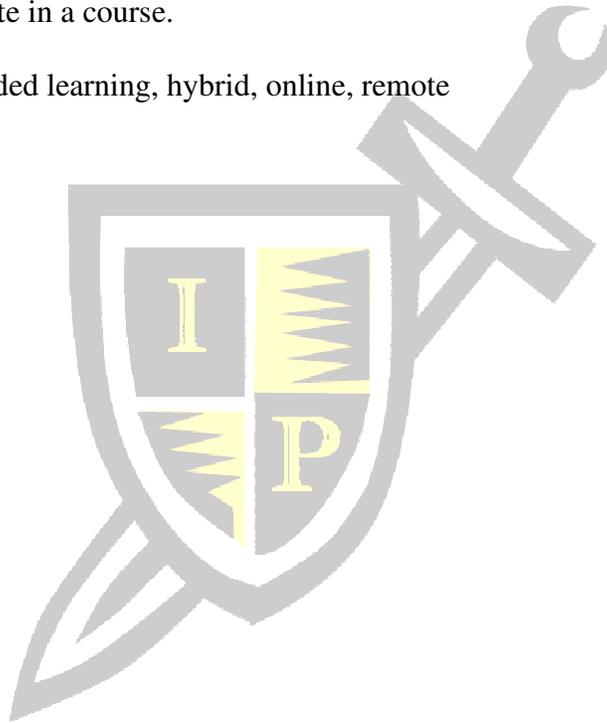


## Hyflex courses: a “flex” or a flop?

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Hyflex course deployment is not completely online, not completely face-to-face, and not exactly hybrid or blended. Traditionally, hyflex gives the learner the choice of three participation options: face-to-face, synchronous online, or asynchronous online. Students select the mode that suits their lifestyle best over the entire course and/or from session to session. This study examines the results for business students at a small regional university in the southern part of the United States where a new definition of hyflex was employed. Students voiced their concerns and anecdotal evidence suggested they struggled throughout the semester. However, the results show this to be untrue: the mode of presentation - whether face-to-face or hyflex - did not affect the success rate in a course.

Keywords: hyflex, blended learning, hybrid, online, remote



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## INTRODUCTION

In the vernacular of Generation Z, a “flex” is a slang term meaning “to show off” something one considers superior to those of others. Due to the global pandemic, universities across the United States struggled to bring students safely back to campus for the fall 2020 semester after sending them home months before. The shelter-in-place, lockdown order of March 2020 meant universities everywhere saw a huge dip in revenue from auxiliary fees – income generated from cafeterias, snack bars, dormitories, student activities, etc. Putting students back in the classroom meant many schools could keep their campuses afloat financially. Complicating matters, lectures would now involve mask-wearing and social distancing; classrooms could now conceivably hold, at most, half of their prior enrollments. A solution to this involved hyflex course deployment. Hyflex is not completely online, not completely face-to-face, and not exactly hybrid or blended. Were students in hyflex courses as successful as those in traditional face-to-face courses, i.e., was it a “flex”? Or, was hyflex a flop? This study examines the results for business students at a small regional university in the southern part of the United States where a new definition of hyflex was employed. Students voiced their concerns and anecdotal evidence suggested they struggled throughout the semester. However, the results show this to be untrue: the mode of presentation - whether face-to-face or hyflex - did not affect the success rate in a course.

## PRIOR RESEARCH

When comparing the student performance of face-to-face versus online instruction, the results have been mixed: “some find online superior, others purport that nothing replaces the lecture format, and there are those that show no discernable difference between the two” (Guidry, 2017).

However, Hodge, Tucker, and Williams (2004) found that students were more engaged in blended courses than those with a sole form of delivery. Hyflex learning is a hybrid/blended/online form of learning. According to Beatty (2014), hyflex gives the learner three flexible participation options:

- Attend synchronous class sessions in-person
- Attend synchronous class sessions via video conference (such as Zoom or Google Hangouts)
- Learn asynchronously via a learning management system.

Students choose the modality that works best for their situation over the entire course and/or from session to session. It enables learners to take ownership “for their own learning styles and schedule preferences” (Lieberman, 2018). Vital to the definition of hyflex is that regardless of the modality selected, all students must have the same educational experience. Furthermore, hyflex is of benefit to the institution in terms of cost efficiency and space utilization.

A study of Central Georgia Technical students found that those enrolled in a hyflex course were more successful than their peers in the same non-hyflex course. The hyflex students also had a higher mean GPA and more earned credits (Lieberman, 2018). Helms (2014) noted that classes offering both modalities generally had better outcomes than a course delivered with only one, but may be a “better fit for entry-level courses than for more specialized material at the upper level.” On the other hand, Miller, Risser and Griffiths (2013) and Rhodes (2020) found no

significant difference between the performance of face-to-face students and remote students in a hyflex course.

Personal satisfaction was high for students in hyflex courses (Rhodes, 2020; Miller, Risser and Griffiths, 2013; and Abdelmalak, 2014). Lieberman (2018) observed “Ninety-five percent of students said they liked the flexibility of the format, and 98 percent said they like being able to switch methods of attendance any time their schedule demands.”

## **BACKGROUND INFORMATION**

The coronavirus pandemic upended the college education for millions of students in the United States. In March 2020, governors nationwide issued a lockdown mandate for their states. Colleges and universities would finish the semester via remote learning. Students were thrown into online learning with little advance notice. At the helm of many of these courses were faculty that may have never taught online. All on-campus offices were closed. Staff and administrators worked remotely. Dorm residents were encouraged to return home, if possible. University revenues plummeted. Degrees were posted at the end of the semester with little fanfare as graduation ceremonies were held virtually, if at all. Summer school was fully online as the pandemic was far from over: a spike in cases occurred around Easter and Memorial Day.

## **MOVING FORWARD: FALL 2020**

At the university under review, converting a face-to-face course to fully online for fall 2020 was discouraged by the administration. However, there were certain situations which could not be avoided. Hence, asynchronous and synchronous online courses were allowed by special permission. Synchronous online courses were those that were offered 100% online, with all interaction occurring over the internet. These courses were characterized by live-streamed lectures and proctored exams. Courses met as scheduled, albeit online, on specific days and times during the week. Asynchronous online courses were also offered 100% online, but rather used recorded lectures and videos to deliver content. These courses did not meet on specific days or times. Students accessed the course at their convenience. However, most had specific due dates/times for assignments, and exams were proctored.

However, a return to campus for fall 2020 was necessary for the university to survive financially. Students and faculty were eager for a return to normalcy, albeit a “new normal.” Classrooms were measured for social distancing capacity, desks were moved, and plexiglass partitions separated faculty from their students. In-class collaborative work became difficult to implement. Masks were required in all public areas, including bathrooms and classrooms. All were screened daily prior to entering campus buildings. Staircases and doors were designated one way only.

## **THE INTRODUCTION OF HYFLEX**

Some classes met in the traditional, face-to-face sense in their entirety (course is offered on campus in a classroom and meets as scheduled). Many of these courses were moved to larger sites on campus to accommodate their enrollments. Repurposed spaces included gymnasiums, ballrooms, movie theaters, and auditoriums. Students in these courses would report to campus for all normal class days. Hybrid courses were a rarity before the pandemic and remained so.

The university defines a true hybrid course as one in which all enrolled students simultaneously meet in person with their peers and a faculty member in a classroom, but some work is accomplished online.

However, most courses could not resume fully face-to-face as real estate was at a premium, even if designated as hybrid, as social distancing constraints would not allow for the entire class to attend at the same time. Faculty, especially those teaching quantitative-laden material, begged for some sort of face-to-face interaction.

What made hyflex different at the institution under analysis was that students were not given a choice of modality (unless granted special accommodations, see below). Faculty members made the decision for them; instructors divided up their classes alphabetically into two groups. These hyflex courses used a combination of face-to-face lectures to only one group at a time. The faculty may live stream or make available prerecorded lectures to the remainder of the students. Assignments, discussions, projects, and proctored exams may take place in the classroom or over the internet as directed by the course faculty. Hence, hyflex courses at this university were designed by the faculty, and each may be unique. Here are some examples:

- For a course that meets on Monday, Wednesday and Friday, half of the class may attend in person on a Monday, while the other half participate synchronously online. On Wednesday, the two groups swap and on Friday, all student participate in online instruction. Similarly, For Tuesday, Thursday classes, half the class may attend in person on Tuesday, while the other half participate synchronously online. On Thursday, the two groups swap.
- For a course that meets on Monday, Wednesday, and Friday (or Tuesday, Thursday classes, for that matter), half of the class attends in person for the first half of the class period. The other half attends in person for the last half of the class.
- Half of the class may be required to attend in-person until midterm, while the other half attends synchronously online. After midterm, the two groups switch.
- Half of the students may attend in one classroom with the faculty, while the other half are located next door in a second classroom watching the class remotely. The faculty member may then move between the two groups.
- Some faculty members employed “flipped” learning. Recorded lectures are posted online for the entire class to view on their own time. Half of the class attends one day, and the other half attends on a different day. Faculty use class meetings to answer questions or have the attendees attempt homework assignments.

## COMPLICATIONS

University administration envisioned the following: while deployment may differ from course to course, the commonality between these courses were that they were neither fully online nor face-to-face, but incorporating online components to allow greater flexibility and safety. Unfortunately, hyflex led to much confusion among students and frustration by faculty. Here are some of the issues faced by these individuals:

- Some students may need to participate fully online for the entire semester, regardless of the delivery of their scheduled courses. Those students are immunocompromised or in a high-risk category, caring for someone who is immunocompromised or in a high-risk category, or have other risk factors or concerns. In order to participate fully online in a face-to-face or hyflex course, the student provided justification for such accommodations.

If approved, faculty members were notified and were required to provide remote learning for the semester.

- Students who test positive for COVID-19 or are quarantined due to exposure to someone who tested positive must continue their coursework via remote learning for the period prescribed by the university.
- Self-motivation for independent learning and meeting deadlines is documented to be low for most students. By the end of the fall semester, students scheduled for their face-to-face lecture on a particular day opted out, choosing to attend on Zoom. Many turned off their cameras and watched recorded lectures, if available, at their convenience. Drouin, (2014) validates that when recorded lectures are available, a decline in attendance occurs.
- Furthermore, students registered for in-person, face-to-face courses months before fall 2020, as the entire country was optimistic that surely the pandemic would wane. Of course, that was not the case; infections and deaths rose, and most courses could not be delivered in their traditional format. Thus, many students felt bitter and misled when the fall semester began. Nationwide, college students dissatisfied with online learning due to the pandemic filed lawsuits seeking tuition reimbursement; all were denied by the courts as “schools reserve the right to make changes without notice in [its] courses and offerings. . . the only explicit agreement is that the schools will award degrees in return for satisfactory completion of course work” (Carter, 2021).
- A student may be required to report to class for one face-to-face course, then online for the rest of the day. Many commuters felt it unnecessary to make the trip to campus.
- Economic disparities led to unequal access to hyflex online components, as the following were required: a computer, broadband internet access, a webcam and microphone, ability to download certain software programs, and access to a fee-based online proctoring service. A campus-wide survey conducted by the university (2020) revealed 4% had no functional computer at home, 7% had insufficient internet, and 5% had no camera.
- Nontraditional students faced a myriad of problems not encountered by their traditional counterparts, such as inadequate childcare and loss of employment/income. The aforementioned survey showed that 60% of those surveyed saw their household income reduced due to COVID-19.
- The survey also revealed that 50% of the students who responded were comfortable returning to campus. However, another 25% were unsure, and the remaining 25% were clearly uneasy about returning.

## **HYPOTHESIS**

A survey by the university of its business students after the spring 2020 semester (2020) found that 62% felt their fully remote learning experience was worse than in-person instruction (of which 30% had no prior experience with online learning) and provided the following justifications:

- 69% found it difficult to understand the material,
- 55% reported to be distracted more easily, and
- 41% disliked less interaction with faculty.

After the fall 2020 semester (and having spent 8 weeks in the spring and 8 weeks for the summer term fully remote), 59% of business students thought the hyflex experiment was worse than in-person instruction and provided the following reasons why they thought so:

- 74% found it difficult to understand the material,
- 55% reported to be distracted more easily, and
- 60% disliked less interaction with faculty.

Also, over 75% of the business students surveyed disclosed they were stressed due to academic issues. While the results are from two different surveys, we can infer that students felt as though hyflex instruction was a failure when compared to face-to-face instruction (and possibly worse than fully remote instruction). If true, then the success rate for hyflex courses must be extraordinarily low. Thus, it is hypothesized that students enrolled in hyflex courses will not perform any differently than students enrolled in face-to-face courses.

## MODEL AND EMPIRICAL RESULTS

The model is written as follows:

$$\text{SUCCESS}_i = f(\text{HYFLEX}_i, \text{CORE}_i, \text{LEVEL}_i, \text{QUANT}_i)$$

where:

$\text{SUCCESS}_i$  = percentage of students successful in course  $i$ . Success is defined as completing the course with the grade A, B or C. Students earning grades of D, F, I, or W are deemed unsuccessful and must take the course again (or complete) in a subsequent semester.

$\text{HYFLEX}_i$  = dummy variable indicating if course  $i$  was deployed as a face-to face or hyflex (HYFLEX = 0 if face-to-face; 1 if hyflex).

$\text{CORE}_i$  = dummy variable indicating if course was a part of the college's business core (CORE = 0 if not part of core, 1 if part of core). The business core is a set of courses all students majoring in a discipline unique to the college of business must successfully complete.

$\text{LEVEL}_i$  = variable indicating the class level of the course (LEVEL = 1 for freshman level course, 2 if sophomore level, 3 if junior level, 4 for senior level course, and 5 for master's level).

$\text{QUANT}_i$  = dummy variable indicating if course is laden with quantitative material (QUANT = 0 if majority of course is qualitative material, 1 if quantitative). Courses such as accounting, finance and statistics are obvious quantitative courses; however, some courses in the "softer" disciplines may be considered quantitative. A survey of instructors revealed those courses considered as qualitative.

The model is run with data provided by the university. Results should show whether successful completion of a class is dependent upon the method of presentation, face-to-face versus hyflex.

Table 1 (Appendix) presents the descriptive statistics of the entire sample. One hundred sixty-six course sections were taught in the school of business – 65 were deployed as hyflex and 101 as face-to-face. A majority of the classes offered were at the junior level, 72 were considered quantitative, and 70 were part of the core group of business courses. The average success rate in the hyflex courses versus face-to-face was 85.54% and 88.24%, respectively; overall, it was 87.33%.

The empirical results are presented in Table 2 (Appendix). Two significant independent variables were found: the course level and whether it was quantitatively oriented. The higher the course level, the higher the rate of success. As students move from freshman to senior (or graduate) level courses, they are more engaged and dedicated to success when degree completion is imminent (contrary to the observations of Helms, 2014). Higher level courses are those usually required by students of a particular major; their success may be due to a high level of

interest in the subject. Quantitative courses resulted in a lower success rate. Interestingly, the HYFLEX variable was deemed insignificant. Thus, the mode of presentation - face-to-face or hyflex - did not affect the success rate in a course.

## CONCLUSION

The coronavirus pandemic upset the college experience for millions of students in the United States. Come fall 2020, universities struggled to bring students safely back to campus after sending them home months before. Putting students back in the classroom meant many schools could keep their campuses afloat. However, most courses could not resume fully face-to-face as real estate was at a premium: social distancing constraints would not allow for an entire class to attend at the same time. The hyflex mode of instruction meant many campuses could remain financially viable. The traditional definition of hyflex gives the learner three flexible participation options. What made hyflex different at the institution under analysis was that students were not given a choice in how to participate in the course and engage with the material. Faculty members made the decision for them; instructors divided up their classes alphabetically into two groups. These hyflex courses used a combination of face-to-face lectures to only one group at a time. The faculty may live stream or make available prerecorded lectures to the remainder of the students. Was this hyflex modality a “flex” (i.e., something superior according to Gen Z) or a flop? Even though students voiced their concerns and anecdotal evidence suggested they struggled throughout the semester, this study found no significant difference between the rate of student success between face-to-face and hyflex courses. However, two significant independent variables were found: the course level and whether it was quantitatively oriented. The higher the course level, the higher the rate of success, while quantitative courses resulted in a lower success rate.

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**APPENDIX**

Table 1: Descriptive Statistics of Sample

N = 165

variable	mean	standard deviation	median	mode	maximum	minimum
SUCCESS	0.8718	0.1382	0.9045	1.0000	0.4211	0.5789
HYFLEX	0.3916	0.4896	0.0000	0.0000	1.0000	0.0000
CORE	0.4217	0.4953	0.0000	0.0000	1.0000	0.0000
LEVEL	3.0903	1.0020	3.0000	3.0000	5.0000	1.0000
QUANT	0.4337	0.4971	0.0000	0.0000	1.0000	0.0000

Table 2: Regression Results

Dependent variable: percentage of students successful in course i (SUCCESS)

variable	coefficient
constant	0.7404 (14.6666)***
HYFLEX	0.0007 (0.0351)
CORE	-0.0170 (-0.6690)
LEVEL	0.0547 (4.3202)***
QUANT	-0.7070 (-3.5368)***
R <sup>2</sup>	0.2176
F	11.1923***
N	166

Note: t-statistics are in parentheses; \*\*\* denotes significance at 1%