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ONLINE LEARNING: INSIGHTS FROM COVID CONVERSIONS IN HIGHER EDUCATION

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Synopsis:

The 2020/2021 COVID-19 pandemic has conceivably altered the educational landscape for many years to come – potentially forever. Educators heroically migrated to alternative distance learning approaches almost overnight. This study explores how higher education students evaluate online learning approaches. Specifically, this study compares student responses among different disciplines. Findings indicate that students from some academic areas responded favorably to techniques that students from other academic areas found less favorable. The results of this study indicate that student needs in online learning may be predictable by the degree programs in which the student enrolls. Implications for customizing online learning based on degree category are provided.

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Abstract

The 2020/2021 COVID-19 pandemic has conceivably altered the educational landscape for many years to come – potentially forever. Educators heroically migrated to alternative distance learning approaches almost overnight. Institutions rose to the challenge with new technology. Some individuals and institutions were better prepared and better trained than others, and without much forewarning, the conversions resulted in varying levels of success. As we are beginning to see the end of the tunnel, a retrospective look is warranted. This study explores how higher education students evaluate online learning approaches. Specifically, this study compares student responses among different disciplines. Findings indicate that students from some academic areas responded favorably to techniques that students from other academic areas found less favorable. The results of this study indicate that student needs in online learning may be predictable by the degree programs in which the student enrolls. Implications for customizing online learning based on degree category are provided.

Online Learning: Insights from COVID Conversions in Higher Education

Few would question that the COVID-19 pandemic of 2020/2021 caused changes in the United States and worldwide. It is likely to take many years for the entirety of the impact of the pandemic to be studied and analyzed. The short- and long-term repercussions are likely to trace back to many sectors including political, economic, social, and educational environments. Early scholarly research is just beginning to appear in print.

In the fields of elementary, secondary, and higher education, the effects were almost immediate and are likely to be tenacious. Educational institutions, in the United States and other countries, were forced to make dramatic changes in content delivery with limited time to plan and execute strategies (Arora and Srinivasan 2020). With 188 countries worldwide suspending traditional education processes, the approaches to delivery were widespread (Basilaia and Kvavadze 2020). It is not surprising that several types of virtual learning were implemented, including asynchronous, synchronous, and hybrid, with the choices being influenced by the immediate availability of skills, tools, and resources (Basilaia and Kvavadze 2020).

While K-12 education faced dramatic challenges in each region and district, higher education faced challenges that were compounded by the fact that universities bring thousands of people to live and learn together from large worldwide geographic areas. Liguori and Winkler (2020) succinctly reported that “the COVID-19 pandemic forced universities to switch their entire instructional apparatus to one of online delivery overnight.” Their study indicated that the switch to online learning was not the same across disciplines.

Although many universities had offered online course delivery prior to the pandemic, statistics can be easily miscommunicated. Prior to the pandemic, online learning was experiencing sustained growth that has lasted for more than a decade (Seaman, Allen and

Seaman 2018), but that growth had not been evenly allocated across all disciplines, all universities, and all levels of education (US Department of Education 2019). Only six percent of all college students had taken at least one distance education course (Seaman, Allen and Seaman 2018). The largest portion of online classes were offered at the post baccalaureate and graduate levels (US Department of Education 2019). Furthermore, these numbers are skewed with the large number of students taking classes from for-profit universities offering exclusively online degree programs (US Department of Education 2019). Because experience with online teaching was not evenly distributed across universities, disciplines, or educators, many individuals taught online for the first time during the pandemic. These individuals geared up for the students as quickly and as efficiently as possible.

A retrospective view should praise the educational systems and educators for being able to make the unanticipated switch quickly. Moving forward, there is a great deal to be learned from both wins and losses that occurred during the 2020/2021 COVID-19 pandemic educational pivot. It is important to not only plan for future unforeseen events that may necessitate a temporary switch (snow storms, earthquakes, etc.), but more importantly, we need to prepare for the student who emerges post pandemic.

Most students entering college prior to the pandemic had not taken formal online classes; after the pandemic, almost all of them will have some exposure to distance education. Regardless of the quality of the experience during the pandemic, our future students have been changed. Many will seek to avoid online learning entirely – at least for a while. Others will have discovered that they like online learning. Either way, students will have determined what works and does not work for them.

The purpose of this paper is to explore how higher education students evaluate online learning approaches. Specifically, this study compares student responses among different disciplines and provides recommendations and conclusions that directly address concepts delivered remotely.

Conversion During a Pandemic

Many universities engaged in a pivot from face-to-face classes to online classes during the Spring 2020 term. For several, the classes were well underway in the planned format when officials made the decision to implement stringent protocols to slow the spread of the virus. Many organizations took a one- to two-week pause, shutting down operations almost overnight. Essential workers labored tirelessly to put safety equipment and protocols in place. In that two-week window, universities developed game plans, implemented social distancing, purchased sanitizing products, and deployed new technology to support a learning environment that could keep people safe. Institutions of higher education planned for stopgap measures to last for the short run, but potentially through the end of the spring term. Discussions took place contemplating the fate of the summer study abroad programs which were planned and funded. Budgetary planning considered the impact of decreased summer enrollment and loss of auxiliary service revenue. Most of the people implementing the hastily, but diligently, created game plans could not imagine that the pandemic would last so long. But it did.

The Unavoidable Extensions

The plans put in place were supposed to be temporary. New technology was purchased to record teachers standing behind shields to deliver lectures to half empty classrooms that could be made available for students who could not attend or did not want to attend classes in person. Live electronic delivery during planned class time periods was intended to be used only for the

shortest time possible. Many of the faculty members had never before taught via distance learning. Some had even questioned if distance learning could be as effective as face-to-face teaching. No matter which side of the online learning discussion that a person was on, it seemed like almost everyone expected that things would be back to near normal by fall and maybe even summer. Medical scientists warned otherwise, but faculty, staff, administrators, and students planned for resumption of the college experience.

The imposed protocols were in place much longer than expected. Many educators began to explore ways to improve their course delivery for a long stretch of time. Most universities and colleges provided training and preparation for course delivery to be completely by distance, which most often meant fully online. Given that many educators were new to online teaching, the fastest and safest approach was to focus on best practices to implement.

Despite the talented individuals with superior research skills across United States universities and colleges, there was little empirical evidence to guide the move from classroom-based teaching to technology-delivered content. The inevitable result is that in the moment of *sine qua non*, the unavoidable response to the pandemic shutdown was to rely on extensively anecdotal “best practices” for online learning without empirical testing and top-tier peer review scrutiny.

Not surprisingly, many of the recommended best practices put forward for online delivery relied heavily on research in best practices for traditional delivery. Many of the foundations for the best practices appeared in academic press before online learning was even possible. The development of higher education best practices for teaching via online delivery appears to draw substantially from respected publications in teaching and learning in general.

Unfortunately, it does not appear that the degree to which traditional classroom methods are applicable to the online setting has been rigorously or empirically validated. Furthermore, the literature on “best practices” seems to have an underlying assumption that the accepted best practices are universal in application across all academic disciplines. Such an assumption could be erroneous and misleading.

The current best practices that are used at many universities appears to draw primarily on the previous works from Chickering and Gamson (1987). Their book, *Seven Principles for Good Practice in Undergraduate Education*, provides the tenants on which much of the foundation for appropriate online teaching has been formed. Despite their warning that the recommendations are not intended to be a set of “ten commandments,” the rush to meet the needs caused by the pandemic may have led to that use.

An internet search of university online training materials during Spring of 2020 demonstrated that the seven bullet points of recommendations in this four-page article have become the guiding principles for many universities. The search of universities endorsing the principles quickly rose to more than 100 institutions directly providing the entire set of principles, or some subset, as the primary source of information for online course development.

The concepts provided in the book promote the utilization of seven principles that encourage student learning. The principles provided by Chickering and Gamson (1987) as good practices for undergraduate education include:

1. Contact between students and faculty
2. Reciprocity and cooperation among students
3. Active learning
4. Prompt feedback
5. Time on task
6. High expectations
7. Respect for diverse talents and ways of learning

During the height of the pandemic pivot, these recommendations became a panacea for forming a set of guidelines to assist inexperienced faculty members teaching online. Now that we are more than one year into the pandemic protocol, it seems wise to empirically explore the degree to which these principles apply to distance learning, specifically the delivery of online content. Additionally, it seems appropriate to gauge the student expectations across discipline types.

The purpose of this study is not to attempt to discredit or even disservice the concepts of the original article, but rather, to bring to the conversation that there may be no one right way to be effective teachers and that best pedagogical practices may vary by discipline. Additionally, the hope of the authors is that each discipline will take ownership of developing a broader understanding of how their discipline may have different challenges or opportunities. Educators in each discipline should take responsibility for understanding those differences. Over time, it appears that some of the original seven principles from Chickering and Gamson (1987) have been lost in the translation of the concepts to alternative learning environments, particularly online learning. The good practices for undergraduate education have been used by some educational support companies and universities to justify boilerplate or standardized best practices for all online learning, giving little room for considering different ways of learning.

Research Questions

The literature on best practices gives rise to several questions regarding guidance for online course development and delivery. If we look to the good practices for traditional undergraduate classes as a structure for this discussion, it is immediately apparent that we should expect that students in different disciplines may have different pedagogical needs and desires.

Our research questions are structured around the first two good practices that are commonly recommended for online learning.

The first good practice recommends an established method of contact between faculty and students. In the extrapolation of this concept to online, the recommendations have included suggestions that the sharing of personal and professional characteristics of the professor will be desired by online students. It is conceivable that this recommendation is not unilateral and that students in some disciplines may desire less personal sharing. The manner in which a professor might share could include personal life (photos of family, zoom sessions with pets, etc.), professional experiences (previous work history and earn credentials, such as a CPA), and course related sharing (such as course content and research related to the course subject). A second good practice recommends an established level of cooperation and exchanges between peers. Establishing student-to-student engagement is suggested as an aid to student learning. Our research questions consider differences in preferences across disciplines.

- **Research Question 1:** Do students from different disciplines prefer different delivery formats?
- **Research Question 2:** Do students from different disciplines have different preferences for the types of communication and information shared by a professor?
- **Research Question 3:** Do students from different disciplines have different preferences for the types of communication methods used by a professor?
- **Research Question 4:** Do students from different disciplines have different preferences for the types of support for learning?
- **Research Question 5:** Do students from different disciplines value group work differently?

Survey Results

The data for this study were collected using an online survey of a panel of current students and recent graduates. All students included in this survey had taken at least one online class. The survey produced 301 usable responses. The respondents consisted of 152 students in business fields of study, such as accounting, finance, decision sciences, marketing and management; 17 students in professional fields other than business, including engineering and communication; 45 humanities and arts students studying in a variety of fields, including literature, philosophy and art; 37 social science students in fields such as psychology, anthropology, and sociology; and students from math and the sciences, such as biology, math, and chemistry. The average age of respondents was 28 years old. The respondents self-reported an average GPA of 3.4, and 40 percent identified as male. The respondents attend or attended universities around the U.S. with many states represented. In this respondent pool, all reported having taken an online class, and most of the students (62.79 percent) indicated a preference for online classes when offered options of online, face-to-face, and hybrid. This information is provided in Table 1.

Table 1: Preference for Delivery Format

	Face-to-Face	Hybrid	Online
Business	24.34%	21.05%	54.61%
Professional (Non Business)	11.76%	0.00%	88.24%
Humanities and Arts	6.67%	15.56%	77.78%
Social Science	18.92%	16.22%	64.86%
Math and Science	24.00%	12.00%	64.00%
Total	20.27%	16.94%	62.79%

The respondents demonstrated differences in the types of sharing that they desired from the instructors of their courses. Inconsistent with the recommendation for sharing a wide range of information with students, on a scale of 0 to 5, with 5 being highly desired and a 0 being

undesirable, students generally desired sharing below the mid-point (an overall score of 1.81). Not surprisingly, the students had indicated their highest preference was for the faculty member to concentrate their class time on course content information (an overall score of 3.07). Students indicated a low desire to hear about their instructors' personal life (1.36) and their academic research (1.30).

The preferences did differ between disciplines. The highest desire for focus on course content was from the professional fields other than business (such as engineering) students. The highest desire for faculty to share their experience working in the field was from humanities and arts students. The highest desire for a faculty member to share their professional qualifications such as certifications and licensing was also from the social science students. Table 2 presents the degree to which students desired for faculty members to share information.

Table 2: Desire for Faculty Sharing by Types

	All Sharing	Personal Information	Course Content	Professional Experience	Professional Qualifications	Academic Research
Business	1.68	1.69	2.75	1.79	1.21	0.95
Professional (Non Business)	1.98	1.08	3.92	2.06	1.27	1.57
Humanities and Arts	1.91	1.07	3.30	2.41	1.07	1.70
Social Science	1.98	0.81	3.47	2.39	1.44	1.80
Math and Science	1.91	1.10	3.27	2.37	1.30	1.50
Total	1.81	1.36	3.07	2.07	1.23	1.30

Scale of 0 to 5, with 5 being highly desired and a 0 being undesirable

The respondents also provided their preferences for the method of communication used by their course instructor. In general, students preferred email as the preferred method of contact. Some differences were observed between disciplines. Students in the humanities and arts were less likely to prefer email messages and had a strong preference for LMS announcements. Other disciplines favored email over LMS messages, but both were considered appropriate. Students in non-business professional programs were the most open to a text message from a professor, but

students in the social sciences found texting to be entirely inappropriate. For the most part, students, regardless of major, did not favor more personal methods of communication, such as direct text messages, having to follow the professor on Twitter, or following a blog or other site provided by the professor. Table 3 provides the students' responses by discipline.

Table 3: Preferred Method of Communication

	Email	LMS Announcement	Twitter	Direct Text	Blog/Post (not in LMS)
Business	44.08%	39.47%	5.92%	5.26%	5.26%
Professional (Non Business)	58.82%	29.41%	0.00%	11.76%	0.00%
Humanities and Arts	35.56%	51.11%	4.44%	4.44%	4.44%
Social Science	59.46%	35.14%	5.41%	0.00%	0.00%
Math and Science	50.00%	32.00%	6.00%	6.00%	6.00%
Total	46.51%	38.87%	5.32%	4.98%	4.32%

The respondents demonstrated differences in the types of support for learning that they desired. Respondents considered the level of value for video lectures recorded by the professor, holding synchronous class meetings in asynchronous classes, faculty assigning mandatory study groups, and the faculty member offering optional Zoom office hours. On a scale of 0 to 5, with 5 being very beneficial and a 0 not being beneficial, students found that video recordings of a faculty member's lectures to be the most beneficial. The desire for video lectures was fairly consistent across the disciplines with a desire for about 40 minutes of lecture per topic area. Students found mandatory faculty assigned student groups to also support learning. There were fairly large variations by disciplines regarding study groups. Business students favored study groups highly (rating of 3.65) while social science students saw little value in study groups (rating of 1.89). Faculty members holding optional electronic synchronous office hours using a platform such as Zoom was also desirable by some individuals and was more favorable in the professional degree programs (business rating of 2.10, non-business rating at 2.35) and

math/sciences (rating 2.23). Students in the humanities/art (rating 1.78) and social sciences (rating 1.71) favored electronic office hours less. Holding mandatory synchronous class sessions was generally not considered as helpful. Business students were the most willing to participate in synchronous class sessions (rating 2.52). Table 4 provides these results.

Table 4: Preferred Methods for Support Learning

	Video Lectures	Synchronous Meetings	Faculty Assigned Study Groups	Zoom Office Hours
Business	4.47	2.52	3.65	2.10
Professional (Non Business)	3.82	1.71	2.75	2.35
Humanities and Arts	4.33	1.72	2.48	1.78
Social Science	4.05	1.43	1.89	1.71
Math and Science	4.60	1.94	2.83	2.23
Total	4.38	2.13	3.07	2.04

Scale of 0 to 5, with 5 being highly desired and a 0 being undesirable

These findings provide insights for the research questions and raise some concerns about the concept of universal best practices for online learning. Additionally, this study provides clear variation by discipline.

Research Question 1: Do students from different disciplines prefer different delivery formats?

The survey results suggest that students like online courses, at least among those who have taken an online course. Generally, they prefer a hybrid format less than fully online or face-to-face. Business majors and math/science majors prefer face-to-face classes more than humanities/art students in this respondent pool. It seems clear that students in different disciplines have varying preferences.

Research Question 2: Do students from different disciplines have different preferences for the types of communication and information shared by a professor?

The survey results regarding the second research question also indicted a variation in preferences by discipline. While all students valued the faculty member providing content

directly related to the course content, students desired information from the professors across the various disciplines to varying degrees when the content offered was not directly related to the topic of the course, such as personal life, previous work experience and academic research.

Research Question 3: Do students from different disciplines have different preferences for the types of communication methods used by a professor?

While the survey results show some consistency across disciplines regarding communication preferences, there were still some discipline specific expectations. Even though email was a preferred choice by many students in many disciplines, LMS announcements were preferred most by humanities and arts students. While text messages to the students' personal phone was intolerable for social science students, students in non-business professional fields were nearly twice as open to a text message compared to all other disciplines.

Research Question 4: Do students from different disciplines have different preferences for the types of support for learning?

The survey respondents nearly universally felt that video lectures supported student learning; there was some variation (lowest of 3.82 from non-business professional students to the highest of 4.6 from math and science students). Zoom office hours were favored most by non-business professional students (2.35 rating), but much less so by social science students (1.71 rating).

Research Question 5: Do students from different disciplines value group work differently?

The respondents also had varying opinions regarding the value of peer-to-peer learning achieved in study groups. Social science students rated study groups as having less value in supporting learning (1.89 rating) while business students favored this learning approach (rating 3.65).

Conclusions, Recommendations, and Limitations

The results from this study provide a great deal of insight into online learning in a post pandemic university environment. Based on this online survey, it is clear that online classes are preferred in a wide variety of disciplines which will conceivably change the desired course offering mix. As institutions return to a post pandemic university life, administrators are encouraged to consider how to meet student expectations, altered by a more than year-long pandemic. Conceivably, not all students will desire to jump back into face-to-face classes immediately, and the recommendation is for scheduling to be consistent with student needs. Based on this study, that may result in an increase in the number of online courses offered, across all disciplines, relative to the pre pandemic mix.

These findings provide insight into the selection of methods which are likely to be better received by students in a variety of disciplines. The best practices often attributed to successful online learning may be more or less applicable across disciplines. The extension of good practices for traditional undergraduate students to best practices for all online classes may be limited in foresight. Online classes should consider what is best in the online environment that appears to deviate from traditional face-to-face classes.

The results from this study should be considered preliminary, and all academic institutions are strongly encouraged to survey their own students to gain insight for meeting the needs of their student populations. The study is limited to students across a wide range of institutions, including public and private, as well as larger and smaller institutions. All students had completed at least one online class. The discipline categories are broadly defined, and variation may exist by subcategories within each discipline group (e.g. it is conceivable that engineering students might vary greatly in their expectations from communication students).

Some respondents in the pool had recently graduated and may have elected to take online classes prior to the onset of the pandemic. Recent graduates may vary from students still in their programs because the pivot to distance education at the beginning of the pandemic is very likely to have changed their viewpoints. Future research should look at more specific comparisons, including disciplinary subgroups. Data should be collected to allow for comparisons of students who took their first online class pre pandemic and those who took their online classes for the first time in the rushed pandemic conversion. Additional comparisons might identify more aspects of recommended good practices, as well as concerns that institutions may need to address in a post pandemic environment.

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