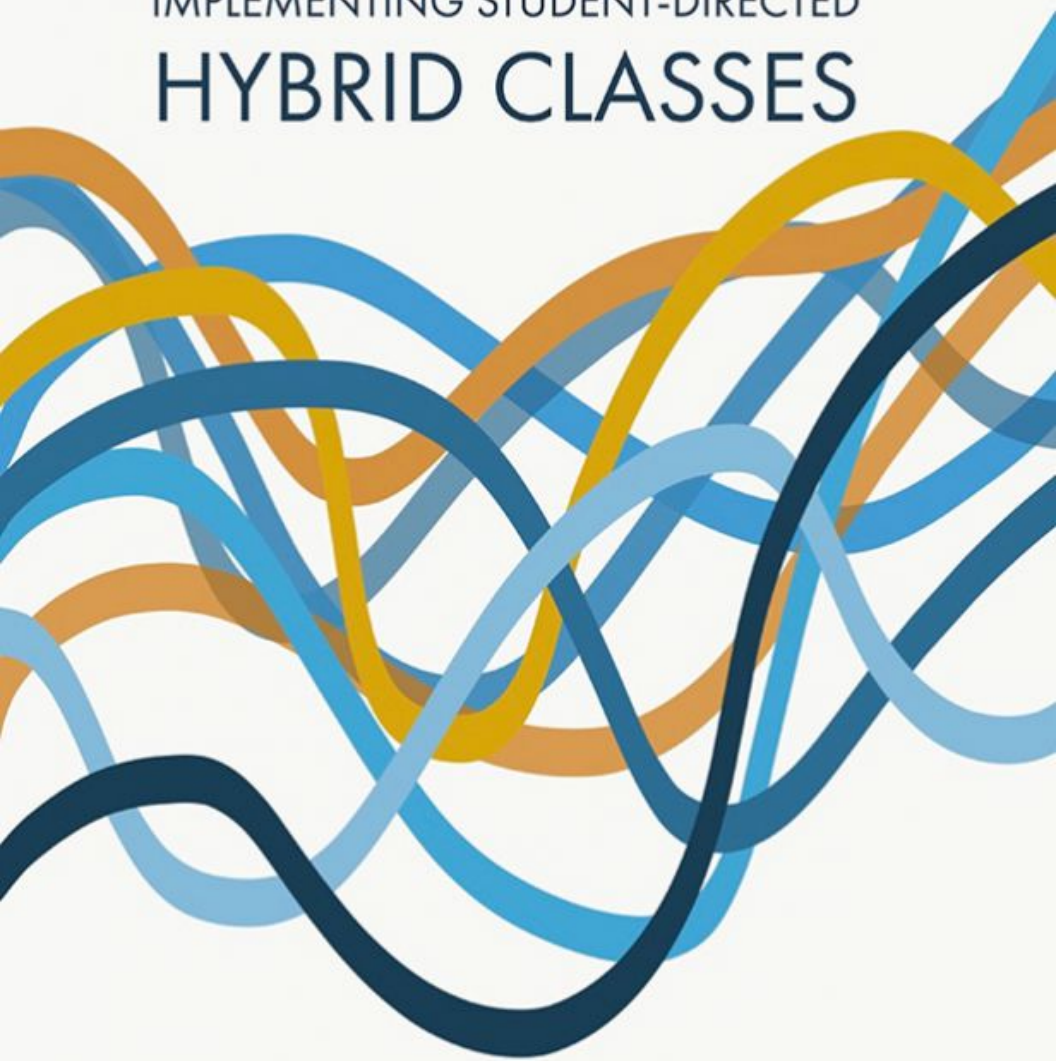
HYBRID-FLEXIBLE COURSE DESIGN:

IMPLEMENTING STUDENT-DIRECTED HYBRID CLASSES



EDITED BY BRIAN J. BEATTY

Hybrid-Flexible Course Design

Implementing student-directed hybrid classes

Brian J. Beatty

Version: 1.70

Built on: 04/15/2021 11:00am

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Acknowledgements

Brian J. Beatty

This book is an expression of my journey with Hybrid-Flexible (HyFlex) course design over more than a decade, working with the students and faculty at San Francisco State University and many others in institutions of higher education around the world. Many of the ideas and stories come directly from teaching using this approach, and learning from students and other faculty experiencing the journey alongside.

In particular I'd like to thank San Francisco State faculty Eugene Michaels, Kim Foreman, Peggy Benton, Patricia Donohue, Zahira Merchant, Jeff Brain, and Kevin Kelly for their significant contributions in initiating this work, shaping the values and guiding principles we adopted, using their design expertise to modify our practices, and trying this out for themselves so they could contribute "firsthand" insights. Special thanks to Patricia Donohue and Jeff Brian for contributing their experiences in their own voices as videos in Chapter 2.1. Teaching a Hybrid-Flexible Course.

Of course, none of this would have even started without our need to serve students better in the Instructional Technologies graduate program at San Francisco State. To those students who experienced the early versions of HyFlex course design I offer my eternal thanks for their patience, enthusiasm to be part of something new and different, and for their willingness to share their experiences in class, in course evaluations, research surveys, and in targeted messages to HyFlex students and faculty. Highlighted in this book in Chapter 2.2.

Learning in a Hybrid-Flexible Course are contributions from Catherine Mone, Nate Kaufman, Gustavo Campos, Jess Kaufman, Joel Compton, David Miles, Brian Rayner, and Kate Miffitt.

Many of the participants in workshops at professional conferences, sponsored by publishers, or hosted by institutions considering HyFlex adoption have shaped the story in meaningful ways also. Some of the most impactful contributions are represented in the case reports found in Unit III; special thanks to the initial group of case report authors: Cathy Littlefield, Stephanie Donovan, Jeanne Samuel, Amanda Rosenzweig, Mark McLean, Rene Cintron, Glori Hinck, Lisa Burke, Jackie Miller, Melinda Baham, Melanie Lefebvre, Susan Balter-Reitz, Samuel Boerboom, and Zahira Merchant.

I'd also like to thank my family for their support, patience and willingness to live a life that requires flexibility itself in many ways: Nellie, my life partner, and our children Elizabeth, Teresa, Jennifer, Katherine, Angela and Christopher. Our shared academic journey allowed each of you to follow your own path through your formal learning years, discovering what worked best for your specific situation at the time. You provided lived evidence every day of the value of adapting instruction to meet the unique needs of learners, including participation mode. Special thanks to Teresa for the cover design for the book!

This book is offered to our education community as a gift to help others find their way to provide students with a better learning experience that meets their unique and individual needs for both flexibility and high quality. This work has been often challenging, sometimes rewarding, and always interesting. After you've received something important from this work, please share it with your students, faculty, administrators and others who may benefit.

I leave you with a final piece of ancient wisdom that seems very appropriate for an open access work: "It is more blessed to give than

to receive." Acts 20:35, New International Version.

Brian Beatty, October 2019

Welcome to Hybrid-Flexible Course Design!

A brief introduction to the book

Welcome to the HyFlex World

Hybrid-flexible course designs - multi-modal courses which combine online and onground (classoom-based) students - have been used successfully for more than a decade at many higher education institutions around the world with a wide variety of courses. At San Francisco State we call this design “HyFlex”; many campuses use this term and many others use their own term. This book uses the terms "Hybrid-Flexible" and "HyFlex" interchangeably, often using the more general term "Hybrid-Flexible" to open a chapter and the shorter term "HyFlex" when referring to detailed approaches. Other names for the HyFlex approach are referenced and used when describing other specific implementations, especially in the case reports of Unit III.

Often the initial impetus for developing a Hybrid-Flexible approach is a very real need to serve both online and onground students with a limited set of resources (time, faculty, space) which leads to a multi-modal delivery solution. When students are given the freedom and ability to choose which mode to participate in from session to session, they are able to create their own unique hybrid experience. Locally, we have started acknowledging the student control aspect, sometimes referring to HyFlex as delivering a “student-directed hybrid” learning experience.

This book provides readers with strategies, methods, and case stories related to Hybrid-Flexible (HyFlex) course design so that they (you!) may make informed and thoughtful decisions about using it themselves and begin their own HyFlex course (re)design journey. More specifically, based on the needs identified for their specific context, readers will be able to:

a. gain an awareness of the HyFlex design,
b. determine if and how HyFlex course design could help them solve critical needs,
c. find their own innovative HyFlex solution to their specific challenges,
d. begin the HyFlex implementation process using strategies similar to those used by instructors described in this book, and
e. take advantage of emerging opportunities to improve their education practice, enabling them to better serve more students.

The book describes the fundamental principles of HyFlex design, explains a process for design and development, and discusses implementation factors that instructors, designers, students and administrators have experienced in a wide variety of higher education institutions; public and private, larger and small, research-intensive, comprehensive and community colleges. These factors include the drivers, the variations in implementation approaches and constraints, and the results (e.g., student success metrics, student satisfaction). A series of worksheets in Chapter 1.4 provides specific guidance that can be used by individuals or teams engaging in HyFlex design projects at their own institution. Case reports in Unit III from institutions and faculty who have successfully implemented HyFlex-style courses provide a rich set of real-world stories to draw insights for a reader’s own design setting.

Unit I: Hybrid-Flexible Course Design to Support Student-Directed Learning Paths

Unit I chapters explain the rationale for offering Hybrid-Flexible courses and programs, answering important questions related to "why?". Chapter 1.1 Beginnings provides one story of the development of the HyFlex design emerging from the background of multi-modal and blended or hybrid instructional practice in higher education. This chapter also describes other approaches identical to HyFlex that use different terms for naming, and several very similar approaches that support varied student particpation modes, but don't meet our standard baseline requirements to be considered HyFlex. Chapter 1.2 Costs and Benefits for Hybrid-Flexible Courses and Programs describes many of the common costs and benefits of implementing a HyFlex approach that instructors, students and adminstrators experience. Discussion of specific cost-benefit relationships are included in other chapters as well, especially in the Unit III case reports, but chapter 1.2 brings them together in a concise discussion. Chapter 1.3 Chapter 1.3 Values and Principles of Hybrid-Flexible Course Design explains the fundamental values and universal principles guiding HyFlex course design. Four principle pillars provide a foundation from which designers can build effecive courses and programs that meet students' needs and implement effective practices. Chapter 1.4 Designing a Hybrid-Flexible Course explains a simplified instructional design approach adapted for the HyFlex course context. The design guidance in this chapter is meant to complement and supplement effective design practice already in place and followed by instructors (and design teams) in their single-mode courses.

Unit II: Implementation and Adoption of Hybrid-Flexible Instruction

Chapters in Unit II explain how to build and deploy Hybrid-Flexible courses with specific focused discussions on the varied experiences and perspectives of major stakeholders: faculty, students, administration, and institution. These chapters discuss many of the detailed issues, experiences and design decisions that must be managed in most Hybrid-Flexible implementations; specific solutions in a variety of cases are explored in Unit III. Chapter 2.1 Teaching a Hybrid-Flexible Course describes the experience of instructors who have taught using this approach, focusing on common challenges and successes they've encountered. Chapter 2.2 Learning in a Hybrid-Flexible Course reports significant and common student experiences associated with learning in a HyFlex environment. Chapter 2.3 Supporting Hybrid-Flexible Courses and Programs explains many of the administrative factors that accompany HyFlex approaches: scheduling, workload management, logistics and more. Chapter 2.4 Expanding the Implementation of Hybrid-Flexible Courses and Programs explores the ways institutions have (or might) manage the expanding adoption of the HyFlex approach by instructors and administrators. Chapter 2.5 Evaluating the Impact of Hybrid-Flexible Courses and Programs reviews some of the research already conducted to assess the value of the HyFlex approach in courses and programs. Supplementing Chapter 2.5 is a bibliography (in Appendix A) of over 50 articles and presentations addressing Hybrid-Flexible-type approaches by any name. This bibliography is continuously revised as new research is published.

Unit III: Hybrid-Flexible Implementations Around the World

Chapters in Unit III provide specific case reports from institutions and faculty who have direct experience implementing Hybrid-Flexible courses in their own unique context. Each chapter explains 1) the need for Hybrid-Flexible, 2) the design (product and process), 3) the implementation experience, and 4) an impact evaluation (when available). Chapter authors have all designed their own Hybrid-Flexible courses either as faculty or instructional designers working with faculty. Their voices and stories provide a rich tapestry that is itself an example of a hybrid (mixed methods) flexible (changing, adaptive) approach to Hybrid-Flexible course design.

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We are making a difference, and invite you to join with us.

Unit I. Hybrid-Flexible Course Design to Support Student-Directed Learning Paths

Unit I chapters explain the rationale for offering Hybrid-Flexible courses and programs, answering important questions related to "why?".

- **Chapter 1.1 Beginnings: Where Does Hybrid-Flexible Come From?** provides one version of the development story of HyFlex design emerging from the background of multi-modal and blended or hybrid instructional practice in higher education.
- **Chapter 1.2 Costs and Benefits for Hybrid-Flexible Courses and Programs** describes many of the common costs and benefits of implementing a HyFlex approach that instructors, students and adminstrators experience. Discussion of specific cost-benefit relationships are included in other chapters as well, especially in the Unit III case reports, but chapter 1.2 brings them together in a concise discussion.
- **Chapter 1.3 Values and Principles of Hybrid-Flexible Course Design** explains the fundamental values and universal principles guiding HyFlex course design. Four principle pillars provide a foundation from which designers can build effecive courses and programs that meet students' needs and implement effective practices.
- **Chapter 1.4 Designing a Hybrid-Flexible Course** explains a

simplified instructional design approach adapted for the HyFlex course context. The design guidance in this chapter is meant to complement and supplement effective design practice already in place and followed by instructors (and design teams) in their single-mode courses.

1.1

Beginnings

Where Does Hybrid-Flexible Come From?

Brian J. Beatty

The Origins of Hybrid-Flexible (HyFlex) Course Design

Surfacing the Need - 2005

The development of the Hybrid-Flexible (HyFlex) course design in the Instructional Technologies (ITEC) graduate program at San Francisco State University was driven by several important institutional, faculty and student factors. Institutional factors include the location, instructional history, and enrollment characteristics of the university. Faculty factors include the capacity and capability to teach online and in the classroom and the motivation to try something new to better serve students. Student factors included the academic interests, technical abilities and time and location constraints/restraints of the current student enrollment. Many of these factors are more fully described in other chapters of this book, specifically in Chapter 1.2. Costs and Benefits for Hybrid-Flexible Courses and Programs, Chapter 2.1. Teaching a Hybrid-Flexible Course (faculty perspective), Chapter 2.2. Learning in a Hybrid-Flexible Course (student

perspective), and Chapter 2.3. Supporting Hybrid-Flexible Courses and Programs (administrative perspective).

We began this journey after a department meeting in the 2005 academic year where we realized that enrollment concerns had to be addressed, and that our successful residential MA program needed to change to attract more students and to provide more participation options for current students. A suggestion was made that we “move the program online” to increase enrollment by opening up access to the instructional program to students who could not attend class in person. As it became clear that we needed an online option in our MA program, we were faced with the significant challenges of 1) no institutional support to build and grow a fully online program, 2) no proven faculty expertise in teaching fully online courses or serving fully online students, and 3) all current students were regionally located and their interest in a fully online program (which in a small program like ours would mean giving up the classroom program) was unknown but not expected to be high. Trying to implement a fully online program within even a few years seemed like an impossible task, given our conditions.

We first looked at what was already being done (and written about) in higher education. Did a course or program design already exist that would meet our needs?

Blended and Hybrid Learning Environments ca. 2006

As it became clear to us that some combination of online and classroom instruction would be needed, we assessed the current understanding of best practice. Blended learning in hybrid courses was well established as a legitimate (and sometimes superior) instructional format in higher education. (Means, Toyama, Murphy, Bakia, & Jones, 2010) As we sought solutions to the problem of needing to serve regional students with online and classroom options that allowed maximum student choice in participation mode, we

searched for methods already being used successfully elsewhere. We wanted to build upon the work of others, even if all we could find was a solid foundation from which we could craft our own design.

Within the blended/hybrid literature, we found excellent design guidance for creating teacher-directed blends or hybrid formats, but nothing that seemed to provide the student-directedness we wanted to provide. Most academic discussion and design guidance for blended and hybrid formats also required students to participate in both classroom and online activities or sessions, so there was no explicit support for students who want or need to be always online or always in the classroom.

- Sands (2002) provides a principle-based approach to designing a hybrid environment that blends classroom and online instruction under the control of the instructor. Students are expected to participate in the specified mode for each activity or lesson as designed by the instructor (or course designer).
- Orey (2002) describes a format that includes both classroom and online (distance) students in the same course sections. These online students typically are always remote and seem to have no opportunity for attending class in person (due to geography rather than teacher control). In this situation, we find more useful guidance for HyFlex, since there are always online students and always classroom students, but there is no discussion or guidance for supporting student choice of participation mode.
- Martyn (2003) describes a hybrid online model which is essentially a traditional classroom with online instructional activities; participation mode directed by the instructor. Like others, the presumption of faculty (or course designer) knowing what is “best” for every student largely ignores individual student factors (schedule or location conflicts) that are often more powerful in controlling participation than is faculty direction.

- Rasmussen (2003) presents an interesting and robust study of student and instructor interaction in a blended learning environment that mixes "always online" students with "always classroom" students. Online students in this case are remotely located and participate synchronously (at the same time) with classroom students. There is no reported flexibility for students to change from one mode to the other from week to week. (No “Flex”.)
- Bonk and Graham (2006) provides a comprehensive handbook of the blended learning landscape in the early 2000’s with many specific cases of localized solutions to challenges which are well-addressed by unique blends of online and face-to-face instruction. Graham (2006) defines blended learning, explains three primary axes of blending and provides a framework of design guidance to support instructors and instructional designers in creating “best” blends for given situations. Like other design guidance, the assumption for most (or perhaps all) situations is that all students will participate in all activities, whether online or in the classroom, presumably leading to effective learning for all.
- Power (2008) represents another direction for blended learning development in the mid-2000’s; blending asynchronous and synchronous instructional modes for online students. This approach, usually called “blended online learning” could potentially provide more “at a distance” flexibility for students but only if the student is given control over their participation (synchronous or asynchronous). Additionally, since this design was developed as a more effective approach than classic video-conference-based distance education for students who are always remote, there is no provision for a classroom learning environment.

Solving our Problem: The Genesis of HyFlex

Clearly, a traditional blended learning approach was not going to meet our requirements. We decided that we needed a “bridge” to online; an approach to serving fully online students without abandoning our current classroom students. (Beatty, 2007a) With minimal college support (one course release for one term), I embarked on the HyFlex journey by adding a simple (yet effective) online student path in one of my traditional courses. (Beatty, 2006) Those early graduate students were enthusiastic design partners for a few terms as we tried new approaches, different technologies, and gathered data about participation patterns and student academic performance. (Beatty, 2007b) Within a year, we started to realize that we were doing something much more than building a bridge to a fully online program, we were in fact building a new type of program, one that used hybrid classes (blending online and classroom participation modes) to provide flexible learning paths and allowed students to decide for themselves which path was “best” for them on a daily or weekly basis.

We needed a name for this approach, and settled on a portmanteau of hybrid and flexible: HyFlex.

There are other systemic organizational drivers that surface additional needs for HyFlex or similar approaches that provide flexibility for student participation. (See the case study chapters in Unit III for examples from other universities.) In the past decade, like many graduate programs in the U.S., many other graduate programs at SF State have been experiencing similar pressure to bolster declining enrollments by attracting new students and retaining current students. Some faculty in other programs (in multiple colleges) have use HyFlex courses to provide additional participation options for students, much like we did with the ITEC program. Within

the academic leadership of the university, there has been growing interest in attracting students from outside our traditional region; HyFlex courses provide the capacity for programs to serve remote students in additional to providing convenience and alternatives to regional students.

Like many institutions, SF State has experienced challenges to maintaining university operations, including the instructional program, during local and regional emergencies such as, transit strikes, electrical outages, building closures, wildfires (and the smoke they generate), and major storms. University leadership has occasionally expressed interest in expanding the use of HyFlex, since for many emergency situations, the online instructional mode may remain operational even when the campus is locally closed, allowing instructional "business" to be continued. To date, however, no substantial strategic business continuity-related implementation effort has been launched.

With the growth of HyFlex at SF State beyond the original ITEC graduate program context, and in synchronicity with an academic senate process establishing high-level policy regarding online education at the university, we developed an official definition of HyFlex courses so that within our institution, we could ensure a consistent understanding of what HyFlex meant to students, faculty, and administrators. (This policy took several years of drafting, discussion, and negotiation. Thankfully, including the HyFlex definition was *not* a controversial aspect.)

> “In a **Hybrid Flexible (HyFlex) Class,** students can choose to attend class either in an assigned face-to-face environment or in an online environment, synchronously or asynchronously. Online technology is primarily used to provide students with flexibility in their choice of educational experience, and to communicate with the

> faculty member inside and outside of office hours." (Original SFSU Academic Senate Policy F12-264)

Four years later, the academic senate subsequently simplified the definition language:

> "**HyFlex courses** are class sessions that allow students to choose whether to attend classes face-to-face or online, synchronously or asynchronously." (SFSU Academic Senate Policy S16-264, available online: https://edtechbooks.org/-pAkt

Other Course Design Formats in the Hybrid-Flexible Genre

There have been others working on similar approaches to combining classroom students and online students; some very similar – even identical – to HyFlex and others with significant differences from HyFlex. In this section, I'll highlight some of the major efforts I am aware of; there are certainly others not represented here. (If you think another effort should be described, please let me know in the comments for this chapter, or by other means.)

Many of these instructional formats were developed during the same timeframe that we were reporting our work with the HyFlex course design, and others came afterward. All use their own branding (name, primarily) for their own purposes, whether or not they were aware of the HyFlex approach at the time. (Note: there are many other cases of faculty and institutions using the term Hybrid-Flexible or HyFlex; just as appropriately. See Appendix A. Bibliography of Hybrid-Flexible Literature for reports from many of these cases.)

Mode-Neutral (2008)

Smith, Reed, and Jones (2008) describe the “Mode Neutral” instructional approach as one in which “progress across modes of delivery at any point throughout their study when their preferences, requirements, personal and professional commitments demand, without compromising their learning experience.” This seems to be another approach that, at least as far as student participation options and control, is the same as HyFlex.

An important distinction between the development (or at least the description) of Mode Neutral compared to HyFlex is the emphasis in Mode Neutral of following a constructivist philosophy in the design and implementation of a course. The emphasis on the constructivist philosophical underpinnings of Mode Neutral sets it apart as unique in important ways. Another interesting difference is the authors’ perspective on the applicability of their conceptual model across the curriculum: “We argue that it is possible to adopt a singular pedagogical approach to educational programmes that is suitable for all learners.” (2008, p. 2) This claim of universal applicability is not something I would ever make for the HyFlex design, nor do I agree with the presumption that one pedagogical approach is (or even can possibly be) suitable for all learners.

Miller (2011) describes the potential for mode-neutral teaching to transform teaching and help students develop transformative leadership abilities. The arguments put forth in this paper about the course format affording opportunity to impact the way students learn, potentially leading to the development of transformative leaders (an apparent goal in the study context of Public Administration) seem very reasonable. (If supporting the development of transformative leaders through the use of innovative course design appeals to you, you may want to read this article.)

This model implements a design that is essentially the same as

HyFlex, though they have branded their approach with their own unique name.

Multi-Access Learning (2009)

Irvine (2009) defines multi-access learning as “a framework for enabling students in both face- to-face and online contexts to personalize learning experiences while engaging as a part of the same course.” As described and defined by Irvine, multi-access learning allows the student to choose how to participate in course activities with respect to mode (online or face-to-face). (Irvine, Code & Richards, 2013)

This model implements a design that is essentially the same as HyFlex, though they have branded their approach with their own unique name.

FlexLearning (2012)

In 2011, the Lehigh Valley Campus of the Pennsylvania State University (PSU-LV) launched the “FlexLearning” program. (McCluskey, Shaffer, Grodziak, & Hove, 2012). The mission of this program was: "Penn State Lehigh Valley will effectively address the various and diverse learning needs of our twenty-first century students through a comprehensive initiative which offers high quality, interactive, and engaging courses in a flexible delivery mode." (2012, p. 4) The core values of this program were to 1) Offer high quality academic courses, 2) Incorporate the benefits of flexible learning modalities, 3) Proactively and innovatively utilize emerging educational technologies, 4) Provide students with options through flexible delivery modes, and 5) Contribute to increased campus enrollment. In their strategic plan for FlexLearning, they begin their definition of the design by describing the experience:

“Consider the option of taking a course either in the traditional face-

to-face, blended or hybrid, or completely online, that is, all these options in one and the same course. A student may even choose to start to take a course in one mode of delivery and later decide to change to a different mode of delivery with no learning deficit.

In such a course, the faculty member designs a course with the learning needs of the students as the primary concern so as to allow students to go from face-to-face to online and vice versa. The faculty member provides course content and activities within an instructional structure that would allow for maximum engagement of student appropriate for both face-to-face and online.

That is what we are calling FlexLearning." (2012, p. 13)

This model implements a design that is essentially the same as HyFlex, though they have branded their approach with their own unique name.

Converged Learning (2012)

Taylor and Newton (2012) describes the development of the "converged learning" instructional approach used at Southern Cross University across multiple campuses in Australia. As their university was designing courses and programs to meet the needs of large populations of both on-campus and distance students, a large team of faculty (39) and designers (10) started designing for both types of students in the same courses – combining online and classroom students and providing student choice in participation mode much like HyFlex. Their report on the institutional change effort that introduced converged learning is highlighted in Chapter 2.5. Evaluating the Impact of Hybrid-Flexible Courses and Programs.

This model implements a design that is essentially the same as HyFlex, though they have branded their approach with their own unique name.

Peirce Fit ® (2014)

The Peirce Fit ® model was developed at Peirce College as a way to allow students to choose between classroom and online participation on a weekly (or session) basis, creating their own “best fit” to meet their own personal schedule and location needs. (Littlefield, 2014; Donovan, 2018; Beatty, Littlefield, Miller, Rhoads, Shaffer, Shurance, & Beers, 2016) The Peirce Fit ® format began as the “FLEX” course design, but changed as the college found success with FLEX and made strategic decisions regarding the scope of the effort, branding the approach, and implementing their Hybrid-Flexible design programmatically. The Peirce Fit ® story and their evaluation of their program’s impact are presented as a case study in Unit III. of this book. (See Chapter 3.1 Fitting Flexibility Across the Curriculum.) The college also provides a comprehensive informational website explaining Peirce Fit ® to potential students and others. See https://www.peirce.edu/fit for more information about this approach.

This model implements a design that is essentially the same as HyFlex, though they have branded their approach with their own unique name.

Multi-Options (2014)

Another approach that seems to be another form of HyFlex is called “Multi-Options”. As described by Edler (2018), “Multi-Options is a teaching methodology that allows students to choose the format in which they will attend class. Weekly, they have the choice of attending the face-to-face session, joining synchronously online, or viewing the class asynchronously online at their convenience. Each choice has its own requirements developed to keep the workload uniform for all students. Advantages include conservation of faculty, avoiding the cancellation of poorly populated classes, promoting student independence, and allowing for maximum student flexibility regarding learning style, scheduling needs, and lifestyle. Although

technological support and changes to the faculty culture are challenges, initial trials have been successful." (p. 110)

This model implements a design that is essentially the same as HyFlex, though they have branded their approach with their own unique name.

Flexibly Accessible Learning Environment (FALE) (2018)

In 2018, the University of Georgia developed an approach to combining online and classroom students that they call "Flexibly Accessible Learning Environment" (FALE). (Hill, Yang, Kim, Oh, Choi, Branch, Lee, & Keisler**,** 2018). Their stated definition (found at https://edtechbooks.org/-PjR is: "Flexibly accessible means that students can attend in one of three modes: face-to-face, synchronous, and asynchronous. Further, students can change how they chose to interact within the course week to week, thus meeting real-time needs and demands of everyday life. Janette Hill." (UGA website, nd.)

This model implements a design that is essentially the same as HyFlex, though they have branded their approach with their own unique name.

Blendflex (2016)

Carol Lee, director of educational technology at Central Georgia Technical College developed an approach to combining online and classroom students with student choice (flexibility) to provide more options supporting student participation and engagement, designed to improve student success in academic programs. (Central Georgia Technical College, nd.; Leiberman, 2018; University Business, 2017) According to Leiberman, the blendflex mode allows face-to-face, synchronous online and asynchronous online experiences that students can choose to attend. They can attend as many or as few

face-to-face sessions as they want, as long as they complete the rest of the course online. Lee confirms this approach: “They can seamlessly at any time during the semester move back and forth within that course delivery.” (Carol Lee, as quoted in Leiberman, 2018)

This model implements a design that is essentially the same as HyFlex, though they have branded their approach with their own unique name.

Comodal (2016)

Teachonline.ca (2017) describes an approach used by Frederic Audet (and others) at Laval University in Quebec City, Canada that allows students three options for participation: 1) attend the live class in person, 2) join the class live (simultaneously) online via a webinar, or 3) listen to the recording of the class on his or her own time. Audet reports “… no differences in learning outcomes or completion rates between the different modes of study on these courses, and found it takes no more lesson preparation time than a traditional lecture, once the system is set up.” (2017) Gobeil-Proulx (2019) uses the term “comodal” to refer to Hybrid-Flexible (HyFlex) courses where the student experience was studied at four different locations of Laval University. “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.” (2019, p. 56) It seems that the authors prefer to use the term “comodal” rather than HyFlex; there seems to be no practical difference in the course design, however.

This model implements a design that is essentially the same as HyFlex, though they have branded their approach with their own unique name.

The following design approaches share many characteristics with HyFlex, but all seem to differ in at least one fundamental way so they are not truly Hybrid-Flexible as we define the term. They are included

here to help us explain the HyFlex design and explore the edges of HyFlex in practice. As well, each approach is certainly a valid instructional design of its own, solving an important local need for some form of multi-mode instruction. The design guidance and research provided in the studies referenced can help HyFlex instructors and designers as well.

Flexible Hybrid (2014)

He, Gajski, Farkas, & Warschauer (2014) use the term “flexible hybrid” to describe their modified hybrid course that includes three different instructional formats: online, hybrid (student controlled), and flipped. Findings from their detailed and comprehensive study of the relationship between student choices of instructional format and corresponding performance factors (exam grades, self-reported perceptions, study effort, etc.) are reviewed in Chapter 2.5 Evaluating the Impact of Hybrid-Flexible Courses and Programs.

Synchronous Learning in Distributed Environments (SLIDE) (2011)

Stewart, Harlow, and DeBacco (2011) report on a project describing research on the student experience in multi-site graduate courses, with some instruction happening with students in the local classroom and others meeting physically elsewhere but connected to the local classroom where the instructor is located. “Classes sometimes met face-to-face in the same physical location; at other times part of the class met physically elsewhere. Yet all were linked through the virtual space. … Most of the interaction occurred between the local and distance learners by way of cultural guides, local students assigned to host a distance learner through Google Video chat. The distance learners were able to receive real-time attention from the instructor and were able to share differing perspectives that contributed to increased satisfaction in the course.” (2011, p. 357)

This design shares some aspects with classic HyFlex, though it seems that students were NOT co-located (regional) so no flexing would be likely (or perhaps even possible). This approach is a good example of the blended synchronous environment described below.

gxLearning (2011)

Verhaart and Hagen-Hall (2012) describe a course design they call "gxLearning" (geographically extended). This paper reports on the use of two forms of distant synchronous connection technologies, room-based video teleconferencing and desktop webconferencing and compares the student experience in each. Day and Verhaart (2016) reports on approximately five years of development research using three case studies of gxLearning with varying technologies, pedagogical approaches and instructional theories applied to each case. Interestingly, one of their major findings is very similar to that reported in initial studies of HyFlex, the importance of high quality audio/video. "In all cases, the quality of the hardware and infrastructure had an impact on the student experience, whether it be lesser computing power, slow internet connection, or under spec'd audio or video equipment." (2016, p. 190).

Blendsync (2011)

Blended Synchronous (Blendsync) learning developed as an approach combining classroom (onground) students and online students with synchronous communication systems; most commonly web conferencing tools. This design tradition is a natural outgrowth of some forms of classic distance education, where remote groups of students were connected to a local group of students with an instructor using a teleconferencing system (VTC). The advent of web conferencing software and the growing ubiquity of high speed network connections allowed for more individual remote connections rather than requiring remote users to be co-located to use an expensive video teleconferencing system and its (often) dedicated

connection.

A major design and research effort launched in Australia and New Zealand in 2011, with the stated goal: “Blended Synchronous Learning (‘BlendSync’) Project sought to investigate how three specific technology-based tools – video conferencing, web conferencing and 3D virtual worlds – could best be used to support activities that engage Higher Education students and teachers in effective real-time learning irrespective of their location.” (Bower, Kennedy, Dalgarno, Lee, & Kenney, 2014, p.12) This multi-year project, involving many faculty and staff from several universities, conducted multiple case studies looking at various aspects of blended synchronous learning environments in practice, in the education setting. (Bower, Kennedy, Dalgarno, Lee, & Kenney, 2015) The project developed the “Blended Synchronous Learning Handbook” (Bower, Kennedy, Dalgarno, Lee, & Kenney, 2014), which defines blended synchronous learning as: “Learning and teaching where remote students participate in face-to-face classes by means of rich-media synchronous technologies such as video conferencing, web conferencing, or virtual worlds.” (2014, p. 11)

Remote Live Participation (RLP) (2018)

Another approach that is very much similar to the blended synchronous online format ahs been called Remote Live Participation. Marquart, Englisher, Tokeida, Samuel, Standlee, and Telfair-Garcia (2018) report on a project combining online and face-to-face students in two course at Columbia University. Their guiding question was “Can online students be fully integrated into residential courses via web conferencing?” In their case report, they share major lessons learned from their initial pilot. Though this approach does combine online and classroom students in the same course sections, like HyFlex does, there doesn’t seem to be any intentional support for students making weekly or session-by-session choices about participation mode. As with other blended synchronous-type formats,

this approach can provide helpful design guidance for those implementing HyFlex courses that include an online synchronous participation option.

Is your Course Design Approach Missing?

In this book, and in our work with Hybrid-Flexible (HyFlex) course designs locally and internationally, we often encounter differing approaches to blending participation formats in various hybrid approaches. At a high level, we constrain our use of the HyFlex label to those that are purposefully designed to 1) combine at least two complete learning paths; classroom and at least one online, and 2) support ongoing student choice (flexibility) among these learning paths. If a design doesn't meet these two basic criteria, we don't consider it to be Hybrid-Flexible no matter what name is used for branding.

We're certain that there are other instructional approaches being used that are similar – perhaps even identical – to the Hybrid-Flexible approaches described in this book. If you know of another effort that should be included, please let me know in the comments for this chapter, or contact be by other means.

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1.2

Costs and Benefits for Hybrid-Flexible Courses and Programs

Is the value worth the effort associated with Hybrid-Flexible course implementation?

Brian J. Beatty

When is implementing a Hybrid-Flexible course worth the cost?

The guiding question for this chapter is one that you or your team will have to answer for yourselves and perhaps for your institution. The Hybrid-Flexible (HyFlex) course design supports student-directed learning in several important ways that most other course formats cannot due to their inflexible approach to student participation. A few of the most important benefits are explained below and in other chapters of this book. Yet these benefits come at a cost; costs borne by students, costs borne by instructors and designers, and costs borne by administrators at institutions choosing to implement HyFlex approaches. Some of the most common and significant costs are explained in this chapter. These and other costs are further explored in other chapters, especially the case reports in Unit III.

The Value of a Student-Directed Hybrid

Why should we consider implementing a student-directed approach to class participation at all? Does shifting to a “student-directed” perspective lead to different outcomes?

Unleash the power of hybrid

The value of hybrid learning formats, in general, has been shown consistently over the past decade or more of educational research in higher education. A recent meta-analysis of 45 studies comparing online learning to face to face learning environments found that, “on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction. (Means, Toyama, Murphy, Bakia, & Jones, 2010) The difference between student outcomes for online and face-to-face classes—measured as the difference between treatment and control means, divided by the pooled standard deviation—was larger in those studies contrasting conditions that blended elements of online and face-to-face instruction with conditions taught entirely face-to-face.” (pg. ix) Two factors that contributed to the superiority of blended (hybrid) instruction over online and face to face instruction were additional learning time and additional instructional elements (resources and activities).

One challenge to the traditional approach to hybrid course design is that the student does not have the freedom to choose how to participate in assigned activities, especially regarding attendance mode, whether online or in-class. Even though the instructor may have carefully designed activities for each mode that are well-suited for that particular mode, students with schedule conflicts, travel difficulties, or other legitimate reasons preventing their in-class participation are often left with no option but to miss those learning opportunities, typically with no alternative. Clearly this is less than ideal, and reduces the power of the hybrid learning environment. In a HyFlex class, the instructor is challenged to design effective learning

experiences for students in both online and in-class modes throughout a course of study. This may remove some instructor design flexibility to require all students to participate fully online or in-class for a particular session, but well-designed instruction can almost always be created for both modes of instruction with additional effort; mostly time, but sometimes additional resources such as interactive or archiving technology solutions are needed. The additional resources provided for online students and the additional time available when the asynchronous online mode is available may directly improve learning for students who take advantage of either or both.

Mandate class attendance

Why put all this effort into supporting students' directing their own hybrid learning experience? Beyond the argument that students may be more able than instructors to make "best mode of participation" decisions for themselves, it may be even more important that HyFlex instruction obliterates common student excuses for non-participation associated with schedule conflicts, travel difficulties, and such. When meaningful and equivalent in-class participation alternatives are "built-in", continuously ready to support learning, and are clearly explained to all students, there is no excuse for "skipping class." In fact, instructors are supported in mandating class participation (attendance) even if an institution does not require attendance in classroom-based classes. A relatively recent (2010) meta-analysis of the impact of class attendance on student grades found a strong relationship between class attendance (in face to face instruction) and both student grades in class and overall GPA. (Crede, Roch & Kieszczynka, 2010) As long as the HyFlex course design implements effective online alternatives to in-class instructional activities, and requires student participation in either mode in each class session, the positive impact of student attendance should be present.

Is implementing a student-directed approach like HyFlex worth it to you? And to your institution? Only you can answer that question for

your specific context, curriculum, students and faculty. As we begin exploring some of the main benefits and costs, you should probably ask this question from a different perspective: Under which conditions is implementing a student-directed approach like HyFlex worth the cost? Do we have those condiitions at our institution, college, department, or in our courses?

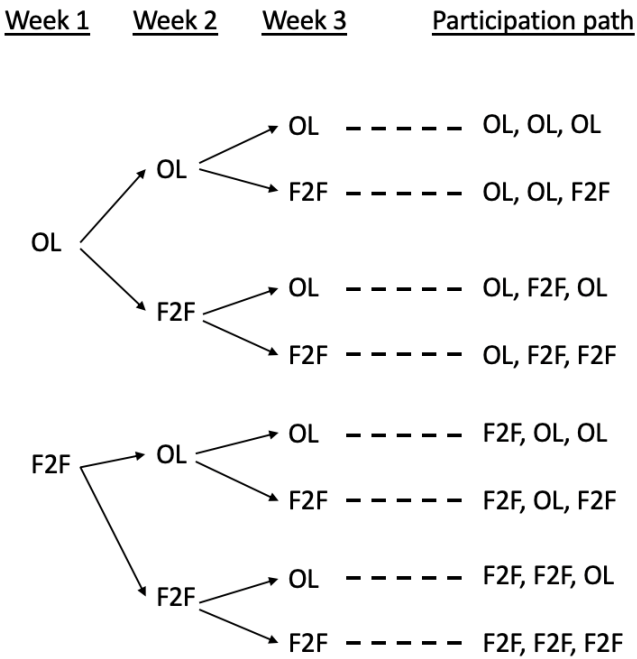
Maximize Learning Path Flexibilty for Students

Another value added to consider is the particular power of providing participation options to support students' unique needs and preferences. It is impossible to predict the "best" participation pattern for any single student, even moreso for a class of 49 students. With a HyFlex design, students have an amazing number of possible participation paths they can follow through a typical class.

For example, if we consider the first three weeks of a class with a classroom (F2F) and a single online option, we see the possible paths shown in Figure 1.2.1.

Figure 1.2.1

Possible Participation Paths for Three Weeks of Two Mode HyFlex



After three weeks, there are eight (2^3) different participation paths available. If we extend this to a 12 week class, we would see **4,096** possible paths (2^12) available to students. If an instructor added in a second online option, and it provided a substantially different experience for students than the other paths, we could repeat this calculation with three weekly options.

Providing a classroom option and two online options (asynchronous and synchronous) leads to **531,441** different possible participation paths (3^12) through the class.

If supporting students in choosing their own "best fit" participation path through a class is important, then the HyFlex approach may be an excellent choice.

Major Benefits

What are the major benefits of HyFlex? Below I've listed several common and significant benefits, organized by the stakeholder who is most closely associated with each.

Benefits to Students

- Increased access to courses:
    - when attending class in person is problematic, and
    - when desired classes are scheduled at the same time
- Schedule control: more control over day to day schedules associated with attending class
- More learning resources: multiple modes of participation often require more robust instructional materials, enabling richer instruction and providing additional opportunities for learning

It's no surprise that students consistently report they have difficulty managing their schedules to meet all the demands on their time: school, work, social, family, commuting. The primary benefit from HyFlex for students is usually reported as the flexible participation requirement supporting them making personal decisions about how best to participate and complete class requirements, many times regardless of their own preference. See Chapter 2.2. Learning in a Hybrid-Flexible Course for a more detailed exploration of the benefits to students. Several case reports in Unit III describe specific student benefits realized in local implementation.

Benefits to Faculty

- Able to serve more students with the same resources (time, instructional materials)
- Develop skills and experience in teaching online without giving up classroom instruction
- Provide a built-in alternative when classroom instruction isn't possible due to scheduling conflicts

Faculty typically report that their ability to better support students who need alternatives to one-size-fits-all instruction is a highly-valued benefit with HyFlex. In addition to the three listed above, some faculty also benefit from the opportunity to conduct their own pedagogical research on HyFlex and value opportunities for subsequent publication of their work within their own academic discipline. See Chapter 2.1. Teaching a Hybrid-Flexible Course for a more detailed exploration of the benefits to faculty. Several case reports in Unit III describe specific faculty benefits addressed during local implementation.

Benefits to Administration/Institution

- Increase overall course enrollment by offering additional schedule and location flexibility to students. When implemented at a large scale, HyFlex may lead to increased per unit course load and reduced time to graduation.
- Increase individual class section (a single instance of a course) enrollment beyond the seat capacity of a physical classroom. When implemented at a large scale, HyFlex may reduce space requirements for expanding enrollment and increase the availability of bottleneck courses.
- Support innovative approaches to instruction that should contribute to greater student success, when done well. This can lead to increased student learning, provide opportunities for faculty research and publication, and create institutional marketing opportunities to external stakeholders.

The bottom line value for most administrators is supporting increased student success by providing more access (and more convenient access) to needed instruction which results in greater rates of course completion and in some cases slightly higher grades. See Chapter 2.3. Supporting Hybrid-Flexible Courses and Programs for a more detailed exploration of the administrative benefits to institutions. Several case reports in Unit III describe specific administrative benefits realized

during local implementation.

Major Costs

What are the major costs to those implementing HyFlex? Below I've listed several common and significant costs associated with HyFlex implementations, organized by associated stakeholder group.

Costs to Students

- Requires personal management related to learning path: decision-making (which way to participate?) and when online is chosen, requires substantial time management skills.
- Personal and technical resources are required to participate in the online version of the course: (most commonly) hardware, network, ability to engage in online learning platforms, and the ability to learn through mediated experiences

The greatest cost, or challenge, to students is almost always the additional effort required to self-manage online participation requirements when in-class participation is not possible or desired. Many students still are not used to managing time effectively, especially when they may have low internal motivation to learn required content in required courses that aren't personally interesting to them. Distractions and non-educational options to spend time continue to proliferate in students' lives, further competing for their cognitive engagement; personal time management is a critical success factor for HyFlex students who choose online participation. See Chapter 2.2. Learning in a Hybrid-Flexible Course for a more detailed exploration of the costs to students. Several case reports in Unit III describe specific student costs (challenges, issues) addressed during local implementation.

Costs to Faculty

- Design and develop a course that supports multiple and

simultaneous modes of student participation, essentially creating both fully face to face and online formats.
- Manage the technical complexity of multi-modal instruction, especially when synchronous participation is supported.
- Administrate the participation of students in varied formats: tracking attendance and participation, practice and assessment activities, and providing interaction and feedback.

Time, time, time… the clear cost to faculty (especially when getting started) with HyFlex is the additional time it takes most to create two learning complete paths through a course in order to fully support both online and in-class participation. Some are compensated for the additional time they spend on course development; many are not, finding ways to rearrange their other work to allow for HyFlex development. Since no one can add time to their day, this is an unavoidable cost. See Chapter 2.1. Teaching a Hybrid-Flexible Course for a more detailed exploration of the costs to faculty. Several case reports in Unit III describe specific faculty costs (challenges, issues) addressed during local implementation.

Costs to Administrators/institution

- Support additional faculty development and workload; formally or informally. This may require additional financial resources.
- Provide technology-equipped classrooms to support online students as well: lecture/discussion capture, synchronous learning platform.
- Enable students to realize the scheduling flexibility value associated with HyFlex; modifications to class scheduling system, student registration system, managing clear communications

Perhaps the most important cost to the administration of an institution embarking on a HyFlex journey is the leadership's willingness to address the range of costs associated with the effort.

Known costs may be substantial and must be met by decision-makers with resource control, but there must also be the commitment to surface, acknowledge and solve issues that arise during initial HyFlex implementation (and quite possibly for years to come) as innovative programs grow and attract more adoption. Though every institution has their own unique approach to academic governance (often shared among stakeholders), the high-level commitment to “do what it takes” to support a HyFlex program is a cost that must be met in order to realize the anticipated benefits to students, faculty and institution broadly. See Chapter 2.3. Supporting Hybrid-Flexible Courses and Programs for a more detailed exploration of the administrative costs to institutions. Several case reports in Unit III describe specific administrative costs (challenges, issues) addressed during local implementation.

Complete a Cost-Benefit Analysis

Before any effort to implement HyFlex is begun, whether for a single course or for an entire program or curriculum, a preliminary cost-benefit analysis has to be completed, either informally or formally. The basic guidance in this chapter should support an initial informal analysis, but when you start designing a specific HyFlex course or program, you’ll find value in following a more formal approach which includes data gathering and analysis and gathering a group of stakeholders for decision-making or establishing buy-in for the effort. This CBA will explain the expected costs and benefits and can include discussion of how the cists will be met and how the benefits will be evaluated. This should support more efficient HyFlex implementation and eventual comprehensive evaluation of the effort.

In Chapter 1.4 Designing a Hybrid-Flexible Course, the initial design stage of conducting this analysis is explained further to assist you in identifying, discussing and assessing opportunities that add new value to your institution (or department/program/course), or solve difficult problems. In addition to consider the positive nature of HyFlex, the

design guidance helps your team assess the expected costs and develop a plan to meet these costs at the start of the project, or agree on an approach to meet those costs over time. Figure 1.2.1 is included here as a sample of the guidance available in Chapter 1.4.

Figure 1.2.1 Assess the Challenges and Opportunities Worksheet

HyFlex Delivery Design Worksheet Template

1. Assess the Challenges (Costs) and Opportunities (Value)

Opportunities: Adding Value		**Solving Problems**	
List the opportunity-related goals:	*Explain how flexible delivery design would allow you to meet this goal.*	*List the problem-solving goals:*	*Explain how flexible delivery design would help meet this goal.*

Challenges: Additional Costs			
Faculty	**Students**	**Technology/Resources**	**Administrative**
List the potential or actual costs to the faculty:	*List the potential or actual costs to the students:*	*List the potential or actual costs associated with resources:*	*List the potential or actual administrative challenges:*

Comments:

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1.3

Values and Principles of Hybrid-Flexible Course Design

Brian J. Beatty

The Hybrid-Flexible (HyFlex) course design delivers a student-directed multi-modal learning experience. Students choose between attending and participating in class sessions in a traditional classroom (or lecture hall) setting or online environment. Online participation is available in synchronous or asynchronous mode; sometimes both and sometimes in only one online mode. When considering whether or not to offer HyFlex classes in a program or institution, it is helpful to understand the values and associated fundamental design principles that undergird the approach many have followed in more than a decade of implementation.

Four values have guided our HyFlex design effort since its beginning in 2006: learner choice, equivalency, reusability, and accessibility. (Beatty, 2007)

Fundamental Values in Hybrid-Flexible Design

- Learner Choice
- Equivalency
- Reusability

- Accessibility

The Instructional Design “Drivetrain”

Why specify fundamental values? Values about learning and instruction help instructors and instructional designers build from a solid and consistent foundation. These values help us develop learning and instructional goals, which then provide strategic direction for the selection of instructional strategies and specific activities to implement the strategies. (Reigeluth, 1983) For example, the value of “learner choice” leads to goals such as, “Students will choose to participate in XYZ learning activity in a classroom setting or in the online [virtual classroom] environment.” That learning goal might lead to an instructional strategy such as “Students are provided a full set of in-class activities and a full set of online activities to choose between for every class session.” At a more granular level, specific learning activities are developed to implement the strategy, such as a plan for interactive collaborative group discussion in a classroom and a corresponding plan for an interactive online discussion exercise for online students. Comprehensive design guidance also includes specific contextual factors that are likely to support effective instruction.

The design “drivetrain” that results starts with values, which drive the instructional or learning goals, which drive the selection of overall instructional strategies, which are implemented by specific instructional activities, selected in conjunction with the consideration of contextual factors. (See Beatty, 2002 for an example of this design planning approach to developing guidance for social interaction online.)

Values --> Goals --> Instructional Strategies --> Activities
all within a specific context; with factors impacting success

The four HyFlex values have guided the development of the HyFlex approach at San Francisco State University (my academic home since 2003) and at many other institutions around the world, exemplified by those represented in the case reports found in Unit III of this volume. I find it more useful to designers to restate the values as universal design principles. Universal design principles should be followed in all implementations of a particular instructional design theory. (Reigeluth, 1983)

Universal Principles for HyFlex Course Design: Four Pillars

The HyFlex course design is built upon four fundamental values: Learner Choice, Equivalency, Reusability, and Accessibility, each with a corresponding guiding, or universal, principle for designers and instructors to follow. These four "pillars" provide a consistent and solid foundation for resulting courses and programs.

[The format for this list is **Value**: *Principle to be followed*]

1. **Learner Choice:** *Provide meaningful alternative participation modes and enable students to choose between participation modes daily, weekly, or topically.*
2. **Equivalency:** *Provide learning activities in all participation modes which lead to equivalent learning outcomes.*
3. **Reusability:** *Utilize artifacts from learning activities in each participation mode as "learning objects' for all students.*

4. **Accessibility:** *Equip students with technology skills and equitable access to all participation modes.*

The Learner Choice Principle

Provide meaningful alternative participation modes and enable students to choose between participation modes daily, weekly, or topically.

The primary reason a HyFlex course design should be considered is to give students a choice in how they complete course activities in any given week (or topic). Without meaningful choice, there is no flexibility … and therefore no HyFlex. Without flexibility all you have is a standard hybrid course. (Not a bad thing, perhaps, but also not HyFlex.) Choosing to implement this principle requires that an instructor value providing participation choice to students more than s/he values forcing everyone into the "best" way of learning a set of content.

The Equivalency Principle

Provide learning activities in all participation modes which lead to equivalent learning outcomes.

All alternative participation modes should lead to equivalent learning. Providing an alternative approach to students which leads to inferior learning "by design" is poor instructional practice and is probably unethical. Equivalency does not imply equality, however. An online learning experience (i.e., asynchronous discussion) may turn out to be much less socially interactive than a classroom based discussion activity. In each case, however, students should be challenged to reflect upon learning content, contribute their developing ideas to the discussion, and interact with the ideas of their peers. Providing equivalent learning experiences in various modes which lead to equivalent learning outcomes may be one of the greatest challenges in the HyFlex approach.

The Reusability Principle

Utilize artifacts from learning activities in each participation mode as "learning objects' for all students.

Many class activities which take place in classrooms can be captured and represented in an online-delivered form for online students. Podcasts, video recordings, discussion transcripts or notes, presentation files and handouts, and other forms of representation of in-class activities can be very useful – both for online students and for classroom students wishing to review after the class session is finished. In a similar way, the activities completed by online students, such as chats, asynchronous discussions, file posting and peer review, etc. can become meaningful learning supports for in-class students as well as provide useful review materials for online students. And indeed, artifacts from some learning activities, such as, glossary entries, bibliographic resource collections, and topical research papers, may become perpetual learning resources for all students in future courses as well. Many of the case reports in Unit III describe specific ways to reuse learning resources.

The Accessibility Principle

Equip students with technology skills and equitable access to all participation modes.

Clearly, alternative participation modes are not valid alternatives if students cannot effectively participate in class activities in one or more modes. If a student is not physically capable of attending class, then in-class participation is not an option for that student. If a student does not have convenient and reliable Internet access, then online participation may not be a realistic option for that student.

Students need the technologies (hardware, software, networks) and skills in using technology in order to make legitimate choices about participation modes. It may be incumbent upon an instructor or academic program to provide resources and extra training to students (and instructors) so that flexible participation is a real option.

Another key aspect of accessibility is the need to make all course materials and activities accessible to and usable for all students. For example, audio or video recordings should include text transcripts or be close-captioned, web pages and learning management systems must be “screen reader friendly”, and all forms of online discussion should meet universal design guidelines for accessibility. (CAST.org, nd.) As more students with varied learning-mode abilities enter graduate programs and public, regulatory and legal pressures for universal design for accessibility increase, this aspect becomes increasingly important.

In my experience, this has also been challenging, and I don’t believe that I’ve been able to implement this principle fully in all cases. Furthermore, it may be that there will always be some inequity in access to alternative participation modes, much like some students learn better verbally (listening to instructions and explanations) and some learn better visually (watching others do or view visual explanation), and some learn better by doing. Of course, other students may never realistically be able to attend class in person if they are located in a distant place or unable to travel to campus. So perhaps this principle is the least likely to be fully implemented in all cases. Even when unattainable for all, full and equitable access is still an important goal to strive to achieve.

When you begin your own design efforts to implement HyFlex courses, if you follow these four guiding principles, you are likely to implement the four core values and provide an effective learning opportunity for all students, no matter where they are lcoated and no matter which path they choose through the course.

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1.4

Designing a Hybrid-Flexible Course

Creating an Effective Learning Environment for All Students

Brian J. Beatty

Hybrid – combines both online and face-to-face teaching and learning activities

Flexible – students may choose whether or not to attend face-to-face sessions … with no "learning deficit"

A Hybrid-Flexible (*HyFlex)* course design enables a flexible participation policy for students, whereby students may choose to attend face-to-face synchronous class sessions in-person (typically in a traditional classroom) or complete course learning activities online without physically attending class. Some HyFlex courses allow for further choice in the online delivery mode, allowing both synchronous and asynchronous participation.

In a HyFlex course, the instructor provides instructional structure, content, and activities to meet the needs of students participating

both in class and online. Activities in each mode often overlap, reusing learning resources, activities, and assessments for all students when possible and practical, but in total, they are typically not the same activities for students in all participation modes. Activities in each mode must lead to be equivalent learning outcomes. No matter which participation format is chosen, teaching and learning activities should ideally:

- Present content effectively and professionally
- Engage learners with generative learning activities
- Use authentic assessment to evaluate student learning

The decision to adopt a HyFlex course design should consider the same factors used to decide whether or not to create a fully online course or a hybrid (or blended) course. Once the decision to deliver all or part of a course in the HyFlex format has been made, there are several important steps that should be completed during the design process (before developing the course) which should help instructors implement an effective HyFlex teaching and learning environment for all students in every participation mode. These steps are not all-inclusive to the course design process; good instructional design practice and a thorough systematic process should still be followed. The steps below are included here to emphasize the unique requirements and challenges of the HyFlex course design.

1. Assess the opportunities (benefits) and challenges (costs).
2. Analyze and confirm or modify expected student learning outcomes.
3. Plan student learning activities (content and interaction).
4. Prepare to assess learning outcomes.
5. Evaluate the return on expectations.

The rest of this chapter explains and provides several worksheets which will help you and your team to design an effective HyFlex course.

Step 1: Assess the Opportunities (Benefits) and Challenges (Costs)

Understanding the “why” of your HyFlex implementation is critical, connecting to many aspects of your effort – explaining your approach to faculty and students, gathering administrator support, and providing a baseline of expectations to compare performance against after implementation. If you don’t start with understanding the “why” question and its answer(s), you will likely end up in a situation where you are asking someone to expend effort or resources without a convincing argument for why they should do so. Chapter 1.2. Costs and Benefits for Hybrid-Flexible Courses and Programs provides more examples of benefits that may be realized ans costs that must be supplied for your effort to be sucessful.

For example:

- Students may ask “Why do I have to choose how to participate? Can’t you just tell me what to do, where to be, and when to be there?”
- Faculty may ask, “Why do I have to teach my regular class on campus and also engage online students?" Or “Why should I offer students the choice of whether or not they attend in person or online?”
- Administrators may ask, “Why should we support additional faculty time for developing another version of an existing course?” or “Why should we change our scheduling approach to allow for students to enroll in overlapping HyFlex classes?”

Opportunities (Benefits)

Planning efforts will begin with one or more opportunities. Common opportunities include:

- Increasing overall course enrollment by offering additional

schedule and location flexibility to serve more students with existing resources.
- Increasing individual class section (a single instance of a course) enrollment beyond the seat capacity of a physical classroom, considering appropriate faculty workload.
- Building faculty capability and capacity for offering online classes in a “safe” environment (i.e., allowing faculty to continue to teach in the classroom while learning to teach the same course online).
- Increasing enrollment through marketing an innovative participation format that demonstrates the institution adapts to its students’ changing needs and wants.

At the detail level, every institution or program will have its own unique set of opportunities, so this step should not be overlooked. Program sponsors (department chairs, deans, provosts, presidents) will all have their own expectations of value return, and only a thorough analysis at the front end of the design process will reveal these so the design can adequately address them and hopefully meet them over time. Unstated, unexplored or misunderstood expectations typically lead to serious problems later on, especially when those expectations are surfaced after the implementation as points used to challenge claims of success by designers and instructors.

Challenges (Costs)

The challenges (costs) of HyFlex implementations impact a variety of stakeholders as well.

- Designers (often the instructor) must design a course that supports effective learning in multiple modes. This may require instructional design support or additional instructor preparation time support.
- Classroom technology teams must be able to equip instructors to capture classroom activity well enough to support online

learners; may also need to support engaged synchronous learners in a classroom delivery environment. This may require academic technology investment and support.
- Instructors must be able to teach effectively in multiple modes, and be able to handle the complexity of teaching students in multiple modes at the same time. This may require professional development resources.
- Administrative systems may have to accommodate flexible student scheduling. For example, if a student is enrolled in a classroom-based course and would like to enroll in a HyFlex course offered at the same time (intending to complete the course as an online student), the scheduling system must allow this possibility. This may require scheduling business process or system changes.

As with opportunities, every institution or program will have its own unique set of nuanced challenges, and all should be surfaced now, rather than later. Even if solutions are not readily available (or even fully understood), it is very important to acknowledge the issues (certain or potential) so work-arounds can be formulated and long-range planning for systemic changes can be initiated when required.

The worksheet below can assist you in identifying, discussing and assessing opportunities that add new value to your institution (or department/program/course), or solve difficult problems. In addition to consider the positive nature of HyFlex, your team must also assess the expected costs and plan to meet them at the start of the project, or agree on an approach to meet those costs over time.

Figure 1.4.1

Assess the Challenges and Opportunities Worksheet

HyFlex Delivery Design Worksheet Template

1. Assess the Challenges (Costs) and Opportunities (Value)

Opportunities: Adding Value		Solving Problems	
List the opportunity-related goals:	*Explain how flexible delivery design would allow you to meet this goal.*	*List the problem-solving goals:*	*Explain how flexible delivery design would help meet this goal.*

Challenges: Additional Costs			
Faculty	**Students**	**Technology/Resources**	**Administrative**
List the potential or actual costs to the faculty:	*List the potential or actual costs to the students:*	*List the potential or actual costs associated with resources:*	*List the potential or actual administrative challenges:*

Comments:

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Step 2: Analyze and Confirm or Modify Expected Student Learning Outcomes

Learning outcomes (goals) not only determine the selection of content, but also guide the selection of specific instructional methods and appropriate measures of instructional outcomes (effectiveness, efficiency, and/or appeal) (Reigeluth, 1999). Derived from fundamental values about learning, such as the formation of learning community, learning goals are specific statements about what the students (or other participants) will ultimately achieve. Goal statements are typically general in nature, for example: Students develop shared meaning of historical texts. Students learn mathematics concepts through dialogic learning processes.

What are your goals for student learning? Or, what are your student learning outcomes?

Can these outcomes be met effectively in all provided student participation modes?

In completing this step, your team should be able to list the student learning outcomes; oftentimes instructors start with their existing classroom-based instructional outcomes. With those identified, the follow-on task is to decide how well each of those outcomes can be met in the online delivery mode(s), and whether or not outcome revisions are needed. In some cases, an outcome that can be effectively met in a classroom should be revised so that it can be met as effectively by students participating online asynchronously and/or synchronously (depending on the planned online mode(s)). For example, an outcome related to developing deep understanding of a concept through face-to-face small group discussions in a classroom may be over-prescribed for the online students. Online synchronous students may be able to meet the same learning outcome in the same small group-discussion manner (though in an online classroom environment), but asynchronous students may not be able to participate effectively in small group discussions (depending greatly on various context factors), so the outcome may need to be revised to remover the activity aspect (participation in a face-to-face small group discussion).

In general, I've found outcomes that include an activity statement to be much less appropriate for HyFlex courses than those focused more on actual student learning. Outcomes that include instructional aspects such as "participation in a face to face small group discussion" are both learning and instructional outcomes. If you are used to writing outcomes like this, you'll find HyFlex design may be more productive if you adapt your practice.

For support in writing effective student learning outcomes, see the

resources provided by the National Institute for Learning Outcomes Assessment (https://edtechbooks.org/-uAJa) (NILOA, nd.); for a detailed discussion of learning outcomes assessment, see Kuh, Ikenberry, Jankowski, Cain, Ewell, Hutchings, & Kinzie, (2015).

Figure 1.4.2

Analyze and Confirm or Modify Expected Student Learning Outcomes Worksheet

HyFlex Delivery Design Worksheet Template

2. Analyze and Confirm or Modify Expected Student Learning Outcomes **Program | Course | Session**

indicate SLO level

Student Learning Outcomes	Validation/Modification/Clarification for Online Participation		
List the current student learning outcomes (or create new ones) for face to face participation:	*Consider whether these outcomes can be met by students participating online rather than face to face.*		
	YES	*NO*	*Modifications/Clarifications needed:*
	YES	*NO*	*Modifications/Clarifications needed:*
	YES	*NO*	*Modifications/Clarifications needed:*
	YES	*NO*	*Modifications/Clarifications needed:*
	YES	*NO*	*Modifications/Clarifications needed:*

Comments:

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Step 3: Plan Student Learning Activities (Content and Interaction)

In order to plan student learning activities, select content and develop interaction paths, it is important to begin with validated learning objectives and associated instructional objectives. The high level goals established by the student learning outcomes ar eused to develop objectives, which are then used to identify content requirements and develop plans and resources for activity and interaction in support of student learning.

An ***objective*** is a description of a performance you want learners to be able to exhibit before you consider them competent. An objective describes an intended ***result*** of instruction, rather than the *process* of instruction itself. It is important to clarify and state your instructional objectives so that the instructional decisions you make are guided by a thorough plan. “If you don't know where you are going, it is difficult to select a suitable means for getting there.” Objectives will help you assess the extent to which your students have achieved the intended learning objectives. Objectives may help you create effective assessment strategies. Many instructors share these objectives with their students. When this is done, students may be better able to measure their own progress toward learning goals. Well-written objectives clearly state what the learner is expected to be able to do, to what level of quality, and under what circumstances the performance (or knowledge) will be undertaken.

In a HyFlex course, *learning* objectives should be the same for all students; specific *instructional* objectives may vary to fit participation mode.

For each major learning goal:

1. What are the specific details about what the student must

know? (content)

2. What (specifically) should the student be able to do? (tasks and skills)

At this stage and in conjunction with planning activities, you should identify content resources for each topic, and for each set of students. In many cases, the exact same resources will work for both sets of students (in-class and online). In some cases, additional content, or alternative content delivery methods must be used for online students.

Learning goals and instructional objectives, whether stated or not, form an important basis for choosing instructional activities. An important part of your task is to choose (or create) specific instructional activities that will help students meet instructional objectives and achieve learning goals. Many of these may rely upon social interaction among the participants, either in the classroom or in an online learning environment.

Instructional methods are simply the answer to the question, "What does the educator 'do' to facilitate student learning?"

Examples of instructional methods include:

- Students work in small groups to complete a joint project that requires communication and file sharing among group members.
- Format course materials and discussion posts so they can be easily downloaded and read off-line.
- Include students from other locations, especially other countries, to engage in dialog about course content.

For each major instructional objective, describe the instructional activities which you will use to help students learn and meet the instructional objective. *Note*: In the HyFlex course, some activities may include both types of student participants. These “overlapping”

activities should be identified explicitly because they may provide additional learning opportunities for students.

For each week or course topic, identify additional supports (resources, social interactivity, technology, etc.) which must be gathered or prepared in order to conduct the teaching and learning session.

To summarize, for each outcome/goal or major objective:

- What activities are required in each mode?
- What additional resources are required in each mode?
- How will activities and resources be facilitated and/or provided to students in each mode?

Figure 1.4.3

Plan Student Learning Activities (Content and Interaction)

HyFlex Delivery Design Worksheet Template

3. Plan Student Learning Activities (Content and Interaction)

Program | Course | Session

indicate activity level

Instructional Goal/Objective 1	*In-class Activity*	*In-class Resources*	*Online Activity*	*Online Resources*
State the goal/objective	*Describe the activity*	*List required resources*	*Describe the activity*	*List required resources*
Instructional Goal/Objective 2	*In-class Activity*	*In-class Resources*	*Online Activity*	*Online Resources*
State the goal/objective	*Describe the activity*	*List required resources*	*Describe the activity*	*List required resources*
Comments:				

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Step 4: Prepare to Assess Learning Outcomes

Assessing student learning is a critical component of all complete instructional designs. Instructors with experience teaching in any delivery mode will be familiar with a variety of assessment techniques and tools, and are likely to be effective in using them to assess learning in their primary instructional delivery mode. The major challenges for learning assessment in a HyFlex course are to 1) develop assessment skills using techniques and tools effective in alternative modes (online synchronous and asynchronous, most commonly), and 2) coordinate assessment practices to avoid challenges associated with assessing learning at different times,

places and perhaps with different methods for students participating in different modes.

Instructors adept at assessing learning the classroom will likely continue to use the same assessment approaches for classroom students as they would in a single-mode classroom-based class. How will assessment of the same learning outcome be carried out with online students? Will slight revisions (timing, format, etc.) be sufficient? Will new approaches be needed?

Many common assessment techniques, such as knowledge-focused tests and quizzes, can be used in all modes of instruction. Timing differences among participation modes might require some revision to alleviate concerns about, and mitigate the likelihood of, student cheating. Using randomized questions from large banks of questions is one approach that may be appropriate. Using test questions that require unique answers from students, such as, asking essay questions requiring individual reflection, connection to personal experience, or analyzing information in some other unique way may be needed. Assessing learning through project reports, individual or group presentations (delivered live or recorded and shared online), and other forms of authentic assessment are often appropriate in all modes of instruction with very little variance needed.

To summarize, for each learning outcome:

- What—exactly—will be assessed?
- How will this assessment be conducted for students in each participation mode?
- What additional issues associated with participation mode (timing, sharing, etc.) may have to be solved or at least considered for this context?

For a through discussion of assessing student learning, see Suskie (2018).

Figure 1.4.4

Assess Learning Outcomes Worksheet

HyFlex Delivery Design Worksheet Template

4. Assess Learning Outcomes

Program | Course | Session
indicate assessment level

Learning Outcome 1	***In-class (F2F) Assessment***	***Online Assessment***
State the learning outcome that will be assessed; not all learning outcomes may be directly assessed.	*Describe the assessment plan for in-class students*	*Describe the assessment plan for online students*
Learning Outcome 2	***In-class (F2F) Assessment***	***Online Assessment***
State the learning outcome	*Describe the assessment plan for in-class students*	*Describe the assessment plan for online students*
Comments:		

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Step 5: Evaluate the Return on Expectations

A rare occurrence in higher education (in my experience, at least) is for an instructor or design team to plan for and carry out a formal "return on expectations" (ROE) evaluation for an innovative course or program delivery design. (For a description of ROE, see Kirkpatrick Partners' explanation at https://edtechbooks.org/-skYu.) Most evaluations rely on anecdotal or "messy" data that usually tell an

incomplete story and are limited in their ability to support effective ROE analysis. Since the HyFlex course design has been selected to meet specific and important institutional/departmental/program or course-level goals, it makes sense that an organization would want to compare performance with expectations to decide if the effort is returning the value anticipated, or if changes are needed, or even if the effort has failed and should be halted. (All three of these outcomes are quite possible.)

If you've done a thorough and accurate job at Step 1 of the recommended HyFlex design process, you should have a reliable set of expected returns (value) statements that you need to plan metrics, analysis and evaluation criteria for now – before you start developing the course materials. If you find you can't plan for effective measurement of any of the expected values, you may need to consider whether or not that value statement is appropriate; it may need to be refined to focus on measurable results. You may also identify requirements for new methods to gather supporting data in order to complete the analysis. For example, a HyFlex course design may need to include student satisfaction surveys apart from the institution's formal student evaluation of teaching effectiveness survey. It is best to identify these needs now, and plan to develop data gathering and measurement instruments as part of the course development process.

Using the expected opportunity (value) statements from Step 1, identify the measure (data) you'll need, the analysis process required, and the evaluation criteria you or your team will use to determine how well that value has been met.

Once the HyFlex implementation has run long enough to generate the required data, then carry out the plan you developed and summarize the results. The governing mechanism overseeing the HyFlex program will then be equipped to make decisions about program success, potential revision or possible cessation.

For a thorough discussion of educational program evaluation, see the U.S. Department of Education report “Education Matters” by Giancola (2014).

Figure 1.4.5

Assess Return on Expectations Worksheet

HyFlex Delivery Design Worksheet Template

5. Assess Return on Expectations (consider both short- and long-term)

Expected Return (Value Expectation)	Measure	Analysis	Evaluation

Comments:

Compare the anticipated value return to the additional costs (actual) - what adjustments are needed?

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Unit II. Implementation and Adoption of Hybrid-Flexible Instruction

Chapters in Unit II explain how to build and deploy Hybrid-Flexible courses with specific focused discussions on the varied experiences and perspectives of major stakeholders: faculty, students, administration, and institution. These chapters discuss many of the detailed issues, experiences and design decisions that must be managed in most Hybrid-Flexible implementations; specific solutions in a variety of cases are explored in Unit III.

- **Chapter 2.1 Teaching a Hybrid-Flexible Course** describes the experience of instructors (faculty) who have taught using a HyFlex approach, focusing on common challenges and successes they've encountered.
- **Chapter 2.2 Learning in a Hybrid-Flexible Course** reports significant and common student experiences associated with learning in a HyFlex environment.
- **Chapter 2.3 Supporting Hybrid-Flexible Courses and Programs** explains many of the administrative factors that accompany HyFlex approaches: scheduling, workload management, logistics and more.
- **Chapter 2.4 Expanding the Implementation of Hybrid-Flexible Courses and Programs** explores the ways institutions have (or might) manage the expanding adoption of the HyFlex approach by instructors and administrators.

- **Chapter 2.5 Evaluating the Impact of Hybrid-Flexible Courses and Programs** reviews some of the research already conducted to assess the value of the HyFlex approach in courses and programs.
    - Supplementing Chapter 2.5 is a bibliography (in Appendix A) of over 50 articles and presentations addressing Hybrid-Flexible-type approaches by any name. This bibliography is continuously revised as new research is published.

2.1

Teaching a Hybrid-Flexible Course

The Faculty Experience in HyFlex

Brian J. Beatty

In Hybrid-Flexible (HyFlex) classes, students are typically given full control over their decisions to participate online or in the classroom. This provides them with the ability to make participation choices based on convenience, learning progress, social interaction preferences, or other factors important to them at the time. Faculty, on the other hand, do not have choices about participation mode, since they have to provide both an online and a classroom experience supporting student learning. This bi-modal approach with student freedom to choose mode is an essential (and perhaps defining) character of a HyFlex design.

What characterizes the faculty experience in HyFlex courses? The specific answer to this question is highly context dependent and varies from person to person and organization to organization at multiple levels. Each implementation of HyFlex experiences its own set of faculty challenges and develops a unique set of solutions to these challenges. In this chapter, I'll describe four aspects of the faculty experience that are commonly raised as important challenges or opportunities that must be met for effective instruction over the

long term. These four include 1) managing a multi-modal learning environment, 2) workload, 3) student-instructor interaction, and 4) assessing learning progression. You can read about other solution sets in the case reports available in Unit III.

Managing a Multi-Modal Learning Environment

In a HyFlex course, both fully online and fully classroom-based instruction is provided. In most institutions, it is a faculty responsibility and right to provide instruction in all formats required to support learning, so in a HyFlex environment, the faculty must be able to provide effective instruction in both classroom and online modes. If the course design includes both synchronous and asynchronous online modes, this may further complicate the faculty experience.

Faculty often have a preferred instructional mode, and it may be appropriate to assume that every experienced faculty member is equipped and resourced to provide instruction in that mode. In most cases, faculty have more experience teaching in the classroom environment than in teaching online, so there may not be much, if anything, that faculty need to change in the classroom to support HyFlex students who are showing up for class in the classroom environment. Many faculty have much less experience teaching online, so more effort may be required to design, develop and facilitate the online mode of instruction in the HyFlex class. Some faculty take on an additional challenge of serving students who participate synchronously and online, creating an environment with three participation modes: classroom, online asynchronous, and online synchronous.

Classroom Instruction

Classroom instruction should be implemented using effective face to face instructional approaches. Several things may change in a HyFlex environment, however. Since students are free to choose their participation mode, the instructor may not know which (or how many) students will show up in the classroom, which complicates planning activities. Our experience has shown relatively consistent participation patterns in single classes, so over time the instructor will be able to better predict student participation. Starting out a new class and planning activities before student participation patterns are established and observed requires a certain amount of agility and flexibility from the instructor. An instructor may need to change the number, size, or components of student groups, for example, if many more or less students show up in class than are expected.

One of the four guiding values/principles of HyFlex is "**Reusability:** Utilize **artifacts** from learning activities in each participation mode as "learning objects' for all students." (See Chapter 1.2 for a full description of fundamental HyFlex values and principles.) In the classroom, the instructor should plan to share all resources used in the classroom with online students. This is usually easy with a Learning Management System (LMS). Additionally, the instructor may want to record and archive the activities of the classroom for students to review later. This requires recording technology, informed consent from students to capture classroom interactions for later review by all students in a class, and skill in using the recording technology to capture and distribute archives. Either an instructor provides the technology and skill themselves, or they use installed technology (web cams, room cams and mics, etc.) or rely on external instructional supports (AV specialists, teaching assistants, etc.) like they would for any technology-supported classroom activity.

A continuous challenge for instructors is ensuring that students are engaged in a single learning community regardless of their

participation mode. Efforts to build a learning community are likely to support the development of a learning community for all students regardless of their participation mode. (See Kim (2000) or Palloff & Pratt (1999) for helpful strategies for building successful online communities.) Regardless of instructional mode, three aspects of high quality teaching are relevant in each delivery mode, and are perhaps most critical in supporting student learning in the fully online asynchronous mode since there is no live faculty engagement to rapidly address emergent (and often individual) student learning support needs. These aspects are 1) providing relevant and meaningful content, 2) engaging students in memorable activities and learning experiences, and 3) assessing learning and adapting instruction to meet student needs; supporting student self-assessment when appropriate.

Online Asynchronous Instruction

Teaching fully online asynchronous students involves a set of tasks and skills that are generally well-understood and researched, with more than three decades of practice to draw upon. There are many excellent resources that describe effective online teaching and best practices of seasoned online instructors (Boettcher & Conrad, 2016; Dabbagh, Marra & Howland, 2018). In HyFlex classes, an instructor may be experienced and highly skilled in teaching online, or may be new to teaching online. In fact, some institutions may use HyFlex course designs as a way to build an online capacity and capability in a previously classroom focused curriculum and faculty. (Beatty, 2007)

Content: Instructional content is delivered via the class LMS, providing informational resources for students in all learning modes. For instruction to all students, best practice includes using multiple forms of representation for content, such as text, video, and audio. Some content may be generated by students themselves (i.e., discussion forum posts). This content should be captured and shared in the LMS for all students, regardless of participation mode.

Engagement: The defining characteristic of asynchronous instruction is the displacement in time between the instructor and the student. Oftentimes there is also geographical displacement, which may influence instructional practice as well. Effective engagement practice includes interaction opportunities for students with content, the instructor, and other students. The most common online learning activity in higher education seems to be the asynchronous discussion forum. There are many creative ways to design and facilitate engaging online discussions; most requiring nothing more than an interesting prompt, and intentional format (debate, roundtable, etc.) and active facilitation. (Bonk & Zhang, 2008; Wright, Szymanski Sunal, & Wilson, 2006) The major challenges for instructors are 1) choosing interesting (to students) discussion formats and topics, 2) managing time in facilitating online discussions and 3) including elements of the asynchronous student activities in the learning experience of synchronous students as well. (See Chapter 2.2. Learning in a Hybrid-Flexible Course for more about connecting online and classroom students.)

Assessment: Assessing learning for asynchronous students is very similar to that for classroom students. Formally graded demonstrations of learning (reports, presentations, exams, quizzes, etc.) are usually exactly the same for all participation modes. (See Osterhoff, Conrad & Ely, 2008 and Conrad & Openo, 2018 for a thorough discussion on assessing learners online.) Informal assessment of learning differs in that the instructor must use the interaction technology (LMS discussions, for example) to determine the asynchronous students' learning state. To do this, the instructor must review everything posted online and should regularly check-in with online students to clarify questions, provide assessment opportunities (discussion forum exchanges, for example). Effective instructional practice in asynchronous discussion forums includes the instructor supporting students' self-assessment of learning, normally informally.

Online Synchronous Instruction

Teaching fully online synchronous students involves a set of tasks and skills that are largely similar to those used in classroom teaching, though they differ significantly in that they are completely mediated through a technology interface. Teaching synchronously online has been growing in popularity and acceptance since the advent of largely ubiquitous high bandwidth networks, easy to use web meeting and webinar software tools, and affordable synchronous classroom environments provided by academic institutions. As there are for asynchronous teaching, there are many excellent resources that describe effective online teaching and best practices of seasoned online synchronous instructors (Finkelstein, 2006; Bower, Kennedy, Dalgarno, Lee, & Kenney, 2014). In HyFlex classes, an instructor may be experienced and highly skilled in teaching synchronously online, or may be new to teaching online with live students. Many experienced and effective classroom instructors find it relatively easy to teach effectively in the online synchronous setting, if they have intuitive, reliable and accessible systems. In the case of an institution (or single faculty member) using HyFlex course designs as a way to build an online capacity and capability in a previously classroom focused curriculum, some find it easier to begin their online delivery with the synchronous online participation mode rather than asynchronous.

Content: Instructional content is often streamed live from the classroom using cameras and microphones. The class LMS is used to provide informational resources for students in all learning modes.

Engagement: Students normally share video and audio from their remote location with instructors and other students in the in-person class. Effective practice includes interaction opportunities for all students, often including polls (quick questions), interactive discussions, and group discussion. The major challenge for instructors is including online synchronous students in every classroom learning activity; expecting, supporting and rewarding fully engaged

participation.

Assessment: Assessing learning for synchronous students may be identical to that for classroom students. Formally graded demonstrations of learning (reports, presentations, exams, quizzes, etc.) are usually exactly the same for all participation modes. Informal assessment of learning differs in that the instructor must have adequate technology to determine the synchronous students' learning state (confusion? clarity? distraction?) and should regularly check-in with online students to allow for quick and responsive assessment. This practice is essentially the same for all synchronous modes (classroom and online) but differs primarily in the requirement that assessing synchronous students is always mediated by technology, and often relies on very small video representations of students and student self-reports of learning state or progress.

Workload

There are several areas of faculty workload that may increase, to varying extent, due to the HyFlex course design and teaching both in-class and online students.

First, developing the course plan and materials itself will take longer than developing the same for a single mode class. If a faculty has experience developing for both modes of instruction already, there aren't many new skills that are needed. The one thing that is new for an experienced faculty such as this is designing ways to support developing a learning community for students who may only participate in one mode or the other, and who may never meet each other in person. This differs from the challenge in a fully online course because of the possibility that fully online students may be treated differently (less interaction, less relationship, less community "feel") than students who meet together in a classroom setting frequently or even just occasionally. Course planning should explicitly support facilitating an active and engaging learning community shared by all

students regardless of participation mode. This planning takes time.

Once the course is developed and materials acquired and deployed to students, the faculty has to manage the delivery of instruction in multiple modes. Teaching in a traditional classroom isn't likely to be a problem for most faculty, since they probably have years of experience in that mode. Teaching the online students, however, may present significant workload challenges as faculty new to teaching online (in whichever online modes have been chosen) may need time to learn new skills and develop expertise using online instructional tools and pedagogy. When the synchronous online mode is available, the instructor will need to manage both the classroom students and the online students at the same time. This is no small challenge for someone starting out with HyFlex! The significance of this challenge itself may support the decision to start with just a few HyFlex sessions in a traditional class or in using just the asynchronous online mode paired with the in-class mode.

Faculty will also be challenged with workload changes associated with having to maintain out-of-class interactions with students who expect in-person support and engagement (often in faculty office hours) and students who require online personal support. Though many faculty live lives that combine online and on-ground modes quite a bit (commerce, meetings, entertainment, etc.), moving their student support and engagement experiences into a blended modality may challenge some, and may require learning new technologies to sufficiently support ongoing learning-related interaction. For some, this may be a significant workload increase. For all, this is likely to require a redistribution of engagement time throughout the working day and week.

Returning Value to Faculty

Time: Are there ways that your institution can provide more time to faculty, either to develop a HyFlex course or to teach one? Or both?

Some institutions offer release time to faculty creating a new HyFlex course (this was my case: one course release for one term) or who offer additional teaching credit for those teaching a HyFlex class. For example, if a faculty receives “extra credit” for teaching a HyFlex class, it may be possible to “bank” these credits to be “cashed in” later. If an extra credit of one-fourth of regular (single-mode) credit is assigned, then after four HyFlex classes, a faculty may be entitled to one course release.

Money: Are there ways your institution can provide financial rewards (money) to faculty to compensate for additional workload? Some institutions may provide an additional stipend (direct payment) or travel/professional development funds for developing a new HyFlex course or for teaching a HyFlex class. Some may even provide more money to those teaching increased numbers of students in a HyFlex class if the enrollment capacity was increased due to the HyFlex format. Amounts vary considerably, as you may imagine. Local policies, practices, and expectations will be most powerful in setting appropriate amounts.

Professional Rewards: Some organizations provide other professional rewards to faculty, such as opportunities for professional growth and recognition. Nominating faculty for national innovative teaching awards, creating local appreciation awards for service to students, positively identifying HyFlex classes in the Class Schedule or program websites, calling out HyFlex faculty in accreditation or other important institution reports, and other approaches have all been used successfully to recognize faculty for the extra work they have put in to meet important goals supported by teaching students in HyFlex classes.

What might work in your case? What do your instructors value? How can you provide that value?

Student-Instructor Interaction

The HyFlex instructor has to manage interactions with students in all modes of instruction. It is never acceptable to abandon a set of students in a particular mode in which the instructor may have weak skills or may not enjoy interacting. Faculty should have effective engagement skills in the classroom, in the online asynchronous environment, and in the online synchronous environment if one is provided to students. Table 2.1.1 provides several examples of differing instructor-student engagement across the three common modes of HyFlex participation.

Professional development for faculty may be directed at any or all of these environments. Some institutions may implement quality assurance programs that require evidence of interaction skills or certification of completing appropriate professional development activities or programs. Most institutions seem to assume instructors are skilled at teacher-student interaction in the classroom environment and don't normally require certification, though professional development for face to face teaching is often available.

Many institutions do provide professional development for online teaching and certification for asynchronous and synchronous online courses. Programs such as Quality Learning and Teaching (QLT - see https://edtechbooks.org/-XVsr), and Quality Matters (see https://www.qualitymatters.org) are used more and more for hybrid as well as fully online courses. An effective approach at some institutions is to include HyFlex classes in these professional development and course certification programs. You do not necessarily need a custom-developed professional development or certification program for HyFlex courses; slight program modifications and acknowledgement of instructional characteristics specific to HyFlex courses may suffice.

Table 2.1.1

Examples of Student-Instructor Interaction in Varied Instructional Modes

	Classroom	**Online Synchronous**	**Online Asynchronous**
Content	Dynamic, interesting presentation of content	Instructor addresses online students similarly to in-class students	Instructor acknowledges online students in class recordings and in recorded messages to asynchronous students
Engagement	Meaningful discussions; collaborative activities involving students and instructor	Instructor engages online students during in-class discussion and group activities	Instructor presence in online discussions is obvious, frequent, and contributes to the conversation over time
Assessment	Ongoing informal assessment of learning during content presentation and activities	Instructor intentionally injects opportunities for interaction to support informal assessment of learning during content presentation and activities	Feedback to students during instructional activities is timely, accurate, and significant (not abbreviated or trivial)

Assessing Learning Progression

Assessing student learning, in general, can be very much the same in all modes of HyFlex instruction. Faculty with experience teaching in the classroom will likely evaluate learning, and the progress of learning, much the same as they have in the past.

Learning progression is also referred to as “formative assessment” or “formative evaluation” in the education literature. “The goal of formative evaluation is the improvement of student motivation and learning.” (McMillan, 2007, pg. 3) In the classroom, learning progression is often assessed informally, with physical and social cues being sent and read by both students and the instructor as content is presented and class activities are in progress. Instructors may interrupt a presentation for a quick quiz (or a “show of hands”), or to ask questions of selected students. (A very many effective practices exist; you have probably experienced dozens of them over the course of your education.) For a thorough description and discussion of various formative evaluation techniques used in the classroom, see Formative Classroom Assessment: Theory into Practice. (McMillan, 2007)

When working with online students, the challenge to instructors is translating the techniques of formative evaluation effective in the classroom into the online instructional environment – in many cases both synchronous and asynchronous. Synchronous online instructional formats often afford many of the same evaluation techniques as those used in the classroom. Spontaneous quizzing, reading facial cues, conducting quick polls, encouraging question and answer sessions, completing “one minute essays” are some of the practices used in the classroom that can work well with online synchronous students. Clearly, there may be additional challenges to the instructor since all of these interactions will now be mediated by technology, and that technology may be limited in its ability to convey meaning through small video windows, imperfect audio, or other challenges. But

overall, many instructors find reasonable approaches supporting their assessment of learning progression with online synchronous students. (Coordinating instructor efforts for both in-class and synchronous students presents the same challenges as those mentioned above.)

It becomes much more difficult for instructors to conduct formative evaluation for asynchronous online learning, though it is far from impossible to do so effectively. For a thorough summary o some of the most common and effective online formative assessment practices, see Gikandi, Morrow, and Davis (2011). In their review of the literature available at the time, they found that "effective online formative assessment can foster a learner and assessment centered focus through formative feedback and enhanced learner engagement with valuable learning experiences." (2011, pg 2333) Practices such as the use of discussion forums, frequent quizzes, and requiring multiple performances of understanding represented in an e-portfolio system are noted as being particularly useful. One meta-practice that many HyFlex instructors use is to design activities supporting formative assessment for all students that meet the specific needs of online asynchronous students. Essentially this creates an online formative assessment approach applied to all students, no matter how they participate in class sessions.

Voices of the Faculty

Several HyFlex faculty from San Francisco State University have provided short video reports of their experience with HyFlex, in their specific context. Their short stories highlight meaningful aspects of their own HyFlex journey.

Jeff Brain: http://youtu.be/PTCS-kbczME (approximately 4 minutes)

Watch on YouTube https://edtechbooks.org/-zRu

Patricia Donohue:
http://youtu.be/B5FTHXA1Vbk (approximately 15 minutes)

Watch on YouTube https://edtechbooks.org/-RXG

The Student Assistant Voice: Supporting Instructors in Using Hyflex

I asked a recent graduate of the SF State ITEC MA program to talk about her experience working with one of our faculty in creating a HyFlex version of his traditional classroom-delivered course. Here is what she said:

“If you want to learn more about Hyflex or get hands-on experience organizing a course in an LMS, a nice way to get started is to work with a professor who has used this approach before. I did this during the Fall 2010 semester, and learned a lot.

To begin, ask your advisor if any instructors are looking for support or

if any classes might benefit from Hyflex adaptation. Not all instructors teach full-time, and not all are interested in learning iLearn (SF State's LMS, a Moodle derivative). Some experienced professors have solid instructional technique and innovative programs, but might not be skillful in using collaboration tools. Because our courses need to meet the needs of students who may be unable to attend classroom sessions, you can help an instructor shape their materials and lead the class in a manner that works for all learners.

Based on my one experience providing Hyflex support to a part-time instructor, here's how I'd suggest you proceed …

1. **SETUP:** Meet with the instructor at least two weeks before the semester begins (several months before would be even better). Review the course materials and discuss how the professor envisions the class. It's important, in this early stage, to have a solid course syllabus and access to most or all of the course content, unless that content will be driven by guest speakers. Determine if any materials need to be converted for online use, or if there are opportunities to improve the materials through changes in instructional media. See if you can help find the most timely online materials, or offer viewpoints that reflect current student expectations about the topics under discussion. Some instructors may worry about content ownership in loading their instructional materials into the LMS; I was glad mine didn't, but if this comes up, discuss it with your advisor.
2. **ASSIGNMENT FLOW:** Next, decide on all the small details of iLearn use. How will the professor present assignments? How will students deliver their work? How will reflection, peer exchanges, and feedback occur? In most cases, instructors will simply post files, and use the forum tool for assignments, but some may want to venture into quizzes and other functionality that iLearn easily supports. When students respond, will they type their responses in the iLearn editor or attach a file? When they attach file, which file formats can the instructor accept?

Does the instructor know how to reply to a post in iLearn, or do they want to reply by commenting directly on printouts? These simple mechanics should be discussed to their smallest detail, because professors may have set expectations and students have iLearn usage preferences. It helps to go over this first with the professor, then in the first class meeting, and modify flow to meet class preferences.

3. **ONLINE DISCUSSION:** An instructor who hasn't presented in Hyflex will need to understand notification, discussion, and reflection in the LMS. You'll want to make sure they understand how to use the email digest, how to comment to the class, and to use email to reply to individual work. They should know in advance that there is no private communication in iLearn. They'll need to understand that when sending a message through iLearn, the list of recipients is omitted (for privacy), so they should begin their message by stating that the message is going to all students in the class.
4. **COLLABORATION AND RECORDING:** During classroom delivery, you'll need to help the instructor start Elluminate (the web conferencing application we use for synchronous training), begin the recording session, and monitor the chat window to give online students an opportunity to participate. If you're lucky, as we were, you'll find a generous and technically inclined student to drive the Elluminate deck, or decide on a rotation among students, so everyone gets hands-on experience with Elluminate. It's extremely helpful if the instructor stands in good reach of the mics, and if the mics are turned off during small group discussions. It would also be helpful to note start times of key events in the class, such as the start of the main presentation, and post those notes on iLearn for use with the Elluminate archive.

In summary, many of us are in Instructional Technology programs because we want to improve distance education. Signing up to be a TA and move a class to Hyflex is a way you can 'act locally, think

globally' and help good instructors broaden their educational reach." Catherine Mone – ITEC 2010

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2.2

Learning in a Hybrid-Flexible Course

The Student Experience in HyFlex Courses

Brian J. Beatty

Hybrid-Flexible course implementations are started because there are important reasons that an institution, college, department, program, or even faculty member wants or needs to teach both online and face to face students in the same class. In many cases, these reasons include providing a better learning experience for students. “Better” could mean many things, including more convenient, more adaptable to schedule needs, richer with more resources and interaction opportunities, requiring more student ownership of participation mode choices, or other aspects valued by a stakeholder: students, faculty, or adminstrators.

This chapter reviews several important aspects of the general student experience in Hybrid-Flexible courses; a more detailed description of specific student experience can be found in Chapter 2.5. Evaluating the Impact of Hybrid-Flexible Course and Programs and in the case report chapters found in Unit III.

Student Responsibility for Learning

Who is responsible for student learning? Is it the teacher? Institution? Is it the student? His or her parents? Other sponsors or campus stakeholders?

We all know the responsibility is shared by all of these parties, to varying degrees and depends greatly on the specific situation for each student. Although this responsibility for learning is shared among all the stakeholders, it's fair to say that in higher education, three stakeholders are most responsible: student (learning control), teacher/instructor (instructional control), and school/program (curriculum control).

One way many instructors fulfill their responsibility is by directing (dictating?) student behavior in ways that they believe should bring about effective learning. They often command students to "read this", "write that", "do this or that activity", etc. The common response by many students at younger ages is to just do what the instructor tells them to do. In basic schooling, this is expected and may be largely appropriate—even necessary—due to the innate naiveté of most young learners. But in higher education, and especially in graduate school, this high level of instructor-control (and the assumption of an instructor holding the majority of responsibility for student learning) may be misguided. Students at this level should be more self-directed and more aware of specific learning strategies that work well for themselves. (Students may find guides such as Barrett, Poe & Spagnola-Doyle (2009) helpful to better understand how best to learn online.) Instructors who value learner-centered rather than the traditional teacher-centered approach to instruction should be more resource-oriented, directing students as much as needed, but no moreso than needed … acting more as coaches than directors. (Reigeluth, Myers, & Lee, 2017)

HyFlex supports this "less-centered" role for the instructor by

providing multiple ways of student participation in course learning activities. The HyFlex course design proscribes nothing about the way multiple perspectives are represented or supported in the specific content and/or activities used in a course, but does encourage a variety of ways that students can access content and complete course activities. When a variety of technologies and approaches are used to participate in learning experiences, it is very likely that alternative presentations of course content and interactions that support learning are used. Variety may be increased because of the nature of delivery. For example, a face to face class discussion is a different experience than a synchronous online discussion, which is a different experience than an asynchronous threaded online discussion.

When alternative learning paths are presented to students, and the students are given control over selecting their alternative, student control of learning is increased. And with increased control goes increased responsibility. HyFlex delivery leads to increased student responsibility for learning.

Are your students ready for that?

Connecting Students through Common Activities and Shared Experience

We know that communities are formed when people with a shared goal are connected to each other as they complete common activities and share meaningful experiences. Learning communities are formed among people trying to learn in order to know and/or to do something they can't do right now. (Praloff & Pratt, 1999; Smith, MacGregor, Matthews, & Gabelnick, 2004) We (faculty) like to think of our classes as learning communities, whether or not any "true" community forms.

In the HyFlex course design I've used, activities connect online and classroom students in meaningful ways, in an effort to support and

encourage the development of meaningful learning community. I believe that a strong sense of community enhances the learning experience on several dimensions—cognitively as more ideas are shared and peers collaborate in developing each others' understanding of content (social construction of knowledge), and socially as students participating in both modes feel more connected to each other, to the course, to the degree program, and (to a lesser extent) to the university. I think this may be especially important to design into a HyFlex course because there could be a significant imbalance in the numbers of students participating in each mode. In an interactive graduate seminar, there may be very few online learners from week to week, and in an undergraduate lecture-driven course there may be few classroom learners from week to week. (See Chapter 2.5. Evaluating the Impact of Hybrid-Flexible Course and Programs and the case reports in Unit III for detailed participation data.)

Shared required reflection discussion posts (in an asynchronous forum) are an important and low maintenance activity that draws students together frequently and regularly in a common experience. Students in a class are essentially a class-bound cohort, and are usually required to move through content, assignments, and other activities together with week to week synchronicity. If online students were allowed to complete course assignments and activities with true "anytime" freedom, this synchronicity might not be present, and that could lessen the development of learning community.

Other important shared experiences include peer-reviews of substantial class assignments and the use of common archives of classroom and online discussions. Peer reviews of ongoing work and the social connections from sharing in a discussion experience (even when reviewing an archive) can both strengthen the learning community. Regular peer reviews of assignments (often written papers) encourage students to give, solicit and receive feedback from peers who may be online or may be meeting together in the

classroom. When assignments are posted to an online space shared by all students, peer reviews that cross participation modes are afforded and may even be encouraged. In a HyFlex course, both online and classroom discussions may be archived for later review. If ongoing online discussions are referenced in live classroom discussions, the natural conceptual and social linkages between the two discussions are strengthened. When classroom student voices are included in recorded discussion archives, students who are working online may recognize their own voice or those of other online peers (if they were part of that particular classroom discussion) and form an additional social connection.

A potential advantage of the HyFlex course design over a purely bi-modal course (where students are either fully online or fully classroom-based all the time) or a typical hybrid course (where the instructor dictates the participation mode for all students) is that students have the freedom (and capability, perhaps) to switch back and forth, so that they can be members of both learning community subgroups and can form close attachments with members of both subgroups if desired.

Discussions Drive Connections among Students

In a HyFlex course, online discussions are a primary means of connecting students who complete class activities online and in-person in the classroom. Though a natural connection point among all students is course content, in general, content itself is not interactive. Students can just as easily read a text, watch a video, or listen to a podcast on their own time in preparation for class, whether they plan to come to a class meeting or participate in online asynchronous activities in any given week. Content resources don’t generally *drive* interaction. Well-designed interaction works with content to generate knowledge in the minds of learners and within the learning community itself.

What *does* drive (enable, facilitate, require) interaction? In the HyFlex courses I teach, the driver is usually an interactive discussion requirement. Students use discussions in at least two ways; as a place for open reflective discourse about their learning process and products, and as a social environment that provides an opportunity to test out ideas, receive feedback, and generally share their developing understanding about course content (asking and answering topical questions).

[Note: Some course designs also use substantial group projects that include students from multiple particpation modes in the same group. This method can work well, but it also may be complicated for students who are not prepared to work alongside both local and remote students.]

Reflection Discussions: A Shared Experience to Connect Students

One assignment commonly used in HyFlex courses both at the graduate and undergraduate level is a weekly contribution to a reflection forum. Here is a sample assignment description for the reflection post, an excerpt from an Introduction to Instructional Design course syllabus:

“Weekly you will post your thoughts about the class, your project and the instructional design field in an ongoing discussion thread. These posts are intended to help you consider questions important to you, and capture your thoughts at selected instances in time. Posts will be viewable by others, though there is no requirement for others to read or reply to anyone else’s posts.” (ITEC 801 Instructional Design Course Syllabus)

The rationale for this reflection assignment is two-fold. First, the instructor wants each student to reflect on and reveal something about their learning process throughout the semester on a regular

basis. The reflective post, with the topic open to whatever each student wants to talk about as long as it is somehow connected to their course experience, provides evidence of their reflection for the instructor to see. A weekly assignment keeps students reflecting on a regular basis. Second, the instructor wants students to be able to read the reflections of their peers without the additional requirement to read and interact (reply) with others. In this way, students are provided their own “soapbox” in a public forum without adding to the already significant interaction work load for the course. The instructor also wants to provide students with the option of replying to others’ reflections if they desire to do so. Interestingly, in classes that have used this activity, it seems that about 5% of the reflection posts elicit replies from other students. And while it is impossible to tell how many reflection posts are read by peers, any modern learning management system (LMS) can generate a daily email summary of all discussion activity (including reflections) and send it to each student and the instructor. LMS logs commonly reveal that many students read the reflection posts of their peers prior to posting their own refection in a given week.

Because all students complete weekly reflection posts and because the assignment is relatively easy to complete quickly (typical posts are 100-200 words—slightly longer than this paragraph), we have found this to be effective in connecting online and classroom students with each other. The weekly reflection activity is itself a common experience shared by all students, and students often discover other shared learning experiences in the anecdotes, questions, and insights shared by their peers in their reflections.

Reflection Posts in Practice – Do They Work?

What do higher education students write about when asked to reflect upon their learning in a course of study? Does the style or substance of their reflections change over time, or when is it made public to others in their course? When we completed an initial study of the

reflections posts assigned to students in one of San Francisco State's graduate programs, we applied qualitative and quantitative analysis measures to student-generated data to understand the significance of using online reflection posts to encourage student reflective practice in a HyFlex course. (Beatty, 2007) The study we completed looked at 300 posts completed by 24 students in one semester. We wanted to know what kind of posts they were writing (social, content-focused, metacognitive, or application oriented), how much they posted, and whether or not their patterns changed over the course of a semester. (Detailed results of this study can be found in Chapter 2.5. Evaluating the Impact of Hybrid-Flexible Course and Programs.)

The context: Students are required to post a reflection (essentially a journal entry) each week to an online forum. Weekly participation accounts for 10% of their course grade. The assignment complements additional topical and application discussion posting requirements for online students and content-focused discussion participation for in-class students. Reflection posts are viewable to course peers; the LMS sends out daily email digest (all posts that day). When asked, most students report reading these email digests. Students have the option of replying to other students' reflection, but are not required to read or reply to others.

Here is a sample student reflection comment about their course experience that references this assignment:

"This term has been a valuable one for me, and this class played no small part in my success. I would have to go out on a limb and say that what I lost in social interaction by attending online was more than made up for by the process of reflection, essays, and blog posts. It is surprising to me the power of being able to record my thoughts for posterity. The intentionality of posting a thought or request is surprisingly effective in directing one's actions and goals. Perhaps it is just as important that these posts were tempered with the knowledge that they were in a public forum and I would be

accountable for my statements. Thank you all for the wonderful semester."

In any semester, we've found that about 90% of students complete most or all of these assigned posts. Some students clearly do not see the value in completing them and choose to sacrifice part of their grade instead of complying (and sacrificing the potential value to their own learning). But most find value in reflecting publicly on their learning.

Topical Discussions: Generative Learning Activities Focused on Course Content

In many higher education courses, especially seminar courses, the instructor facilitates the exploration of a defined body of content and requires students to read a lot of information and make some sense of it, building their knowledge as they go. (Sound familiar?) Many classes require students to complete comprehensive projects throughout the course of study, so at the end of the term, students have learned quite a bit and show what they learned in their project artifacts, various reports assigned by the instructor, and final exams.

After new information has been presented to students, they usually need an intermediate opportunity to develop understanding before they can focus on applying new knowledge to their complex project settings. This is what interactive discussions are for … testing out new ideas and beginning to think about how new information is relevant, similar or different to what is already known, how it fits or doesn't fit within existing mental schema, how it contributes to or detracts from a sense of confidence and satisfaction in learning the content, and so on. Interactive discussions provide a vehicle for generative learning activity, which is critical to learning complex intellectual and cognitive skills. (Lee, Lim, & Grabowski, 2008)

In an interactive HyFlex class, classroom students participate in

weekly discussions about the current course topic. These are often recorded and archived for later review by all students—both online and classroom. Recordings capture more than just content; they also capture information about how students are learning—who is talking (or not)?, what is being said (or not)?, and how are understandings changing?

Online discussions typically take place in an asynchronous forum. Students working online respond to a prepared discussion prompt that asks them to “talk about” course information in a meaningful way—often challenging them to begin to apply new concepts to their project context. Students are required to post their own response, reply to several others, and then to “reply to replies” before the discussion closes after a week. And after a discussion is “closed’ students can continue to read and interact in the forum even though the grading period has ended.

Besides generating learning activity, both online and classroom interactive discussions also generate additional course content. In most discussions, students bring up applications of concepts to situations they’ve experienced or to their current application project(s). Whether online or in the classroom, the resource set of archived discussions from all modes of a HyFlex class represents a substantial amount of learning opportunity for students (and faculty!) that would not be present, or at least not as robust as that in a single mode class.

Effective Practices: Overlapping Discussions

One method of combining classroom and online students that I have found effective is to overlap the two sets of students in a topical discussion. Often, I will use small discussion groups in class to focus on various aspects of a concept or principle we are studying. Those groups will usually create some form of summary to report back to the larger group in a facilitated debriefing discussion. Since we have

access to our LMS in class, the student groups are expected to post their summaries (text, PPT, web links, etc.) to a threaded discussion forum in preparation for the whole class discussion.

When online students are part of our synchronous class, they join in the live small group discussions, either together with other synchronous online students (using our current web conferencing tool) or with one or more classroom students using a local computer workstation (typically a student laptop) to connect. Online students who complete their class activities later that week are required to join in the topical discussion that was started in class. I've found that many classroom students are drawn back into the discussion forum later in the week, in response to the participation of their online colleagues, even though they aren't required to extend their participation beyond the formal class session. Daily LMS summaries of new online discussion posts help bring about this additional participation.

This method provides a richer online discussion environment for asynchronous online students, since they can join in discussions already started, and their classroom colleagues may be more likely to respond to posts connecting to their previous work completed in class. More interaction in the discussion forum throughout the week helps all students stay more closely connected to the class (content and people), because they "see" interaction happening through the regular system messages they receive. Another benefit to the classroom students is that their discussions in class create meaningful artifacts that summarize their thinking and provide an opportunity for ongoing reflection about course content as the discussion extends beyond the end of the class session.

Overall, many instructors find this approach effective and easy to facilitate. The biggest challenge is often integrating live online students into the small group discussions taking place in the classroom, but even that usually becomes quick and efficient with a

little practice and experience (both for the instructor and both sides of the student connection).

If you're an instructor planning to use HyFlex delivery, you may want to design for overlapping discussions.

The Student Voice on HyFlex

I asked one of a San Francisco State University graduate students to talk about her experience as a HyFlex student in several Instructional Technology MA program courses. Here is what she said:

> "As an MA/Ed ITEC student who graduates this month, I'm feeling a sense of grateful surprise that the program wasn't exactly what I'd expected, but was in many ways much more valuable. When I began attending SFSU in August of 2009, I thought I was starting an online program with infrequent face-to-face classes. As an adult learner this suited me; I assumed I'd just power through the coursework. Once in the program, I realized this was not what I'd gotten into. I found myself being offered a full classroom experience, augmented by technology. After grousing for a few weeks about how poorly the technology worked in comparison to the fancy phone-based systems I was accustomed to in the corporate world, then realizing how limited the department's resources were and how willing everyone was to make it work, I settled into learning. I found great value in class time and meeting with peers, many of whom have extremely interesting backgrounds. Within the first semester, I had to confess that I would have missed a lot in an online-only program.
>
> Hyflex, as it's implemented at SFSU, lets an instructor

store their materials in a learning management system (LMS), then present in a typical classroom, but with an online window for students who can't come to class. Our LMS, which we call iLearn, is a custom online application created in Moodle. Think of it as a repository for files, an outliner that assembles those files to align with the course syllabus, and a suite of communication tools—forums and notifications for example—that let you receive assignments, delivery your work, and engage in discussions with your instructor and peers. An important part of the SFSU educational philosophy is personal reflection, and forums allow a natural way to reflect on what you've learned each week. Our classroom collaboration tool is the commercial product Elluminate (www.elluminate.com), a shared whiteboard with recording capabilities. Elluminate lets you attend class from home or another location, which we call synchronous use, or watch the video-taped class later, asynchronously. It's great if you have to travel for work, or drive a long distance to school and don't want to attend in person each week, or simply if you miss a class.

I took the entire ITEC 801 course online, in part just to see what it was like, and I found I could track well with the class and complete all my assignments without attending a single classroom day. Now, did I make the best use of the 801 offering? Perhaps not. But working online suited my independent needs, and I was grateful to have an opportunity to choose.

In retrospect, I have to say that I'm very happy to have chosen a 'hybrid' program rather than a purely distance course. Learners need flexibility, and to me, the Hyflex process provides this, and should be standard for any classroom work that can accommodate this approach.

> But you never want to underestimate what you can learn by being in a classroom with a good professor and others who share your interests. There's an alchemy there that may surprise you."
>
> Catherine Mone – ITEC 2010

More Student Reflections on their HyFlex Experience

A number of years ago, we asked several students to provide us a summary of their perspectives of the HyFlex experience. Click each video to listen to what they said. Each video is approximately 4 minutes long.

Nate Kaufman: http://youtu.be/h60x7Miy9fk

Watch on YouTube https://edtechbooks.org/-bfD

Gustavo Campos: http://youtu.be/0zddgiLVt5Y

Watch on YouTube https://edtechbooks.org/-IxU

Jess Kaufmann: http://youtu.be/jVlzWRXBDyY

Watch on YouTube https://edtechbooks.org/-SZbS

Joel Compton: http://youtu.be/6ExBNhNuTPc

Watch on YouTube https://edtechbooks.org/-jAF

From Students to Students: Tips for Succeeding in a HyFlex Class

We asked three of our students to provide guidance for other students just starting out in a HyFlex class, or considering enrolling in a HyFlex class. Here is what they said.

David Miles: 10 Do's and Don'ts of a Hybrid Course

> Taking classes can be a fairly daunting task when faced with the demands of busy life schedules. Here's a solution, take your courses online. You've tried that but sometimes you just feel left out of the classroom's social

loop. Well have you tried a hybrid solution yet? A hybrid course will allow you to attend your class face-to-face, online or both.

Here are some tips to help you succeed in your hybrid course:

1. Don’t Treat It Like One or the Other

This is a hybrid course so use the benefits of each style of the course even if you’ll be doing primarily one over the other. If you’re going to be primarily a face-to-face student make sure to use the online notes and, course materials and if available the class recordings to accent your own in class notes. If you’ll primarily be taking the course as an online student don’t forget there are real live people in this class to interact with and a live instructor to ask questions to.

2. Do Read the Syllabus

There’s tons of information here. Everything from the instructor’s office hours to course assignments can be found in the syllabus. It’s a quick way to find standard information about the class. So give it a look on or before the first day

of class and give yourself an idea of what you’re about to embark on.

3. Don’t Sit Idly By

Participate, participate, participate. You have to get involved in the class, especially if you’re online. When there’s a class discussion or forum posts by your classmates have a voice and respond. When you’re online

if you don’t speak up people can easily forget that you’re even there. Not being seen by your classmates or instructor can have a negative impact on your grade.

4. Do Get to Know Your Classmates

Everyone who’s asked to share notes in a face-to-face class knows that your classmates can be your best friends. The same applies to those students taking the course primarily online. Classmates can answer question that are unclear to you, catch you up on things you’ve missed and even be a sounding board for you to bounce your thoughts off. Social interaction will also alleviate the feeling of disconnect some students feel with a class solely online.

5. Don’t Forget to Reflect

Many instructors ask students to write reflection papers for each class or week that has gone by for the class. Whatever the time frame of the reflections are, try and do them as they come up. Going back in the end an looking through your notes or revisiting the entire online library for the course to write your reflections can be exhausting and probably won’t look that great to your instructor either.

6. Do Attend A Class (F2F)

Are things getting rough online? Is motivation to keep up with online work getting a little low? Well why not go in to the face-to-face portion of the class. Interaction with real living people in a “normal” classroom setting can be just the

jolt you need to get things going again. It will also give

you chance to meet the people you've been interacting with in your virtual settings, talk with your instructor and get out of the house for a much needed breath of fresh air. See number seven.

7. Don't Get Stuck In Front of Your Computer

Take a break. Schoolwork can get tough if you're spending all your time sitting if front of a computer. Many people opting for more of an online education do so because of work schedules that don't permit for attending classes face-to-face. If you're working on a computer, studying on a computer and playing on a computer chances are you'll need to step away and clear your head and give your eyes a break from staring into the glow of a computer monitor. Hybrid

courses are about having the best of both educational worlds so if you've been spending too much time in front of the computer give face-to-face a try.

8. Do Talk With Your Instructor

One quick and simple way to get a feel for how things are going with any course is to talk with your instructor and hybrid courses are no exception. You'll have quite a number of options to do this. You can chat with them through

emails, in online forums/discussions, in person during regular office hours or in class during normal regular class hours. Instructors can help with any number of topics and should not be shied away from. Don't forget there to help you; instructors' goal is for you to succeed not to fail.

9. Don’t Flake

It’s easy to hide out in both face-to-face and online classes and not get a lot done. A major portion of a successful hybrid class is the interaction between all involved. If you’re distancing yourself from the class it makes it that much harder for everyone else. Make sure when you a lot time to be a part of the course to actually show up and do your best to be a part of the class. Hybrid courses can have group assignments, discussions boards, forums, emails discussions and presentations all of which need every student to be involved to the most effective for everyone.

10. Do Have Fun

You’re taking this class for a reason, whether it is a need for a specific degree program or personal interest; so enjoy the class you’ve chosen to take. Utilize all the available tools of the hybrid structure to make the most of the class. If you’re a face-to-face student opt for a class or two online or pair up with another student that’s primarily online and vice versa if you’re planning on being primarily an online student. Classes you enjoy you’re more likely to participate in, keep up with your assignments and overall do better in the class.

Editor’s Note: David Miles Rayner was a 2007-2008 graduate student in the ITEC MA program at SF State. David completed one HyFlex courses during his program of studies.

Brian Rayner: HyFlex Tips for Success

Do

1. DO plan to attend class when you can.
    a. Peer interaction is invaluable. (They may know things you don't.)

2. DO turn in assignments ASAP regardless.
    a. More time for peer feedback.
    b. Time to revise, means a potentially better grade.

3. DO make sure that you have all the necessary plug-ins for your computer to play the videos or audio files that are recorded during the live class.
4. DO take advantage of the HyFlex environment if you can't drive into the city for class. There is a lot to gain from the online learning opportunity.
    a. After all, this is instructional technology.
5. DO use the online assignments even if you do attend the live class.
6. DO use headphones if possible during online classes.
    a. It helps to minimize the echo.
7. DO try completing online materials during the normally scheduled time.
    a. If you already have the time blocked out, then you'll get it done and won't have to try to fit it into your busy schedule later.
8. DO plan ahead for online classes.
    a. Try to go through all the motions while in the classroom to see how it will work from home.

Don’t

1. DON’T wait till the assignment is due to post it.
    1. You can’t take advantage of peer feedback.
    2. You can’t revise it to get a better grade.
2. DON’T keep your microphone on during online classes if you aren’t speaking.
    1. It creates a lot of feedback and can disrupt the class.
3. DON’T wait to do online work for the night before a scheduled class.
    1. It’s often more work than you think.
4. DON’T try to attend an online class if you aren’t sure about how to use the technology.
    1. Get one of your peers to help you in class first.
    2. It takes away from the real learning opportunity because too much time is spent helping everyone get set up.
5. DON’T let the fact that you aren’t attending the in-person instruction fool you into thinking that it’s ok to procrastinate.
    1. It’ll all pile up before you know it, and you’ll be pulling all-nighters to finish your semester.
6. DON’T be the last to join an online learning session if there are limited seats. (You may find yourself left out.)

General Advice

When trying to determine if attending online is for you, consider how you feel about working on assignments on your own. If you tend to be a loner, then by all means, try an online class assignment day instead of driving to

campus. If you are the type of person who likes meeting new people and sharing ideas with others, then definitely try to attend class in person more. There is a lot to gain from in-class interaction with your peers. Often they have ideas that you may not have heard before, or they can give you valuable feedback to make your project better than it otherwise would have been. (This was definitely the case with my projects.) Others can also potentially ask you questions about your work that helps you to develop it into a more complete work. They may ask questions that you might not have considered, or they can shed light on holes in your theories.

In a HyFlex environment, you get the opportunity to choose whether to attend in person or not. Often if I didn't have the necessary time to drive across town to get to class, I would just listen from home. Or just plan to listen to the

lecture after it is posted. Try the assignments and read the book as though you were attending in person every day. It's easy to forget that you have class when you aren't attending in-person.

When online instruction is given, where it's fully interactive, treat it as you would a corporate conference call.

- Mute when you aren't speaking
- Stay on topic
- Gather your thoughts before you begin speaking
- Don't monopolize the session
- Do take advantage of the technology and share your desktop, or a website that others might really appreciate knowing about.

Editor's Note: Brian Rayner is a 2008 graduate of the ITEC MA program. Brian completed two HyFlex courses during his program of studies.

Kate Miffitt: Tips for Participating in Hybrid Classes

The HyFlex course format affords a lot of flexibility in how you manage your coursework and your schedule. You will find that classmates participate in different ways, with some mostly online, others mostly in-person, and a few who will participate in both formats evenly. Below are some tips geared towards the varying participation styles. Read through them, and think about what approach might work best for you.

Mostly/Only Online

When deciding if you will participate exclusively online, consider your personality in addition to your schedule. Students who work well independently, manage their time, and communicate effectively thrive in the online environment. If you like a lot of feedback and interaction or find the course material challenging, you should consider attending class in-person.

Set a schedule, and stick to it. Because you don't have a face-to-face meeting to prepare for every week, it is easy to procrastinate and put off assignments until the last minute. While you may be able to get by with this approach, ultimately you will find that you cheat yourself out of richer discussions and valuable feedback by not being involved in the class in a timely manner. Set a

realistic schedule of about 8 - 10 hours a week, and then meet your deadlines.

One approach is to designate a day for reading/ working on assignments, a day for participating in discussions, and a day at the end of the week to reply to classmates and revise your posted assignment.

Think quality, not quantity. When participating in discussions, focus on writing quality posts, even if it means you will post fewer times. If you are posting to a discussion that is about a reading for the week, try to write something different than what others are writing, even if you don't necessarily agree with it. Another way to contribute original posts is to relate the reading to an experience you had in the workplace; just be sure to tie your example back to the reading. Playing devil's advocate or highlighting a different point from the reading will keep the discussion fresh and will ultimately benefit all participants. If you are giving feedback to classmates on posted assignments, take the time to really review one or two and give critical feedback. It is more valuable to help one classmate improve his/her

project by giving detailed feedback than it is to tell five classmates "good job", and you will learn more by applying the class concepts thoroughly to other projects.

Get familiar with classmates' projects. It is likely that as the semester progresses, more discussions will relate to giving classmates feedback on their project progress. One way to make it easier to interact with whoever is online

for the week is to have a basic idea of what most of your classmates' projects are about. Remember that early in

the semester, everyone will post a brief project description, which is a good resource to go back to in order to be able to give feedback to different classmates.

Don't wait to ask questions, or ask for help. It is imperative that you be proactive and reach out to classmates or the instructor if you have questions or need help. If you are having trouble with a discussion topic, explain your confusion as clearly as possible so that others can respond. If you are stuck on an assignment, email the professor right away. It is likely that your confusion can be cleared up rather easily, even though it feels like it is just easier to just give up when you are alone.

Mix of Online and Face-to-Face

If you plan to participate face-to-face some weeks and online others, you will be getting the best of both mediums. However, it will require some work on your part to be able to change gears from online to in-class.

Get on a schedule that works for both. If you plan to go back and forth between meeting online and in-class, you will probably find that the deadlines for each are a little different. Because many online students participate on the weekend, they are often posting assignments and discussions after the face-to-face class has met. Therefore, you need to find a working schedule that allows you to be prepared on time for the weeks you attend in-person. That will likely mean posting ahead in the online forums so that you are also on schedule with the face-to-face class.

Be strategic in deciding in-class weeks. The hybrid approach is great in that it allows you to accommodate

things that come up in your schedule (events, illness, etc.) while still participating in class. It is valuable, though, to be strategic in deciding the weeks you will be in-class in advance. If there will be a guest speaker, for example, or if the class will be going over a topic that is particularly challenging, those are good times to prioritize making it to the face-to-face session.

Mostly/Only Face-to-Face Class

Attending face-to-face classes enhances the social experience for many students. Because the class makes use of a robust LMS like iLearn, it is a good idea to think of yourself as an online student who participates in-person. You will still be expected to access course resources and post assignments online.

Check out the online discussions. It is a good idea to skim the online discussions, even if you are not going to participate in them. Keep in mind that classmates participating online have more time to craft responses to weekly topics. While the in-class discussion is likely to be more dynamic, the online discussion is more likely to be thought out and summarize key concepts. Use it as a resource and to potentially get a different perspective on topics.

Get familiar with the online format. Even if you plan to be in class every week, it is likely that you will participate online at least once. Don’t wait until week 9 with a looming deadline to try to figure out how to post. Make sure you know how to use the various online tools and resources.

Editor's Note: Kate Miffitt is a 2007 graduate of the ITEC MA program. Kate completed three HyFlex courses during her program of studies.

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2.3

Supporting Hybrid-Flexible Courses and Programs

The Administrator Experience with HyFlex Courses and Programs

Brian J. Beatty

"Orville and Wilbur Wright became the first in flight because they applied a mechanical principle that followed their collaborative method. The key to keeping a craft in the air they grasped, was not to make it strong and sturdy. On the contrary, it had to be flexible. The plane itself – and the pilot at the controls – must be able to adjust easily and quickly. In the sky, with winds rushing and ever changing, there was no such thing as inherent stability – only a dynamic stability, which, though it might sound like a contradiction, actually had a lot to do with embracing instability."
Shenk (2014) p. 185

The principle of "dynamic stability" may be very appropriate for systems embracing Hybrid-Flexible (HyFlex) courses. In HyFlex classes, students are typically given full control over their decisions to participate online or in the classroom. This provides them with the ability to make participation choices based on convenience, learning progress, social interaction preferences, or other factors important to them at the time. Faculty, on the other hand, do not have choices about participation mode, since they have to provide both an online and a classroom experience supporting student learning. This bi-modal approach with student freedom to choose mode and faculty requirements to provide both modes with equal effectiveness is the essential defining character of a HyFlex design. The instruction

system that results is both dynamic and stable: student faces in class often change from week to week, in-class and online participation numbers may vary considerably, and different activities may be required in various modes, yet a consistent and effective learning experience is expected by students in the classroom and by students online, requiring extensive design work by instructors (and any available design support).

Administrative systems may also need to embrace the principle of dynamic stability in a HyFlex environment; extremely challenging when most administrative systems are designed for inflexible consistency, predictability, and repeatability. HyFlex courses demand some appreciation for, and acceptance of, uncertainty as student participation mode changes from session to session and enrollment in each mode changes each session.

What are common important considerations for administering HyFlex courses? As with the student and faculty experience, the specific answer to this question is highly context dependent and varies from organization to organization, and sometimes from administrator to administrator (department chairs, deans, registrars, etc.). In Chapters 2.1 Teaching a Hybrid-Flexible Course and 2.2. Learning in a Hybrid-Flexible Course, some issues are raised and discussed from the faculty and student perspectives. In this chapter, I'll describe four administrative considerations commonly raised as important challenges or opportunities that must be met for the effective support of HyFlex courses over the long term. These four include 1) deciding to launch HyFlex for an institution, 2) enabling student schedule flexibility, 3) managing workload agreements, and 4) aligning support for students and faculty. You can also read about other administrative concerns and solutions in some of the case reports available in Unit III.

Since almost every institution – even those working within larger university systems – has significant control over local implementations

of administrative systems, policies, and practices, when HyFlex courses are brought into the curriculum decisions must be made about factors such as these four. If you want your implementation to run as smoothly as possible, and to be effective in the long run, gathering administrative decision-makers early in the process to understand HyFlex and the unique support services or combinations of existing services required of all stakeholders is a good idea. Highly recommended!

Deciding to Launch HyFlex for an Institution

The decision to begin offering courses and programs in the HyFlex mode is one that should be made carefully and begin with an analysis of the value expected to be gained, and the feasibility of an institution being able to support the effort. (See Chapter 1.2. Costs and Benefits for Hybrid-Flexible Course and Programs for more discussion on this topic.) Even at the earliest stages of the consideration of the opportunity, it's very likely that some sense of the desired value is known by decision-makers. HyFlex is innovative enough that most administrators aren't likely to seriously consider an implementation like this without some awareness of the compelling challenges or opportunities that need to be addressed. Once one or more compelling value opportunities have been identified, a feasibility analysis will help administrators or other decision-makers make the decision to move forward with HyFlex or not. In some cases, this decision is made by individual instructors, but, even in this case some sort of value expectation and feasibility analysis is performed, though it will likely be informal and may not be well-documented.

Some institutions implement HyFlex programs strategically with substantial high-level investment of effort to develop comprehensive strategic plans. Several of the case reports in Unit III of this book include some discussion of administrative planning at this level. (See

McCluskey, Shaffer, Grodziak, & Hove (2012) for one example of an institutional strategic plan for their approach, branded as "FlexLearning".)

Analyzing the Feasibility of HyFlex

If you are considering using the HyFlex approach in courses or programs, you should certainly complete some sort of feasibility analysis before moving forward with detailed design, development or implementation. Moving forward without understanding the balance of cost to benefit, value to price, advantage to disadvantage, or risk to reward (pick your favorite pair of terms) is shortsighted and may lead to wasted effort if it turns out the returns to the organization or students aren't worth the cost to the instructor or organization.

What questions should your feasibility analysis answer? (For detailed guidance, see Chapter 1.4. Designing a Hybrid-Flexible Course.)

First, you should clearly establish or validate the need to use both types of delivery – online and classroom – in the same class sections. If you find that there is no solid justification for delivering instruction in both modes at the same time, with the same general set of resources, then perhaps HyFlex isn't a good choice. The type of justification needed to move forward depends on the scope of the implementation being considered. The justification for an individual instructor may be quite simple (at minimum, instructor interest or preference) and perhaps that's solid enough for a very limited project. However, if an entire program or institution is considering implementing HyFlex in many (or all) courses, the justification may include a market analysis, thorough literature review, consultation with experts, and the engagement of an instructional design team.

Why might an organization or instructor want to deliver both modes at once? Here are some of the common reasons for moving forward with HyFlex. (See the case reports in Unit III for specific rationale used in

a variety of institutions.)

1. Extend instruction to online students with existing f2f classes. (Expand market? Facilitate greater student access?)
2. Provide a socially interactive 'onground' instructional option for online students.
3. Allow students the flexibility to attend class in person or online, depending on their individual needs and wants (schedule, personality, work/family requirements, etc.).
4. Leverage online resources (archived lectures and other activities) to support unlimited student review of content. Enhance access to various learning styles or language levels through recording and multiple modes of presentation and interaction.
5. Build in capability and capacity for online delivery within an existing traditional instruction environment.
    a. Enable business continuity and/or disaster recovery plans
    b. Respond to changing needs of students and key stakeholder groups

Of course, considering the value that you can expect from HyFlex is only one side of the analysis. You also need to determine how much implementing HyFlex is going to cost various stakeholders. A few key "costs" to consider:

1. Design and development time to create new HyFlex courses, or adapt existing classroom or online courses. (Who pays? Faculty, instructional designers)
2. In the atypical case of implementing a classroom mode in an existing online course (or program), providing physical meeting facilities may be a large cost.
3. Managing faculty requirements
    a. Possibly increased workload (development time/delivery time/possible enrollment cap changes).

    b. Training faculty to teach online (or in class – faculty might benefit from teaching support in both delivery modes).
4. Determining the administration of enrollment and participation requirements (residency, seat-time, etc.).
    a. Will students be “online”, “regular”, or be labeled in some new way?
    b. How will classes be scheduled into rooms? (typically they won’t need seats for the full enrollment)
    c. How will students be scheduled into classes? Will students be allowed to schedule two classes at once, if one or both is delivered in HyFlex mode?
5. Supporting student success through preparation and support in HyFlex.
    a. Time management (scheduling time/place to “attend” class – anytime, anywhere)
    b. Technology mediated instructional environments (LMS, email, etc.) may require additional technical support (24/7?)
    c. Self-regulation (“Am I a good online (or classroom) learner? Should I change modes?”)

Once you’ve looked at both sides of this comparison, you may need to weight various factors to help you decide if and how to proceed with HyFlex. Every situation will have its own set of context factors and weighted variables to consider. In the end, most cases of HyFlex implementation are also cases of organization change and require effective change management strategies. See Chapter 2.4. Expanding the Implementation of Hybrid-Flexible Courses within the Institution for more on change-related factors of implementation.

Defining HyFlex

When the use of HyFlex courses in an institution grows beyond a single instructor in a few courses, and especially when administrative

systems and supports are required and being asked to adapt, it's important for the institution to formally adopt a definition of their version of HyFlex (or local brand name). This increases the local legitimacy of the approach and should accelerate the development of a more stable support system across the institution, and for students, faculty and staff.

A simple definition like this one from San Francisco State may be all that is required.

> ***"HyFlex courses*** *are class sessions that allow students to choose whether to attend classes face-to-face or online, synchronously or asynchronously."* SF State Academic Senate policy S19-264

If your institution wants to further define your official description as way to standardize HyFlex instructional designs (course formats, materials use, activities, and more) further, you may want to do that, though you will also sacrifice an important design component of the academic freedom many faculty exercise and strongly support. You decide!

Enabling Student Scheduling Flexibility

In a HyFlex course, both fully online and fully classroom-based instruction are provided; in many cases students are given the option to attend online in either synchronous or asynchronous modes. In most institutions, it is a faculty responsibility and right to provide instruction in all formats required to support learning, so in a HyFlex environment, the faculty must be able to provide effective instruction in both classroom and online modes.

Supporting Flexibility During Registration

We've found that there are four main ways students register for HyFlex courses that most institutions use: 1) students register for a HyFlex course as they would any classroom-based course (no HyFlex difference), 2) students register in either a fully online or a classroom-based section of the same course – with sections combined (in the scheduling system) into one larger official class section, 3) students register in either a fully online or a classroom-based section of the same course – with sections combined in the LMS to create an "unofficial" larger class section, and 4) institution creates a new HyFlex course type in the registration system to accommodate scheduling flexibility while following the business rules adopted by the institution.

1. No difference

The simplest to administer for many, this approach doesn't require any changes to the way a class section is scheduled within the class scheduling system. In order to reserve the location and time for face to face meetings (both for on-campus room and in students' academic schedules), these classes are scheduled as traditional face to face classes, and students enroll in them expecting that format. Schedule notes, emails from the system or the instructor, and/or information shared in the first class meeting is used to communicate the online participation options available and introduce the students to the HyFlex format. The primary disadvantage of this approach is that students who need a fully online version of this class would not normally register for this class section since they would expect an in-class participation requirement, when the actual class format would allow their fully online attendance.

2. Split a single class section into two smaller registration sections

One way to attract students to both modes (online and face to face) is to split a regularly sized section into two smaller sections, and assign the same instructor to each section. The faculty workload might have to be reduced for each section so that total is the equivalent as one full section (see the Managing Workload Agreements section below for more about faculty workload management). The primary advantage of this approach is that students have maximum visibility of attendance options, though additional communications are needed to explain the HyFlex format with participation flexibility. The primary disadvantage may be the difficulty in balancing the two partial sections to best meet expected student demand, since in some cases more students may be attracted to either the classroom or the online section which might lead to one partial section under enrolled and the other over enrolled or with a long waitlist.

3. Combine two entire sections into a single larger class section after enrollment

A common approach when multiple sections of a single course are offered and a single HyFlex instructor is available to teach more than one section is to combine two normally sized sections into one larger section. In this case, one section is scheduled as traditional face to face (classroom) and one section is scheduled as fully online. This allows students looking for either of these modes to find and enroll in their desired format and then receive the options to participate in the other mode as well, if desired. An additional advantage is that faculty workload may be managed by assigning two identical class sections that can be taught as one single section, saving time and effort associated with some aspects of instruction.

4. Create new HyFlex course type following institution’s HyFlex business rules

Class scheduling systems may have the ability to support adding new class formats that have unique scheduling parameters and that could

support the student schedule flexibility that would be ideal to support HyFlex enrollment. On our campus, we use the scheduling system – unmodified – to treat HyFlex classes as online classes with face to face meeting options; a special form of hybrid class. This allows us to schedule a single class section with full enrollment (and full instructor load factors) that reserves an on-campus room at a scheduled time and alerts students to the option of online participation (either synchronously or asynchronously). We use additional class schedule notes associated with the class section to explain the participation options and flexibility to students.

Sample class note: * Marketing 431 sections 1, 2 and 3 are the same class. Students enrolled in any one of these sections may take it as an online course or as a traditional course.

This “modified business case” use of the existing scheduling system provides most of the administrative scheduling needs of HyFlex and avoids the expense of a formal system modification.

Setting Participation Expectations

Since the primary distinguishing factor among HyFlex participation options is the way students interact while learning, it makes sense to frequently clarify interaction expectations to ensure that all participants know what to expect and can make realistic choices about participation mode. (Note: The design guidance in this section is likely to be most useful for instructors and instructional designers, but it is included in this chapter because administrators may be interested in establishing (and enforcing) design guidelines that include these aspects.)

Class participation and communication protocols and expectations should be explained before students enroll in a course if possible or at least at the very beginning of the course. Many HyFlex courses are listed as traditional courses in the course catalog so students are

likely to know what the in-class expectations are before signing up for a class. Most of our students are well-trained in classroom participation protocols. However, it is unlikely that students will understand the online flexible participation options, however, unless they have taken a HyFlex course before. In some cases, student understanding also depends on the instructor's specific implementation of HyFlex, if it is significantly different than a previous instructor's practice.

Once a class begins, some students will need very specific guidance about how and when to interact online with content, the instructor, and with other students. Instructors should have a detailed explanation of protocols and expectations ready to distribute and available in multiple places as appropriate for their situation. For example, most formal classes will use a syllabus and participation expectations should be included in that document. HyFlex classes will use a course website, and the participation expectations might be highlighted on the main page of the website in some way. Weekly agendas and discussion forum prompts are also excellent places to include specific participation expectations for that week, topic, or activity.

It is also useful to periodically remind all students in a class of the overall participation protocols and expectations during a course. An instructor can observe participation patterns and may sense that participation is deficient in some important way. If this happens, it may be time for a targeted or general reminder about what is required. I've found many students are receptive to those reminders and change their participation practice accordingly.

Regrettably, some students will not change their practice, even if they "appreciate" the value they are missing. This is a problem common to every course I've experienced, unfortunately. In this way, the HyFlex experience is the same as any other course experience; dependent on the volition of students to participate actively.

In summary: Communicate participation expectations clearly, frequently, and in multiple ways that fit the specifics of your instructional situation.

Preventing a “Flex”: The Case of International Students

The value to students and others in being able to participate either online or in the classroom may not be available to all students, all of the time. There may be policies and practices that restrict access to the online participation option for some students, and perhaps just for some of the time. One of the cases that commonly requires a restraint from completing a course fully online is when students with a residency requirement enroll in one or more HyFlex classes at an institution. International students commonly are encumbered with residency requirements that may restrict their access to fully online classes, either completely or as a percentage of their enrollment in any given term. In the United States, these requirements are driven by F-1 visa regulations, and are mandated by federal law.

Example (2019 data; semester campus): The F-1 visa regulations require international students to be enrolled full time (12 units or more) during fall and spring terms, with no more than 3 units coming from enrollment in a fully online class (no required on-campus meetings). International students are allowed to complete as many fully online courses as they want as long as they also have at least 9 units of classes with an in-person participation requirement (this includes traditional hybrid courses, but may not include a fully HyFlex class). These requirements do not completely restrict a student from enrolling in a fully online course (one or more fully online courses are acceptable as long as enough fully face to face courses are also being completed), and don’t restrict the student from completing a hybrid class that requires at least one on-campus meeting during a term.

Enrolling in a HyFlex class could present a problem if 1) the student

has the option of completing all course requirements online (potentially at a distance) and 2) the student is also enrolled in one or more fully online or HyFlex courses at the same time. In a situation like this, the institution might have to require the international student to complete some HyFlex class requirements on campus rather than online. A policy like this would not be difficult to implement on a case-by-case basis, but might be challenging if numbers are large and administrative reporting requirements are extensive. One way an institution could address this issue is to require all international students enrolled in a HyFlex class to attend one on-campus class meeting; perhaps the first class meeting in a term would be a good choice. This approach would include a tracking mechanism for international students to ensure policy compliance, adding an administrative burden for someone on campus. However, if an institution did not want to treat international students differently than all others, and did not want to create another administrative tracking and reporting process for staff, it could decide to require all students to attend the first class meeting on campus (or at some other time in the semester), thus preventing the potential F-1 visa regulation problem. If a national student (not international) could not attend the required on-campus meeting, it may be much simpler to provide an officially approved online alternative for her rather than having to track all international students.

Managing Workload Agreements

In a HyFlex course, both fully online and fully classroom-based instruction are provided by the same instructor. In most institutions, it is a faculty responsibility and right to provide instruction in all formats required to support learning, so in a HyFlex environment, the faculty must be able to provide effective instruction in both classroom and online modes. This can require more work from faculty, and at many institutions this additional work is compensated. In other institutions, faculty are left to self-manage this additional work, and

oftentimes this leads to a simple shifting of work from one area or set of tasks to a different one.

Some institutions provide additional resources to instructors teaching HyFlex classes. Four common supports are:

- **Additional stipend (pay)** for faculty who design, develop and teach a HyFlex course. This seems to range from about $1500 to $5000 depending on scope of effort, type of institution, regular faculty pay amount, and other factors.
- **Course release** for faculty who design, develop and teach a HyFlex course. Often this is offered for the first term a HyFlex course is offered due to the increased workload in creating a fully online version of an existing face to face course. Typically this is a "one course" release (20% release is common).
- **Assigned teaching assistants** (TAs) to help manage the workload of teaching both classroom and online versions of the course. This seems to be highly variable – even within a single institution – and ranges from a single TA in a normal sized class to 10 or more in a mega-section class (1000 students in some cases).
- **Doubling up class sections** – in some institutions when courses offer multiple class sections every term, a faculty member may be assigned to two sections (one online and one face to face) but is able to run these two sections as one large combined HyFlex section. The faculty receives compensation for two classes but (in most cases) has less than a "2X" workload, since only one set of in-class sessions is required, and all instructional materials can serve students in all participation modes with one instance.

In the case reports in Unit III you may find examples of another common compensation approach: The "Unique Local Approach". Every institution has the ability to create their own compensation approach based on the specifics of the situation. Your solution may be

a combination of common approaches listed above or may be uniquely your own. You decide!

Aligning Support for Students and Faculty

In a HyFlex course or program, students and faculty need additional support from the institution in several important areas. Administrators should be prepared to provide this support to ensure learning is not hindered.

Providing Support for Students

What supports do students need when beginning a HyFlex course experience? As with all instructional delivery/course modes, there are several general supports needed, and specific supports depending on the exact implementation approach being used. (See Chapter 2.2. Learning in a Hybrid-Flexible Course for more on the student experience.)

As explained above, students need basic information about their participation options; accurate and simple, easy to understand. Do they have to attend class live and in-person? If so, when? For what purpose? Which online participation options are available to them? How do they access those? It is also useful to explain the various modes and highlight reasons why someone might choose one or another, and – just importantly – why someone should NOT choose one or another mode (especially various online options). Helping students decide which participation mode to use for a given session may be more important for those students with little or no HyFlex experience and those who have been unable or unwilling to choose wisely in previous HyFlex classes.

Another general student support needed is the ability to identify courses in the class schedule available in HyFlex mode and what special arrangements are needed to enroll and participate. For

example, on some campuses for large HyFlex sections scheduled in rooms that cannot meet the full enrollment capacity, students must choose either in-person or online evaluation (testing). If they choose in-person evaluation, they are expected to show up on campus during a scheduled exam time. If they choose online evaluation, they must complete all exams online and are not allowed to complete evaluations in-person, since all in-person seats are reserved for students who registered for them. This allows the institution to manage larger enrollments that exceed room capacity, and to realize one of the key organizational value returns enabled by HyFlex: more students served with the same seating capacity.

Related to participation decisions students must make is clearly identifying the technology required to participate in various modes. Do students need personal response system “clickers” if they attend in person? Do students need other personal technology in the classroom, such as a laptop or tablet computer? Do students need headsets to participate in live online mode? Or are speakers alone good enough? If the synchronous technology used doesn’t allow for student audio input, or they aren’t expected to speak in class – as in many larger lecture classes – students won’t need a working microphone. Do students need special plugins, browsers, or other software applications? Do bandwidth specifications matter? In synchronous modes, especially when video and audio channels are used, bandwidth may be a limiting factor for effective participation.

You may also have special access instructions for using other instructional resources that vary from mode to mode. If you are providing hard copies of readings or handouts in class and you expect online students to access these as well (synchronously in session or asynchronously at any other time), how will they do that? You’ll need to consider copyright requirements, digitizing media, creating accessible documents, and perhaps more. Clearly, the more consistent the use of resources across all modes, the simpler this will be – both for your students and for instructors and designers.

Supporting accessibility with course materials.
Another important aspect of student support is ensuring that the HyFlex guiding principle of “Accessibility” is followed. For most situations, the primary area of accessibility addressed is making all course materials and activities accessible to and usable for all students. For example, audio or video recordings should include text transcripts or be closed-captioned, web pages and learning management systems must be “screen reader friendly”, and all forms of online discussion should meet universal design guidelines for accessibility. (CAST.org, nd.) As more students with varied learning-mode abilities enroll in HyFlex courses and societal, regulatory and legal pressures for universal design for accessibility across the curriculum increase, this aspect becomes increasingly important, and should be designed into the course at the very beginning.

In my experience, this has also been one of the most challenging factors to address, and I don’t believe that I’ve been able to implement this principle comprehensively (every course, all materials, all the time). Meeting the legal and policy requirements of technical accessibility with course materials is not always sufficient to ensure equitable access that leads to equivalent learning outcomes. It may be that there will always be some inequity in access to alternative participation modes, much like some students learn better verbally (listening to instructions and explanations) and some learn better visually (watching others do or view visual explanation), and some learn better by doing. Of course, some students may never realistically be able to attend class in person if they are located in a distant place or have severe time constraints preventing in-person attendance. So perhaps this principle is the most difficult and least likely to be fully implemented; however, full and equitable access is still an important goal.

Providing Faculty Support

As faculty consider using HyFlex approaches in their teaching, what

support do they need? (See Chapter 2.1. Teaching a Hybrid-Flexible Course for more on the faculty experience.)

We've seen the most significant need for faculty support in learning how to teach effectively online, which includes designing engaging online content and interactive experiences for students in all participation modes. Because the HyFlex faculty isn't giving up the traditional teaching environment (in the classroom, normally), s/he can continue to work in that context, which is normally a strength. For many faculty new to HyFlex, the main challenge is learning to teach online effectively, especially developing skills in interacting with online learners through various internet communication technologies (ICT). Presenting information is not normally a new challenge, especially with the extensive use of digital media files, presentation notes, and lecture capture solutions that become easier to use each year.

Many universities have developed robust training programs for faculty who want to transition to teaching online or in a hybrid class. Two examples are those at the University of Wisconsin – Milwaukee (visit their Faculty development for Hybrid Courses resources at https://edtechbooks.org/-eIf and the University of Central Florida (visit their faculty development for teaching online resources at https://cdl.ucf.edu/teach/). A key component of any effective program, it seems, is to have the faculty experience learning as an online (or hybrid) student as they learn how to teach in that environment. Since many faculty still have no experience learning in an online class, or have had only poor (non-interactive) experiences in online classes, this is an important step. Interaction makes the biggest difference in offering quality online experiences to students. As open courseware and open educational resources become more widespread and expand in scope, quality information (content) is even easier to find than before. Interaction with qualified and engaged faculty experts remains the real "value-add" of a university class.

In a HyFlex course, when both online and traditional students are engaged in the same learning environment, the faculty has an opportunity to leverage the efforts and interactions of students in both modes to support and enhance the learning of all students. Online forum participation can become an opportunity for traditional student interaction as well. Interactions in the classroom can be made immediately available to live online students or can be archived for review by asynchronous online students and connected to a forum discussion for ongoing engaged learning. Common forum assignments for all students can be used to draw students together in shared discussions throughout a course. (See Chapter 2.2. Learning in a Hybrid-Flexible Course for a broader discussion of student engagement in common discussion forums.) With new and emerging technologies designed to support ubiquitous social connection and interaction, the opportunities for learning interactions are limited primarily by the creativity and the amount of time available of the faculty.

If motivated and engaged faculty are provided with good design ideas, usable technology, positive experiences both learning and teaching online, and an ongoing community to support their development as HyFlex instructors, they can do this successfully.

Technology Change Leads to Shifting Expectations

As faculty, students and administers develop some experience with HyFlex courses, their expectations may change about what is considered acceptable in terms of teaching and learning support and in terms of the “return” realized by the institution. This is a natural process which should be expected, though it does inject more change into the instructional system which may reveal new areas of [potential] conflict, and requires more effort during ongoing program implementation and the evaluation of impact.

One area of expectation change is focused on technology support for

various delivery modes. As newer (and better?) technologies become available or existing technologies evolve over time, original technology functions may be enhanced and new functions may become available. For example, the Learning Management System (LMS) may add a survey (or polling) function. As faculty and students begin using the survey function and find value in completing surveys, training for newer faculty will likely adapt to include the technical and pedagogical use of LMS surveys. Faculty who have been using the LMS to support instruction without the survey may feel pressure (coming from within themselves or their programs or from the outside) to begin using surveys also. (After all, shouldn't we all be using "best practices" as early as possible?) Redesigning class activities to include surveys, whether delivered in-class or online, means change, and change requires additional effort. Effort uses resources, and therefore encumbers cost. Is the returned value with the additional cost? That's the key question the stakeholders (designers, faculty, administration) should answer.

Another area of expectation change is focused on the student digital experience. Even over the past decade that we've been using HyFlex, we've seen remarkable shifts in the "learning techscape." Pervasive mobile communications technologies, ubiquitous use of video and multimedia, and the prosumer (producer-consumer) aspects of social media being used in instruction more and more are examples of technology developments that lead to changing expectations. Whether initiated by student requests ("Hey, how come we aren't using Instagram or Twitter for this course?") or faculty interest ("I just discovered Glogster and we're going to start using it the rest of the semester!"), adding new technologies makes everyone involved change their practice, and change requires additional effort. Effort uses resources, and therefore encumbers cost. Is the returned value with the additional cost? As I stated above, that's the key question the stakeholders should answer.

Even administrators inject change through shifting expectations. Let's

consider the situation of “scale creep.” Assume for a moment that a traditional classroom-based course is limited to 35 students because only 35 students can fit in the classroom. If a HyFlex delivery approach was used, and the pedagogy (instructional approach) allowed for more students, then the enrollment capactity could be expanded to accommodate a larger number of students since some students would likely particpate online each session. Keep in mind that if the course is designed such that one faculty could not manage the increased workload of reading papers or grading exams, etc., then expanding the number of students would NOT be a good idea, even with HyFlex. If the course is successful with the additional number of students (let’s say a total of 50, for example), an administration under extreme budgetary duress might decide to “bump up” the course enrollment by an additional 10 percent, to 55 students. Doesn’t that sound reasonable? It may be reasonable, or it may not… that’s not really the point I’m trying to make. A change in seat capacity, even a relatively small change of five students, injects change – to both the faculty and student experience. Change requires additional effort. Effort uses resources, and therefore encumbers cost. Is the returned value with the additional cost? Yet again, that’s the key question the stakeholders should answer.

I think it is safe to say that in every healthy organization, quite a bit of change happens over time. HyFlex designers, instructors and yes, even administrators (!) should be prepared to adapt their approaches to accommodate and leverage the changes happening around them. After all, if you are involved in a HyFlex implementation, you are a change agent yourself. Since you are “doing change” to others, you should be willing to “accept change” in return. Improving our effectiveness demands it, in fact.

A Bonus Administrative Consideration - Supporting Business Continuity

What Happens When the University Cannot Host Classes? (A faculty short story…)

[Note: This short story was written by a HyFlex faculty shortly after a weather-related campus closure event a few years ago. The same scenario has played out several times in the ensuing years.]

Emergency notification received: campus has been closed due to loss of power from the storm.

What is a faculty to do? If you have a HyFlex class, you can simply require all your students to meet online for that session. This works well if they all have network access, the tools and ability to participate in the online mode, and the time to do so. In our graduate program, it's never been a problem.

We had occasion to do this on a recent night of classes after our university lost most electric power for several hours. An hour before our graduate courses were scheduled to begin for that evening, all classes were canceled. Because I am using the HyFlex design in the courses I teach, all I had to do was send an email to my students telling them to complete their participation requirements online (and asynchronous) for that week. Because the online option was already prepared for those students who were going to choose to participate that way already, I didn't have to create a single new resource or activity … the online course materials and activities were already there!

I'm sure being forced into the online asynchronous mode was not convenient or simple for some students, but it was better than missing out on up to 10% of the content of their course. Graduate students, perhaps more than many undergraduates, often want to get as much as possible from their course experiences, since they are often paying dearly, in time and other resources.

There was still some difficulty, since while the campus power was off

our locally-hosted LMS was off line, so students couldn't immediately access course materials during the regularly scheduled class time. With a little schedule accommodation for quizzes and such, all were able to complete the participation requirements later during the week.

It's nice when things work out well, even when unplanned events drive a change in plans. And in our geography (San Francisco Bay Area), being able to recover quickly from an unplanned event (such as a major earthquake) that could close our campus for days or weeks is very important.

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2.4

Expanding the Implementation of Hybrid-Flexible Courses and Programs

Encouraging the Adoption of HyFlex within the Institution

Brian J. Beatty

"Diffusion is the process by which (1) an *innovation* (2) is *communicated* through certain *channels* (3) over *time* (4) among the members of a *social system*."
Rogers (2003) pg 11.

Expanding the Reach of HyFlex within the Faculty Social System

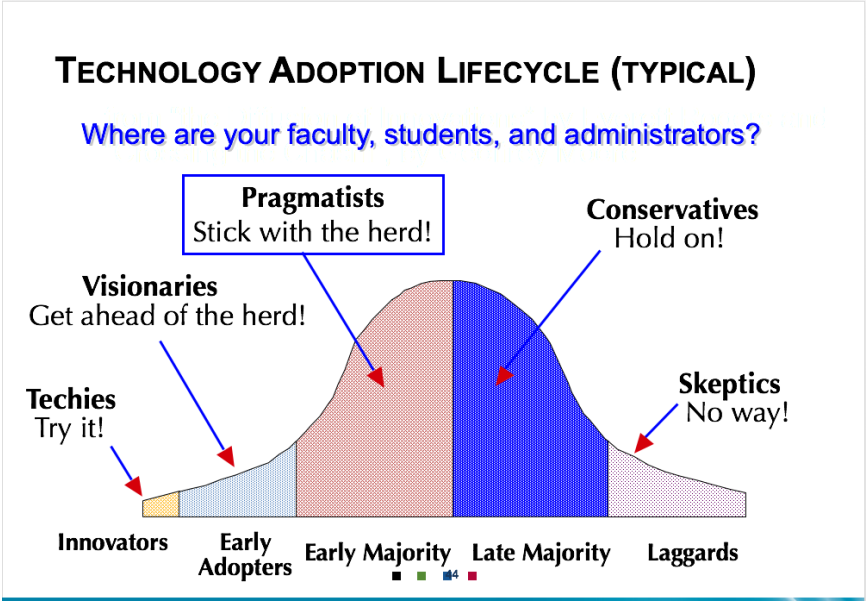
Note: *I advocate the HyFlex delivery approach for faculty and students in courses or disciplines where there is a need to provide both online and classroom participation options to students and where instruction can be effective in both classroom and online modes. This discussion is targeted at situations where HyFlex delivery makes good sense, solving important problems or leveraging some significant new*

opportunity.

If HyFlex course delivery makes sense for a particular context, it usually begins with individual faculty who are personally motivated and energized to try this approach to meet important goals associated with delivery mode. When we started this in the mid-2000's, we felt the need to maintain a quality classroom program and add the ability to extend learning opportunities to students participating remotely - in time or geography. (See Chapter 1.1 Beginnings for more of our HyFlex origin story.) In the language used in innovation diffusion discussions, our initial faculty would be "first adopters" in their social system. (Rogers, 2003) In the language of the diffusion of high technology (developed by Geoffrey Moore and the Chasm Group), these faculty would be "Visionaries", willing to take on significant risk for some big advantage or to solve a major problem. (Moore, 1991)

Figure 1

Categories of Innovation Adopters: The Technology Adoption Lifecycle



When HyFlex works with an initial faculty or course, it is natural to look for additional faculty and/or courses that it could also work well with, in order to increase the value returned to the larger organizational system. In our case, this initial expansion took place within other graduate seminar courses within our own academic program (Instructional Technologies at San Francisco State University). Furthermore, several other programs within our larger university community took notice of our success with HyFlex and developed their own implementation programs for HyFlex delivery to help solve their own specific contextualized needs; commonly needs to increase graduation rates and lower the average time to degree among our students (especially undergraduates).

In typical efforts to further diffusion into an academic organization, some faculty (and students and administrators) will not be willing or able to put as many personal resources (time, energy, etc.) into trying this new approach. Rogers (2003) found that people in a social system

considering adopting an innovative practice consider the characteristics of the innovation, such as, 1) how well will it work for them, 2) the advantages it provides, and 3) how difficult it will be to adopt. Those considering adoption also rely on their peers for recommendations and information about changing their practice.

Rogers' Four Main Elements in the Diffusion of Innovations process (2003)

1. The Innovation
    a. Relative advantage
    b. Compatibility
    c. Complexity
    d. Trialability
    e. Observability
2. Communication Channels
    a. Interpersonal channels
    b. Heterophily - membership in diverse groups (enabling the cross-pollination of ideas)
3. Time
    a. Innovation decision process
    b. Adopter categories
4. A Social System
    a. Social structure
    b. System norms
    c. Opinion leaders and change agents
    d. Decision types
    e. Consequences

Educational institutions and communities of scholars are fundamentally human social systems. Quite often (almost always) Hyflex delivery is an innovative idea requiring substantial changes to important aspects of the system, such as, perspective of the role of the teacher, giving control of participation decisions to students, requiring more instructional resources and administrative support,

and more. Because of these characteristics, implementing HyFlex beyond the initial adopters is characterized by many of these typical “diffusion of innovations” elements, so understanding the Diffusion of Innovations perspective’s concepts and principles is important. If you are interested in supporting or encouraging faculty adoption of HyFlex delivery, you’ll need to patiently work within these same parameters.

Below I’ll explain a few of these elements I have found particularly helpful in understanding HyFlex adoption and I’ll suggest some concrete strategies you might use with various types of adopters.

Table 1

Categories of Diffusion Groups

Category - classic	Category - (high technology)	Defining Description
First Adopters	Innovators (Techies)	Developers or discoverers of innovative practices; always looking for a new way to do something, sometimes even better!
Early Adopters	Visionaries	Sponsors of initial projects; in higher education, these are often Program Coordinators, Department Chairs, Deans, Provosts. These people often have resources (budget, policy interpretation) to support innovation.
Early Majority	Pragmatists	Faculty in Departments using or considering HyFlex for one or more courses. Looking for something that works to meaningfully and reliably improve practice.
Late Majority	Conservatives (the herd)	Faculty in programs initiating HyFlex in many courses, or administrators in an institution moving toward HyFlex on a large scale. Sometimes participates in the innovation to avoid being left behind.
Laggards	Skeptics	Resistant faculty or administrators in programs that have adopted HyFlex completely. Not willing to change practice for any reason.

Accelerate Adoption: Communicate within and among Faculty Peer Groups

It takes more than just a good idea to bring about change, especially with the majority of faculty. Communication about, around and within a new idea is just as important as the good idea itself. When HyFlex delivery is applied in the right situations, it is a good idea. When HyFlex is implemented thoughtfully, it becomes approachable even to

pragmatic faculty. But that's not enough to facilitate widespread change.

The majority of faculty are pragmatic or conservative when it comes to their beliefs and practices of teaching and learning. Change doesn't come easy, and new ideas are not naturally attractive to most. Most faculty (including myself) are comfortable with their own teaching, believe that most of their students are learning effectively (or at least adequately), and that there is no compelling reason to change. Fortunately, as faculty are exposed to more data about their own students' performance and the equity gaps in performance among major groups of students in their classes and institutions, many are becoming more willing to try new approaches to better engage students in the learning process. When faculty are willing to change, to try something new, communication with other faculty is a key factor we should be ready to facilitate and leverage to support adoption.

Peer-based communication. Who do pragmatic or conservative faculty listen to? Where do they hear about new ideas that they'll listen to and consider for their own practice? Whether in faculty meetings, informal discussions about teaching methods, or through reading professional journals and participating in conferences, faculty listen to their peers. Peers can be trusted in ways that others cannot. Faculty may not be ready to listen to the great ideas of technology support staff if they don't closely identify with that group. Faculty may not listen to the ideas coming from members of the administration if they don't trust them. Faculty may not listen to other faculty teaching in another discipline (or even another academic department) if they believe there are significant differences in content, students, or delivery context between them. Overall, if the faculty is content with the status quo, they may not be willing to consider any other teaching approach, even one that promises significant improvement, unless they hear about it from a highly trusted peer.

Well-connected faculty are key players. Faculty who belong to multiple peer groups are valuable connectors. If one of these faculty adopt HyFlex, the effect may be multiplied as they communicate within and across several distinct peer groups. Faculty who are effective connectors may include those with multiple academic appointments, those with strong connections in their professional organizations and who communicate new ideas regularly at conferences, in publications, or through blogs. Faculty with administrative duties (in addition to teaching) may also be valuable connectors, since they may have peers that can become visionary sponsors in other groups.

Why change? Pragmatic faculty change their practice when they see a groundswell of support and evidence of success in a new practice. When many of their peers adopt a new practice, pragmatic faculty tend to go along with the crowd. Conservative faculty change their practice when it becomes harder to continue with their old ways than it is to adopt an innovation. In the case of Hyflex delivery, if students and other key stakeholders (administrators, research funders, etc.) start requesting flexible delivery options – because they want the real value they see elsewhere – it may become hard to resist.

Communicating as a Change Agent: Leverage the Characteristics of HyFlex for Specific Contexts

Faculty in the majority segments of an adoption population are generally willing to accept less risk in a “change” situation than are the early adopters in the same social system. Many faculty are pragmatists when it comes to curriculum design and delivery modes. Generally, pragmatists make decisions to change only when they see evidence of clear and accessible advantage in an innovative practice and when the change isn’t “too” difficult. Pragmatists often change in groups, preferring to stick with the practices of their influential peers rather strike out on their own. This is very different than faculty first adopters, who are often willing to be the first ones to change because

they like being ahead in some meaningful way – they want the benefit of the change more than they want the stability of maintaining the status quo.

Specific strategies that may help pragmatic faculty decide to adopt HyFlex delivery include:

1. **Highlight advantages.** Clarify the specific advantage that the HyFlex approach will provide. Connect the results of HyFlex with issues that the faculty care about and recognize as issues worth solving or opportunities worth pursuing.
2. **Take small steps.** Develop a HyFlex model that begins with current successful delivery methods and expands only as much as needed to serve the "new" students. Do not ask faculty to give up what they do well now to teach in a new way. (*Keep the strength, enhance with the new*.) You might have faculty teaching online who are now able to accommodate classroom students as well. If this is your case, what will you need to add to your existing online course to make it work for classroom students as well? More likely, you'll have faculty who are teaching courses in classrooms who will now teach online students as well. What do they have to add, at a minimum, to serve those students adequately? Beginning with new practices that are close to the existing delivery will make it easier for faculty to change. "Adequate" practices can be enhanced over time … but if a "gold standard" of HyFlex delivery is required to even begin teaching a new way, the barrier to adoption will be very high for most pragmatic faculty.
3. **Make success visible and valuable.** Publicize initial successful efforts in ways that faculty value. When faculty hear about colleagues who have found success and are recognized for that, adoption from pragmatists may be more likely. Sometimes the advantages may not be readily noticed
4. **Provide a trial period.** Allow for "tryouts" of the new delivery approach. Select a few courses and faculty for an initial pilot of

HyFlex, and make sure they are free to return to their previous (single mode) delivery method if it doesn't work out for them or their students.

To review, when working with faculty considering adoption, leverage the characteristics of the HyFlex approach itself. What are its clear advantages? How compatible it is with current practice? How complex is it compared to what is being done now? How much commitment is needed to begin teaching with HyFlex? How visible are the advantages? As a change agent, you can make a difference and speed adoption *when and where it makes sense*.

Working with First Adopters – The "Techies"

The first people in your organization to adopt an innovative practice like HyFlex would fall into the "First Adopter" (or "Innovator") category of the classic Diffusion of Innovations model. In the world of technology, we might call these people "Techies." (You may want to read Crossing the Chasm, by Geoffrey Moore for a good translation of Rogers' work into the high-technology field, which has strong ties to the use of technology in education.) Techies are usually willing to try any new technology, teaching practice, or both (in the HyFlex case) because it is interesting to them. They may not have any specific goal in mind or severe problem to solve. They are interested primarily in doing new things, in being on the cutting edge of a field, in being "first to market" - to use a business cliche.

Risk is often not much of a consideration for first adopters. They'll accept huge risk of something not working out, because they have experienced many failures over time with their new ventures. "Nothing risked, nothing gained" might be a common mantra in this group. They don't typically have much formal power in an organization, but even so, they play a crucial role in the diffusion of innovation process. They act as the eyes and ears – the inputs or open doors – for new practices that *might* become valuable to the

organization over time.

A growing organization needs first adopters to find and bring in new technologies and teaching practices so that they can be tried out and evaluated for potential (or even immediate) value. Without first adopters, change doesn't happen nearly as quickly, because people in the other adoption groups have more invested in the status quo, have more to lose when change is considered, and are more risk-averse.

In our organization, the first adopters were a mix of academic and information technology staff and a few faculty members. The first adopters were involved in EDUCAUSE, AECT, DETCHE, and other academic technology-focused organizations in order to bring new ideas to our larger organization and (perhaps) provide an initial assessment of value. If first adopters find a good idea or tool, one of their primary roles is to hand it off to someone in the next adoption group – the Early Adopters. If the innovative tool or practice stays within the First Adopter family, it goes nowhere within the larger organization and adds no substantial value over time.

Early Adopters: Providing Initiative and Support for the First Value-driven Implementations

If an innovation is going to continue on the adoption lifecycle it must move on to the next group, the "Early Adopters." Early adopters look to first adopters for ideas, technologies, and practices that are likely to work in helping them overcome problems and/or take advantage of new opportunities. They are willing to accept a significant amount of risk of failure if the promise of value is correspondingly high. In "The Chasm Companion", this group is called "Visionaries," and rightfully so. (Moore, 1991) It takes a certain amount of vision for a future that is different (better!) than today to take a chance on an unproven practice.

First adopters can only take a new practice so far; they typically do not have the opportunity or authority to implement a new practice in

any significant way. Visionaries, on the other hand, are able to initiate (sponsor) and implement an innovation that makes a difference in some part of the organization that they have influence within. Visionaries want change with a specific purpose in mind, while techies are more interested in change because it is new. How much risk will a visionary accept? That varies according to the amount of return expected. Visionaries typically keep a “big picture” perspective, and that often leads to radical shifts in practice to meet significant challenges.

In the case of HyFlex, faculty members or members of the administration may play the role of early adopters, or visionaries. An individual faculty member may recognize the need for his or her own students to have more flexible attendance options, and consult with the academic technology (or faculty development) staff on ways to redesign a course to allow for more student options. Often new technologies or teaching practices are part of the solution, and the techies on the faculty support staff are the ones who make them available and troubleshoot problems when they inevitably arise.

Mid-level managers, such as program coordinators or department chairs, may see the opportunity to expand a program’s reach using distance learning methods, but may not have the people, technology, or time resources needed to create and support a fully online, fully staffed program. HyFlex courses can be an effective bridge to an online program, so management may create incentives and an encouraging climate to support the HyFlex innovation.

High-level management (deans, provosts, presidents) may see the need to increase graduation rates or overall student success, and recognize that HyFlex courses may be a vehicle to do so. Offering substantial archived materials (content, discussions, activities), options for attendance that accommodate busy lives, and more student control over learning process, HyFlex courses should contribute to increased student success: higher graduation rates and

shorter time to graduation.

If your role is that of a change agent, look for visionaries in your organization. Analyze their organizational pain and opportunities for gain and consider the possible advantages of HyFlex delivery. Visionary projects are often highly contextualized, so take the time to co-develop a solution that meets their specific needs and realizes maximum value for them. You'll need these people and their success stories to move forward into the next large adoption group, the "Early Majority." If you can energize high level sponsors in supporting your adoption effort, you may find amazing receptiveness in larger, more pragmatic groups such as the faculty at large.

Early Majority: Pragmatists Travel Together to Shift their Practice

The adoption of an innovative practice within a social system begins with the initial "discovery" or development of a new way to do things that adds value to an organization. The "First Adopters" fulfill the role of explorers, finding new ways to carry out the core practices of the organization. But those savvy explorers aren't a large segment of the eventual adoption population, and the innovative practice must move on to the next group, the "Early Adopters" who develop visionary projects and find significant value in using the innovation to meet goals, alleviate significant roadblocks to change and performance, in whatever way the organization values. But still, the early adopters do not make up a very large segment of the organization. And in higher education, they are usually removed from the most powerful controlling role –the faculty. The vast majority of potential adopters (faculty) is grouped into the next two categories, the "Early Majority and the "Late Majority."

Early Majority adopters are willing to assume a small amount of risk in order to achieve the gains they see some of their peers (who have been involved in visionary projects) enjoying. Early majority adopters

are largely pragmatists; they're generally comfortable with the way they carry out their business now, and aren't exactly looking for new practices … but they will listen to a new idea if they can see evidence of its value in believable and relevant ways.

Crossing the Chasm: A particular challenge in moving an innovation into this segment is that many pragmatic people don't automatically trust the visionaries in the early adopter group, and may not be willing to try out a new practice without convincing evidence of its veracity. They are risk-averse. As a change agent, your task is to develop evidence that members of this group will readily accept, to help them cross the "chasm" dividing the visionaries' optimistic perspective of all the wonderful value ready to be realized and the pragmatists' distrust of someone telling them they aren't as effective as they can be, and that they need to change and accept someone else's approach to instruction. Now, that can be a very difficult task, especially if you target the entire early majority group (all faculty) at once. You are much more likely to have success if you segment the early majority group into smaller groups that you (and the visionaries) can more readily persuade to adopt the new practice. When you have a successful implementation with a small sub-group of the larger early adoption group (for example, a specific academic program or set of influential faculty), find another sub-group that will believe the evidence from the initial sub-group's experience. And so on … . In "Crossing the Chasm," Geoffrey Moore calls this the "bowling alley" approach. (1991)

The key is to recognize that your faculty will not just jump at an innovative practice because someone, even someone with a high formal position, says, "this is a good idea and we should try it." This group waits until they see evidence that the innovation is likely to work for them, and they hear that message from people *whom they trust*.

Applying this to HyFlex courses, identify the people in the early

majority group in your organization. On most campuses, this will be a mix of faculty, administrators and students. However, I would argue that faculty are the most influential segment you should address. Most faculty are comfortable with their teaching and their students' learning, and see no great need to change their practice in a [potentially] disruptive way. So why try HyFlex? Remember, members of this group are pragmatists – they need to see the value and believe that it can be successful for them, too. So, find cases of HyFlex working in situations that are similar to their own – in your own instruction or in a peer-group institution, and where the value realized would be appreciated as well.

For example, if a program wants an online program without giving up a successful face to face program, then show them evidence of a program that was able to do both at once using HyFlex. If a program wants to alleviate scheduling bottlenecks for students, show them evidence of how HyFlex participation options would allow students to enroll in two or more courses that are scheduled to meet at the same time, and participate in each course (in varying modes, of course) each week. If the great need is for more review materials for students so they can perform better on learning assessments, show them how HyFlex delivery can lead to archives of face to face interactions (discussions) and online discussions which can be rich sources of content for later review at a time and place most convenient to students.

As you think about the various groups of potential adopters in your context, I hope you are beginning to appreciate one of the "big ideas" of being a change agent stated earlier: The message to various groups of people should vary in its content, timing, and channel(s) of communication. Pragmatists respond to different claims, supported by different evidence, and carrying a lesser amount of risk than do visionaries.

Late Majority: Conservatives are Finally Convinced of the Need to Change

The second, and last, majority group in most social organizations to adopt an innovation is called the "Late Majority." You've probably heard the term "better late than never," and that perfectly describes this group's adoption timing.

Late majority adopters are often the more conservative people in the organization, at least when it comes to the innovation being considered. Members of this group are often heavily invested in the status quo practice and are very reluctant to change. They may be extremely risk averse, too. Conservatives don't generally trust the early adopters, and may only slightly more trust the pragmatists in the early majority.

"Why should I change? What I've been doing [for the past many years] has worked and still works. I don't want to do things differently. It may be good for others, but I'd prefer to keep doing things the same way, thank you very much!"

Does it matter than a new practice is showing advantages and adding value to the organization in other areas? Probably not initially, but as the pressure to change increases (for valid reasons), members of this group may be persuaded to give up their staunch opposition and "get with the program." Conservatives often begin to consider change when the pain, or disadvantage(s) of not changing becomes more severe and impacts their performance in ways that they care about. If there is no acknowledged and meaningful reason to change, they won't. Your challenge as a change agent is to acknowledge their resistance to change (often due to fear of the unknown), continuously communicate the real advantages to change (assuming there are meaningful advantages), and highlight the negative consequences of not changing – maintaining the status quo. When the risk of staying put becomes more of a threat to them than the risk of changing

practice, they'll begin to change.

Clearly, not every innovation makes it into or through this group of people. Reaching this group can take a lot of time and energy. And if the innovation doesn't add enough agreed-upon value, or remaining the same doesn't entail meaningful loss (felt organizational pain), then this group will probably never change. If that's ok in your organization, don't waste your time convincing this group. A few may trickle into the new practice as they begin to trust and desire the advantages their peers in the early majority are realizing.

How does this apply to implementing a HyFlex course design in a program? Institutions that have been serving students with traditional classroom-based courses are probably well staffed with conservatives when it comes to course delivery modes. At San Francisco State, where I currently teach, I've met many. As I've shared the HyFlex "innovation" at faculty meetings, gatherings of department chairs, and in other conversations, there is almost always a large subset of hearers that reply with, "I'd never teach that way – I like seeing all of my students each week in class so I can be sure they're learning." They often also add, "I like teaching in front of real people, not to a computer!" [Note: These conservative attitudes with large segments of faculty have been consistent over more than a decade of our local implementation.]

My response is typically to reassure them that I am not suggesting that the HyFlex delivery is right for all situations (students, content, program, and especially faculty), and that if there is some clear need for the flexibility that HyFlex offers, then it should be considered. The people I really want to spend time helping with HyFlex implementation plans, at this stage, are the "visionaries" who see a real opportunity for relieving pain: helping students learn better, graduating students faster by reducing course scheduling bottlenecks, providing online attendance options to accommodate travel or other schedule conflicts, or achieving meaningful gain: marketing courses

or programs to an extended group of potential students, building gradually to an online delivery, teaching and learning competency. When these visionaries are connected to associated groups of pragmatists (for example, a visionary dean or department chair with pragmatic faculty in specific programs or schools), expanding adoption is more likely.

In the realm of faculty support for course design and practice, we've found that many conservative faculty don't really trust the idea of HyFlex – yet! Our continuing challenge is to build a value proposition that they can't ignore. Shrinking instructional budgets, transparent and detailed student success data, and growing student demand for scheduling options may raise the felt pain to levels even conservatives cannot endure without considering other instructional approaches.

Laggards (Skeptics): What can you do with those whose heels are dug in and just won't budge?

In most social organizations, there is a small group of people who simply refuse to change their practices from the way they've always done something, even when the majority of their peers have adopted a new way. This group is the non-adopters, "Laggards" or "Skeptics," and most of them will never change. Some may, especially if the system forces them to change with irresistible pressure, but they certainly won't go quietly!

In my experience in education, members of this group in schools are often the most "seasoned" faculty or administrators. These people may have decades of experience teaching a certain way, and they probably see no reason to change just because someone else has a different idea and claims some supposed advantage. When I address faculty groups and speak to them about online, hybrid, and HyFlex course delivery, members of this group are easy to identify by their questions or comments at the end of the presentation.

"You'll never get me to change." "I'll be dead or retired before they'll

force me to teach this way." "This is fine for you, but I'd rather teach students than computers any day."

Personally, I've never seen a situation where faculty were being forced to adopt a new way of teaching, though I am sure it happens when an organization decides on a new delivery approach, such as moving a program from the classroom to online. In my own academic program, Instructional Technologies, existing faculty have always been free to choose their delivery mode, though we do encourage HyFlex where practical, and all faculty teach some HyFlex courses. However, once a course is delivered in HyFlex and the program starts listing it that way, new faculty may not have the option to return to classroom-only participation mode.

Because tenured, public higher education faculty in the US have traditionally had a lot of control over their specific teaching activities, changes in course delivery of existing programs may be difficult to bring about unless the faculty assigned to teach a course is willing to give it a try. Higher education faculty who work for private universities, especially for-profit schools, are not likely to have as much control over course delivery decisions, and in that situation it is more likely that faculty may be forced to change (or lose their job). If an organization is run with more centralized power structures, and if it is responsive to the changes in its operational climate, faculty are likely to have less control.

The bottom line for this adoption group is that they are not likely to change, and that's that. As a change agent, you may have more success in isolating the impact of their refusal to innovate rather than continuing to try to help them make the change.

Summarizing the Messages to Various Adoption Groups

The message you use to help others adopt should vary based on their

perceptions of risk, reward (value) and the behavior of their peers. A common message to all groups at once is likely to work only with 1-2 groups, at best. Many monolithic broadcast messages (which administrators love to send as emails to all faculty) end up being ignored by everyone. Don’t let this happen to you. Target your communication very specifically. Table 2 summarizes messaging to various groups and describes possible HyFlex implementation contexts that may apply.

Table 2

Summary of Adoption Group Characteristic Applied to HyFlex Implementation

Adoption Group	Risk Tolerance	General Messaging	HyFlex Context
Innovators/First Adopters aka "Techies" (Developers or discoverers of innovative practices)	Very high	"This is new, and it may apply to your field or work!"	Faculty member or Faculty Development support person develops the capacity to teach both online and face to face students at the same time (HyFlex) in response to an immediate, unique need, typically in one class. A first adopter may hear about HyFlex through a conference, journal, blog, or other communication within the instructional technology field.
Early Adopters aka "Visionaries" (Sponsors of initial projects; Department Chairs, Deans, Provosts)	High	This solution can help you resolve a big issue, or take advantage of a new opportunity to meet your important goals	HyFlex courses can help you create an online program or serve online students by leveraging the effective classroom-based program you already have. HyFlex courses can provide your students with more participation and schedule flexibility, reviewable course (content) archives, and may improve their overall performance. HyFlex course may help your students complete graduation requirements more quickly.
Early Majority aka "Pragmatists" (Faculty in Departments using/considering HyFlex for one or more courses)	Moderate to Low	"This new practice has been showing good results with others like you, in situations like yours, and it will probably help you, too."	The XXXX Department has been using HyFlex courses to [list the advantage they are realizing]. Your program might find some of the same benefits. Do you have one course you'd be willing to try this approach in?
Late Majority aka "Conservatives" (Faculty in programs initiating HyFlex in many courses)	Low to Very Low	"This new way of doing our work is becoming the new standard. Doing the work the old way isn't working for us anymore; we have to change or we'll certainly suffer more."	We've been using HyFlex courses successfully in XXXX courses (or programs) and now we're expanding our use of HyFlex to your course (or program). How can we help you transition? Here's what others have done …
Laggards aka "Skeptics" (Resistant faculty in programs that have adopted HyFlex completely)	Very Low to None	"We are doing things a new way. If you won't adopt the new way, you won't be able to continue this work. Everyone else has adopted the new way and it is working out for them. You need to change."	We've transitioned our program to HyFlex delivery because [state reasons – at this point they should be compelling to the majority of the people in the organization]. We'd like you to join with us … but if you can't, we'll find something else for you to do.

References

Moore, G. A. (1991). *Crossing the chasm: Marketing and selling technology products to mainstream customers*. New York, N.Y.: HarperBusiness.

Rogers, E. M. (2003). *Diffusion of innovations*. New York: Free Press.

2.5

Evaluating the Impact of Hybrid-Flexible Courses and Programs

Highlights from Selected Studies

Brian J. Beatty

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 predicator 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

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 MalmÃ¶ 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 summaries 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)

Unit III. Hybrid-Flexible Implementations Around the World

Chapter authors have all designed their own Hybrid-Flexible courses either as faculty or instructional designers working with faculty. Their voices and stories provide a rich tapestry that is itself an example of a hybrid (mixed methods) flexible (changing, adaptive) approach to Hybrid-Flexible course design. This list is dynamic – additional chapters are added as they are contributed by those doing the work. (If you are interested in proposing a case report chapter, please see the ongoing call for proposals at the end of Unit III.)

- **Chapter 3.1 Fitting Flexibility across the Curriculum**, written by Cathy M. Littlefield and Stephanie Donovan, tells the story of implementing "Peirce Fit®" (local branding for their hybrid-flexible approach) at Peirce College in Philadelphia, PA.
- **Chapter 3.2 One-size Fits None**, written by Dr. Jeanne C. Samuel, Dr. Amanda H. Rosenzweig, and Dr. Mark Mclean, and Dr. Rene Cintron, tells the story of implementing HyFlex at Delgado Community College in the Louisiana Community & Technical College System in the New Orleans, LA metropolitan area.
- **Chapter 3.3 New Technologies Deliver on the Promise of HyFlex**, written by Glori Hinck and Lisa Burke tells the story of implementing HyFlex at the University of St. Thomas in Minneapolis and St. Paul, MN.

- **Chapter 3.4 Using HyFlex in Statistics for Engineers and (Data) Scientists**, written by Jackie Bryce Miller and Melinda E. Baham, tells the story of implementing HyFlex at the University of Michigan and references earlier implementation at The Ohio State University.
- **Chapter 3.5 HyFlex in Northern Ontario**, written by Melanie Lefebvre, tells the story of implementing HyFlex at Cambrian College in Sudbury, Ontario, Canada.
- **Chapter 3.6 HyFlex at Montana State University**, written by Susan Baltzer-Reitz and Samuel Boerboom, tells the story of how HyFlex implementation at Montana State University Billings began in 2018.
- **Chapter 3.7 A Faculty Transitional Journey from Single Mode to HyFlex Teaching**, written by Zahira Merchant, tells the story of how a faculty new to HyFlex experienced joining an existing faculty already practicing HyFlex delivery in a graduate program.
- **Chapter 3.8 Hyflex Learning within the Master of Teaching Program@KU Leuven**, written by Annelies Raes, Marieke Pieters & Piet Bonte, tells the story of the development of a unique hybrid virtual classroom to support EDU (HyFlex-style) courses in the Master of Teaching Program at KU Leuven in Belgium.
- **Chapter 3.9 Increasing Flexibility, Satisfaction, and Efficiency Using the Hybrid Flexible Approach,** written by David Rhoads of Vanguard University, tells the story of HyFlex implementation at San Diego Christian College as an approach to improve enrollment in class sections to better use existing instructonal capacity. This chapter includes a summary of the program evaluation conducted during David's doctoral dissertation.
- **Chapter 3.10 A Modified Version of HyFlex,** written by Elise Verdooner and Matthea Marquart of Columbia University's School of Social Work, tells the story of the implementation of a version of HyFlex called "Remote Live

Participation (RLP)" which provides synchronous participation in the classroom as well as online.

- **Chapter 3.X Contribute Your HyFlex Story**, is a perpetually open call for case reports from designers, faculty and institutions who have experienced Hybrid-Flexible course design and implmentation first hand, even if they use a different name for this appoach.

3.1

Fitting Flexibility Across the Curriculum

Peirce College

Cathy M. Littlefield & Stephanie Donovan

The processes and experiences described in this chapter took place at an associate, bachelor's, and master's degree-granting, private, not-for-profit, non-residential, Mid-Atlantic urban institution. Student demographics are as follows: 80% identify as students of color, 70% are female, 61% is equal to or over the age of 30, 65% identify as first-generation college students, 85% receive Financial Aid, and 67% are Pell Grant Eligible.

As an institution steeped in a long, rich history as a pioneer of serving the adult learner, innovation has always run deep in the organizational culture. Most recently, in response to declining retention, enrollment, and credit hours, an innovative course delivery option was piloted in Spring 2014. In this new model, now called Peirce Fit®, students choose, every week, whether to participate online or on-campus within a single course. Online participation is registered when students submit a gradable assessment during a given week of class, for example, contribute to a threaded discussion or complete an online quiz. On campus participation is registered when a student attends class on campus.

Before Peirce Fit®, classes were offered exclusively online or on-campus for the entirety of the course. Courses at this institution are delivered in a 7-week accelerated format, which requires both online and on-campus learners to complete course work asynchronously. Following the pilot study, the College decided to implement the Peirce Fit® model across the institution, beginning with courses in the Graduate Division and Health Programs division in Fall 2016. Enthusiasm for this model, in part, focused on removing the lack of in-person attendance as a barrier to student retention in a single course. In this chapter, we will discuss the institutional needs for modifying the traditional delivery model, the goals of the new model, the implementation challenges faced, and the impact of the new model on students, faculty, and the delivery of instruction.

Rationale—Why Now?

Developing and deploying innovative, flexible, academic instructional models supports the need to respond to a changing higher education landscape. Innovation and institutional efficiency are and always have been priorities at the Peirce College. During challenging times, the college frequently turns to innovative delivery methods as a way of meeting the students where they are and providing opportunities for learning that are student-centric, fresh, and unique. In the early 1990s, the College was on the forefront of the online learning paradigm, and in 2014, turned to innovation again as a way to bridge the gap between course offerings, and declining retention and persistence concerns, while creating sustainable enrollment.

Four years before the pilot, the College introduced three new undergraduate health programs to its existing curriculum. Even though enrollment in these programs grew, the on campus and online sections were relatively small as a result of giving students an option for delivery mode. The College saw this as an opportunity to explore the efficacy of offering exclusive online or on-campus instruction. In

the new model, students are provided the flexibility to decide every week how they will attend; fully online or on campus. During the transition to the new model, preserving on-campus delivery remained an important aspect. Research (Malone, 2014) confirmed adult learners appreciate flexibility, as such, by design we maintained a face-to-face component. Offering flexibility rather than directing students to a singular learning modality was the most appealing option for meeting the collective needs of the students and the College. The design approach was organized and intentional, with the conscious plan to provide flexibility students desire, as well as continuous enrollment and degree completion.

Roadmap for Implementation

A steering committee was convened and charged by the Vice President Academic Advancement to guide and document the pilot in the academic year 2014-15 and develop a recommendation for a new hybrid delivery model. Initially organized into two workgroups, the steering committee was comprised of the department program chairs, the dean of academic operations, the instructional design specialist, and the student learning assessment specialist. Specifically, the workgroups were committee was charged with:

1. Articulating a working definition of Peirce Fit® for the pilot;
2. Evaluating courses piloted in the Peirce Fit® model and determining which elements of the pilot should remain as recommendations in the final report;
3. Undertaking an environmental scan and exploring how higher education institutions were using hybrid course delivery models;
4. Establishing a quality assurance plan for Peirce Fit® courses;
5. Exploring course load implications for Peirce Fit® faculty and the College;
6. Exploring faculty development implications for faculty teaching

Peirce Fit® courses;
7. Exploring financial aid implications for students enrolled in Peirce Fit® courses;
8. Assessing financial implications to the College for offering Peirce Fit® courses/model (include budget projections);
9. Submitting a final report and recommendations to the College's Executive Leadership Team

The Peirce Fit® model was conceived of and piloted before the College's knowledge of Beatty's HyFlex model (EDUCAUSE, 2010). While attending the Council for Adult and Experiential Learning (CAEL) conference in November 2014, a faculty member learned about the HyFlex model. Upon her return from the conference, she shared the discovery of HyFlex with members of the College's executive leadership team responsible for managing the pilot and its subsequent college-wide implementation. Discovery of the Hylex model during the pilot phase was key to advancing the work of the steering committee and the early adopters. Specifically, we looked to the HyFlex principles of learner choice, equivalency, reusability, and accessibility to guide how we set about transforming on campus only and online only courses to Peirce Fit® courses. The principle of equivalency informed how faculty set expectations for both groups of students within a single course. Early versions of Peirce Fit® included a weekly table denoting the course learning outcomes for a given week and the assessment(s) for online and on-campus learners.

As the pilot was underway, the President and Executive Leadership Team identified Peirce Fit® as a strategic initiative, and the pilot status was removed. Consequently, the steering committee was restructured and a new sub-team was tasked with undertaking the financial analysis of Peirce Fit®, to include the development of an across-the-institution implementation timeline, financial analysis, required resources, identification of operational challenges, and marketing opportunities. In Fall 2014, a presentation was made at a faculty meeting designed to discuss the driving forces for change,

including managing canceled classes, enrollment, retention, persistence, attendance, and the need for students to maximize financial aid in relation to timely degree completion.

The College began implementing the Peirce Fit® model in Spring-Summer, 2014-2015, with the conversion of Health Programs courses and Graduate Studies courses. Faculty received one course release time to undertake this work. Additionally, a faculty development program was created to facilitate the conversion and implementation process. In fiscal year 15-16, the Peirce Fit® model was implemented in six additional degree programs, including Accounting, Business Administration, Human Resource Management, Integrated Leadership, Information Technology, and Technology Management. In fiscal year 16-17, the College completed its conversion of courses to the Peirce Fit® model with the remaining programs in Paralegal Studies, Legal Studies in Business, Criminal Justice Studies and General Studies.

Implementation Process

The design of the Peirce Fit® model, originally termed FLEX, originated from the work of the implementation team, which was comprised of four subteams; Marketing & Communications, Instruction, Faculty & Student Support, and Assessment. The Instruction subteam was charged with:

1. Determining course shell management (masters - one for FLEX and on for online?);
2. Determining threaded discussion opportunities for different uses;
3. Demonstrating technologies that could support the FLEX delivery; (Adobe Connect, Google Hangout, Camtasia Relay, YouTube, ApprenNet)
4. Developing pedagogy best practices for the FLEX environment (Ex; flipped classroom);

5. Establishing minimum design criteria for FLEX courses (how are FLEX courses different); (Early Adopters)
6. Implementing a plan for strengthening the student and instructor experience in a FLEX course; (chart, lesson plans, learning activities)
7. Articulating faculty expectations for teaching FLEX; (FAQ)
8. Implementing classroom management and student management strategies in a FLEX environment (Ex; student no shows); (FAQ, lesson plan)
9. Determining the course schedule for FLEX and online-only offerings;
10. Authoring and securing approval of "Note to Instructor" language
11. Documenting how one would FLEX a course
12. Developing an expedited QA process and rubric
13. Developing an attendance policy
14. Developing FAQs for students and faculty

While the process was fully planned, documented, and executed, the Peirce Fit® model is, in fact, a living instructional model and institutional initiative. As an institution, all divisions are engaged in the iterations that move the model forward with a focus is on continually striving to strengthen and improve instruction and opportunities for students.

Challenges

The implementation of Peirce Fit® across the College was not without challenge, and we continue to refine aspects of the model as part of our ongoing learning and refinement. The brevity of the pilot phase created a sense of curiosity among the faculty as to the rationale for implementing the Peirce Fit® model. Viewed as an opportunity to engage faculty, two focus group sessions were held to garner feedback and perspectives. In 2016, focus groups were held on

campus for the full-time faculty and online for the adjunct faculty. The focus groups consisted of nine probing questions related to the understanding of Peirce Fit®, perceptions, likes, challenges, classroom management strategies, perceived student perceptions, and needed support. The following themes and frequency emerged from the transcripts:

Table 1

Focus Group Themes

Theme	**Number of Coding References**	**Number of Words Coded**	**% of total**
Impact on Teaching & Learning	70	2,944	**45%**
Faculty Workload	32	1,306	**20%**
Attendance	13	634	**10%**
Flexibility	12	566	**9%**
Faculty Understanding of Peirce Fit®	14	524	**8%**
Technology	12	330	**5%**
Adjunct Faculty	7	180	**3%**
Total	**160**	**6,484**	**100%**

Additionally, several sub-themes were identified:

Table 2

Focus Group Sub-Themes

Theme	Sub-Theme	Sub-Theme
Impact on Teaching & Learning	Student expectations	Lesson planning, classroom experience
Faculty Workload	More work - teaching twice	Low on-campus attendance can make instruction difficult / time intensive
Attendance	Offers students a plan to avoid absenteeism	Planning for small on-campus attendance
Flexibility	Student choice is important for adult learners	Students not changing from week-to-week & lack of understanding of what Peirce Fit® is
Faculty Understanding of Peirce Fit®	Desire for students to attend at least the first class on campus	Lack of consistency in how Peirce Fit® is applied to instruction
Technology	More robust technology for instruction (lecture capture and synchronous delivery)	Students using cell phones for assignments
Adjunct Faculty	Balancing the requirements of Peirce Fit®	1-hour wait time & concern for recruitment

The consolidated data were presented to the VPAA, and the following recommendations were adopted:

1. Strengthen professional development for faculty focused on instruction, teaching, and learning
2. Evaluate faculty workload
3. Ensure consistent messaging across institution related to Peirce Fit®
4. Adopt and implement new and more robust instructional

technology tools
5. Survey faculty for areas in which support is needed
6. Evaluate foundational courses that should not be offered in Peirce Fit®

Impact of the Plan

The approach was deemed successful. With a clearly articulated plan, the Peirce Fit® model was implemented in an accelerated fashion as a means to address an institutional need. As such, a quick victory was identified when data revealed a decrease in absenteeism. However, the approach which included gaining longitudinal faculty perceptions identified area of opportunity, to include the previously identified themes. For other academic institutions who aspire to innovate, it is critical to have a strong project management plan and to engage key stakeholders along the way. Success will be more likely with a cross-institutional team; a high level of coordination, and fully engaged collaboration. A testament to the success of this plan was the willingness of the faculty to be engaged and willing partners in this process, and to continually strive for the flexibility Peirce Fit® affords our students.

Conclusion

The changing higher education landscape and inherent challenges lead to faculty experimentation with an innovative hybrid delivery model that would significantly alter how instruction is delivered at this College. For students, the model would provide flexibility in how they attended each class within a course, and for the College, the model pointed toward real opportunities to improve operational efficiency. Following a pilot study, this College decided to implement the Peirce Fit® model with hopes to address challenges currently being faced.

Under the leadership of the Vice President, Academic Advancement, faculty continue to experiment, refine, and improve the Peirce Fit® model as part of the academic and curriculum planning process. In Fall 2017, the College implemented a new learning management system (LMS) called Canvas. Canvas offers more robust learning technologies than the previous LMS used at the College. In many ways, access to this new technology aligns with the Peirce Fit® model and has been a positive experience for both students and faculty in the Peirce Fit® environment. However, learning is ongoing and mastering the Peirce Fit® model has proven to be an iterative process, and each academic year, the model is improved.

References

EDUCAUSE. (2010, Nov). 7 things you should know about...the HyFlex course model. *EDUCAUSE Learning Initiative.*

Malone, S. (2014). Characteristics of adult learners. *Training & Development*. 41(6).

3.2

One Size Fits None

Delgado Community College and Louisiana Community & Technical College System

Jeanne C. Samuel, Amanda H. Rosenzweig, Mark McLean, & René Cintrón

In 2014, Jeanne Samuel discovered a model for delivering courses that extended the hybrid model already in use at Delgado. The new model, HyFlex, solved several institutional challenges: (1) meeting enrollment demands without enough physical space, (2) creating a flexible class schedule to support the needs of our part- and full-time working students and for 'life happens' moments, and (3) attracting more students by appealing to adult learners' preference of choice (LCTCS, 2019) and control in their learning environment. HyFlex course design meets the needs of active military and veterans, an important student group at Delgado Community College. In 2015, HyFlex was a form of personalized learning in use at Delgado Community College before the term was in vogue. With an increase of New Orleans area school closures due to weather events, HyFlex design has been discussed as an important part of our disaster recovery plan.

Institutional Goals for HyFlex

1. Serve more students in the same physical space.
2. Increase student enrollment (by appealing to students' desire to control aspects of their learning environment).
3. Increase student retention (by providing student participation flexibility).
4. Prepare for business continuity in the event of a natural disaster.

Flexibility to Serve the Needs of Growing Demographic

By Fall 2018, 68% of our student population was female, the average age of our students continues to rise. Fall 2018 data show that 34% of our students were age 25-34 with the average age of 27.9 years. Our part-time student population is growing while full-time student demand is decreasing. From Fall 2014 to Fall 2018, full-time student enrollment decreased from 43% to 36% while part-time enrollment rose from 57% to 64%. In addition, from Fall 2017 to fall 2018, although a low number, we experienced a decline in demand for degrees and certifications and an increase in non-degree seeking students. Students taking any online class rose 13.8% between Fall 2014 and Fall 2018 (36% of all students in Fall 2018). And, students attending fully online rose 14.2% during the same period (13% of all students in Fall 2018). Importantly, although Delgado has a presence on average in 20 states, 68% of students enrolled and attending at the main City Park campus live close to the campus. 85% of students attending our West Bank campus live near the campus. The data show that HyFlex course design is a good fit for Delgado Community College and may become an important part of our course delivery and marketing strategies.

Serving More Students

During the Fall 2014 semester, two instructional designers and one assistant dean from Delgado Community College's Business and Technology Division met to discuss the merits of adopting the use of the HyFlex delivery model for business courses. The Business department was already employing a space-sharing model for their hybrid courses. Typically but not exclusively, at our institution hybrid delivery requires students to attend one day face-to-face (F2F) and the rest online. Unlike the flipped classroom model, the day that students meet face-to-face was not necessarily lecture-free. Face-to-face classes are scheduled (1) Monday and Wednesday (2) Tuesday and Thursday. For our HyFlex model, two different classes were scheduled in the same room during the same time slot on different days, one day each week. This meant that the number of students served in the classroom raised to a maximum of 50 from 25 for two courses. Had the additional two courses (four sections) in the HyFlex pilot shared the same timeslot, this would have raised the physical space gain overall from 150 to 300 seats. The pilot was conducted on the institution's West Bank campus, which has a four-day work week Monday - Thursday. Please see Table 1 below.

Table 1

Room Capacity by Delivery Mode

Typical Room Use for Hybrid Course	**HyFlex Room Use**
· 1 room · 25 seats · 1 class meets Tues and Thurs Number of students served = 25 students	· 1 room · 25 seats · 1 class meets on Tues · 1 class meets on Thursday Number of students served = 50 students

Improved Student Success

Since 2017, all courses in the Business programs are delivered as fully online, F2F, and hybrid options per term. Students may also register for 8-week terms rather than 16-weeks. In other words, students have the option to register for "full term" courses (16-weeks) or "shorter-term" courses (8-weeks). The 8-week option provides additional flexibility to students by enabling sequential or concurrent completion of courses. Furthermore, the sequential option allows students to register for courses in the second 8-weeks as a result of completing a related pre-requisite course in the first 8-weeks of the semester.

In addition to the aforementioned benefits of adopting the HyFlex course delivery model, we also anticipated that improved student success (retention, progression and completion) might be an additional benefit. Delgado is a member of a 12-institution community and technical college system, the Louisiana Community and Technical College System (LCTCS). As with similar institutions, only 18% of LCTCS students withdraw for academic reasons (LCTCS, 2019). Research regarding the achievement gap in higher education between students enrolled in online courses compared to those completing face to face courses is mixed. (Carrone, 2008; Helms, 2014; Jaggars & Bailey, 2010) Although this gap at Delgado Community College is closing, looking at the aggregate data, students who attend fully online are less successful than those who attend fully F2F. Delgado is in the process of reviewing course delivery mode and student success by instructor to identify opportunities for improving student success online. Preliminary results are consistent with previous studies; the relationship between delivery mode and student achievement is mixed. However, anticipated outcomes for HyFlex course delivery is promising. A 2010 metadata analysis of research comparing the achievement gap between online students and student attending class in-person cited one study that found that students perceived that the face-to-face course better prepared them (qualitative). (Jaggars & Bailey, 2010) Another study citing a United States Department of

Education (USDOE) meta-analysis noted that classes offering both face-to-face and online instruction had better outcomes than a course delivered with only one of the delivery modes. (Helms, 2014)

Since HyFlex affords both types of instruction via flexible attendance, the HyFlex approach should enable higher student retention and completion than single delivery mode classes. With HyFlex design, students can attend as they need or prefer without penalty for missing an in-person class. If a student is falling behind or wants in-person support, they may come to class in person. If they need to be away or are comfortable with the concepts that week, they may elect to complete work online.

Another way the team expected to see the impact of HyFlex delivery, is increased student enrollment over time. Often, online classes fill up first leaving students with only F2F and hybrid options. The more HyFlex offerings we have, the more access to the online mode we can provide to students needing flexibility, which should lead to a greater number of students enrolling overall. Ideally, we can cross-list or pair face-to-face and online classes in the Learning Management System (LMS), Canvas as appropriate to provide more participation flexibility to students.

College Priorities Shape Faculty Support

By 2018, the focus on course design and delivery shifted from HyFlex course delivery to incorporating Open Educational Resources (OER) and other affordable learning initiatives. Helping faculty create, adapt, or adopt OER exposed not only a College support need, but a System-wide support need. There are not enough instructional designers at institutions to help faculty create OER courses. As a result, with LCTCS funding, a Fundamentals of Instructional Design course was created and taught to LCTCS faculty and staff during the 2018-2019 academic year. Within the course, HyFlex was promoted as a multimodal course design model. We refer to it as multimodal

because we design at one time for all delivery modes and deploy (hide/show) the course content as needed or desired. We know that reasons for students not completing courses are primarily external in nature, our principal objective for adopting HyFlex was to permit students the flexibility of when and where to attend class; online or in-person without fear of an academic penalty.

Planning and Redesigning for HyFlex Delivery

The Delgado team met during the Fall semester of 2014 to agree on our concept of HyFlex and how to implement it at our institution. During the initial meetings, the focus was on discussing the design and teaching principles, planning templates, and reviewing examples of HyFlex implementations at other institutions. A community of practice was formed that included three business faculty from Delgado Community College's West Bank Campus. The faculty were tasked with drafting new course syllabi, activities, and assessments. The instructional designers modified available HyFlex templates and assisted the faculty with course material development; for example, creating similar activities and assessments in an alternate delivery mode. One of the early challenges was how to use the HyFlex model for a course that primarily uses third-party publisher resources. Another challenge was more significant. At the same time, during the Fall 2014 semester, the institution was moving from being a Blackboard LMS institution to one that uses Canvas by Instructure. Initially, creating two different learning objects that satisfy one gradebook item was difficult in Blackboard. Mastery Paths, a Canvas feature now available, manages choice and remediation graded activities.

In early 2015, we also submitted a proposal for grant funding from the Louisiana Board of Regents to pilot HyFlex at Delgado. This grant provided compensation for the faculty and course designers. In

addition, it paid for technology training, course authoring software, and a supplemental library of PowerPoint themes, graphics, and sounds. During the initial discussions with the faculty, we explained what HyFlex is conceptually. We agreed on the common definitions:

- **Face-to-Face (F2F)** learning experiences are designed around a physical environment. Learning is conducted in the same space, at the same time. There is little to no flexibility in regard to participation. This is compared with online as the *brick* (and mortar) environment.
- **Online at a Distance** learning experiences are designed around virtual participation. Both time and place (space) may differ. The class may require different time, different place or same time, different place attendance. It used to be referred to as *click* when compared to F2F. There is potentially a high level of participation flexibility.
- **Hybrid** learning environments range from partially online to almost all online depending on how an institution defines the hybrid classroom. Within this *brick* and *click* environment is the HyFlex model.
- **HyFlex** provides students the opportunity to attend fully online, fully face-to-face, or somewhere on the spectrum between the two environments depending on personal choice or need. HyFlex is a version of the hybrid model with flexible participation. Asynchronous attendance is participating at a different time while synchronous is participating at the same time.

Similar to the approaches found in our research, we decided to designate the course in the class schedule as a hybrid-delivered course and explain to the enrolled students the course participation option on the first day of class. In addition, we agreed that students could change their attendance preference weekly (topic-based week). The single course syllabus and course schedule would contain information for all modality participation options. At a glance,

students would know weekly expectations and course work for either online (in-lieu of) participation or in-person participation. Providing the weekly work options by participation mode provided the course aspect of choice; students could personalize their attendance based on a preference for one type of participation activity over another. As stated earlier, HyFlex became a student-centered option to balance work and life (supporting student success) and no longer just a solution to physical space challenges.

Implementation

The faculty involved in the HyFlex pilot were asked to think about the vision for their course, the merits of each delivery mode, and how students benefit most from each learning environment. We agreed that some activities may be adapted for both environments. An excerpt of delivery mode benefits follows in Table 2.

Table 2

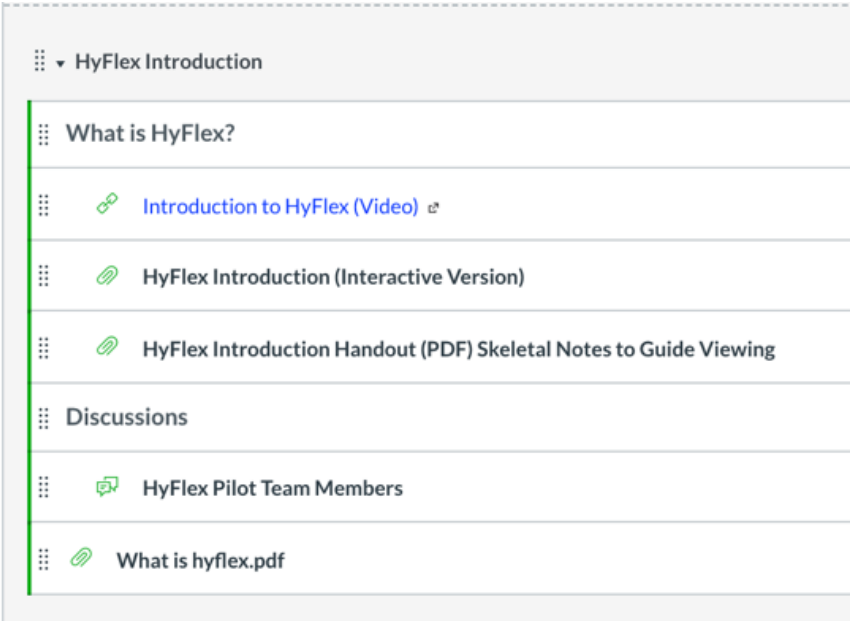
Learning Environment Benefits by Delivery Mode

Face-to-Face	Online
• Establishing social presence and support • Nonverbal communication (affect and body language is observable) • Explaining assignments (access to instructor) • Negotiating expectations and responsibilities • Diagnosing students' conceptual problems and providing immediate feedback • Brainstorming • Role play • Student demonstration of psycho-motor skills • Sustaining group cohesion, collaboration, and support	• Reflective, on-task discourse • Broader participation in discussions • More time to think before responding • Critical analysis • Flexibility • Self-paced learning and practiceSelf-assessment quizzes with immediate feedback • Near real-time, automatic grading of multiple choice, T/F, fill-in-the-blank tests

Our goal was to make activities and assessments for each week similar regardless of the delivery mode. Webcams, microphones, and software were provided to the faculty piloting HyFlex. Software such as Screencast-o-matic and Big Blue Button for recorded lecture were provided for faculty to easily narrate lectures. In 2016 we began to add touchscreens to the classroom lecterns to facilitate live annotation of presentations. Basic and advanced Canvas LMS training was provided to faculty. In addition, a self-paced course about HyFlex course design was created. Figure 1 shows an index of content in the introductory module in the HyFlex course design course. Other course information included HyFlex teaching best practices, HyFlex course and management best practices. The faculty HyFlex checklist was suggested but not completed. Tips for faculty were created and listed later in this chapter. This course was not well-attended by faculty and is now under revision.

Figure 1

Introductory Module From HyFlex Professional Development Course

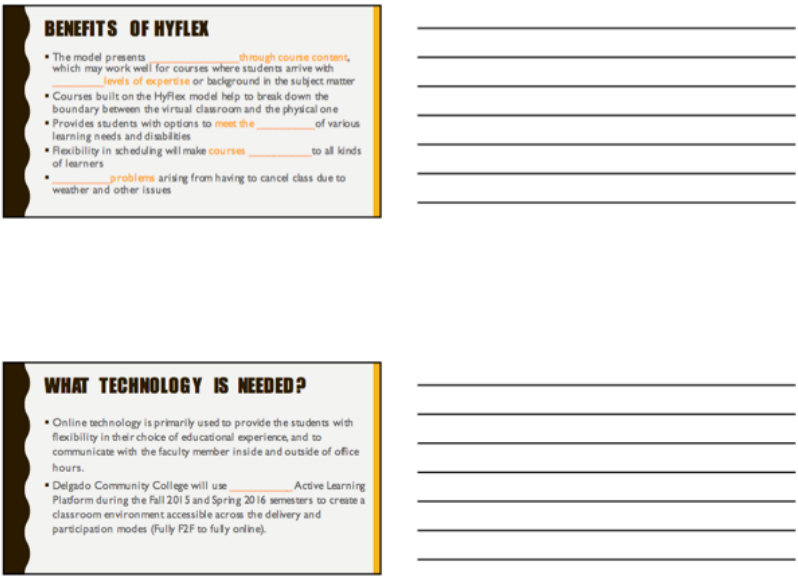


The following video provides an Introduction to HyFlex presentation from 2015. (YouTube: https://youtu.be/Bu4aVBxf760) Figure 2 is an example of the partial notes handout to accompany the introductory video.

Watch on YouTube https://edtechbooks.org/-Wqg

Figure 2

Partial Notes Handout for HyFlex Introductory Video



The instructional designers and faculty's emphasis was on creating online equivalent activities and assessments for transitioning hybrid courses to HyFlex. The lead instructional designer for the HyFlex pilot created a Canvas course for posting the before and after course artifacts and discussion boards to discuss the process and problems, shown in Figure 3.

Figure 3

Sample Content From Canvas HyFlex Community Course

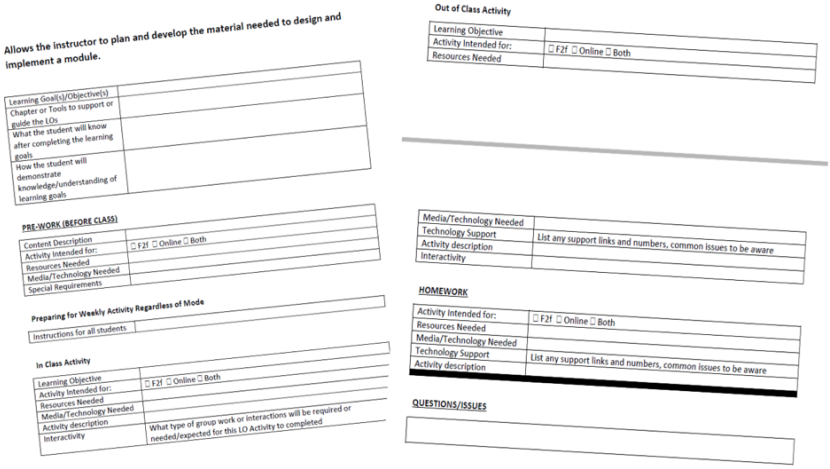
Oct 29, 2015	Individual Meetings: If you have not sent me the information to review, please post it in the HyFlex Weekly Documents Module. 10am - Thomas 11am - DeLarge 12pm - McLean Discussion Board to Post Materials so everyone can review and share.
Oct 22, 2015	HyFlex Meeting - PreWork (please click on link to see the detail announcement)
Oct 8, 2015	Please view the Lynda.com Adult Learner course. You will receive email information about the course along with a viewing guide. Please refer to an email you will receive about accessing Lynda.com courses. Your Sample Session Documents are posted with comments in the HyFlex Weekly Documents Module.
Oct 1, 2015	Please take some time to review the HyFlex Overview File. This will help at the meeting to determine fixed terminology, and potential assignment scenarios. A timeline will also be discussed at the meeting.
Sept 15, 2015	Please take some time to review the HyFlex video, HyFlex interactive video or the HyFlex handout before the meeting on Thursday at 9:30 in WB1-108.

HyFlex implementation varied due to the current course design and faculty teaching preference. For example, the computer application course was designed as a lab and focused on concrete skills. Students used guides, videos, and checklists, instead of higher-order thinking or problem-solving emphasized in many other business courses. Third-party materials were used for most of the coursework. In the management course, student learning was based on real-world experiences and scenarios. This allowed for more student exploration and content choice. The third-party publisher materials were supplemental. The HyFlex version of the management course used LMS tools, videos, scavenger hunts, and similar instructor-created and curated activities for both the online and in-class sessions. These materials were personalized, creative, and relevant. The process of creating materials for HyFlex delivery options improved the engagement aspect of the course materials for all course sections, not just those delivered as HyFlex.

An initial HyFlex course lesson planning template was modified by an instructional designer (refer to Figure 4) from various templates found on the web, including one by Dr. Brian Beatty.

Figure 4

Early Version of HyFlex Lesson Planning Document



Allows the instructor to plan and develop the material needed to design and implement a module.

Learning Goal(s)/Objective(s)	
Chapter or Tools to support or guide the LOs	
What the student will know after completing the learning goals	
How the student will demonstrate knowledge/understanding of learning goals	

PRE-WORK (BEFORE CLASS)

Content Description	
Activity Intended for:	☐ F2f ☐ Online ☐ Both
Resources Needed	
Media/Technology Needed	
Special Requirements	

Preparing for Weekly Activity Regardless of Mode

Instructions for all students	

In Class Activity

Learning Objective	
Activity Intended for:	☐ F2f ☐ Online ☐ Both
Resources Needed	
Media/Technology Needed	
Activity description	
Interactivity	What type of group work or interactions will be required or needed/expected for this LO Activity to completed

Out of Class Activity

Learning Objective	
Activity Intended for:	☐ F2f ☐ Online ☐ Both
Resources Needed	
Media/Technology Needed	
Technology Support	List any support links and numbers, common issues to be aware
Activity description	
Interactivity	

HOMEWORK

Activity Intended for:	☐ F2f ☐ Online ☐ Both
Resources Needed	
Media/Technology Needed	
Technology Support	List any support links and numbers, common issues to be aware
Activity description	

QUESTIONS/ISSUES

The faculty ultimately created their own template. Figure 5 is an example of a completed template.

Figure 5

Example of HyFlex Lesson Planning Template

In-Class Exercise	Out-of Class Exercise

Flower Drawing Exercise
• Ask class to draw a picture of a flower on paper
• Some/all place flower on white/chalkboard
• Show picture instructor expected
• Why don't student drawings match instructor expectations?
• Apply to Communication Process (slides 3-9)
  ○ Encode (sender)
  ○ Transmit to receivers
  ○ Decode (receiver)
  ○ Feedback (drawings)
  ○ Noise
  ○ Communication medium options
 	
Powerful Formal Presentations – lecture and discussion (slides 12-14)
 	
Listening Skills – lecture and discussion (slides 15-17)
 	
Direction of Communication – lecture and discussion (slides 18-22)
	Assignment: TBD
	
	Option: create assignment unrelated to drawing exercise
	Create a scavenger hunt assignment. Students collect pictures based off of a key word. Once uploaded, they compare their pictures to your picture. You choose a picture that you know will not be found/used.
	
	Option: utilize LearnSmart objective specific
	
	Option: utilize Video Exercise above
	Have students find movie clips about miscommunication and post them in a DB. Have a few prompts to help them explain why they believe this is a good example. Because there is not a dynamic class discussion occurring when students are viewing the Presentations, you can have certain static images and ask the students to describe what they see.
	Then play a movie clip that has the image in it. Ask if their perception changed once they knew the backstory or understood the communication.
	
	Assignment/Resource: TBD; voice-over slides with fill-in-the blank questions
	
	Assignment/Resource: TBD; voice-over slides with fill-in-the blank questions
	
	Assignment/Resource: TBD; voice-over slides with fill-in-the blank questions

Our methodology was to carve out as much time as we could for the content creation and curation activities, for example:

- Develop online lessons and assignments
- Produce media (e.g., production video, graphics, Captivate or Screen-cast-o-matic or Big Blue Button)
- Acquire course content that from textbooks, articles, images, and videos

Next the instructors revised the course syllabi to include:

- The organization and rationale of the course design (HyFlex)
- Expectations regarding student responsibility for learning
- List of tasks with due dates by participation option (Make it very clear which tasks are to be done in class and which are to

be done outside of class and how the tasks are related)
- Time management tips
- Resources for technology support (technology and quality of audio are typical student pain points)

Faculty communicated the course design to students in various formats as seen in Figures 5, 6 and 7. Faculty laid out student learning outcomes, the activities to be completed, and the activities to do before class and after class. For activities to do during class, there was an online equivalent clearly marked. As stated earlier, often, it is not course content that prevents a student from being successful. External factors create barriers. HyFlex course design provides a solution to students for time-management as life events occur. Figure 6 shows the planning document with student learning outcomes and class assignments delivery mode by week.

Figure 6

Representation of Chapter Assignments With Clearly Identified In-Lieu of Class Assignments by Week

Week # Date	**Unit/Topic and Learning Outcome** *By the end of this week, you will know or be able to…*	**Learning Activities and Assignments** *…this is how you learn how…*	**Learning Assessment, Tests or Exams** *…this is how you will demonstrate your knowledge and this is how much it will impact your grade.*
Week 13 4/11-4/17 (Mon-Sun)	Chapter 13 – Communicating • **Describe the communication process and various kinds of communication in organizations. (CO11)** • Discuss important advantages of two-way communication. • Identify communication problems to avoid. • Describe when and how to use the various communication channels. • Give examples of ways to become a better "sender" and "receiver" of information. • Explain how to improve downward, upward, and horizontal communication. • Summarize how to work with the company grapevine. • Describe the boundaryless organization and its advantages.	• Read & Study Text • Review Chapter Learning Objectives and PPT Slides • Attend Class • Actively Engage in Class Discussion and Classroom Activities • Complete Assignments in Canvas/CONNECT **OPTIONAL:** Complete equivalent assignments in Canvas in lieu of attending class. See the Canvas chapter module for additional details. Assignments must be completed during specified timeframe and become available at time of class.	***BEFORE Class*** • **Learn Smart** (10pts – DUE 4/11 BC) • **Is This Effective Communication?** (Video Case; 10pts – DUE 4/11 BC) ***DURING or IN-LIEU of Class*** • **In-Class** Participation (10pts IC) - or - • **Canvas** Assignments equivalent to class (10pts – DUE 4/15 LOC) ***AFTER Class*** • **Quiz** (10pts – DUE 4/17 AC) • **Communication at Cupcake Kingdom** (Click & Drag; 10pts – DUE 4/17 AC)

Figure 7 offers less detail. It shows the course calendar document with class assignments and delivery modes by week (chapter).

Figure 7

Representation of Chapter Assignments With Clearly Identified In-Lieu (Online) of Class Assignments by Chapter

Part 4 - LEADING (Chapters 10-13)

Chapter 10	• Before Class (due 3/21) • Optional In Lieu of Class (available 3/21-3/28) • After Class (due 3/28 - MON due to Spring Holiday)
Chapter 11	• Before Class (due 3/28) • Optional In Lieu of Class (available 3/28-4/1) • After Class (due 4/3)
Chapter 12	• Before Class (due 4/4) • Optional In Lieu of Class (available 4/4-4/8) • After Class (due 4/10)
Chapter 13	• Before Class (due 4/11) • Optional In Lieu of Class (available 4/11-4/15) • After Class (due 4/17)

Faculty included a reference to the HyFlex delivery approach in the course syllabus. In addition, the faculty developed several handouts for students. The handouts explained the HyFlex participation options and the weekly participation schedule, instructions regarding the HyFlex "in-lieu of class" assignments, related points, and due dates. An example of the weekly handouts for students is provided in Figure 8.

Figure 8

Instruction for In-Lieu of (Online) Class Assignments

In-Lieu of Class (online material)

WEEK 13 (IN-LIEU OF CLASS) - CHAPTER 13

Complete the following assignments **IN LIEU OF CLASS** and in order to receive **PARTICIPATION** credit for this week.

1) Scavenger Hunt - Exercise (7 points)

- Complete the Find Assignment
- Complete the Unveiling Assignment
- View the Communication Process Video (7 minutes)
- Participate in the Discussion regarding what you observed

2) Formal Presentations (2 points)

- View the Formal Presentations Video (4 minutes)
- View the Nonverbal - What Do You See? Video (1:30 minutes)
- Complete the Nonverbal - What Do You See? Assignment

3) Direction of Communication

- View Direction of Communication Video (5 minutes)

4) Feedback (1 point)

- Complete a brief survey to provide feedback on what you learned and the In-Lieu of Class experience.

The items listed above must be completed in sequential order and are **due by 4/15 (FRI) @ 11:59pm**.

Click ***NEXT*** in the bottom-right corner of each page to move to the next page.

Early in the term and throughout, the faculty met with students to demonstrate how the online portion of the class works. The faculty planned to create an online HyFlex student orientation. To date, the orientation has not been created. As faculty and instructional designers collaborated in developing HyFlex courses, the following were found to be helpful HyFlex faculty tips:

HyFlex Faculty Tips:

- Introduce information in a user-friendly format employing numerous headings, lists where applicable, boxes with definitions, and graphics to make it easier for students to

remember the information (consider ADA-compliance)
- Provide context by illustrating how knowledge of the subject may be useful to your life outside the class today or in the future
- Accommodate various types of learners by using illustrations, visual analogies, demonstrations, graphs, diagrams, and tables, etc.

Implementation & Sustainability Issues

During our HyFlex pilot, 2014-2015, we limited the number of faculty participating; despite knowing it would slow HyFlex adoption at the College. A well-designed HyFlex course requires deliberate curation, creation, and design. These requirements are the main reason for not scaling HyFlex adoption at the College more quickly. There are competing priorities for limited resources and the College has no full-time instructional designers. We discovered that brainstorming for ideas about activities with faculty took time. In addition, we were limited by who was available to assist faculty with adding the engaging, equivalent learning, practice, and assessment content. Creating the materials from scratch is time-consuming. In fact, developing online content was the most time-consuming aspect of designing a HyFlex course since we were starting with hybrid courses. The move to HyFlex delivery required the development of the equivalent online material to replace the in-person component. In other words, the online portion of the hybrid course already existed (publisher material, instructor created assignments, etc.) in each of our courses. However, significant time was required to replicate the in-class experience in an online format.

It also takes additional time to test and revise, as needed, the new activities. As stated earlier in the chapter, when we piloted HyFlex we had just transitioned from being a Blackboard LMS institution to a Canvas by Instructure institution. The adoption of the Canvas LMS and use of the Mastery Paths feature, provided an easier way to

automatically grade multiple options for assignments

During Spring 2019, two faculty members, one who teaches history and the other English, started to plan implementation of HyFlex in their Summer 2019 courses. This is the first extension beyond the business faculty. The two instructors presented a HyFlex session during the 2019 Delgado Summer Institute. They shared that they experience difficulty in finding classrooms with working podiums (many had audio issues or camera issues). Although the College has webcams in over 100 classrooms, there is still some work needed to add similar technology to more College classrooms on all College sites. In addition, we need to improve how we communicate to faculty what resources are available to them and how to use the resources. The College has two hi-tech, multipurpose classrooms setup specifically to stream lectures to two or more different locations at the same time. The multipurpose classroom at the main campus has two microphone arrays and a high-resolution robotic camera that tracks the lecturer. The goal is to provide one hi-tech classroom per campus or site for live streaming and lecture recording for on-demand viewing or reviewing. The College provides three applications for recording lectures. Hands-on trainings is offered to faculty multiple times per year.

Impact

In summary, our HyFlex program is achieving college goals as demonstrated by the information and examples provided in the previous sections and summarized below:

Goal 1: Serve more students in the same physical space. The HyFlex program enables an increase in number of students served in current classrooms while avoiding the expense of adding new classrooms.

Goal 2: Increase student retention (by providing student

participation flexibility).
The HyFlex program enables an increase in student retention and completion by providing the flexibility students require to manage their class participation and personal schedule.

Goal 3: Increase student enrollment (by appealing to students' desire to control aspects of their learning environment).
The HyFlex program enables an increase in enrollment as students have control to pursue multiple delivery options based on their individual learning needs.

Goal 4: Prepare for business continuity in the event of a natural disaster.
The HyFlex program enables business continuity by providing the flexibility required for ongoing operations and as a critical component of a disaster recovery plan in the event of a natural disaster.

During the initial implementation, three business instructors delivered four HyFlex courses:

- Business Computer Applications
- Business Communications
- Principles of Management
- Principles of Marketing

The first HyFlex modules were introduced to students near the end of the Fall 2015 term. The business computer applications course, held in a computer classroom, piloted two content modules of Microsoft ™Excel in three sections. Feedback surveys from the computer application course students reported that they were excited by the option of choice but most preferred to attend in the F2F format. As the computer application course was transitioning from a flipped classroom, lab format, students may have preferred attending in-person in order to access to classroom computers to complete course work. One of the greatest take-aways for Dr. McClean, who piloted a marketing course and a management course, was the positive

reaction from students that they were given a choice on how to manage their work/school/life commitments. In other words, the comfort in knowing they had an "in-lieu of class" option when conflicts with in-person (F2F and hybrid) class times arose was a life-saver. It is difficult, if not impossible from this small sample, to measure whether the attendance choice impacted course retention.

A management class section and one communication class section piloted HyFlex. For the business management class:

- 70% of students felt that the directions were clear
- 88% felt that the online lesson length worked
- 63% felt online was effective but would not always choose to participate online
- 67% liked having the participation option
- n = 24 all worked online the week of the survey

For the business communication course:

- 100% of students felt that the directions were clear
- 100% felt that the online lesson length worked
- 53% felt online was effective but would not always choose to participate online
- 47% felt online was so effective that they would choose to attend class again online
- 73% liked having the participation option
- n = 15 all worked online the week of the survey

During the Spring 2016 semester, the Principles of Management instructor documented 3 sections of the week 3 attendance. Please refer to Table 4.

Table 4

Attendance Week 3 by Participation Mode for Principles of Management

Section	Total Students	F2F		Online	
		#	%	#	%
A	11	9	82%	2	18%
B	19	15	79%	4	21%
C	22	16	73%	6	27%
Total	52	40	78%	12	22%

The faculty comments about their HyFlex teaching experience were:

- Definitively will use HyFlex course design in the future since it pushes us to be more creative and explore different assignment options to promote student engagement
- Overall student performance appears to be better; some students will not work regardless of creativity, engagement, and flexibility
- Takes more time than expected to develop alternate delivery content

The student comments about their HyFlex teaching experience were:

- Students say they love the option; the ability to keep up if they missed class; do not feel abandoned as they do with many online classes
- “It allowed me to accomplish my career goals by helping me take advantage of real-world opportunities I could not have if I had been attending a traditional course”
- “I am able to graduate more quickly and keep up with my full-time job”
- “I am battling combat-related illnesses…opportunity to make up

> work for points rather than penalized for things that are sometimes out of my control”

In the Spring 2016 business marketing and management classes, 21 (72%) of the students attended the class online instead of attending the F2F class while 8 (28%) attended class online in addition to attending the F2F class. Overall, of the 65 combined students, 30 (46%) took advantage of the online (in-lieu of) class option. When asked whether they were likely to select the in-lieu of class option again, 24 (83%) said very likely (8) or likely (16) and 5 (17%) said not likely (3) or won’t (2). Some of the reasons students were less likely to select the in-lieu of options were that they learned better interacting with others [in person] and was that for the management and marketing courses, online was perceived to be more work than attending class in person. Although the goal was to create similar alternate activities, at times working online may require a larger time commitment of students.

In addition to student satisfaction with the format, the number of students capable of being enrolled in this format increases. Before implementation, course sections had a capacity, ratio between enrollment and seats available for enrollment, of 41%. This increased to 61% during the initial implementation of HyFlex with no increase in the enrollment cap before or after implementing HyFlex course design. In regard to grades earned and progressing through the academic program, we found no significant difference between the traditional model and the HyFlex model. In other words, students were successfully completing courses at the same rate in HyFlex course sections than in sections delivered in the traditional hybrid format. This is considered a win because of the increase in enrollment translating to more students than before completing courses successfully.

Conclusion

The unique mission of community and technical colleges in Louisiana provides students with the opportunity to earn credentials in a timely fashion leading to valuable employment and/or transferability, whether the credential is the high school equivalency, industry-based certification, transferable or career technical degree. Moreover, community and technical college graduates, in partnership with business and industry, must be properly equipped to meet the ever-evolving needs of tomorrow's workforce. HyFlex presents an opportunity to provide greater access (increased enrollment), promote retention, and lead to higher levels of completion in order to accomplish this unique mission. By Fall 2020, we plan to market HyFlex programs to adult learners with some college to encourage them to return to college to complete their certificates and degrees. HyFlex is an appropriate design strategy for our demographic described earlier in this chapter.

While current business courses are not *advertised* as HyFlex, lessons learned from the HyFlex experiment continue to be applied today. For example, instructors include more flexibility into course design as a result of their HyFlex experience. As time and technology enables, business studies will continue to adopt and apply the flexibility provided by the HyFlex design in support of student success. College-wide, there is renewed emphasis for HyFlex design and delivery and we plan to one day advertise programs offering flexible attendance. As mentioned earlier in the chapter, in 2019, an instructional design course for faculty was created. HyFlex is referred to in this course as multimodal design. Multimodal in this context refers to the ability to design at the same time for all delivery modes. This enables later deployment of the course as F2F, hybrid, online, or HyFlex (refer to Figure 9).

Figure 9

HyFlex Instructional Design Lesson

HyFlex Course Design (Multimodal)

To-Do Date: Mar 10 at 11:55pm

6 / 10 (60.00%)

HyFlex is a model that is a hybrid course that permits flexible participation. The design/delivery model is attributed to Dr. Brian Beatty of San Francisco State University. Institutions implement HyFlex in a variety of ways. Many student management systems do not have codes for HyFlex course delivery. Therefore, they are often coded as hybrid courses. Delgado implemented HyFlex in their Business Marketing program. It supports students when "life happens". Learners selected whether they would attend online or in-person per topic (week). The course design is efficient. You design at the same time for all delivery modes. You may then deploy the course for delivery as face-to-face, online, hybrid, or HyFlex. In other words, HyFlex is a multimodal design model. Build once and deploy for multiple delivery modes.

Resources

https://library.educause.edu/~/media/files/library/2010/11/eli7066-pdf.pdf
https://www.onlineuniversities.com/blog/2013/01/the-hyflex-learning-model-online-eds-most-customizable-idea-yet/
https://secure.onlinelearningconsortium.org/effective_practices/using-hyflex-course-and-design-process
https://regents.state.la.us/assets/docs/Presentations/2016_eLearning_Workshop/04-HyFlex_Design_(Jeanne_Samuel).pdf
https://journals.uair.arizona.edu/index.php/itet/article/view/16464/16485
https://iase-web.org/icots/10/proceedings/pdfs/ICOTS10_4H2.pdf

Canvas Accessibility Check February 3, 2019

Faculty teaching the fully online option of Delgado's Criminal Justice program expressed concern that the enrollment in face-to-face classes is dropping as they increase the number of online sections. They are considering HyFlex as a solution to an instructor shortage and student preference for online. The Criminal Justice faculty want to continue to serve students who prefer to learn in-person. Our HyFlex experience provides us with a foundational framework to use when adopting, adapting, or creating course content for OER courses. One of our next steps includes applying design learning to improve the learner experience. In addition, design learning (use of personas and experience maps) aids in identifying HyFlex implementation opportunities.

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Helms, J. (2014). Comparing Student Performance in Online and Face-to-face Delivery Modalities. *Journal of Asynchronous Learning Networks, 18*(1), pp. 147-160.

Jaggars, S. S., and Bailey, T. (2010). *Effectiveness of Fully Online Courses for College Students: Response to a Department of Education Meta-Analysis.* Community College Resource Center, Teachers College, Columbia University, New York, NY. Available online: https://edtechbooks.org/-TYhw

3.3

New Technologies Deliver on the Promise of HyFlex

University of St. Thomas

Glori Hinck & Lisa Burke

The University of St. Thomas offered its first fully HyFlex course during the summer of 2017, in an initiative called "Take St. Thomas Home for the Summer." Business school leaders were interested in supporting instructional innovation and new course delivery models, and a finance instructor agreed to try the HyFlex model in his undergraduate course.

Working in conjunction with staff from STELAR (the "St. Thomas eLearning and Research" center), the instructor developed an undergraduate finance course that supported traditional classroom-based student participation as well as equivalent activities for online participants, using new online technologies (including Canvas, Panopto, Proctorio, and Zoom) and a new active learning classroom space with multiple displays and a smartboard. Student response to this offering was positive with an additional section added each term to accommodate students on the waitlist.

Due to this successful initiative, the university is expanding HyFlex course delivery and variations of this model to additional courses and

programs. This chapter will describe our journey from our first introduction to the model at an online learning conference through current adoption status.

History of Online Learning at the University of St.Thomas

The University of St. Thomas, Minnesota's largest private university, has been a very traditional liberal arts institution for most of its 135 years, with campuses in St. Paul, Minneapolis and Rome. While blended programs were offered at the graduate level starting in the 1990s, it wasn't until 2012 that the first fully online program, an M.A. in Special Education, was developed in partnership with an online program management company, Bisk.

In 2016 the St. Thomas eLearning and Research group (STELAR) was created in order to provide internal instructional design and online course design and development services as we phased out our relationship with the OPM. In addition to migrating those special education courses into the university's instructional technology environment, during the summer of 2017, STELAR staff worked with faculty to develop a portfolio of online courses in an initiative called *Take St. Thomas home for the Summer*. Through this initiative, we developed and offered FINC 321 in the HyFlex model of course delivery as a proof of concept.

Faculty Development for Online and HyFlex Learning

The university's Center for Faculty Development and STELAR work in partnership to support faculty, with STELAR providing the bulk of faculty training on topics related to online teaching and learning. Initially, faculty training was offered through ad hoc on-campus

instructional designer consultations, an annual multi-day on-campus workshop for blended teaching, and through faculty registrations in online Quality Matters and Online Learning Consortium workshops. As STELAR expanded its training offerings, three 5-week online certificate courses were developed by instructional design staff in order to better assure that full time and adjunct faculty had the knowledge needed to design and facilitate online courses, with some training bootcamps for specific departments and programs to prepare them for teaching blended, online and HyFlex courses.

This chapter describes our journey from our initial offering of a HyFlex course as part of the *Take St. Thomas Home for the Summer* initiative to our current expansion of the HyFlex model into the School of Education.

Why?

Our development of HyFlex courses started in the Opus College of Business, where the academic leadership team wanted to better use technology to support instructional innovation and new attendance models. At the 2016 OLC Innovate conference, several attendees from the business college attended a panel, “Hybrid Flexible Course and Program Design: Models for Student-Directed Hybrids,” and liked how HyFlex maximized student choice. Discussions ensued about offering HyFlex graduate courses in a new business analytics program. One instructor in the program taught his courses using the classroom and web-conferencing components of this model as a proof of concept during the 2016-17 academic year and found that students liked the ability to choose their attendance modality from week-to-week. He was surprised to find that the group of students who attended online changed from week to week. He also reported that one student -- who was typically in class – experienced a minor car accident on her way to class one evening, and was able to attend class remotely online from the crash site while waiting for the police.

There was spirited discussion around converting the entire M.S. in Business Analytics program to HyFlex, but because enrollment in the on-campus courses was robust, and because course content was changing dramatically from term to term, few of the faculty were interested in adopting the HyFlex model as there was concern about the asynchronous online material requiring significant rework with each new term.

While enrollment in those courses was growing, student enrollment in on-campus undergraduate summer school courses was stagnant, and undergrads were often taking summer courses online elsewhere and then transferring the credits to St. Thomas. As part of the effort to increase summer course enrollment (and revenue), business faculty were given the option of offering online or HyFlex courses in summer 2017. The premise behind developing a good HyFlex course allows us to create a single course that accommodates different learning preferences, decreases the need for multiple sections offered in a single modality, and meets the needs of both undergraduate and graduate students who have work or other commitments that might prevent them from attending class on campus. That said, it is also seen as a lot of work and we have had few faculty who have been willing to do that work to date.

What?

Our approach is still evolving and is fragmented at times as we work to apply the model to various courses and programs. While STELAR has shared information about HyFlex in various university communications and conference presentations, no formal goals or directives have been developed by the Office of the Provost other than promoting this as an instructional innovation through funding faculty course development grants.

In the 2018-19 academic year, a grant was offered for the "development of a co-located or hyflex course that allows students to

participate on-campus or remotely within the same course section on a session-to-session basis." Further explanation of the model suggested that "the course may be created in one of two formats: 1) the Co-Location model, which allows students to choose from two participation methods: regularly scheduled in-person sessions or interaction via Zoom webconferencing, or 2) the HyFlex model, which provides students the choice of three participation methods: in-person, through Zoom webconferencing, or asynchronously through Canvas." That seems to have gained some new faculty interest, and we have several new programs engaged in offering either co-located or HyFlex courses in the 2019-20 academic year.

For the purposes of this chapter, we will focus on our first official HyFlex course, FINC 321, as it served as a proof of concept both for the use of online and classroom technologies, and will describe how this is informing subsequent courses and programs.

FINC 321 Financial Management

Our first official HyFlex offering involved a core summer undergraduate business course in which students could choose to participate in one of three tracks for each of the bi-weekly class periods:

- *Face-to-face* in an active learning classroom
- *Synchronously* online through web-conferencing with Zoom Rooms
- *Asynchronously* online using Canvas and viewing classroom recordings

Initial HyFlex Technologies

The course relied heavily on cloud-based and other technologies including:

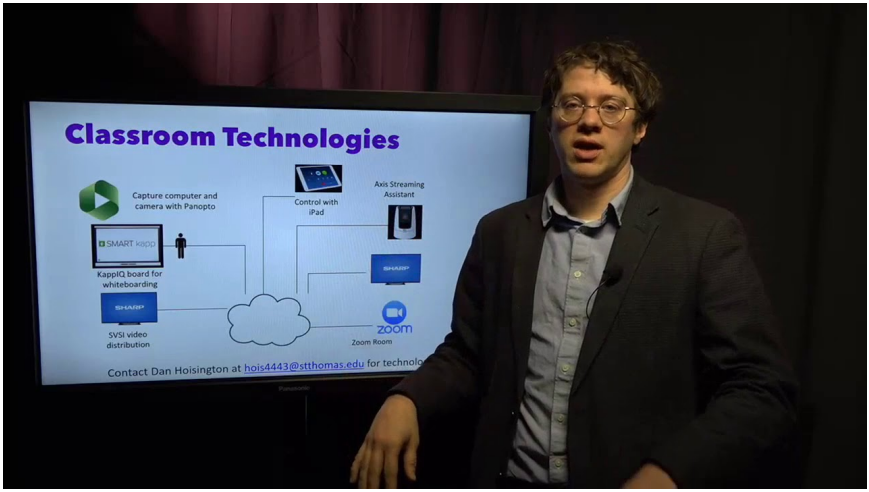
- The Canvas learning management system, together with Proctorio for online test proctoring and VoiceThread for media-rich online asynchronous discussions
- A classroom computer and cameras optimized for live Zoom broadcasting, and Panopto recording for playback later
- A KappIQ Smartboard to support and capture whiteboard activities
- SHARP SVSI video distribution and the Axis streaming assistant
- An iPad to control the Zoom Room software
- A Catch Box throwable microphone and instructor lavalier mic.

One to two students were paid to assist during each class period, helping with set-up, monitoring the Zoom chat and reminding students to use the Catch Box microphone when speaking. They also controlled the wall-mounted classroom camera with a joystick to improve the quality of the video capture when the instructor moved around. One of these student assistants was enrolled in the course and their salaries were paid out of the business school's workstudy budget.

The video and images below help to illustrate how these technologies worked together.

Figure 1

Explanation of HyFlex Technologies: Video



[Watch on YouTube https://edtechbooks.org/-DWj](https://edtechbooks.org/-DWj)

Figure 2

Classroom Technologies

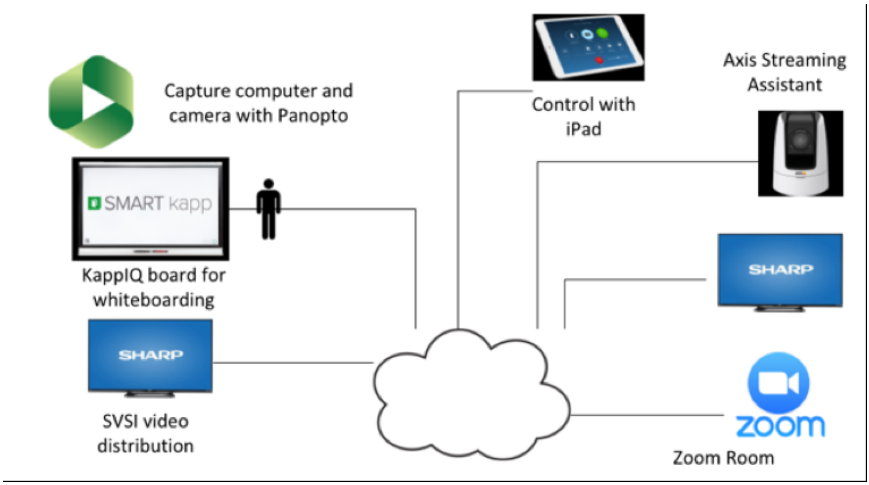


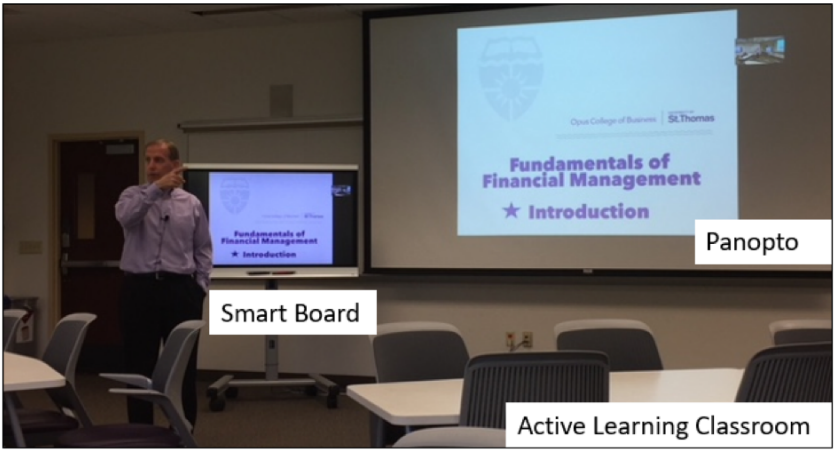
Figure 3

Instructor Technologies

Technology	Purpose
SmartBoard	Display PowerPoints and allow live annotation
Zoom	Highly interactive virtual conferencing tool
Panopto	High quality video recording of class lectures
VoiceThread	Content and video creation / sharing tool
Proctorio	Online proctoring service ensuring exam integrity
Canvas LMS	Organizes and helps ease use of technology

Figure 4

The HyFlex FINC 321 Active Learning Classroom



The technology we use to support HyFlex delivery continues to

evolve. Technologies used with each course are evaluated at least yearly and on an individual course-by-course basis. Key technologies for most courses are a reliable web-conferencing system, SmartBoard, and high quality camera and audio.

HyFlex FINC 321 Pedagogy

The on-campus and Zoom (synchronous online) students engage with each other and the instructor in the classroom and their interactions are captured in a Panopto video recording for viewing by the asynchronous students. These videos, along with additional course materials, are available to all students on Canvas. Students in all tracks complete the same readings, assignments and exams, with online students taking exams on the same day as in-class students through Proctorio. Daily participation points are assigned based on active classroom participation for on-campus and Zoom students and in the first year, asynchronous students submitted a written response to a discussion board prompt.

Pedagogical Continuous Quality Improvement

Several pedagogical changes were made during the second FINC 321 offering. VoiceThread is a supported tool on our campus. Rather than participating in a text-based discussion board for participation points, asynchronous students were required to create a short VoiceThread video presentation in response to instructor prompts.

This change was made to more closely model the classroom pedagogy which required students to verbally support their positions in response to instructor prompts and questions. Per the instructor, this change resulted in a “dramatic improvement in engaging online students”. Changes made in classroom delivery included a deliberate effort to increase engagement of synchronous students in the lecture and discussion through better integration of Zoom. The instructor also worked to improve the quality of the videos through increased

use of the Smartboard annotation tool to make recordings more dynamic allowing the students to better see and hear how an analysis was built. In addition, he tried to improve camera angles so that the video viewing experience of the asynchronous student was closer to a classroom experience. However, this was not as effective as hoped. In part, because the student assistants often did not change the angles based on the classroom activities. In fact, in the third year, the camera view will be static and positioned to directly face the instructor rather than mobile and following the classroom 'action'. Students are required to view the videos, but this is not tracked or documented.

Figure 5

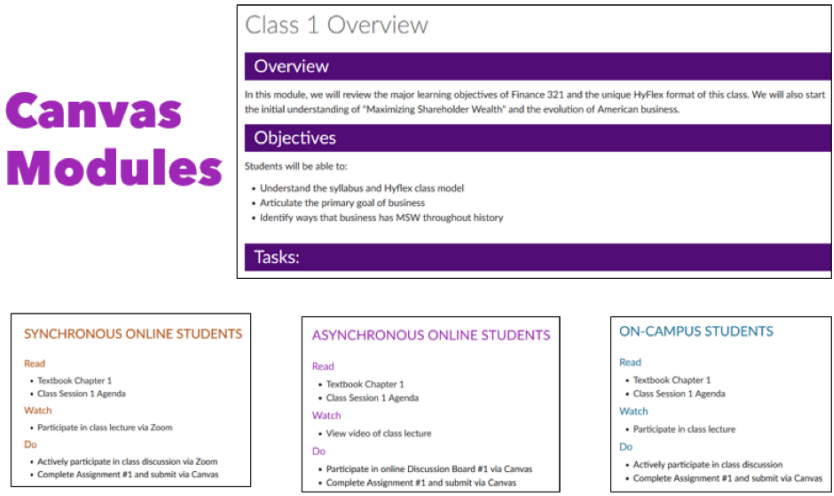
Learner Choice

Learner Choice

Live in Classroom	Live Remotely via Zoom	Asynchronously Online
Participate in live lecture	**Participate** in live lecture	**View** recorded lecture
Participation points through **Class Discussion**	Participation points through **Class Discussion**	Participation points through **VoiceThread Discussion**
Same Homework	Same Homework	Same Homework
In-class Exams	**Online Proctored Exams** Same Day	**Online Proctored Exams** Same Day

Figure 6

Canvas Modules



How?

Business Leads the Way

The initial discussions in support of HyFlex adoption involved the business college and appeal of HyFlex as a way to maximize course enrollments. Faculty aptitude, interest, and skill set figured heavily in choosing an instructor for our first pilot of a true HyFlex course. It is important to note the short timeline (~3 months) between spring planning and summer delivery had a significant impact on initial HyFlex adoption.

The business college leadership supported and encouraged HyFlex delivery and paid the faculty grant awards while ITS/STELAR, working closely with the instructor, managed the project including classroom equipment, AV and classroom support, and instructional design services. A partnership with university leadership and the Registrar was also essential. Information about HyFlex as a course delivery option has been communicated through the STELAR website including blog posts such as Interest Building Around the HyFlex

Model of Course Delivery.

Implementation Issues

Structure of the Model

The most significant implementation issue was simply determining how our HyFlex model would be structured, and what resources were needed to make it successful. In our first HyFlex offering, the time from the initial decision to delivery of the course was less than 3 months, putting a heavy workload on faculty and staff alike. The heavy faculty workload was addressed by awarding faculty course development grants, limiting enrollment in sections, and paying faculty to facilitate any additional sections.

Technology

Overall there have been few significant technology issues. However, we did have equipment failure at a key point (last day of class) and not all students liked using the catch box for audio. We are exploring other audio options but have not yet identified an acceptable replacement.

Communication with Registrar

There were initial challenges with communicating this model to the registrar and HyFlex classes were not correctly represented in the university course catalog. The registrar's office has since created an official new course type category called *HyFlex*in our student information system that more accurately describes the student experience:

"Instruction is delivered concurrently via in-person class meetings, synchronous online class meetings, and asynchronous methods.

Learners choose how they participate and engage each week."

However, there is a delay between the time a course type is created and when it can be utilized and during the summer term 2019 the course description still included two sections, one online and one in-class and only the online section accurately described the model. Interestingly, student enrollment in the online section was 42 students with a waitlist of 10 while the face-to-face section had only 9 students with no waitlist.

Equivalency

In FINC 321 we realize we need to better address equivalency and improve student-student interaction in the asynchronous online mode of delivery. As described previously, per the instructor, switching to VoiceThread helped to address this and we will continue to evaluate and make improvements.

Data Collection

We would like to collect more data related to comparison of student outcomes but the required IRB process for online informed consents has so far prevented collecting meaningful outcomes data. Moving forward, we will either streamline our online informed consent process through the use of online tools or will collect the data for institutional use only.

Impact

Increased Enrollment

Our initial goal was simply to successfully deliver a HyFlex course for the first time with approximately equivalent student learning outcomes while increasing summer term enrollment. This goal was

met and enrollments greatly exceeded expectations. Enrollment in our first HyFlex finance course more than doubled the previous typical summer enrollment from 16 students to 39. During the second summer, the enrollment cap was increased with 48 students enrolled. In year 3 there are 51 students enrolled with a wait list of 10 and the instructor reports multiple additional emails from students requesting entry into the course. While typical enrollment caps are 40 students per section, our HyFlex sections are capped at 25 with instructors receiving course credit for additional sections.

Student Satisfaction with HyFlex FINC 321

Anecdotally per instructor, course evaluations and student outcomes were approximately the same as previous summer traditional offerings for the same course. In the video below, Instructor Jim Shovein discusses student satisfaction.

Figure 7

Student Satisfaction

Watch on YouTube https://edtechbooks.org/-Rsfd

2018 FINC 321 Student Survey Results

19/48 (40%) Response Rate

The majority of students reported participating asynchronously online and this was also reported as the preferred mode of participation.

Figure 8

Mode of Participation

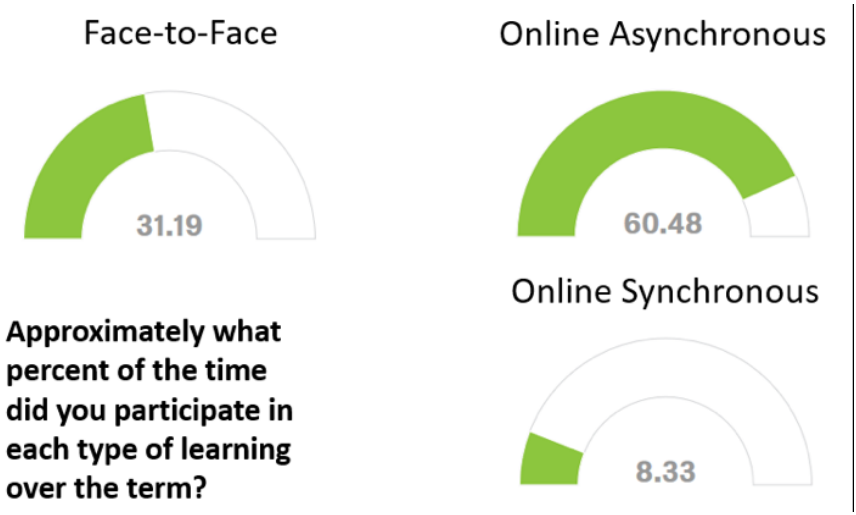
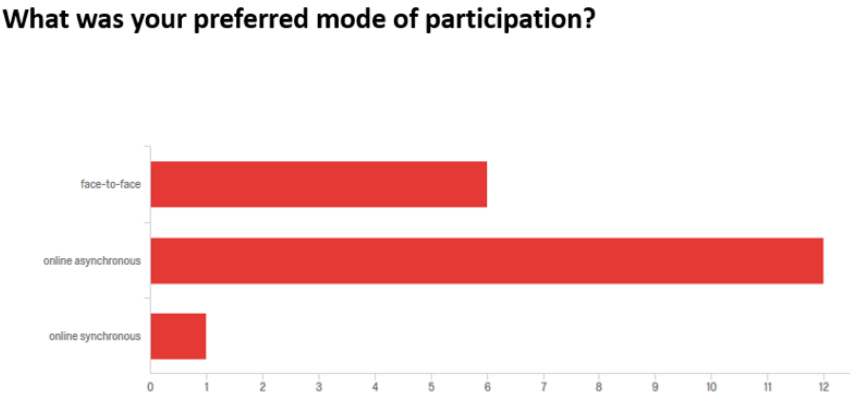


Figure 9

Preferred Mode of Participation



Both online and face-to-face instruction were considered useful and students felt they learned as much or more than expected in the class.

Figure 10

Usefulness of Online and Face-to-Face Instruction

#	Field	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree	Did not participate
1	The face-to-face instruction was useful	0.00% 0	0.00% 0	0.00% 0	0.00% 0	10.53% 2	42.11% 8	47.37% 9
2	The online instruction was useful	0.00% 0	0.00% 0	0.00% 0	5.26% 1	47.37% 9	47.37% 9	0.00% 0
3	I feel that I learned as much or more than I expected to learn in this class	0.00% 0	0.00% 0	0.00% 0	10.53% 2	26.32% 5	63.16% 12	0.00% 0

Consistent with the instructor report, technical glitches were few with more than half of the students reporting no glitches and only one student reporting many.

Figure 11

Number of Technical Glitches

Q20 - Did you experience any technical glitches?

#	Field	Choice Count
1	Many	5.26% 1
2	A few	42.11% 8
3	None	52.63% 10
		19

Expansion of HyFlex to Other Programs

The success of the HyFlex model in our pilot has garnered the attention of other programs and we are currently expanding hyflex delivery as well as a variation termed ‘co-location’ into the college of education.

M.A. in Educational Leadership

The Master’s and Doctoral programs in Educational Leadership have recently adopted the co-location model which combines F2F and Zoom options with a robust Canvas site rather than a fully asynchronous online option, as is true for HyFlex courses.

M.A. in Special Education (SPED)

In contrast to educational leadership, the SPED program is adopting the full HyFlex version of course delivery as a way to integrate online and face-to-face course sections, increase enrollments, and boost revenues. Previously, the program offered separate online and on-campus sections and found it difficult to maintain adequate enrollments in multiple sections. Hyflex offers them the opportunity to combine sections and decrease teaching load or adjunct contracts, while still honoring student learning preferences. The graduate SPED program is taking a very similar approach to FINC 321, but rather than adapting an existing F2F course, this program is starting with a fully online course and reworking it to include the F2F and Zoom options. The combined sections share the same Canvas course site, and one evening per week students choose to come to campus for class or they can attend online via Zoom and interact with the class remotely. If they aren’t available to attend during class time, they can watch the recorded lectures and provide a summary of what they learned. Similar to FINC 321, students choose their attendance option each class period.

Increasing student enrollment is a goal shared by both faculty and

administrators. However, to-date the CoB has focused on offering traditional online courses as a way to increase enrollments rather than expanding HyFlex offerings while the SPED program has fully embraced the model and will be offering the entire program as HyFlex starting Fall 2020.

University Recognition

Our adoption of HyFlex courses and technologies allowed us to help market the University of St. Thomas through multiple local and international conference presentations as well as an invitation to be interviewed for an Inside Higher Ed article (Lieberman, 2018).

Conclusion

Instructor Quote: *"The critical thing to remember is that the technology is just a more effective and efficient means to our same desired end - a great educational experience, not in any way a replacement for engaged faculty with a well thought-out pedagogy"*

Our HyFlex experience has been successful above and beyond our initial expectations. With the right support, a dedicated and talented instructor can deliver a course that meets students where they are and how they learn. The HyFlex FINC 321 pilot served as a proof of concept that allowed us to build and adapt on this model so that it can be integrated into other courses and programs. Both interest and implementation of HyFlex and its variants are growing with our first full program converting to this model and other programs We now have an entire program that will convert all of their courses to HyFlex and other programs that will initially use a variation of the model. We expect further growth due to student interest and initial successes.

Our greatest challenge will be finding and developing faculty to support this model across an entire curriculum or degree program. What we have found is that as more instructors become comfortable

with online delivery, they have fewer concerns with implementing HyFlex. However, we need to continue to increase our online teaching talent pool and offer robust faculty training and support to adequately support this delivery model. The College of Education will likely lead the way with mentoring and peer support as co-located and HyFlex become the future norm.

Efforts are still fragmented around how HyFlex is being applied to various programs but we are working to standardize systems for HyFlex delivery across the university.

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3.4

Using HyFlex in Statistics for Engineers and (Data) Scientists

University of Michigan

Jackie Bryce Miller & Melinda E. Baham

Note to our readers: This chapter is the work of both authors but is presented as a first-person narrative. Jack has been using the HyFlex model since 2011 and tells the story from their perspective. Melinda has been contributing to and consulting on Jack's work since it was introduced at Michigan in 2014. Since Jack is the "user" of the model, we decided to present this chapter from Jack's point of view.

HyFlex at the University of Michigan (UM) actually began at The Ohio State University (OSU), as I was formerly an instructor at OSU before joining the instructional team at UM. Both OSU and UM are large, public land-grant universities in the Midwest, and they are quite comparable in many aspects, including the growing popularity of various online/hybrid modalities and the increasing need for flexible options to meet the requirements of students trying to graduate in impacted majors that may have more students who need to take a course than there are seats available. As a discipline that serves many client departments, statistics departments need to address the needs of a diverse student body, and create more individualized options for students for whom statistics is not their primary focus. HyFlex allows

students to complete their statistics course their way, using the method that works best for them on a day-to-day basis. Moreover, in addition to the universities themselves being similar, the implementation of HyFlex at OSU and UM has been similar in that, at both universities, HyFlex was first used in a large introductory statistics course (with 200-400 students per lecture and 25-30 students per recitation/lab section) and then migrated to a large upper-level probability and statistics course (with 100-200 students per lecture and no lab sections). This chapter will focus primarily on the implementation of HyFlex in Stats 412, an upper-level probability and statistics course at UM. (See Miller, Risser, & Griffiths (2013) for information about the implementation of HyFlex in introductory statistics at OSU and Miller (2016) for a discussion of HyFlex in Intro Stats at UM.)

In terms of the overall structure of the learning environment, Stats 412 is a one semester, 3-credit hour lecture course with no lab or recitation section and meets for 3 hours/week for 14 weeks. The course has a Calculus 3 pre-/co-requisite. Students in Stats 412 come from both the College of Engineering (CoE) and the College of Literature, Science, and the Arts (LSA). The vast majority of the students are undergraduates, mainly upper division, with the minority (about 10-15%) coming from various graduate programs. Of the undergraduates, about 85% are from CoE, with students from aerospace to mechanical engineering. Computer Science and Data Science majors are prevalent from both colleges. The Data Science major is relatively new at UM and expects to continue increasing in enrollment. Stats 412 is a required course for the Data Science majors, one of two options to meet the statistics course requirement for the Computer Science majors, and is an upper-level technical elective for students majoring in engineering. One interesting aspect to having so many upper division CoE students is that many of them are completing capstone and other significant projects and looking for internships or permanent jobs during the term, which places an unusual demand on their time constraints. Additionally, interest (and

enrollment) in Stats 412 among engineering majors has increased significantly in the past five years whereas department resources have remained steady—thus Stats 412 was an ideal course in which to consider adding HyFlex in order to increase enrollment capacity with the same faculty resources.

How HyFlex Appeared on My Radar

My journey with HyFlex began when OSU was planning to make its transition from quarters to semesters (semesters began with Autumn 2012). In preparation for that transition, I proposed "Semester Conversion: Too Many Students, Too Little Time" for a $10,000 Departmental Impact Grant from the OSU Office of Instructional Technology (OIT). "Too Many Students" described a potential increase from 350 students per quarter to over 500 students per semester. Finding large lecture halls on campus at times when students want (and are able) to attend class would be increasingly difficult. The proposed solution was to give students choices—students could choose between face-to-face and synchronous, live stream lecture. "Too Little Time" referred to a 20% decrease in contact time spent in small-group discussions (recitations) with graduate teaching assistants (GTAs). This cut in small-group time necessitated finding a way to make students more responsible for the material they learned in lecture. The proposed solution was to have an on-line lecture review and assessment due after every lecture and before recitation. We also recorded and published all the streamed lectures allowing all students to review the lectures, at any time and in any place.

With a limited number of large lecture halls and impending increased enrollment per lecture section, already scarce resources were going to be at even more of a premium. My thought was that allowing students to attend synchronously in person or via remote stream or asynchronously watch lecture recordings would enable more students to enroll in a course while not increasing the actual number of

physical seats needed in the classroom, thus not necessitating another precious time slot to be taken from the scarce large lecture halls. I successfully used the HyFlex model at OSU for the academic years 2011-2013, ending only because of my transfer to teach at UM. Although I was not able to overenroll my lecture sections at OSU and teach more students in the same number of physical classroom seats, our research (Miller, Risser, and Griffiths 2013) indicated that we would be able to move in that direction. Unfortunately, OSU Statistics stopped using HyFlex when I left; other disciplines, including Animal Science, Mathematics, and Economics, have used and expanded on HyFlex principles after I introduced the technique to OSU during the 2011-2012 academic year.

The HyFlex Model Comes to Michigan

Although space needs are universal, the demands on space that came with a change from quarters to semesters were not present at UM. Still, after experiencing the success of HyFlex in introductory statistics at OSU, I was eager to bring the technique to UM. As such, I first introduced HyFlex in a very large (1500-1800 students per semester) introductory statistics course at UM, but found that the various HyFlex options were underutilized by students in that course. Upon further reflection, I realized that students already had a number of different attendance options in that course, and thus HyFlex was not really needed by those students. I knew the HyFlex model could be a successful model if the students have a need for it (as Brian Beatty says, “If there is no need, don’t do it!”), thus I decided to introduce the model to students in Stats 412, where, to my delight, the HyFlex model has proved much more beneficial to students (Miller and Baham, 2018a, 2018b, 2018c).

As mentioned previously in this chapter, Stats 412 is taken by students primarily enrolled in both the College of Engineering (CoE) and the College of Literature, Science, and the Arts (LSA) at UM. CoE

is housed on UM's North Campus, and LSA is housed on UM's Central Campus. Because Stats 412 is taught out of an LSA department, all Stats 412 sections are taught on Central Campus. The distance between the two campuses is not inconsequential—it is at least a 30-minute walk between classes if a student needs to get between North and Central campuses, but classes only have a 10-minute break between them. Remote attendance allows students on North Campus (or elsewhere) to attend a class on Central Campus without having to worry about being late to any classes. Thus, streaming synchronously and remotely allows students to attend all their classes without missing vital information and without sacrificing the student classroom experience (e.g., access to instructor in real time, etc.).

Surprisingly, my model for HyFlex somewhat mirrors the models of others even though it developed independently. When preparing to submit the OSU grant proposal, one instructional technologist asked why I didn't just pre-record my lectures in my office. The best way to explain it is that I need at least some students to be with me in person so that I can teach—I rely on the students' questions and facial expressions to drive the pace of a class meeting and did not feel it was possible to do this while pre-recording lecture material. HyFlex was borne of my desire to offer the chance to take a statistics course without worrying about how many students could fit into a room—I wanted students to be able to attend remotely if they chose.

In Stats 412, HyFlex means that students can attend class in person or remotely while class meetings are happening. It is important that students have equivalent learning opportunities regardless of how they attend lecture. The experience of attending class in person or remotely should also be fairly seamless for students—they should be able to make their choice about attendance mode based on what is best for them on each day. Students should not have to decide when they register for class that they want to attend solely in person or solely remotely for the entire term. The flexibility of daily choice allows students to change how they attend throughout the term,

whether predominantly in one mode or alternating between attendance modes.

Regardless of how many students choose each attendance modality, the in-person lecture (slides and instructor audio) is live streamed and can be accessed with reduced or standard latency via URLs provided to the students in Canvas (our LMS), depending on the technology available to the student (i.e., bandwidth) on a particular day. A backchannel is used to provide equivalent learning opportunities to students attending remotely—the backchannel lets students ask questions of the instructor and have them answered in real time even though they are not in the same physical space.

Because Stats 412 is not listed as "HyFlex" in the UM course catalog, students who may be unaware of the HyFlex design of the course learn about it during the initial class meeting and have the following information in the syllabus:

Ways to Attend Class: Stats 412 is taught using a HyFlex (hybrid-flexible) model. This means that you can choose the way you attend class to best meet your needs. You may choose how you attend on a daily basis and may attend in person or via streaming technology. Details about this HyFlex course can be found [later in the] syllabus.

The details given to the students for the Winter (known elsewhere as Spring) 2019 semester are included at the end of this chapter.

Implementation of HyFlex at Michigan

Implementation of HyFlex at UM would not be possible without the efforts of folks from the UM LSA Instructional Support Services (LSA-ISS) office. The LSA-ISS team members consistently work with me to find the best solutions for streaming lecture and for the backchannel. They also make a lecture capture (recording) of the in-person lecture just in case technology lets us down on any particular day.

Live Streaming

Since introducing HyFlex at UM, we have used several methods for live streaming lecture, beginning (2014-2015) with Adobe Acrobat (which I had used at OSU). After Adobe Acrobat, we streamed with the “active learning platform” (2015-2016) that had been developed by a colleague at UM and is now part of Echo360. For the past few years (beginning Fall 2016) we have used an Epiphan Pearl live streaming box. So far this has worked well, so we continue to use it. During the 2018-2019 academic year, students were offered two options for streaming—one at standard latency and the other at reduced latency. There is a 30-60 second lag between real time and the stream with standard latency that is cut to 10-15 seconds with reduced latency. While it would be ideal to have no lag between real time and the stream, that is not currently possible with our technology. Students tend to use the reduced latency stream unless they are somewhere with less broadband and thus need to use the standard latency stream.

Backchannel

The backchannel allows students attending remotely to ask me questions during lecture; all backchannel technology used so far has been free of charge to students. One particular advantage of the backchannel is that, because it is available to all students, even those who are physically in the classroom can utilize it to ask questions (which may otherwise be daunting in a large lecture class). With the exception of the single year we used the active learning platform, our backchannel was run through an instructor subscription to Poll Everywhere. Poll Everywhere worked well for the most part—students could ask questions via Poll Everywhere, and I repeated them aloud and answer them during lecture (so all students hear the question and the answer).

The one element of the backchannel I felt was missing while using Poll

Everywhere in the past few years was the students' ability to see and answer each other's questions. When I started using the HyFlex model at OSU, there was a static URL that I could give students so they could see the backchannel and comment amongst themselves, but that static URL unfortunately is no longer be available with Poll Everywhere. When it was available, students were great at answering each other's questions. The backchannel chat allowed by such a static URL was terrific for quick little things that did not need to be broadcast to the entire lecture. Without the ability for all students to access what has been previously asked on the backchannel, some questions may be asked multiple times or interrupt lecture material. Beginning Fall 2019, I tried a platform called YellowDig, but it does not update in real time, so, while the platform seemed promising, it did not fit the purpose. LSA-ISS staff members and I are looking into alternatives, but for now I am sticking with Poll Everywhere.

Set Clear Expectations

In addition to the stream and the backchannel, it is important that students understand what is expected of them in terms of HyFlex and with technology in general. All details are provided in the course syllabus—the HyFlex section of the syllabus explains how students access the live stream and the backchannel and gives students an overview of my expectations for them with respect to the technology used for HyFlex. .

With Technology Come Challenges

Anyone who uses technology knows that they should always have a "Plan B." When we rely on technology to stream to the majority of our students, it is difficult—if not impossible—to communicate with the remote students if there are technology issues (e.g., streaming box needs to be reset, there was a power outage in one part of campus, etc.). In my eight years using the HyFlex model, there have been only

two days when everything went awry with technology and there was no way to stream class (Plan B was to record the in-person lecture and post it). When minor issues have arisen, the audio-visual technician in the lecture room has been able to troubleshoot almost anything. I have learned to be patient and calm when it comes to technology. Students have been very understanding on the rare occasion when something goes wrong.

Recording Availability Debate

One of the biggest challenges of the HyFlex model has nothing to do with HyFlex itself or the technology involved. Rather, it is with the availability of lecture recordings and the evolution of my pedagogical practices regarding recording availability. The first five years I used HyFlex at Michigan, I posted lecture recordings on the learning management system for the duration of the term. This practice ended after the Fall 2017 term when student synchronous (in-person or live streaming) attendance was dismal and, for the first time since I started using HyFlex in 2011, poor student performance on homework and exams indicated that students were not watching the lecture recordings. HyFlex is intended to help students and to offer them flexibility, not to "design a feature that inadvertently facilitates poor student behavior" (Brian Beatty, personal communication, 2019). Even so, data collected from Fall 2017 students indicated that, with the recordings available, students meant well and planned to watch the videos, but only about 25-30% of students attended class (includes all methods: in person or remotely) and only a minority of the students who did not attend watched the recordings. There are ways to add credit or gamification to increase the likelihood that students will watch videos in a timely manner, but this would contribute to "workload creep" (addressed below). So, while I want the students to have flexibility and choice, it seems that I need to make the choice about recordings for them as a group, not taking individual choice or learning styles into account. This poor attendance and poor command of the material as evidenced by homework and exams resulted in a

policy change—recordings were not made available to students during the Winter 2018 term. During that term about 60% of students attended class regularly, with about 16% attending in person and about 44% attending remotely. Although not causal, this demonstrates an association between lecture recording availability and class attendance. Furthermore, students during the Winter 2018 term had far better attendance and performance on homework and exams than students in Fall 2017, so I continued the new policy of not making lecture recordings available.

Unfortunately, in the following year extreme weather and class cancellations during the second week of the Winter 2019 term required me to post a recording from a previous term so that we did not get too behind in the material. After watching the recording, one student inquired about having recordings available for all lectures, and I ultimately opted to make recordings available for 24-48 hours after class meetings for the remainder of the Winter 2019 term, dependent upon student performance. Student performance on Exam 1 seemed to indicate that they were likely watching the recordings, so I continued to post them during the term, even though performance on Exam 2 dropped. Fortunately, student performance on the final exam suggested that students were once again actually watching the recordings, so I felt better about having the recordings posted. As mentioned above, I do not have any lecture-based quizzes during the short period recordings are available, so there is no “guarantee” that students will watch the videos during the short time they are available.

As for the future, admittedly, I am conflicted about lecture recordings—on principle, I want the recordings to be available for students for many reasons, including for material review and unavoidable student absences (athletes, interviews, etc.). In practice, I question how often students who do not attend synchronously really watch the recordings. My (anecdotal) findings are consistent with those documented in Beatty, Merchant, and Albert (2019).

Additionally, when recordings are available, synchronous (in person or remote) attendance tends to be lower and there are fewer questions on the backchannel (less student involvement) than occurred when no recordings were posted. Weighing the pros and cons, at the moment I continue to allow recordings for 24-48 hours after a class meeting during the Fall 2019 term. I might consider making the videos available again for exam preparation, but am afraid that students will wait to binge watch as many recordings as they can prior to taking their exams. Publishing and unpublishing the videos during the term must be done manually and contributes to workload creep. Allowing the recordings for a short period of time ideally encourages students to stay on top of the material, but at a time cost that is non-trivial.

Workload Creep

One of the original reasons that I started using the HyFlex model was so that I could teach more students without taking up more physical classroom space. Historically, I have allowed more and more students to take my classes as wait lists far exceeded available spots, and my enrollments at OSU increased from 50 to 200 students per lecture section, with similar increases at UM. The toll this takes on instructors and graders is not minimal. More students enrolled means more homework assignments and more exams to grade—I have graders for the homework, but I choose to grade the exams myself. However, more than the extra grading, it's the barrage of email messages, alternate accommodations, special office hour demands, etc.—in essence, the increased psychological and cognitive load—that come from the increased number of students that has led me to cap my enrollment at UM. Unlike with our large introductory statistics course, there is no administrative help for Stats 412, so all emails are handled by me as the instructor. And, in this digital age, it appears that students are more likely to send a quick email to ask a question than they are to look up the information in the syllabus (e.g., "when is the exam?" or "can I turn this homework assignment in late?"). This non-trivial increase in administrative duties led me to have my

department chair cap the course at 100 students per section beginning Fall 2018. Limiting the number of seats in the course goes against my desire to teach as many students as want to sign up for the class. However, I recognized that my students were not getting my best when I was overwhelmed, so I had to scale back. Although HyFlex allows us a way to teach 2-3 times the number of students in the same amount of physical space, it does not compensate for the administrative (and cognitive) load that comes with the increased number of students, and thus must be applied carefully and wisely so the increase in students does not detrimentally decrease the learning experience.

Students Like HyFlex but Adoption Is Slow

By far the most important student outcome of the use of HyFlex at UM has been affective in nature. This is consistent with findings from Miller, Risser, and Griffiths (2013) about HyFlex at OSU. Students like having a choice about how they attend lecture. They also like being able to ask questions through the backchannel. Primarily, though, the opportunity to attend class remotely has been well received by students. Whether a student is in ROTC and has training until 0800 on North Campus but has time to pop home and shower before attending an 8:30am class remotely or whether a student has a difficult time concentrating in a large classroom and appreciates being able to stream lecture in a quieter environment, students like the HyFlex model for Stats 412. Many student evaluations have mentioned that they wish more classes used the HyFlex model, and student focus groups have indicated similar affective responses.

Additionally, for students who mostly attend in person, HyFlex has allowed students to attend lecture on days when they have been unable to be physically present on campus. Remote attendance has allowed students to come to class while attending out-of-town professional conferences, and student athletes have attended

remotely when out of town for games. One student even attended class via car while traveling to a friend's wedding 1000+ miles away (the student was a passenger in a car with WiFi connection)! No face-to-face only class can offer these opportunities to students.

Since students really like the HyFlex opportunities they have at UM, certainly it has taken off as an instructional model, right? Unfortunately, that hasn't been the case. As far as I know, HyFlex has not caught on at UM in the same way it did at OSU. The large introductory course at UM that I initially introduced HyFlex in does use HyFlex for exam reviews, but no other statistics courses use the model. It is quite possible that some other instructors in other departments are live streaming their lectures in the lecture halls that have the streaming technology and that I am unaware of it.

Try HyFlex!

Utilizing the HyFlex model in my statistics courses, both at OSU and at UM, has been extremely rewarding. By engaging in HyFlex techniques, I am able to provide my students with continuous choice of class attendance and help to encourage them to take ownership of their own learning. As a faculty member and educational instructor, my ultimate goal is, of course, for students to learn the material and be able to apply it in their other courses and work. If students aren't able to attend class or ask questions, they may quickly fall behind and have difficulty catching up. Even the best students may have this happen. Especially as students advance in their educational careers, the demands on their time can become overwhelming, and non-major courses, although vital, take a back seat to job interviews and capstone projects. A rigid course structure would pit these various elements at odds with one another and would force such students to choose between which lecture(s) they would attend that week. I believe we should be supporting our students in their aspirations, not limiting them. By providing flexible lecture attendance options, I feel

that I am contributing to positive educational experiences and that I am engaging in pedagogical techniques that exemplify my personal teaching philosophy.

In addition to my personal affective gains, students at UM have continually responded positively to having HyFlex available for Stats 412. The flexibility has helped students in a variety of situations, and students continue to report appreciating the choice that HyFlex provides for them. As such, I will continue to work with my IT staff to improve both the stream, perhaps by reducing lag and automatically removing recordings, and the backchannel, hopefully by adding student-to-student interactions so students can learn by teaching others. All indications from students are that they are very pleased with my HyFlex offering, so I will continue to use it in all large courses that I teach.

If you read this chapter, you are at least interested in the HyFlex model—that's great! I think HyFlex is an excellent way to offer our students choice and flexibility in their learning. I encourage you to talk to your instructional technology (IT) support staff about what HyFlex would look like for you. There are many options for streaming and for the backchannel, some of which might already be available at your school. Additionally, you may be able to find ways to incorporate aspects of HyFlex in your teaching even if your school does not already have certain technologies available. HyFlex can be implemented in a variety of ways at any course level for just about all course subjects, so I encourage you to get creative and try it out!

In sum, I look forward to us working together to form a community of educators who offer the HyFlex model, and to ways in which together we can develop technology that meets our needs to expand the model beyond its current reach, in order to provide the best opportunities for our students.

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Appendix A. Using Technology for Stats 412 (download PDF file here)

3.5

HyFlex in Northern Ontario

Cambrian College

Melanie Lefebvre

I joined Cambrian College as a full-time faculty during an exciting time: the launch of HyFlex delivery. As a new faculty, this was terrifying. I was lucky to find Dr. Brian Beatty online and I hit the jackpot when he agreed to provide me with virtual mentorship in preparation. Today, I have the privilege of sharing my story for his collection of case studies surrounding HyFlex delivery. I will be writing from the perspective of a new full-time faculty (having previously taught face-to-face courses the year prior on a part-time basis). Not only is my perspective novel, but so is the implementation of HyFlex learning at Cambrian College.

I'll share my personal journey of preparing for this endeavour, which I hope may serve as a form of guidance and support for others venturing into HyFlex delivery for the first time. I will begin by highlighting the value of flexible delivery and examining the goals that were important to me as a faculty as well as the subsequent execution of these goals from both a technological lens and a pedagogical lens.

To further set the stage, it’s worth noting that not only was I embarking on a new journey as a full-time faculty, but I was also the coordinator for a brand new post-graduate certificate program in

Community and Health Services Navigation, a helping profession, and its inaugural cohort. I navigated the development of a new program while also delving into HyFlex delivery and emerged unscathed 10 months later. I suspect I still have an abundance of learning ahead of me as I continue to finetune my methods, but for now, I invite you to explore this delivery method from my preliminary lens and perhaps offer you a form of mentorship in the process.

Why HyFlex?

Cambrian College is located in Northern Ontario, also known as the city of lakes, making it a beautiful destination for students. With HyFlex delivery it's now a destination that does not require students to move to Sudbury (even if this means missing out on our 300 plus lakes). Currently, HyFlex is available in Cambrian post-graduate certificate programs. Some faculty outside of the post-graduate certificate programs teach using a hybrid model of delivery while other courses are offered entirely online.

I'm especially grateful for global institutions as I'm pursuing my Masters of Education through Memorial University in Newfoundland. It's likely not a surprise that I managed to incorporate the topic of HyFlex into one of my research papers. Speaking of which, research shows adult learners appreciate the autonomy to tailor their studies to their unique learning style (Elder, 2018). With HyFlex learning, there is the flexibility to choose preferred modes of delivery week-to-week, based on the unique circumstances occurring in one's life at the time (e.g. difficulty obtaining child care) (Elder, 2018). In an Australian action-research driven HyFlex project, 88% of students had consensus that the ability to "study at a time of day that suits [them]" was an important factor in the navigation of their independence (Taylor & Newton, 2013). Everything I was learning in my studies as a graduate student was being echoed at Cambrian: they had clearly done their research as not only had they consulted with students, but the

learner-centered decision was implemented in their 2015-2019 Strategic Plan (Future Cambrian, n.d.).

It was important for me to understand the rationale behind the new model but I didn't need much convincing. As a student myself, I can attest that having options is a luxury. As a faculty, my main goal was to ensure that regardless of a student's chosen method of delivery, they would successfully and confidently acquire the desired learning outcomes. This would inevitably require some flexibility on my part, especially for a helping-related program in which direct observation of the skill development of students is an important component. It is important to note, however, that HyFlex delivery does not imply that the learning experience of online students must be identical to face-to-face, as this is clearly not realistic, but rather, the outcome of the experience must yield an equitable opportunity to achieve the learning outcomes and therefore requires careful and thoughtful consideration by the instructor (Taylor et al., 2013).

My professional goal aligned with Cambrian's strategic goal: putting the student first. From a pedagogical perspective, it was important for me to balance this luxury with the requirements of the program so that regardless of the chosen method of delivery, students are equipped with the skills to support others as a navigator.

Housing HyFlex

Before working towards achieving my goals for the inaugural cohort of students, I needed to understand the logistics of how HyFlex delivery could occur. Cambrian had virtual classrooms prepared to videostream classes in real-time, which would then be uploaded afterwards. Cambrian had a couple of technological options to make this a reality, with Zoom being the platform I opted to utilize. The selling points for me were the various features such as having the autonomy to upload my lecture independently at my discretion, which allowed for customization as needed. This also helped with the anxiety

of being recorded, which, for me, felt awkward initially. The ability to customize what I uploaded also aligned with my goal for students to confidently demonstrate the learning outcomes of the course. If an activity did not translate for asynchronous learners, I sometimes chose to make a mini video specifically for them, but that could also be viewed by all students to reinforce concepts. The ability to pause the recording in real time proved especially useful during what can sometimes be long pauses of silence before a student responds to a posed question. Finally, the "break-out room" feature allows virtual learners to still participate in small group activities. This was important to me because I didn't want virtual students to feel alienated.

In Dr. Beatty's approach to HyFlex learning, he encourages participation across all modes of delivery. While not required, he creates opportunities for face-to-face students to interact with asynchronous online students and combines participation for both online delivery methods (B. Beatty, personal communication, July 3, 2018). It was my intention to emulate this immersive experience as much as possible.

Cambrian also has the luxury of a Teaching and Learning Innovation Hub (AKA The Hub) which was instrumental in saving me the grief of trying to figure out the tech myself. Their level of expertise was both reassuring and supportive. To provide further context, Cambrian courses are housed in Moodle, a learning management system. The Hub added a Zoom plugin that allowed both students and faculty to access the virtual classroom, so to speak. Everyone can benefit from The Hub's resources by checking out their website here

What eventually became second nature would not have happened so seamlessly without practicing with the technology to increase my comfort level. I did test runs with willing participants to ensure both sound and video were in working quality. I also introduced myself to the Audio and Video Support Staff, conveniently located in the hallway

as the majority of the HyFlex delivery classrooms. Finally, I created tutorials for students using a screen recording platform so I could capture the exact process of how to access live lectures as well as where to find recordings afterwards.

Support

Without The Hub, I don’t know where I would have started (well, perhaps I would have found Dr. Beatty earlier). Not only was technical support readily available, but so was a tutorial created by The Hub team for those venturing into the world of HyFlex delivery. But it wasn’t just me teaching within my program. As the coordinator for a brand new program, it was important for me to stay connected with the part-time faculty who would also be teaching in the program. My own experience of feeling initial terror of HyFlex, coupled with my experience of working full-time as a mental health worker while teaching part-time helped me empathize with the jitters they too, were likely experiencing. I created a shared folder online with additional resources should faculty choose to learn more, because, well, technology can be intimidating, with one of the resources containing helpful responses from Dr. Brian Beatty via our email correspondence:

You might find more ideas about the online role-playing activities at https://edtechbooks.org/-AAo The challenge is in the timing of the interaction for asynchronous students. If you rely on a discussion board tool for the role-playing, then there's likely to be a lot of time lag in-between role taking. You could require the asynchronous students (or suggest) that they coordinate to do a live online role play using Zoom or some other tool that they can record and post for you (or other students) to review. Another useful resource for building interactivity into the course for online learners is this free e-book from Curt Bonk (Indiana U: http://tec-variety.com) I've also sometimes simplified things by building interactive assignments (activities) only online and requiring all students (whether attending online or on-ground) to complete them online. That approach also brings the different types of students together to help form a learning community. Most on-ground students today have no problem in completing online activities as part of a traditional class.

I also summarized a telephone conversation with Dr. Brian Beatty to share with faculty, which you can check out in Appendix A.

To ease my worries about whether I'd set up the technology properly, I created a step-by-step guide along with troubleshooting resources that was housed in the classroom where faculty taught (which was also a comfort for me) and met with them for a live demonstration. To encourage communication and continual learning along the way, The Hub created a community of practice so faculty could voluntarily meet on a monthly basis as an informal support system. Check out the guidance they offer for HyFlex learning at the link found here

Equitable Learning Opportunities

Some of the activities I was teaching required practical application of skills. HyFlex learning is not meant as a universal solution. Some courses require in-person interaction in order to allow for practical applications to occur seamlessly as specific skill sets are acquired (Elder, 2018). Because HyFlex learning is designed with the learner in mind, I had to balance said flexibility with the objectives required to be a successful navigator. I did this in a couple of ways. In one assignment students were required to chair a coordinated care conference with their peers. I connected with the fully asynchronous students at the beginning of the course to inquire about their availability for attending one of the sessions synchronously, thereby providing them with ample notice to make any needed arrangements. For another assignment, which was a simulated on-campus experience with staff acting as healthcare professionals throughout the college, I provided three months notice so that asynchronous students would be able to attend. However, as one of my students was fully asynchronous residing outside of Sudbury, I created an online version of the simulation for her.

Cultural considerations are important to keep in mind since, depending on the cultural background of the learner, their exposure to innovative technologies may be limited (Elder, 2018). Regardless of culture, however, a learner's ability to navigate technology can be taken for granted and issues may arise when it is assumed that all learners are familiar with the chosen technologies. This barrier can be especially demoralizing to the student, with one student who experienced this phenomena identifying as feeling "alienated" (Taylor & Newton, 2013). Ensuring students have equitable learning opportunities regardless of which format they choose is an ethical duty. Failure to consider this could pose a monumental barrier if not addressed (Taylor et al., 2013). This adds a layer of pressure to the faculty, and while sometimes additional work is necessary (e.g. one-on-one sessions with asynchronous students outside of classroom time

to assess their progress), it is reassuring that it can be done. There may even be more efficient ways that I have yet to discover.

The Outcome

While I may not have official data to present, I do have anecdotal evidence of success. Firstly, of the 21 students of the inaugural cohort, all 21 graduated. My goal was to ensure I put the students first regardless of their chosen delivery format. Putting the student first was important because I wanted future career opportunities to be realistic for all students, regardless of their chosen delivery method. It was my intention that regardless of whether students were in class, joining synchronously or viewing the class afterwards, they would have the appropriate skills to help future clients navigate complex systems. I'm excited to share that many students across modalities of delivery have obtained meaningful employment, which I'm defining as employment in a helping-related profession. Some students were hired at the same agency where they completed their field placement. Some students chose to continue their studies in a similar helping-related profession (e.g. Social Services), while others chose an unrelated educational path.

It was a rewarding challenge as some students came into the program without any prior experience in a helping profession. Some of the students who got hired in a helping-related profession after the program came from a science background (e.g. Microbiology). It was thrilling to see evidence (via being hired!) that I had helped to equip the students with relevant skills that the workplace deemed valuable. I think this speaks to the potential of the program as not only an introduction to the helping profession but as a way for helping professionals to finesse their skills.

Conclusion

Thank you Dr. Brian Beatty for inviting me to contribute to such an innovative community and showcase the work of Cambrian College. I hope to expand my networks, both locally at Cambrian and globally, with other trailblazers. I look forward to future mentorship opportunities as well as the opportunity to mentor, all while continuing to put students first.

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Appendix A: Summary of Key Points from Personal Conversation with Dr. Brian Beatty, July 3, 2018

Participation

- Make participation a requirement. Also, make it professionally valuable to them so they want to do it
- Need interaction with students who are synchronous online - even as simple as a chat - to help them feel like they are there
- Layer in asynchronous discussions to online course

Small Numbers

- Small number of students = more interaction from professor with each student

Layer 3 Delivery Methods

- Don’t keep face-to-face separate from online
- Review what online students did in class
- Emphasize that all students are more than welcome to participate online but not required to do so
- Connect students with one another. Example: personal reflection post in which everyone had their own thread and every week they would write a paragraph or two of what their learning process has been like. It was optional as to whether students read the threads of others. Dr. Brian Beatty read them all but let students know he wouldn’t be replying. He encouraged students to interact if they chose to, and noticed that some did.

Assignment Ideas

- Work on a project for the For him, every week Dr. Brian Beatty added another component to the project with components due throughout the semester

Face-to-Face Class Time Recommendations

- Group tasks are good
- Brian Beatty did regular live peer reviews in class of the project components
- He also created small reading groups

Asynchronous Students

- For asynchronous students, make sure the following are very clear: What I have to do? What to do next?
- Asynchronous students: tasks may be to review archive discussion or something created and uploaded separately

Tech Tips

- Be mindful of bandwidth considerations when it comes to uploading material for asychn students
- May want to start small with amount of tech used. Don’t want to have too many tech at first. Can build upon tech in future years.

New Program Tips

- Acknowledge with students this is new - they could help with the process. Frame it as we are in this together.

Feedback

- Get unofficial feedback - both mid and end term - from them in addition to what the college does - lets them know you value their input.

- If midterm feedback, this is also a chance for them to influence the second half of the course.
- Let them know they have am opportunity to influence the program for future students

3.6

HyFlex at Montana State University Billings

Montana State University Billings

Susan Balter-Reitz & Samuel Boerboom

In 2015, Montana State University Billings sent two faculty from the Sociology department to the e-Learn Conference. It was from this event that we first became aware of the HyFlex teaching format. At the conference the format was branded a “true hybrid,” and our e-Learning staff rejected this singular interpretation of hybrid design. Despite the intriguing student-centered possibilities of HyFlex gleaned from the conference, no one from our e-Learning office followed up with the participating faculty or further researched the possibilities of HyFlex, in part due to the perception that the faculty had too narrow a vision of hybrid teaching.

Luckily, one of the faculty members who attended the conference, Dr. Joy Honea, did not lose her enthusiasm despite the tepid reception she received from our staff. During the fall semester of 2017, she reached out to see if there was faculty development money available to support her travel to a conference to learn more about HyFlex. Unable to locate an upcoming conference with HyFlex on the program, the Director of e-Learning, Dr. Sue Balter-Reitz, began researching HyFlex to see what resources were available. Dr. Brian Beatty’s name

quickly appeared, and Sue emailed him to see if he had any presentations scheduled. He did not have anything on his docket, which turned out to be a fortunate event for MSUB. Instead of sending one faculty member to a conference, we asked if we could visit San Francisco State University to meet with Dr. Beatty and attend his custom workshop on HyFlex.

We were able to secure funds to send six of us to investigate the potential of HyFlex for our University. Our scouting party included the Director of e-Learning, an Instructional Designer, and four faculty members familiar with hybrid and online learning. We embarked for San Francisco State, hopeful that the HyFlex course delivery model would help us negotiate some of our enrollment and retention issues.

MSUB's Readiness for HyFlex Delivery

Montana State University Billings is a regional comprehensive university located in Billings Montana. Billings, with a population of approximately 105,000, (United States Census) is the largest city in the state. Health care and banking are the primary economic drivers in the city. Fifty-seven percent of students enrolled in the university are from Yellowstone County, where Billings in located. Almost all students work at least part time, and a good majority of them are employed full time. Needless to say, our students rely upon flexible course delivery modes in order to balance their competing priorities.

The University includes five colleges split into two campuses: University Campus and City College. City College is our embedded community college. The portfolio of programs offered by the institution spans one semester technical certificates to Master's degrees. Headcount for Fall 2018 was 4,315 (Montana State University Billings) The average age of our students is 24.6, and many students enroll less than full time in order to balance family and work obligations. Despite relatively low tuition, MSUB students tend to be debt averse, and stop out to earn money to pay for their next

semester. As a result, time to graduation can be slow and retention and completion numbers are not ideal, especially when compared to peer institutions who have more traditional students.

The demographics of the university prompted early adoption of distance education. MSUB began offering Internet-enabled classes as early as 1996, and by 2000 had a healthy number of fully online classes and programs. In 2018, the university offered 27 fully online program and 665 online course sections (Montana Board of Regents). Full-time faculty have largely embraced online teaching, partly because doing so is tied up with the university's mission, and partly out of necessity to fulfill student demand. A minority of faculty have been hesitant to embrace online learning because they fear the reduction of on-campus instruction will result in inferior student learning and retention. Our students also desire on-campus classes, but they must be offered at times that fit into their packed schedules. Students often mix and match on campus and online classes in their course registration in order to better balance work and family obligations. In any given semester, approximately 55% of students are registered in at least one online course.

Student demand for online course sections is high, and academic departments struggle with balancing staffing for online and on-campus offerings. As with many regional comprehensives, budgets are challenging, and departments are under pressure to cancel low-enrolled courses. Most often this translates to cancelling on-campus sections, leaving students who prefer face-to-face learning feeling pressured to enroll in online courses. Our unique student demand for both on-campus and online courses positions MSUB to be a potential leader in adopting innovative course delivery formats.

Important Lessons from San Francisco State University

MSUB's experience building a robust online education program assisted our exploration of HyFlex. Decisions about online staffing, scheduling and course development belong to the academic department; a structure that ensues faculty centrality. We knew that for HyFlex to work at our university, it would need to be led by faculty. At MSUB, faculty are represented by two unions, the Montana State University Billings Faculty Association (representing faculty on University Campus) and the Montana Two Year College Faculty Association (MTYCFA) (representing faculty at City College). Thus, it was crucial that we included faculty who would be able to serve as representatives for union issues, as well as influencers for peers, as we determined if HyFlex was appropriate for our campus. We ended up inviting two faculty from each campus to SFSU. These faculty were program leads and all had significant experience teaching online and hybrid courses.

During the visit, Dr. Beatty arranged for our team to meet with faculty who taught HyFlex courses for SFSU. This was incredibly valuable; the experience that these faculty shared helped us to understand the diversity of options available for structuring a HyFlex course. These conversations also helped ease our faculty's apprehension about the workload associated with HyFlex, including the concern that faculty would be teaching two courses for the price of one, and that HyFlex would allow administrations to overload course enrollments. Dr. Beatty, and the faculty who spoke to our team, emphasized two crucial points: 1) HyFlex design begins with a solid online course design and 2) the additional work for faculty is in the design phase and not in the teaching of the HyFlex course.

The visit was a successful in that all four faculty who had the opportunity to interact with the SFSU team returned to MSUB highly

motivated to adopt versions of HyFlex into their own courses.

Piloting HyFlex

Immediately upon our return to campus, we began working with the administration and the unions to start a small pilot in Fall 2018. The Faculty Association included the HyFlex pilot on its agenda, and it was in these meetings that we hammered out an agreement on how to compensate faculty for HyFlex. All parties agreed that we needed to ensure that our HyFlex sections were well-designed so as to ensure student success and retention. As a result, the administration agreed to provide a stipend for faculty to complete faculty development courses in both online and hybrid course design. This was a first for MSUB as we have no required faculty development programs for teaching anywhere on campus. Additionally, the administration agreed to a stipend for course design equivalent to the stipend for online course development. The MTYCFA, who meet separately from the Faculty Association, were willing to abide by the agreement made by the Faculty Association.

Three of the original four faculty who visited SFSU developed courses for the Fall 2018 and Spring 2019 semesters. These three courses provided a strong basis for evaluating the possibility of HyFlex. The courses: BGEN 105: Introduction to Business SOC 482: Contemporary Sociological Theory and COMX 435: Media Criticism, serve very different student populations. The Introduction to Business Class is taught at City College and is geared for beginning students. Sociological Theory was an online class for majors that was converted to HyFlex at the request of the students, who were all on campus majors. Media Criticism, which is a course that is taught at both the undergraduate and graduate level in the Communication department, is a course for experienced students. Communication offers courses both fully online and on campus, so the enrollment in this course was guaranteed to provide insight into the mix of onsite and distance

students.

One Faculty Member's Perspective: Sam Boerboom's Reflections on HyFlex

There were several challenges to getting my first HyFlex course off the ground. First, I needed to work with my department's administrative associate to communicate with students about how to register for my HyFlex Media Criticism course. The course listed a weekly required course meeting on campus like any other hybrid course in the course schedule. MSUB was not able to generate a unique course code to designate the section as HyFlex, because the format had only been used once at MSUB at that point. I was teaching my course with on-campus and asynchronous online options available to my students. It was very challenging explaining to students that they would have the option each week to choose how to participate. The "early adopters"—those I had recruited from my on-campus and hybrid courses the semester before—were thrilled about the flexibility afforded to them. My online-only students were more apprehensive due to the novelty of the format. They needed reassurance that their experience would not be lesser because they had to participate exclusively online. Put differently, they wanted to be assured that the course was not designed and optimized primarily for on-campus students.

I received a stipend to develop the course and took to heart the best practices taught by Dr. Beatty and the other faculty at SFSU. The design phase of the course was relatively straight-forward. I learned quickly that communication with students about their participation options each week was going to be challenging, especially because many of our students do not consistently use the email assigned to them through our learning management system, Brightspace. I learned that when piloting HyFlex, an instructor committed to intentional design best practices should strongly consider how best to

leverage an LMS's design features to reinforce to students through weekly announcements, unit introduction pages, and email prompts their participation options for each unit.

Once my students got used to how the course looked different from on-campus or hybrid sections, they seemed to grasp the flexibility afforded to them. Of course, those students who were able to attend on-campus were able to have their questions answered in real-time by me, which proved to be advantageous to them. I perceived that all of the students in the class intuitively grasped how HyFlex worked after the first three weeks. After that initiation stage, I determined that I had three different types of students in the class: the majority (60%) were exclusively online; 30% were exclusively on-campus; and 10% or so were participating both online and on-campus.

Student feedback was overwhelmingly positive. The online-only students appreciated that they would not have to wait two semesters until the class would be offered online again. Additionally, I heard from two students who attended the on-campus meetings only once during the semester. One of the students was local and the other lived further away from the Billings area. Both remarked that having the flexibility of participation each week allowed them to plan ahead on choosing a week they could attend class. They loved meeting their on-campus classmates and being able to ask questions of me in-person. My on-campus students remarked that they valued the flexibility of knowing that if a work, family, or health obligation arose, they would not have to scramble to arrange options to attend class. One student in particular commented that HyFlex reduced her anxiety about being a student. When I inquired what she meant by that, she commented that students like her often internalize class absences as evidence that they are bad learners, or that they should not be in college. I was struck by this comment and came away more convinced than ever that HyFlex is an ideal way to meet our students where they are on their educational path.

Upon reflecting on my first HyFlex class, I determined that I would design the course differently the next time I taught it with a focus on including participation assignments that would allow both my on-campus and online students to interact more with one another. In my first HyFlex class, I designed separate participation assignments for those participating on-campus and online. Not only was it more work for me as the instructor, it separated my students into two distinct groups, which was not my intention when I initially designed the course. My focus was on presenting students with flexible participation options, and not thinking enough about how to blend the class together as a dynamic, interactive whole. I believe that sharing what transpired in each unit's on-campus meeting—whether by written summary and/or video recording—with those participating online would increase perceptions of inclusion.

I learned through piloting HyFlex that it is a nimble course delivery format that accommodates students managing several obligations. HyFlex is a course scheduling solution that keeps our students on track to graduate in a timely fashion. But it is more than these things, too, it seems. HyFlex allowed me a platform to reimagine blended classroom learning space and how I should be present in it. I was able to leverage HyFlex to incorporate both on-campus and online learners in the same space during the same weekly block of time. As the result of my experience, I am firmly convinced HyFlex is a game-changer for our students and our institution.

Lessons Learned from the HyFlex Pilot and Next Steps

As Dr. Boerboom's experience illustrates, HyFlex was a natural fit for MSUB: our student demographics, faculty experience and online infrastructure made it relatively simple to launch the pilot phase at our institution. At the time we are writing this case study, there has been a great deal of interest by other faculty adopting HyFlex and we

are currently working on a plan to scale HyFlex for Fall 2020.

Our Provost and Institutional Research Director are committed to evaluating the pilot to ensure that it was an effective instructional modality. While data analysis is ongoing at the University level, faculty who participated in the pilot asked students to complete a survey on their experiences in these courses Overall, students responded that they would be highly likely to enroll in another HyFlex class. Qualitative comments across all three pilot courses echo Dr. Boerboom's observations that students found the flexibility of the HyFlex section transformative for their education.

Two large issues emerged as we evaluated our HyFlex Pilot. Perhaps most important is that we need to ensure that we can clearly communicate to students what HyFlex means for them. There are two elements to this concern. First, the university needs to develop a course code to identify sections taught in this modality. We currently designate courses as on campus, hybrid and online using suffixes (100, 600, and 800 respectively). During the pilot we were unable to create a suffix for HyFlex. This must happen as we scale. Second, we need to create a communication campaign to clearly communicate to students what the expectation for participation is within any given class. Students in the pilot needed a few weeks to adjust to the flexibility offered in these sections; if we can streamline their understanding this will make teaching easier for faculty

A second issue that arose was that faculty who were not part of the pilot, but had heard about HyFlex, began to announce they were offering HyFlex sections. This raises concerns about quality within these rogue HyFlex courses. One of the lessons this campus learned during its growth of online is that it's important to provide students with a consistent experience within a given modality. It would be a shame for the HyFlex project to be undermined by faculty who do not have a well-designed and executed course. In order to ensure excellence, we will need to collaborate with deans and department

chairs who provide oversight of faculty course modality. They will need to be gatekeepers who ensure faculty offering HyFlex Sections have completed the faculty development requirements and have a well-designed course.

During Fall 2019, the three faculty members who participated in the pilot, along with the Director of e-Learning and the Vice Provost, will host an open forum for faculty interested in being part of the launch of HyFlex in 2020. We are not sure what this launch will look like, but we are excited about the possibilities for our university.

We are grateful to Dr. Beatty and the faculty of San Francisco State University for introducing us to this transformative teaching format.

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3.7

A Faculty Transitional Journey from Single Mode to HyFlex Teaching

San Francisco State University

Zahira Merchant

My journey of using HyFlex in teaching graduate level courses began in Fall 2013, when I landed at San Francisco State University (SFSU) after accepting an assistant professor's job in the Instructional Technologies (ITEC) program. The ITEC program had been using HyFlex courses to serve both classroom and online students since 2006, and many courses and faculty taught this way, though not all. One of the many things that came flying at me in my first semester as a tenure track faculty was the description of the HyFlex modality, which I thought was both unique and demanding. San Francisco State's definition of HyFlex requires students be provided a classroom-based and online choice of participation each week; it was up to me to decide how to provide the online path, synchronous, asynchronous or both. Faculty are provided the freedom to choose course modality, in consulation with the department and college, though many ITEC courses were expected by students, based on recent history, to follow a HyFlex approach.

Why was HyFlex unique to me?

HyFlex was unique to me because I needed to plan on running three parallel modalities in one single course, i.e., 1) first, face to face (F2F) students in the physical classroom, 2) second, online synchronous students who join the students in the physical classroom during the class time by means of a web conferencing tool. We used Blackboard Collaborate when I started in Fall 2013, and then the university switched to Zoom a few years later, 3) third, students who couldn't be present in either synchronous modality and preferred to complete class activities asynchronously.

Why is HyFlex demanding?

The reason I called using HyFlex approach demanding is because each modality required designing instructional materials that would fulfill the need of students selecting that modality, and could possibly be reused by students in any modality. For example, if I was teaching the use of *IF* functions and its variation in MS Excel, I would plan an in-class walkthrough activity for the F2F students. But if I was using paper-based handouts, I had to digitize them to make them available for the online students. Also, software walkthroughs are challenging to manage between two modalities; especially using a hands-on approach, where students are practicing in front of you and you can provide real time feedback. It is difficult to observe online students practicing on their own machine as well troubleshoot if they run into any issue. Further, it is more demanding for students attending asynchronously because not only would I upload pre-recorded multimedia but also redesign activities and formulate instructions in a way that students can submit their work as an evidence of class activity completion. Therefore, a single session could require twice and sometimes even more preparation time than class offered using a single modality.

Visual Appearance of a HyFlex Class Session at SF State

A typical scene in my classroom would be: I am stationed at the audio/visual console which acts as the control center for all the communication flow. A class projector mirrors the desktop screen to the students in the classroom and at the same time a web conferencing platform relays the same to the online students. Due to limited classroom technology available in the earlier years of my adoption, the online students could only see the class and me from a particular angle, which was through the built-in camera of the computer monitor. The online students often reported a sense of exclusion due to this limited view of the class.

The Hi-Tech Classroom

Recently, SF State invested significant resources upscaling the technology to create Hi-Tech spaces that are more conducive to implementing a HyFlex approach. The active learning spaces are designed to allow collaborative work between students aided by large SMART TV monitors and movable white boards. There is a fixed 360° view camera that provides a bird's eye of the class and allows the instructor to alter the view as needed. Upgraded audio with a superior quality sound system resolved the audio transmission issues between F2F class students and those attending synchronously online (zooming in). Overall, the complete technology overhaul supports educators offering both synchronous modalities seamlessly, without having to waste significant class time troubleshooting technology.

Painting a Picture of Student Experience based on Anecdotal Information

I constantly seek students' feedback to learn about their experiences, especially with the HyFlex delivery. The students thoroughly enjoy the

flexibility of selecting a modality for a class session. In the HyFlex setup I use, a student can select a combination of modalities to attend the fifteen week long course. Some of the advantages I gleaned from students' responses are:

- Ability to network with classmates in the physical space.
- Ability to sometimes being in the comfort of their homes and attend the class.
- Avoid missing classes due to schedule conflicts by using the asynchronous attendance option.

Over the years, I noticed that approximately 50% of students would stay consistent in using the online synchronous modality throughout the course. The remaining 50% typically attend the first few weeks of class in person and then move to the online synchronous options with occasional use of the asynchronous modality. Students rarely used the asynchronous modality, preferring the immediacy and interactive characteristics of synchronous participation.

In my version of HyFlex, I do set a limit of maximum three asynchronous sessions per course. My rationale to impose this limit was mainly to implement quality control measures. I wanted to discourage students from using asynchronous modality as purely a convenience, but encourage them to see their three asynchronous sessions as a luxury to be used sparingly when they had an unavoidable schedule conflict. In the external context, asynchronous attendance is the default option with the non-traditional means of learning, with many platforms competing for students' attention, such as, Udemy, Lynda.com, Khan Academy, and LinkedIn Learning. Although these learning platforms present an ever-persistent means of content deployment, there is always added value in synchronous environments that assimilate the content and support immediate student-to-student and faculty-to-student interaction for engagement and deep learning. I prefer to require this type of learning environment as much as possible to support better student learning.

Benefits and Cautions

I have noticed one primary benefit and I offer two important cautions for those considering a HyFlex approach in their courses.

1. **Increase access –** There is no doubt that the HyFlex approach increases program's reach to the participants that otherwise may not be able to enroll and complete the degree program.
2. **Self-disciplined and control** – In the first few weeks of the class, I present the HyFlex structure of the class. Moreover, I also discuss the rationale for adopting the HyFlex approach as primarily to increase access and not convenience at the cost of losing the in-class interaction. Therefore, students should practice extreme self-discipline in selecting the modality. Selecting the asynchronous modality only to "take a week off from participating in the class activity" should not be the primary driver in the decision-making process.
3. **Extraneous Cognitive Load** – Although I have not conducted a cognitive load experimental study in relation to using a HyFlex approach, over the years students often expressed how browsing through the weekly modality activity option is a time-consuming endeavor. Further, students confessed to have selected the modality after the reading the activity description, perhaps making their decision on too little guidance as to what might be best for their learning (Kirschner, Sweller, & Clark, 2006).

Technology Sophistication and HyFlex Success

Implementing a HyFlex approach is heavily dependent on an important resource key criteria, the audio/visual technology in the classroom. Integrating an effective audio system into a classroom is a huge endeavor, involving buy-in at all levels from the program level up to the university level. Moreover, AV systems involve IT support to troubleshoot issues within minutes, not days. (Not all classroom IT

support units can be that responsive.) As a faculty, I try to reach the physical classroom at least 30 minutes before the class start time to ensure the technology is fully operational. In spite of doing that, I would sometimes still run into issues because another faculty who had used the classroom before me may have altered the system settings or the classroom IT unit may have changed the technology configuration in some way which impacted the previous regular procedures. All in all, keeping up with the technology is extremely time consuming and sometimes unfortunately wastes some instructional time.

As I understand adoption, during the first round of HyFlex implementation in a program there is possibly more excitement about the new opportunities available for students (and even faculty). However, as it becomes a more regular phenomenon then it may suffer some “water-down effects” as the initial excitement subsides and the nagging issues (students choosing modality for conveience even when sacrificing learning quality, AV issues in the classroom, etc.) remain. Further, during the post initiation stage, technology upgrades that may be necessary can be an unwelcome budget request when considered among the many other competing department, college and university priorities.

In my opinion, adopting HyFlex should be looked as as a long-term commitment and not a quick fix for a student attendance problem. A systematic (and systemic) readiness check is a must to avoid student and faculty frustration and a consequential abandoning of the approach due to lack support on various fronts.

In promoting the use of HyFlex, supporting the faculty in the following ways may lead to its increased adoption.

LMS integration

In my six years of teaching using HyFlex (regularly in the earlier years and then moving to more occasional use over time), I realized that if the Learning Management System (LMS) were built to integrate the

approach naturally with additional capabilities designed to support multiple modes of participation, there might be faster adoption. (Most LMS's are designed primarily to support fully online learning.) For example, LMS systems or support units could provide suggestions to convert a face-to-face activity into asynchronous class activity with built-in context-sensitive help. Another useful function would be tracking students' modality selection and performance. Though some of these functions may be possible in LMS's today, it is often up to each faculty member to figure out how to use them best to support the multiple modes of HyFlex. Perhaps, with recent development advancing the field of learning analytics this can be possible to a greater extent.

Faculty skill set in media development

Teaching with technology poses challenges with regards to the faculty skillset. There are many skills that become imperative if you do not wish to disrupt the class on a regular basis: knowledge of classroom hardware, operating system and presentation software, and media content development, such as videos and other authoring software development platform. Before teaching a HyFlex class, the faculty should be well prepared to meet not only the challenges of teaching both in the classroom and online, but also in using the provided technology to instruct effectively.

HyFlex is a promising approach that promotes students' autonomy and access to educational opportunities. However, its success is often dependent on the institution's budgetary commitment and faculty time to develop and implement. A university wishing to increase its' students engagement and access by adopting a HyFlex approach should first assess the readiness on both fronts, the technology budget and faculty commitment.

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3.8

Hyflex Learning within the Master of Teaching Program@KU Leuven

KU LEUVEN, Belgium

Annelies Raes, Marieke Pieters, & Piet Bonte

In this chapter, we will discuss:

- The institutional needs for modifying the concept and redesigning the curriculum of the Teacher Training Program
- The unique approach and design of the hybrid virtual classroom@KU Leuven, Kulak
- Impacts on Students and Teachers
- Design Guidelines

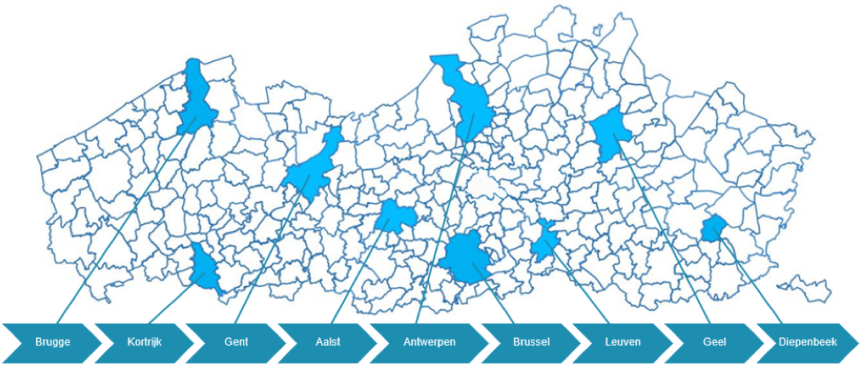
Why Hyflex Learning@KU Leuven?

KU Leuven, one of Europe's oldest universities, is dedicated to education and research in nearly all fields (more info on https://edtechbooks.org/-hqW). As can be seen in the map in Figure 1 below, KU Leuven boasts fourteen campuses, spread across 9 cities in Flanders, the northern part of Belgium. KU Leuven also offers the **Master of Teaching Program**, which in Dutch is called 'Educatieve

Master' (https://edtechbooks.org/-PgYy). In September 2019, KU Leuven started with **EDU**, a brand new concept for Teacher Training (https://edtechbooks.org/-VyN).

Figure 1

Locations of KU Leuven Campuses



The institutional goals of the transformative **EDU@KU Leuven program** are the following:

1. **Flexible organization**

Within EDU, maximum flexibility is provided to students. As EDU is part of an extensive cooperation network all over Flanders, students are allowed to follow certain courses, seminars or projects at the location of their choice, in line with their interests or because a certain location better suits their personal schedule.

Next, the program offers an alternation between face-to-face education, distance learning and blended forms in line with the HyFlex model presented by Beatty (2019). This flexible approach makes the program more accessible to students who are combining

work and education.

In the EDU program, students have the flexibility to choose the specific campus and their mode of participation in classes.

2. **Exchanging expertise and bringing people together independently of place**

Next to fixed courses as part of the different Master of Teaching Program, some courses at the different campuses and institutions are open to all students, independently from which program they are enrolled in. This means that within the new EDU concept we are able to bring together people from different places, with different backgrounds and with different expertise. This leads to a more open and multidisciplinary approach in which students get acquainted with different perspectives.

Providing HyFlex Learning@KU Leuven

To meet the goals of flexible learning crossing borders, the KU Leuven invests significantly in the use of **educational technology** to facilitate collaborative learning and multi-campus education and to broaden the international reach (see https://edtechbooks.org/-urS). One specific technology that is currently changing the educational landscape and makes education more flexible and accessible for a larger and more diverse group of learners is the **hybrid virtual classroom**. The general concept of 'hybrid virtual classrooms' is connecting both on-site students and individual remote students during synchronous teaching and learning (See Raes, Detienne, Windey, & Depaepe, 2019) for a more detailed study of the concept). This provides the pedagogical freedom to reach students and teachers from any place in the world, increasing both societal access to education and improving the quality in education as knowledge transcends the boundaries of the classroom.

The Unique Approach and Design of the Hybrid Virtual Classroom@KU Leuven, Kulak

ITEC, an imec research group at KU Leuven - to which the authors are affiliated to - is often involved in research and development projects in which academic partners work together with industry partners to meet bottom-up, practically oriented innovation goals. The LECTURE+ project[1] (see https://edtechbooks.org/-Ejk) more specifically aimed to make distance learning as seamless and vivid as learning in face-to-face classrooms, without sacrificing the affective features of face-to-face instruction by building a synchronous hybrid virtual classroom.

As one of the first steps in the project, we completed a systematic literature review (Raes et al., 2019) on synchronous hybrid learning to learn from earlier studies and experiences and avoid making the same mistakes as earlier project teams. We learned that past experiences and published research clearly shows the potential of this emerging practice, but also stresses the current challenges. Many studies state that 1) for remote students the learning experience is still not the same as being in the classroom and 2) many teachers mention the heavy workload and 3) the less natural way of teaching.

Together with the industry partners, we investigated how a hybrid virtual classroom should be designed to improve the learning and teaching experience. Besides that, we designed our approach so that the extra technical support required would be as low as possible to make the solution **easy to use for teachers and students, supporting natural teaching** and **cost-efficiency**.

The project resulted in a hybrid virtual classroom that is **innovative and unique** compared to the previous video- and web-conferencing platforms for two reasons. First, the system includes improved

software to connect students and the teacher to make spontaneous interaction possible. Second, we also invested in a redesign of the physical learning space to meet the challenge of offering all students comparable learning experiences regardless of their location. Special attention has been paid to making the **hardware lightweight and ensuring ease of use** of the set-up from the perspective of the **teacher**, the **students** and the **room operator.**

The pictures in Figures 2 and 3 below show the hybrid virtual classroom in which both on-site students and remote students can follow the course, at the same time, but from different locations. Remote students are projected on the screens accompanied by their name. This makes it very easy to interact with the remote students. The screens are placed in the back of the classroom, as they are the last row of students.

[1] The imec.icon project LECTURE+ is a research project bringing together academic researchers and industry partners. In this project the research groups ITEC, Distrinet and PSI collaborated with the industry partners Barco, Televic Education and Limecraft. The LECTURE+ project was co-financed by imec and received project support from Flanders Innovation & Entrepreneurship (project number HBC.2016.0657).

Figure 2

Pictures Taken in the Hybrid Virtual Classroom at Edulab, KU Leuven Campus Kulak Kortrijk, Belgium

The teacher can easily interact with on-site and remote students by asking oral questions or launching a quiz or poll via the system. To launch quizzes or polls, a more experienced teacher can make use of the tablet on which he/she can manage the different sources (e.g.

learning content, the interactive whiteboard, chat platform, silent questions and the quiz/poll platform). Newcomers to the hybrid virtual classroom prefer that the room operator manage the quizzes or polls. The room operator has the same authorizations as the teacher and can assist when and where needed, including muting some or all students, pushing certain content, launching polls or quizzes, presenting the results, and chatting with students.

Figure 3

Picture Taken in the Hybrid Virtual Classroom at Edulab, KU Leuven Campus Kulak Kortrijk, Belgium

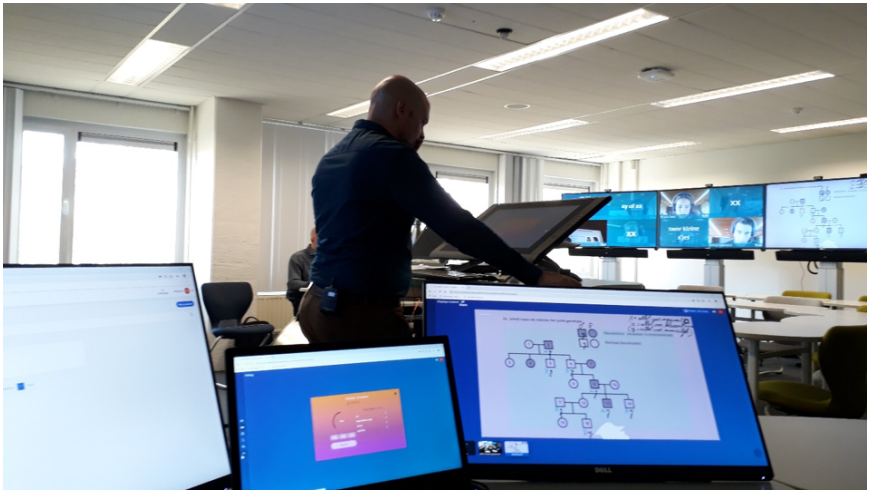


Figure 4 displays what remote students see when participating in a session giving in the hybrid virtual classroom at Edulab. On the left side, remote students can select which screen they put in focus. Cameras in the virtual classroom record from 5 different angles. By means of the global view (i.e. camera on top of the presenter screen, remote participants can see how they are displayed in the classroom. The virtual room director, developed in the context of the LECTURE+

project, manages multiple camera views and shows based on AI algorithms the best camera view according to what it happing in the room.

By means of the ‘Share Button’, every (remote) student is able to share his/her screen. Once the screen is shared it becomes part of the sources in the teacher platform and the teacher or room operator can share the screen with all participants. On the right side of the interface, students can make use of the chat window. By using the chat, students can interact with the teacher and their fellow students. Students can also send a question to the host of the session (i.e. the teacher and room operator) A student can choose to do this anonymous or not. These ‘silent’ questions are made visible for the teacher and room operator on the tablet they use to manage the different sources. Students can see the questions on the right side of the interface (see the chat window on the pictures below). Students can ‘like’ a question of a peer which informs the teacher about the most relevant and urgent questions.

Figure 4

Screenshots From a Remote Student Participating in Sessions Given in the Hybrid Virtual Classroom

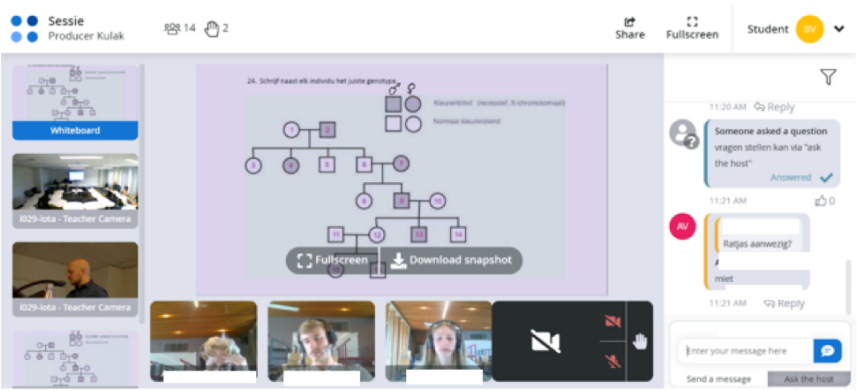
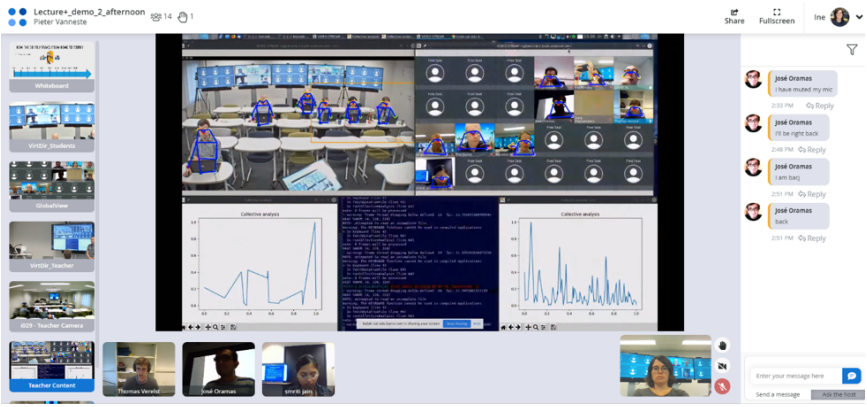


Figure 5

A Picture Taken During a Demo Session With the Research Team



Impacts on Students and Teachers

As indicated above, the EDU format results in courses with participating students spread over Flanders. Several teachers started using the hybrid virtual classroom to teach all or part of their courses

in the context of the Teacher Training Program. As we were one of the first institutions that tested the hybrid virtual classroom, it was important to continuously assess the experience as it developed, revising the approach as necessary to support effective teaching and student learning. To be able to update the solution along the way, interviews were organized with the involved teachers to gauge their experiences. We also systematically evaluated students' experiences by sending them online questionnaires. In the context of the LECTURE+ project more specifically, one within-subject experimental design study was set up to investigate the effect of launching quizzes on students' engagement during hybrid virtual learning (see Raes, Vanneste, Pieters, Windey, Van Den Noortgate, & Depaepe, 2020). Below we summarize the results of the experiences from the perspective of the teacher and the students.

Teachers' Experiences

What we found in every interview with teachers who taught in the hybrid virtual classroom is that the experience exceeded the expectations they had beforehand. One teacher stated: *"I thought that teaching to virtual students would have been very artificial and weird, but this was not at all the case. I had the feeling that my [virtual] students were very close to me and I could see their faces and expression even better than in a traditional F2F classroom; … I could easily interact with them as I do in a normal class setting and I had the feeling my students were very attentive."*

Seeing the remote students as good as the on-site students is expressed by every teacher as an important benefit. The fact that students' names and students' answers on the quizzes or polls are also visible on the screens additionally improves the interaction and supports the natural way of teaching.

Most of the teachers had had experience with traditional videoconferencing systems and indicate the facilitation of

spontaneous interaction as the biggest advantage of the hybrid virtual classroom.

Although it is a big advantage that the teacher can see the remote students, one teacher indicated that she often had to make her students aware that they are visible and that they should behave as if they were in the physical classroom. Some students, for example, start eating during the course and others did not choose the most appropriate background. This teacher suggested that we provide students with some basic behavior and visual awareness rules as 'digital etiquette', in addition to providing the basic technical requirements for participation.

Teachers indicate that professional training focusing on the do's and don'ts of teaching in the virtual classroom is key. Next to this, teachers indicated that they were very happy with the assistance of the room operator. This is especially needed if teachers are newcomers to the virtual classroom. Consistent with our literature review (Raes et al., 2019), teachers express that in the beginning, teaching in the new learning environment creates a heavy cognitive load to give attention to both on-site and remote students, managing the new technology and focusing on the learning content. Yet, more experienced teachers testify that after getting more acquainted with teaching in the new environments, it is sufficient if the room controller only assists with the system set up at the start of a session. After the session begins, experienced teachers often feel secure enough to teach without the continuous assistance of the room operator.

Teachers express that professional training is not only needed from a technical point of view, but also from a pedagogical point of view; a point which is also in line with our literature review. Teachers shared that teaching in the hybrid virtual classroom requires them to think in advance about how to transform their lecture into an interactive lecture. Some teachers believed at first that their learning content

(e.g. law) is not applicable for launching quizzes and polls. Yet, in the professional training, we make clear that interaction can be applied easier than initially thought. In line with Merrill's first principles of instruction (Merril, 2002), we also advise starting lectures with activating prior knowledge about the content of the course. Halfway and at the end of the course teachers can also organize formative assessments to check students' understanding. Yet, interaction can also be based on non-content related issues. For example, teachers can ask students if they need a 15 min break or prefer to skip a break and end the lecture 15 min sooner. The platform supports 'on the fly quizzing and polls' which means that preparation in advance is not needed. Teachers express that they appreciate the easy use of the "on the fly quizzing and polling" as it supports spontaneous interaction with all students, no matter if they are on-site or remotely. However, if teachers apply formative assessment, we advise them to prepare their questions in advance and include them in their presentation slides.

Teachers also expressed that – especially as a newcomer – they wondered how they were visible for the students. The nice thing about the system is that the room operator can show the teacher the student visual perspective. As part of the development in the LECTURE+ project, an automatic room director has been a development which provides the students with a dynamic view of the teacher. This feature means that teachers do not have to pay particular attention to where they stand during teaching, as the virtual director follows the teacher throughout the classroom.

All teachers express that they have the intention to use the hybrid virtual classroom in the future. One teacher specially mentions looking forward to use the newest features in the platform, such as, organizing break-out sessions during synchronous virtual teaching.

Students' Experiences

Teachers told us that some students were very skeptical about the new format of EDU as they thought the model would harm them if they chose to follow the course remotely. One student even shared her complaints by email with the teacher as her personal situation forced her to follow the course remotely and she thought this would be a disadvantage for her. The teacher testifies that now, this student is one of the most enthusiastic students in her course even though she participates remotely.

Yet, we should acknowledge that the student's belief was reasonable as many studies conclude that on-site students and remote students still experience the lesson differently in the hybrid synchronous situation (Szeto 2014; Zydney et al. 2019). As already mentioned above, we set up an experimental within-subjects design study comparing the students' learning experiences of on-site versus remote students in the hybrid virtual classroom (Raes et al., 2019b). A mixed-methods approach was used including real-time measurements of intrinsic motivation next to retrospective self-report surveys and interviews. Our study found, in line with previous studies, that the relatedness to peers and the intrinsic motivation is the lowest for students following remotely, while other students attend the course on-site. No significant difference in motivation was found if all students follow the course remotely or all students follow the course on-site. A limitation of this study was that the participants were twelfth graders and that the remote experience was rather artificial for them.

In contrast to the participants in our experimental study, students in the context of the teacher training program often combine study and work and many live far away from the campus. For these reasons, these students appreciate the flexibility which is offered by means of the hybrid virtual classroom much more, as it gives students the choice where to attend the course. Teachers testify that at the

beginning of their courses the majority of the students came to campus to follow the session in the classroom. Yet, week after week the amount of students coming to campus reduced as students became convinced that the learning experience as a remote student was much better than they initially expected.

Students mentioned the following actions as the most effective to guarantee and support a pleasant learning experience:

- You can easily indicate if you want to say or ask something. This is made possible by pressing the 'raise hand' button, but it is also possible in the traditional way by raising the hand as the teacher can see us on the screens in the back of the classroom.
- Quizzes and polls launched during sessions enhance cognitive understanding and make sure we stay engaged. The positive effect of quizzes on students' engagement is also confirmed in the experimental study (Raes et al., 2020).
- If there is a technical problem, we can ask this without disturbing the session by using the chat window, which can be followed up by the room controller, the teacher and fellow students.

Most participants found it quite easy to follow sessions in the hybrid virtual classroom. The possibilities for interaction are highly appreciated and students indicate that teachers should even make use of them more systematically. On a technical level, few problems were experienced. To participate in a hybrid session, students need a personal computer with webcam and microphone, a good internet connection and Google Chrome are the only requirements. The use of a headset is recommended for optimal audio quality.

Table 1

Summary of the Main Benefits for Teachers and Students

Benefits for teachers	Benefits for students
• Teachers don't have to sit behind a screen, but can teach as they normally do: standing or walking around. • Teachers can naturally interact with on-site and remote students as both are visible. • The teachers do not have to bother about his/her position, as the virtual room director follows the teacher. • Multiple options for interaction make it easier to know if your students are still engaged.	• Based on students' personal situation, they can choose to come to campus or follow the session remotely. • Remote students are projected on the screens in the back of the classroom as they are the last row in the classroom. This makes them part of the classroom. • Remote students can select different viewpoints. • Multiple options for interaction make it easier to stay motivated during lessons. • Interaction between onsite and remote students is possible.

Design Guidelines

Based on the experiences of the teachers and students who used the hybrid virtual classroom and based on the academic research results, we formulated five design guidelines for teaching in the hybrid virtual classroom. These guidelines are also printed on a poster that was hung in the hybrid virtual classroom, so teachers would have a constant reminder in their field of view.

1. **Prepare yourself and your session in advance:** both on the technological and pedagogical level. Make sure that you have followed the demo and that you have thought about integrating interactivity.
2. **Trust the room operator; focus on teaching:** As a newcomer in the virtual classroom, you can focus on teaching, the room operator can assist you with managing everything, including launching quizzing and presenting the results. You will see, you will learn by doing and make the room operator redundant.
3. **Welcoming students:** Ensure that the remote students always feel included in the class to reduce some of the distancing effects. Address them by using the names visible

on the screens.

4. **Clear communication:** Communicate requirements to students in advance: headset, syllabus, charger, etc. (the most typical problems can already be addressed outside of class). If you will start 5 minutes later than planned, communicate this to the remote students as they do not 'feel' it that people are still coming in.
5. **Cognitively activate students:** Use students names, frequently ask questions, launch poll/quizzes and discuss the results.

Conclusion

We strongly believe that educational institutions, including universities, should embrace technology as the implementation can offer opportunities for innovative teaching approaches and supports the current societal transitions. Our hybrid virtual classroom is found to be a teaching and learning facilitator that support multi-location learning and enables people, at any stage of their life, to take part in stimulating learning experiences. Yet, to ensure that innovative projects can be scaled up and be implemented university-wide, a well thought-out policy is required dealing with both pedagogical and technical challenges.

According to us, the main pedagogical challenge is that it requires from the teacher's perspective a shift in the pedagogical methods in order to accommodate to the new technology. In addition, because the quality of the teaching is partly dependent on the teacher's competence in using the technology, the teacher needs to actively learn how to work with the technology and has to get opportunities to try things out and evaluate the outcomes on the basis of evidence. To deal with this challenge, the university invests in a university-wide expertise center, KU Leuven Learning Lab (see https://edtechbooks.org/-fHEA) to support project teams that want to

test and roll out innovative ideas and to work together on the realization of the policy priorities.

The most important technological challenge is that innovative technologies are continuously altered, which can be frustrating, especially for teachers. It is found that small usability issues, caused by the continuous updates of innovative technologies, may confuse, delay or hinder the learning process. Consequently, reliable educational technology calls for a trustworthy IT foundation. This means that a good network infrastructure and adjustments to meet the newest developments are self-evident, but this is not achieved without continued efforts. A technological update, well spread out, scalable and financially feasible forms the essential link to incorporating technology in contemporary university education.

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3.11

Contribute Your Hybrid-Flexible Story

Call for Unit III Case Report Chapter Proposals

Tell your story! Call for Unit III Case Report Chapter Proposals

Submit your proposal soon!

This book explains the principles of hybrid-flexible (HyFlex) course design, explains fundamental practices found in these courses, and reports results around student participation, academic success, and other metrics we may value. The title of the book is: **Hybrid-Flexible Course Design: Implementing student-directed hybrid classes.** A large part of the book is reserved for case reports from faculty and staff at institutions using some form of hybrid-flexible course design, large, mid-sized, or small scale.

We are continuosly looking for an author (or team of authors) who could write a chapter on **[YOUR INSTITUTION]'s Hybrid-Flexible (use your term if you have one) Course Experience**. If you think you might be interested, please read on.

Thank you for considering this invitation. (Please forward to others you know who may also be interested.)

More about this work:

The book URL is https://edtechbooks.org/hyflex and is published under a CC-BY open content license. This license lets others distribute, remix, tweak, and build upon this work, even commercially, as long as they credit the author(s) for the original creation. This is the most accommodating of the creative commons licenses offered and is recommended for maximum dissemination and use of licensed materials. For more on Creative Commons licenses, see: https://edtechbooks.org/-qi

Hybrid-flexible course designs have been used successfully for more than a decade at many higher education institutions with a wide variety of courses. Often the initial impetus for developing a HyFlex approach is a very real need to serve both online and on ground students with a limited set of resources (time, faculty, space) which leads to a multi-modal delivery solution. When students are given the freedom and ability to choose which mode to participate in, from session to session, they are able to create their own unique hybrid experience. We have started calling this a “student-directed hybrid” learning experience.

This volume provides readers with methods, case stories, and strategies related to Hybrid-Flexible (HyFlex) course design so that they may make decisions about using it themselves and even begin their own HyFlex course (re)design. More specifically, based on the needs identified for their course(s), readers will be able to a) determine if and how HyFlex course design could help them solve critical needs, b) take advantage of emerging opportunities to improve their education practice, enabling them to better serve more students, c) gain an awareness of the HyFlex design, d) find their own innovative HyFlex solution to their specific challenges, and e) begin

the HyFlex implementation process using strategies similar to those used by instructors described in this book. The volume describes the fundamental principles of HyFlex design, explains a process for design and development, and discusses implementation factors that instructors have experienced in various higher education institutions. These factors include the drivers, the variations in implementation approaches and constraints, and the results (e.g., student scores, student satisfaction). A series of worksheets provides specific guidance that can be used by individuals or teams engaging in HyFlex design projects at their own institution. Case reports from institutions and faculty who have successfully implemented HyFlex-style courses provide a rich set of real-world stories to draw insights for a reader's own design setting.

If you are interested, please let me know via email bjbeatty@sfsu.edu, and we can discuss specifics for your chapter if you have questions.

Sincerely,

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Appendices

Appendix A

Bibliography of Hybrid-Flexible Literature (using various terms)

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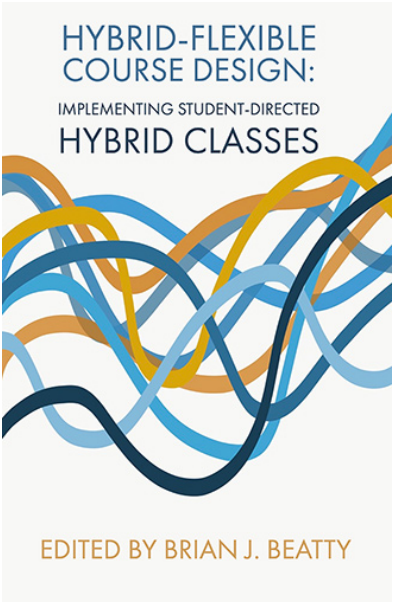

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