Pathways to Learning: Preliminary Findings of a HyFlex Pilot Implementation

Dr. Makena N. Stewart and Carl Bishop

Abstract

Technological advances have provided community colleges with unique opportunities to address the diverse needs of their student populations, specifically instruction for nontraditional adult learners. Hybrid flexible, or HyFlex, is an innovative approach to teaching and learning that provides learners with the freedom to select their method of course participation based on their individual needs. As a multimodal approach, HyFlex allows the student to choose from face-to-face, synchronous, or asynchronous attendance all in the same course. This article provides an overview of a summer HyFlex pilot implementation at one community college. Preliminary findings of a formative assessment and implications for institutional scale up are discussed.

Keywords: community college, HyFlex, student success, adult learning

Pathways to Learning: Preliminary Findings of a HyFlex Pilot

As open access institutions, community colleges have often struggled to fully meet the diverse needs of the various student populations they serve, particularly nontraditional adult learners (Pratt, 2017). Nontraditional adult learners comprise nearly 40% of the postsecondary population in the United States, yet there is still a reliance on traditional educational practices particularly with teaching and learning (Singh, 2021). Several factors contribute to this situation including deeply rooted traditions, faculty comfort, and routine outreach and recruitment efforts focused primarily on current and recent high school student populations. Together these factors continue to reinforce standard course delivery and instruction. As a result, adult learners often feel that their individual needs are being lumped into a larger group and they are not recognized as having individual pressures or goals which impact their success (Kachur & Barcinas, 2020). With the need for adult learners to be self-directed in their learning, educational institutions must consider alternative ways to engage these students in the classroom (Abdelmalak & Parra, 2016). A hybrid flexible, or HyFlex, teaching method leverages digital technology to help adult learners meet the demands of their lives by providing them with greater control over how they will receive their learning (Rosen, 2021).

Significance

Although multiple universities have offered HyFlex instruction at the program and departmental levels (Miller et al., 2013; Rosen, 2021; Wigal, 2021), there is limited research on how institutions of higher education, particularly community colleges, have scaled up institutionally. The void in this literature is concerning for several reasons. With limited funding, community college practitioners may be reticent to implement practices that appear promising but lack a blueprint or roadmap for execution. The desire to prevent costly mistakes results in fewer institutions at-

tempting these efforts, thereby exacerbating the void of best practices in a cyclical effect. Additionally, much of the extant literature examines the effectiveness of HyFlex across large course sampling at universities (Lakal et al., 2014; Miller et al., 2013). Community college courses often have low student-to-faculty course enrollment ratios resulting in fewer students available to participate in each modality. As such, more research is needed to determine whether the student learning experience and course effectiveness are impacted when offered in smaller courses (Lakal et al., 2014).

This article provides an overview of a summer HyFlex pilot implementation and preliminary formative evaluation findings. As other practitioners have looked to document institutional response to the global COVID-19 pandemic (Ensmann et al., 2020), this article details how one community college turned a challenge into an opportunity to meet the instructional needs of nontraditional students to improve student success.

Needs of Adult Learners

Adult learners are often plagued with multiple challenges that impact their ability to attend class over the course of a semester. Concerns such as childcare and transportation often lead to students having to prioritize their life needs over their education.

This type of prioritization happens frequently with adult learners and work responsibilities. Students with a high school diploma or equivalency as the highest level of academic attainment are often enrolled in school to acquire the skills needed for a steady living wage job. These students often work part-time jobs with varying schedules, making a traditional course attendance model with structured in person meeting times challenging (Singh, 2021).

Another challenge is technology. Much has been written about online learning for students and the challenges they encounter (Moore & Shemberger, 2019; Singh, 2021). Bouchey, Gratz, and Kurland (2021) noted that online learning should:

> 1) identify the needs of its online and face-to-face learners, 2) ensure that services are available when learners want them, rather than when the institution is ready to provide them, and 3) ensure that the virtual services are as good as or better than the in person equivalents. (p. 30)

While many adult learners prefer online or hybrid course offerings due to the flexible schedule, these students vary in their ability and comfort in using technology (Singh, 2021). Lakal et al. (2014) found that students who primarily attended courses synchronously reported being more comfortable with the use of technology in comparison to students who attended asynchronously.

This comfort level may play a role in student success. While there are often differences as to how institutions define student success and how adult learners perceive the factors associated with their success (Kachur & Barcinas, 2020), course level outcomes tend to be a consistent motivator for students. Institutional research revealed differences in student performance based on modality. Fall 2020 data showed that students in virtually blended courses had the lowest success rate at 79.3%, in comparison to 82% for asynchronous online classes, and 90.4% for traditional face-to-face courses (Institutional Research and Effectiveness, personal communication, February 2021). The disparity in outcomes across these modalities has implications for the needs of all students, even digital natives who have familiarity with technology.

The positive impact on student attendance that is seen in face-to-face classes is present in a HyFlex model when equivalent alternatives to in class participation are built into the course design. Through robust course design, HyFlex removes the previously identified class attendance barriers of transportation and scheduling conflicts while also allowing students who need more assistance an avenue to come in person (Beatty, 2019).

HyFlex

While there are many variations of HyFlex, it is important to begin with a working definition. As a multimodal approach, hybrid flexible, or HyFlex, allows the student to choose from face-to-face, synchronous, or asynchronous participation all in the same course. HyFlex serves as a solution to both institutional needs such as lower enrollments and space utilization, as well as an innovative approach to serving students learning at a distance (Beatty, 2007; 2019).

Beatty (2007) identified four pillars to the HyFlex instructional design. First, the selection of the modalities must be learner choice. The flexibility

for a student to direct their own participation is essential, as institutions are unable to predict which of the numerous attendance patterns a student may follow over the course of a semester. Beatty (2019) estimated that when students were offered in class, synchronous, and asynchronous options of attendance, the possibility of *participation paths*—the various attendance combinations—would exceed 500,000 in just 12 weeks. With this type of variability, it is essential that community colleges undertaking this endeavor have a blueprint, or roadmap, for a successful implementation.

The second pillar, or principle, relates to the equity of activities across all modalities. According to Beatty (2019), the activities should align with meeting the learning outcomes regardless of modality. Inclusion of activities that provide faculty feedback as well as peer-to-peer interactions are instrumental design elements. While these activities may vary in the level of social interaction, students should have the opportunity to reflect on the instruction and share and engage with the contributions of their peers.

Third, the artifacts from each modality should be included as learning resources for all students enrolled in the class. This principle of reusability includes examples such as course sessions being recorded and posted for all students to reference or written notes and transcripts being available for students who attend face-to-face (Beatty, 2007; 2019). Employing this and other universal design principles assists students in finding the tools they need to be successful in mastering the course learning objectives.

Lastly, the course must be accessible. Beatty (2019) refers to accessibility in two ways: the acquisition of hardware, software, and networking technologies and the skills to navigate and troubleshoot them. Accessibility also refers to students' ability to select and participate in each of the modalities without barriers.

Pilot Design

During the 2020-2021 academic year, college leadership began planning for a HyFlex pilot to be offered in summer of 2021. For the purpose of this pilot, the institution adopted Beatty's aforementioned definition of HyFlex that allows participation flexibility across in person and virtual modalities.

As Beatty (2019) shared, factors such as enrollment characteristics, faculty capacity, and student interest impact an institution's readiness to implement HyFlex course design. These factors were considered. The summer schedule was primarily comprised of general education courses, and it was determined that courses would be piloted within the School of Arts and Sciences. The Dean of Arts and Sciences collaborated with the Director of eLearning to identify criteria for courses to be included in the pilot. It was determined that selected courses would be primarily lecture based and courses with a clinical or work experience component would be omitted. A total of 12 courses were selected across the disciplines of English, psychology, math, art, history, humanities, biology, drama, music, and Spanish. In addition, courses were scheduled broadly to accommodate both daytime and evening learners. A total of nine instructors, representing both full-time and adjunct faculty, participated in the summer pilot. Three faculty taught more than one section of a HyFlex course.

Rosen (2021) noted that students are often not familiar with the HyFlex model when they begin a course, which can lead to student success barriers. As a result, care and attention was taken to distinguish between this modality and others offered at the college. HyFlex course sections were given an *F* notation in the course section numbering. Advisors made students aware at the time of registration that they were enrolling in a HyFlex section that provided them the flexibility to determine how they would participate in each class session. A HyFlex descriptor was included in the online schedule for designated sections to signal to students who self-registered. Faculty were also asked to notify students enrolled in their classes through emails and posted class announcements that the course would be offered in a HyFlex delivery.

Faculty Development

Roddy et al. (2017) noted that assistance navigating technology, online-friendly academic supports, and a sense of belonging are among the pillars critical for supporting student success in the online environment. Further, the researchers noted that when instructors do not have adequate technological skills, they cannot resolve technology related problems during synchronous instruction, which impacts

student learning.

To account for this, the faculty in the pilot participated in a four week training course that included an online component as well as in person class time to learn how to use classroom technology. The course was held twice a week and was facilitated by the Director of eLearning, with resources provided by the college's in house Center for Teaching, Learning and Leadership. Several course meeting dates were offered fully HyFlex to simulate the student learning experience for the faculty. Learning outcomes for the course included faculty being able to describe the components of the HyFlex model, use the appropriate hardware technology in each of the HyFlex classrooms, create and facilitate videoconferencing sessions, and use the learning management system to effectively lay out a HyFlex course design for their class(es). Instructional resources included course aids such as written information sheets on operating the classroom technology and navigating the videoconferencing software.

Technology

It was determined early on that the technology would need to be upgraded to deliver HyFlex instruction. Two classrooms were identified to be retrofitted with multiple hardware technologies. Hardware included an interactive SMART Board©, secondary extended monitors, cameras, speakers, and microphones. Microsoft Teams videoconferencing software was used to connect the students in the classroom to students who were joining synchronously. Laptops and hotspots were made available to students who needed resources for off campus use through the library learning commons.

All course materials were housed in the college's learning management system to ensure students had access to session meeting links and course resources. A standard modular course design template was used to provide students with a consistent layout of where they would access course content regardless of their participation method.

Formative Evaluation

Surveys were administered to both students and faculty during the summer semester as tools for formative assessment. The faculty survey was administered electronically during the second week of the eight week session. The instrument included 18 items that were a mixture of Likert scale and open-ended questions. Faculty were asked to provide feedback on the relevance of the training, recommendations for improvement, as well as their own initial confidence level. Respondents were given the option to provide their name or complete the survey anonymously. Table 1 provides a list of the items included in the survey administered to faculty.

Table 1

Faculty Survey Items

1	How confident did you feel on the first day of class? (Scale of 1-5)
2	How relevant and helpful do you think the in person training was prior to starting the class?
3	How relevant and helpful do you think the online training was prior to starting the class?
4	How relevant and helpful did you find the instructor aids for the first day of class?
5	How would you improve the online training?
6	How would you improve the in person training?
7	How would you improve the instructor aids?
8	How interested are you, today, in teaching via the HyFlex modality again? (Scale of 1-5)
9	What could we do to improve your experience in teaching via HyFlex?
10	Please describe what worked best for you with regards to the technology provided.
11	Please describe what additions/changes you would make to the technology provided to best serve you as the instructor for HyFlex.
12	Please describe what additions/changes you would make to the technology provided to best serve the students in the classroom for HyFlex.
13	Please describe what additions/changes you would make to the technology provided to best serve students learning synchronously from home for HyFlex.
14	Please share any feedback you have received from students regarding the HyFlex modality.
15	What percentage of your students are attending in person?
16	What percentage of your students are attending synchronously online?
17	What percentage of your students are attending only asynchronously?
18	Additional feedback on technology.

The Office of Institutional Research and Effectiveness administered a separate survey to students who had at least one HyFlex course. Students were sent a Qualtrics survey link to their school email address. The survey included a mixture of multiple choice, Likert scale, and open-ended questions. The survey instructions provided students with an overview of the purpose of the survey, the definition of HyFlex, and an invitation to complete the optional survey. Table 2 provides the list of survey items administered to students in HyFlex courses.

Table 2

Student Survey Items

1	Were you aware before you started this course that it would be *HyFlex*?
2	Did your instructor explain at the beginning of the course that it would be *HyFlex*?
3	Were you able to access the technology that was needed for the class?
4	Was the technology easy for you to access?
5	Did you need technology support beyond what your instructor provided?
6	What other supports or resources might have helped you?
7	Which learning environment did you most frequently use for this course?
8	Is this the only environment or method you used to complete the course?
9	If no, how frequently did you attend your class in each environment?
10	When you attended face-to-face on campus, how comfortable were you interacting with your classmates? Your instructor?
11	When you attended synchronous virtual (same time, virtual environment), how comfortable were you interacting with your classmates? Your instructor?
12	When you attended asynchronous (remote online without live interaction), how comfortable were you interacting with classmates? Your instructor?
13	What parts of the asynchronous class have you found useful? (You may have used these resources even if you attended the class in person or in the synchronous environment.) • Discussions • Prerecorded video lessons • Recorded class sessions • External videos (YouTube, Publisher videos, others) • N/A—Did not use any of these
14	If you have recommendations for improving elements of the course, please explain.
15	Would you take another HyFlex course?
16	Please explain your answer above.
17	Please describe what worked best for you in this HyFlex modality.
18	Please describe what could be improved for the HyFlex modality.
19	Is there any other feedback you would like to provide?

Results

Several themes emerged from the faculty survey. Respondents noted the ease in using the technology with the exception of a few situational challenges, such as the need to replace batteries in a wireless classroom keyboard and mouse. Overall, faculty reported comfort in using the video conferencing technology as well as the installed SMART Boards®. As one respondent noted, "I am enjoying using the SMART Boards® immensely. Also, the ability to have the Teams call on the second screen on the side wall is fabulous!" Similarly another faculty member responded positively to being able to use technology to connect with the students synchronously saying, "The camera technology was excellent. Really provided a nice opportunity for those who weren't in person."

Participants noted that while they did not necessarily need the instructional aids once they got familiar with the technology, they thought other faculty would benefit from having these one page instructional graphics posted in the classroom for quick reference.

Perhaps the most formative feedback were faculty responses recommending topics for future professional development. Several faculty requested a deeper level of training regarding course design, such as hands-on activities on developing HyFlex tailored assignments. As one faculty member noted, "I think for me (while I know this is not everyone), I felt confident with the concept of HyFlex teaching. Therefore, I would have liked a deeper dive into developing HyFlex assignments." Another faculty member expressed a similar interest in having more contextualized application of the technology for instruction "I was able to play with the SMART Board© and get comfortable using the technology. Of course, more training on different ideas or functions of the board would have been good."

Responding faculty all reported having students attend in each modality. In person attendance rates

ranged from 10%-60% between sections, with synchronous participation ranging from 20%-80% between course sections. Asynchronous seemed to be the lowest participation option with only 10%-20% of students choosing this option across sections. Faculty noted that students either had positive responses to the HyFlex course design or the students did not express any concerns.

Similar to the results recorded in the faculty survey, students echoed a positive experience with the HyFlex pilot. Common themes in the student survey were an appreciation for the accommodation of their life circumstances, a sense of control over their own learning, increased access, and acknowledgement of learning resources. As one student noted:

> As a new single mother the HyFlex option truly saves my schooling. I don't have to worry about me or my child being sick or if I have a shift… and have to work. HyFlex truly can make going to college a much easier experience.

When asked to describe what works best about HyFlex, participants' responses reflected the principle of learner's choice (Beatty, 2019). Comments such as "being able to change and choose how I do school as my schedule changes" and "I enjoyed the ability to work at 2 a.m. or 5 p.m. and anywhere" signaled an appreciation for the flexible attendance design. These findings are consistent with previous research on adult learning (Abdelmalak, 2014).

Students noted that they were *comfortable* or *very comfortable* communicating with their faculty and peers in all three modalities. This finding supports the sense of engagement students felt in the course regardless of delivery methods.

Limitations

This article served to provide an overview of the implementation of a HyFlex pilot and the preliminary findings from the formative assessment process. A primary limitation was the small sample size of the pilot, resulting in a low survey response rate. An increased sample size provides an opportunity to validate the survey instruments or gather additional information using a previously validated instrument. These noted limitations, in conjunction with the survey results, were beneficial in helping to inform the next phase of the project design.

Discussion and Next Steps

The preliminary findings of the summer pilot showed great promise and have been instructive in institutional planning for scale up. The college offered sections of the previously redesigned courses again in the fall, while also scaffolding in new HyFlex courses. This approach resulted in 20 faculty teaching 31 additional HyFlex courses in the fall 2021 semester. Several of the faculty returned from the summer pilot. The combination of experienced and novice HyFlex faculty has led to increased collaboration in sharing of course design ideas and ongoing training sessions throughout the semester.

The college will continue to scale up HyFlex course offerings incrementally over the next several semesters, with 70 course sections in the spring 2022 term. In preparation for this scale up, Information Technology Services is implementing a phased rollout of upgrades to classroom technology to accommodate the increase in HyFlex courses.

The preliminary findings have also been instructive in determining future institutional research. As the college now has a growing pipeline of students taking HyFlex courses, there is now an opportunity to examine how community college students experience course performance outcomes as related to HyFlex instruction. Though Lakhal et al. (2014) found there was no significant difference between modalities on student satisfaction or academic performance on certain assessments, this research was completed within a university setting and not a community college. Continued research is necessary to provide a closer examination of the relationship between the identified needs of nontraditional students and the multitiered elements of HyFlex course design and delivery.

Conclusion

While the COVID-19 pandemic served as a catalyst to shift to multimodal instruction, the need to support learner choice is more evident than ever before. With technological advancements and the focus on increasing avenues to access, community colleges are well poised to be more adaptive in approaching instruction to meet rapidly changing student and institutional needs. This pilot presents an opportunity to re-envision teaching and learning through the lens of student success.

References

Abdelmalak, M. (2014). Towards flexible learning for adult students: HyFlex design. In M. Searson & M. Ochoa (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* 2014 (pp. 706-712). Waynesville, NC: Association for the Advancement of Computing in Education (AACE).

Abdelmalak, M. & Parra, J. (2016). Expanding learning opportunities for graduate students with HyFlex course design. *International Journal of Online Pedagogy and Course Design*, *6*(4), 19-37. IGI Global.

Beatty, B. (2007). Transitioning to an online world: Using HyFlex courses to bridge the gap. In C. Montgomerie & J. Seale (Eds.), *Proceedings of EdMedia + Innovate Learning* 2007 (pp. 2701-2706). Waynesville, NC: Association for the Advancement of Computing in Education (AACE).

Beatty, B. J. (2019). *Hybrid-Flexible course design: implementing student directed hybrid classes.* EdTech Books. https://edtechbooks.org/hyflex

Bouchey, B., Gratz, E., & Kurland, S. (2021). Remote student support during COVID-19: Perspectives of chief online officers in higher education. *Online Learning Journal, 25*(1), 28-40. https://doi.org/10.24059/olj.v25i1.2481

Ensmann, S. Y., Gomez-Vasquez, L., Sturgill, R., & Whiteside, A. L. (2020). A pandemic case journal of one higher education institution. *Quarterly Review of Distance Education*, *21*(3), 19–22.

Kachur, T., & Barcinas, S. (2020, October 27). Community college adult learner experiences with a student success environment. *Proceedings of the American Association for Adult and Continuing Education 2020 Conference, Online* (pp. 106-111). https://files.eric.ed.gov/fulltext/ED611595.pdf

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 E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2014* (pp. 1075-1083). San Diego, CA: Association for the Advancement of Computing in Education (AACE).

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.

Moore, K., & Shemberger, M. (2019). Mass communication andragogy for teaching online adult learners. *Teaching Journalism & Mass Communication, 9*(1), 35-40. http://proxy004.nclive.org/login?url=https://www.proquest.com/scholarly-journals/mass-communication-andragogy-teaching-online/docview/2251690792/se-2?accountid=13993

Pratt, T. (2017). The open access dilemma. *Education Next, 17*(4). https://www.educationnext.org/open-access-dilemma-community-college-better-server-underprepared-students/

Roddy, C., Amiet, D. L., Chung, J., Holt, C., Shaw, L., McKenzie, S., Garivaldis, F., Lodge, J. M., Mundy, M. E. (2017). Applying best practice online learning, teaching, and support to intensive online environments: An integrative review. *Frontiers in Education, 2,* 1-10. https://doi.org/10.3389/feduc.2017.00059

Rosen, D. J. (2021). BlendFlex and HyFlex models to increase student engagement and retention. *Adult Literacy Education, 3*(2), 73-78. http://doi.org/10.35847/DRosen.3.2.73

Singh, J. (2019). The lean prescription for non-traditional adult learners. *Quality Assurance in Education, 27*(3), 347-359. http://dx.doi.org/10.1108/QAE-09-2018-0100

Wigal, C. M. (2021). Teaching the design process in a HyFlex environment. *Journal of Higher Education Theory and Practice, 21*(10), 226-235. http://proxy004.nclive.org/login?url=https://www.proquest.com/scholarly-journals/teaching-design-process-hyflex-environment/docview/2580076895/se-2?accountid=13993

Authors' Note

The authors no known conflict of interest to disclose. Correspondence concerning this article should be addressed to Makena N. Stewart, Division of Academic and Student Affairs, South Piedmont Community College, 4209 Old Charlotte Highway, Monroe, NC 28110. Email: mstewart@spcc.edu.