correlation results between online and hybrid course types with several factors in the SmarterMeasure indicator and those between the HyFlex course type and the same factors. In general, the HyFlex course correlations were much less likely to be significant than those of the online or hybrid course types. The implication of this may be that the HyFlex course type supports students more broadly (a wider range of student preparation states) since it provides for both in-class, online and a unique hybrid chosen by each student.

2019: Student Equity and Engagement in a HyFlex Course (Book chapter)

Title: Challenges of Student Equity and Engagement in a HyFlex Course.

Binnewies, S., Wang, Z. (2019) Challenges of Student Equity and Engagement in a HyFlex Course. In C. Allan, C. Campbell, and J. Crough (Eds.) *Blended Learning Designs in STEM Higher Education: Putting Learning First* (pp. 209-230). Singapore: Springer Nature

Abstract

HyFlex courses are characterised by a mixture of online and face-to-face learning components. In particular, students are allowed to

choose to complete any part of the course in online and/or face-to-face mode. Such courses arguably provide the highest flexibility for student learning, but also pose a number of challenges to learning design. These include not only the ones inherent to online instruction and face-to-face instruction but also those of creating equitable alignment between the two modes to achieve the same learning outcomes. In this chapter, we report on the insights drawn from designing and delivering a second-year undergraduate information technology course on two campuses, in which students could complete any learning activity and assessment online or face-to-face. We describe our approach to support student engagement, group work and a peer review in HyFlex mode, and some challenges we faced to match learning designs to available technology. We evaluated our teaching components according to student participation and their quantitative and qualitative feedback. We found that most students appreciated the HyFlex mode delivery and while our approach was shown to be effective, it was in some way constrained by the technology available (Binneweis & Wang, 2019).

Relevance

This study reports the HyFlex course design used at two campuses of an Australian university, emphasizing the design factors and instructional practices implemented to assure student equity (given the opportunity to achieve equivalent learning outcomes) and student engagement in the learning process. Gathering information from course (presumably LMS) logs and, most substantially, student surveys, the study concludes that the design presented was effective in achieving goals of student equity and engagement as defined by the authors and reported by students.

2019: Student Perceptions of HyFlex Courses

Title: La perspective étudiante sur la formation comodale, ou hybride flexible. [What do university students think about hybrid-flexible, or HyFlex courses?]

Gobeil-Proulx, J. (2019). La perspective étudiante sur la formation comodale, ou hybride flexible. [What do university students think about hybrid-flexible, or HyFlex courses?] *Revue internationale des technologies en pédagogie universitaire*, 16(1), pp. 56-67. Available online: <https://doi.org/10.18162/ritpu-2019-v16n1-04>

Abstract

Un cours offert sous le format comodal, ou HyFlex, peut être suivi en présentiel ou à distance par les étudiants, ce qui leur permet de choisir hebdomadairement le mode qui leur convient le mieux. Il est important, pour le développement de cette offre de formation exploratoire au sein des établissements d'enseignement supérieur, d'examiner la perspective des étudiants inscrits à ces cours. Nous avons proposé un questionnaire à tous les étudiants inscrits dans 9 cours comodaux offerts dans 4 facultés différentes d'une université canadienne; 311 étudiants (N = 311) y ont répondu volontairement. Trois grands constats émergent de notre analyse : le format comodal est grandement apprécié par les étudiants; les étudiants choisissent majoritairement la formation à distance; les étudiants tendent à se familiariser avec un mode et à le garder tout au long de la session.

[English translation] A course offered in the HyFlex format can be followed face-to-face or remotely by students, which allows them to choose weekly the mode that suits them best. It is important, for the development of this exploratory offer in higher education institutions,

to examine the perspective of the students enrolled in these courses. We administered a questionnaire to all students enrolled in 9 HyFlex courses offered at 4 different faculties of a Canadian university; 311 students (N = 311) responded voluntarily. Three major findings emerge from our analysis: the HyFlex format is greatly appreciated by the students; most students choose distance learning; students tend to choose a modality and stay with it throughout the session (Gobeil-Proulx, 2019).

Relevance

This study reports on the self-reported perceptions of 311 students enrolled in multiple courses within multiple “faculties” in a Canadian university. The study also introduces the term “comodal” as an additional label for a Hybrid-Flexible course format. Not surprisingly, one of the findings is that “The comodal format is greatly appreciated by students.” (pg. 63) This study also reports that students favored the remote (online) mode over the face-to-face mode, with 60% choosing never to attend class in person, despite occasional technical difficulties with the online technology.

The study also found that relatively few (28%) of students ever changed participation mode during the course. It seems that these students tended to find a preferred mode of participation and continued in that mode for the duration of the course.

2017: Literature Review for Blended Synchronous Delivery at the Graduate Level

Title: Blended Synchronous Delivery Mode in Graduate Programs: A Literature Review and Its Implementation in the Master Teacher Program.

Lakhal, S., Bateman, D. & Bédard, J. (2017). Blended Synchronous Delivery Mode in Graduate Programs: A Literature Review and Its Implementation in the Master Teacher Program. *Collected Essays on Learning and Teaching 10*, pp. 47-60.

Abstract

The aim of this study is to present a narrative literature review of advantages, challenges, and conditions for the success of blended synchronous course delivery mode. For this purpose, we searched the database EditLib and analyzed 16 existing papers from 2001 to 2016. The conditions for success were operationalized in the Master Teacher Program (MTP) and its challenges were addressed in building a Blended Session Protocol. This protocol also combines lived experience. It is now used in the MTP to ensure a standardized and consistent implementation of this course delivery mode into our courses. Reviewing the literature on this delivery mode and presenting an example of its use in the MTP are important issues. From a theoretical point of view, the present study results help build a theoretical basis for future research on this course delivery mode and would enrich existing literature. From a practical point of view, this study provides administrators and higher education faculty members with guidance on how to implement such course delivery mode (Lakhal et al., 2017).

Relevance

This study provides a thorough review of published academic literature associated with a blended synchronous course format at the graduate level. Many blended synchronous formats could also be called “Hybrid-Flexible” (if student choice on format from session to session is available), so the review is useful to readers adopting or considering HyFlex implementation at their institution. The 30 studies referenced in the review provide many opportunities for learning from others’ experiences.

2018: Synchronous Hybrid Learning Literature Review

Title: Benefits, Challenges and Design Guidelines for Synchronous Hybrid Learning: A Systematic Literature Review.

Detienne, L., Raes, A. & Depaepe, F. (2018). Benefits, Challenges and Design Guidelines for Synchronous Hybrid Learning: A Systematic Literature Review. In T. Bastiaens, J. Van Braak, M. Brown, L. Cantoni, M. Castro, R. Christensen, G. Davidson-Shivers, K. DePryck, M. Ebner, M. Fominykh, C. Fulford, S. Hatzipanagos, G. Knezek, K. Kreijns, G. Marks, E. Sointu, E. Korsgaard Sorensen, J. Viteli, J. Voogt, P. Weber, E. Weippl & O. Zawacki-Richter (Eds.), *Proceedings of EdMedia: World Conference on Educational Media and Technology* (pp. 2004-2009). Amsterdam, Netherlands: Association for the Advancement of Computing in Education (AACE). Retrieved June 20, 2019 from <https://edtechbooks.org-woe>.

Abstract

More and more universities invest in technology-enhanced learning which raises the question of how these environments need to be shaped. A specific type are synchronous hybrid learning environments in which face-to-face and remote students receive simultaneous and synchronous instruction. These new settings ask for a redefinition of the instructional design. Unfortunately, there is lacking research that outlines design principles, which is why teachers are still struggling with the implementation. Boelens, De Wever and Voet (2017) put forth key challenges and guidelines for blended learning in general, but this study specifically focuses on synchronous hybrid learning, which has not yet been investigated in the field. This paper reports on a systematic review in progress. Based on preliminary results, we can state that most studies deliver benefits and challenges which often

result in some design guidelines. Given the limited amount of studies on synchronous hybrid learning, there is need for further research (Detienne et al., 2018).

Relevance

This study presents a thorough review of the existing literature (in 2018) on the blended synchronous course format. Almost two dozen studies are reviewed. Blended synchronous formats are similar to, and often the same in essence as Hybrid-Flexible designs, though in some there is no substantial flexibility (students may not have the freedom to choose participation mode) and many may not include a designed path for asynchronous learners.

2020: Comparing Student Learning and Satisfaction between Traditional and HyFlex Delivery (Doctoral Dissertation)

Title: Traditional, Online or Both? A Comparative Study of University Student Learning and Satisfaction Between Traditional and Hyflex Delivery Modalities

Rhoads, D. D. (2020). *Traditional, Online or Both? A Comparative Study of University Student Learning and Satisfaction Between Traditional and Hyflex Delivery Modalities*. Dissertation Concordia University Irvine, 2020, 148; 27995688. Available online: <https://edtechbooks.org/-Sdh>

Abstract

The purpose of this mixed method causal comparative and phenomenological study was to discover and examine the impact, if any, of 16-week traditional and five-week Hyflex delivery modalities

on student learning and satisfaction within undergraduate courses. Quantitative satisfaction data was collected through a Likert survey as well as through data extraction from the institution's student information system. Qualitative data was collected from students through open ended survey questions as well as from select faculty through interviews. For each of the two hypotheses, statistical analysis was presented through descriptive statistics as well as through comparative analysis. The quantitative analysis was followed by qualitative analysis that explored themes and patterns that emerged.

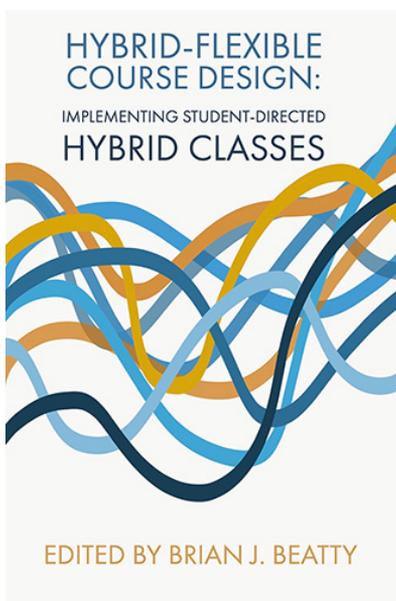
The participants in this study included a total purposive sample of eighty-one students from fifteen undergraduate courses, offered in the traditional and non-traditional programs of a small private college in Southern California, and offered over the course of five academic semesters. While statistical findings on student performance/learning did not reveal a significant difference between course delivery modalities in the area of final grade average, statistical findings did reveal a significant difference between course delivery modality and student satisfaction in the area of two distinct measures of student satisfaction. Additionally, non- statistical findings reflected a positive relationship between course attendance flexibility and student satisfaction.

Relevance

This study presents a comparison of student learning outcomes and self-reported student satisfaction in 15 courses over a multi-year period, providing evidence of the success of this institution's HyFlex course program. This report provides a comprehensive explanation of the HyFlex course design as compared to the traditional course. In addition, since this is a dissertation report, a substantial review of relevant literature is included with in-depth discussion of the fundamental principles of HyFlex design.

This study is also described in Chapter 3.9 of this volume, In that report, additional evidence for institutional cost savings (real and prospective) is provided and explained.

For more studies associated with Hybrid-Flexible Course Design, see [Appendix A: Bibliography of Hybrid-Flexible Literature \(by any name\)](#)



Beatty, B. J. (2019). Evaluating the Impact of Hybrid-Flexible Courses and Programs: Highlights from Selected Studies. In B. J. Beatty (Ed.), *Hybrid-Flexible Course Design*. EdTech Books.

<https://edtechbooks.org/hyflex/impact>



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