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Measuring Student Engagement and Student Satisfaction in Online and In-Person High School Classes

Joseph Jasper

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Abstract

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Action Research Report Submitted in Partial Fulfillment Of the Requirements for the Degree of Master of Education

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by

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Submitted in Partial Fulfillment
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Abstract

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interviews with five of the participants. The results of this study found that the levels of student engagement and student satisfaction were slightly higher for the online section than for the in-person section. The study recommends that regardless of a course's format, educators utilize strong design principles, including frequent contact between the teacher and students, student collaboration, and student choice.

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- Joseph

To say that online education is a growing trend would be an understatement. Even as far back as 2015, nearly a third of the United States' college population enrolled in at least one online course, and 2.9 million college students were exclusively enrolled in distance education programs. Those numbers were measured after more than a decade of exponential growth (Manion, 2019, p. 13). In 2018, the percentage of undergraduate students in the United States enrolled in at least one distance-education course was over a third (National Center for Education Statistics, 2018). Considering the vastly different learning experiences from distance education and traditional (in-person) education, it is clear that the world is in the middle of one of the most dramatic shifts in educational practice in history. Educators and students alike are perpetually re-evaluating their execution and expectations for what their teaching and learning look like.

Of particular interest is the shifting effects on two invaluable aspects of a student's experience: student engagement and student satisfaction. While they do not encapsulate the student's entire experience, they are significant determinants of student success in general. Hamane (2014) revealed that student engagement correlates to student learning and success: "Student engagement is positively related to a wide range of desired student performances, such as higher cognitive thinking, improved grades, and increased retention rates" (p. 20). The same result was found by Dixson (2015), who wrote, "Student engagement is critical to student learning, especially in the online environment, where students can often feel isolated and disconnected" (p. 1). Regarding student satisfaction, Choe and colleagues (2019) found that improving student satisfaction can have several benefits, including improving engagement (Barthelemy et al., 2015), meeting student expectations (Burgess et al., 2018), and increasing retention (Styron, 2010). It may be argued that student success is a primary goal of any kind or

level of education. Therefore, all teachers of any course or modality should consider the engagement and satisfaction of their students to maximize their effects on student success.

While many schools have considered adding online courses to their catalogs for some time, the exploration and implementation of online courses has been a slow process for schools for various reasons, including the inaccessibility of proper technology, staff or students lacking technology literacy, the problems online learning may create for more dependent learners, a lack of training for instructors, discomfort from administrators, decreased synergy and participation, and a lack of time to develop good curriculum (ION Professional, 2020).

However, with the COVID-19 pandemic in early 2020 forcing hundreds of thousands of schools worldwide to shift to some form of online learning rapidly, many schools now see the opportunity to expedite the process of adding online courses to their regular catalogs. From now on, schools may be considering online classes to be a routine aspect of their academic catalog due to their convenience for staff and students alike. However, with this introduction of online classes being such a sudden shift for many schools, there are likely to be questions of how online classes compare with traditional (face-to-face) learning environments concerning student engagement and student satisfaction. As online learning becomes a more significant aspect of our educational world, the need for educators to better understand how online learning affects students will only continue to grow.

Purpose of This Study

The purpose of this study was to compare the levels of student engagement and student satisfaction between an in-person section and an online section of the same entrepreneurship class at a Christian high school.

Research Question

The research question that this action research study pursued was: "How does the student engagement and satisfaction with an online course compare to that of the same course when offered in-person?"

Definition of Terms

A common understanding and definition of critical terms is beneficial in any educational context. For this study to be as unambiguous as possible, it must give operational definitions of standard terms to provide a reliable interpretation of them throughout the study. These definitions are provided below and appropriate exposition on the term's relevance to the study itself.

- *Asynchronous online learning model*: a type of online course that shifts more responsibility and focus onto the learner by "giving students the opportunity to engage with online content at a time of their choosing, according to their schedule, and usually include threaded discussions that give students the opportunity to contribute in more thoughtful ways than in class discussions" (Rhoads, 2020, p. 12).
- *Hybrid/blended learning model*: a course where "traditional face-to-face [classes are] combined with new technology to better the learning experience for their students." Further clarity is provided by explaining that "'blended' is frequently used to describe a traditional face-to-face course with online components, while 'Hybrid' is most often used to describe an online course with face-to-face components" (Rhoads, 2020, p. 15).
- *Hyflex Instructional Design Model*: a type of online course that "enables students to

attend the course in person, online, or both according to the student's scheduling needs. No percentage of in-person attendance is required if the equivalent online attendance requirements are met" (Rhoads, 2020, p. 7).

- *Synchronous online learning model*: a type of online course that "gives students the opportunity to participate in learning activities that are similar to those found within a traditional face to face classroom" (Rhoads, 2020, p. 14). In this scenario, a student will check-in with a class as it is happening live and participate in all of the course's activities via the internet.
- *Online Learning*: "Online learning" is perhaps the most difficult of these terms to define because there are many different models that may fall under the umbrella of "online learning" (Rhoads, 2020. p. 9). For the course that this study researched explicitly, the second (the asynchronous online learning model) is the best operational definition since the measured class had no defined class periods or meetings (including virtually).
- *Student Engagement*: "The amount of time and energy a student invests in educationally purposeful activities and the effort institutions devote to using effective educational practices" (Hamane, 2014, p. 10). Many traditional measurements of engagement look at completion rates of assigned coursework. Some studies also choose the term "motivation" to describe how engaged a student is in a particular course.
- *Student Satisfaction*: the extent to which students found their courses to be structured, interactive, and well-designed by their instructors (Kauffman, 2015, p. 8).
- *Traditional Learning*: As opposed to "online learning," "traditional learning" is used to indicate a course that meets live, in-person, and in a classroom environment (with or

without the use of technology). This is analogous to other terms such as “face-to-face learning” and “in-class learning,” and is generally indicative of how most teaching and learning has been done for generations.

Literature Review

Distance education, in a rather general sense, is nothing new. Research by Manion (2019) and Woldeab et al. (2020) provide a detailed telling of the history of distance education dating back to at least the 1700s. After developing higher education and the university structure in Western Europe, intellectualism spread throughout most of its kingdoms and colonies. The budding United States of America on the other side of the Atlantic was no exception and saw the foundation of Harvard University in 1636. Eventually, other ivy-league universities contributed to this trend. As the market for higher education grew, these first universities in the United States began to seek ways of reaching more students further from their campuses through the local mail systems. The first program that Manion (2019) noted was a 1728 program that offered to teach shorthand instruction through the mail (Manion, 2019). In the 1840s, Penn State also offered its own shorthand instruction via the postal service (Woldeab et al., 2020). Another program was established by Harvard University and Trinity College in 1873 to provide “correspondence courses in English, History, Science, French, German and Art… to students, namely woman, through the mail… including syllabi, reading materials, and learning assessments” (Manion, 2019, p. 16). It remained the case that distance education exclusively occurred through the postal services of the respective areas until the development of more robust technology.

Throughout the 20th century, these advancements in distance education primarily came

about via audio and video recordings or broadcasts (Manion, 2019). One of the first examples of this trend came from Penn State, which began offering courses via radio broadcasts in 1922. In the 1950s, colleges in the United States, such as New York University, began exploring the ability to offer credit for their courses through television broadcasts. NYU's experiments eventually grew into a television program called *The Sunrise Semester*, which aired on CBS from 1957 to 1982. In 1969, the British government and the BBC collaborated to found the Open University (OU), which initially allowed hundreds of thousands of students to receive undergraduate, postgraduate, and certificate degrees through television broadcasts. In the first decades of its history, OU offered their courses via telephone, PC software, home media, and the internet. Today, OU is the largest undergraduate university in the United Kingdom (Woldeab et al., 2020, p. 4-5).

The most dramatic advancements to distance education in history have been the personal computer and the internet's interrelated breakthroughs. With the ability for an individual to send and receive any information instantly, individually, and with ease, the internet has become nearly the exclusive means of distance education in the 21st century in most developed parts of the world. It has even incorporated previous innovations such as audio and video recordings and made those more accessible than before, particularly in the form of podcasts, live streams, and other platforms and mediums.

The remarkable benefits that these latest innovations continue to offer institutions have made distance education more widespread than ever: Manion (2019) noted "only 15% of degreegranting institutions offered online courses before 1999, and as of 2015 that number had grown to approximately 70%, which represented a 366% increase" (Manion, 2019, p. 17). The convenience, efficiency, and accessibility of web-based distance education ensure that the

practice will not only remain a staple of the world's educational systems going forward but will continue to increase in significance and value. As Woldeab et al. (2020) noted, "online education is much more than an alternative for working adults with little access to conventional classrooms. It has become a desirable option used by people of all ages and backgrounds to either fully provide, or at the very least supplement, a variety of higher education needs" (Woldeab et al., 2020, p. 6).

In early 2020, the COVID-19 pandemic abruptly created a new chapter in the history of distance education. In the effort to combat the spread of the virus, schools around the world immediately scrambled to various forms of distance education, affecting nearly 1.5 billion students at its initial peak in April 2020 (UNESCO, 2020). At the time of this study, the COVID-19 Pandemic was still a reality that affects every part of the world, and the story of how it affects distance education is at least partially yet to be written.

Current Research

Much research has been conducted on student engagement and student satisfaction in online courses (Kauffman, 2015; Macon, 2011; Manion, 2019; Naghneh, 2012; Pucel &Stertz, 2005; Rhoads, 2020). Interestingly, the results of this research are often different for each study. These mixed results indicate various factors in the specific contexts that contribute to the variations in student engagement and student satisfaction.

For example, several studies found no significant differences in student engagement or student satisfaction between an online course and a traditional course (Manion, 2019; Pucel & Stertz, 2005). Manion (2019) researched differences in course evaluations for online and inperson undergraduate accounting courses. Manion's study utilized focus groups and interviews to measure data from 400 participants. These methods of data collection were noted to be of

particular benefit due to “the ability of the researcher to interact with the study participants directly, which allowed the researcher to employ follow-up questions during the discussion” (Manion, 2019, p. 71-72). This study pointed to no significant changes in achievement, success, or satisfaction between students in the observed courses. The only statistically significant differences measured were lower completion rates and a wider distribution of grades for the online course (Manion, 2019).

Similarly, Pucel and Stertz’s (2005) study explored student performance and student satisfaction in technical programs at the University of Minnesota. With the help of two experienced professors teaching the same course (including the same objectives, resources, and assignments), this research gathered final exam scores and data from the course evaluations at the end of the semester. After measuring both student performance and student satisfaction in online and in- person versions of the same course, the study found no statistically significant differences between them. While the traditional course scored higher in most metrics (such as the quality of tests, instructor’s teaching ability, helpfulness of feedback, and others), students tended to self-report that they learned more from the online course, which may correlate to student satisfaction (Pucel & Stertz, 2005).

A handful of studies seem to indicate more significant differences between online and inperson courses (Macon, 2011; Naghneh, 2012). Macon’s (2011) meta-analysis of thirteen prior studies (a combined total of fifty-nine effect sizes) sought to determine the differences in student satisfaction with online courses and traditional courses, including measuring whether the level of education (undergraduate versus graduate courses) led to any differences. Courses from various fields of study were measured, including statistics, business, criminal justice, education, English composition, and others. The results indicated that students were largely more satisfied

with traditional courses than online courses, with 64% of the studies indicating higher satisfaction with traditional courses. However, the meta-analysis also showed that the level of satisfaction seemed to depend both on the level of study (undergraduate students tended to be more satisfied with in-person classes than graduate students; graduate students showed no significant preference) and the course subject (students of different levels were more satisfied with in-person statistics classes than in-person business classes, for instance) (Macon, 2011).

Naghneh (2012) investigated "the differences in satisfaction, convenience, quality of teaching, and quality of learning scores in online, hybrid, and on-ground classes." In surveying nearly 200 graduate-level students at a university, this study found statistically different results for each of the measured items. Most notably, students reported more significant satisfaction with online courses than in-person courses. On a Likert scale from 1-4, the satisfaction level was rated 2.42 for the online courses and 1.48 for the in-person courses. In-person courses were also outscored by hybrid courses, which scored 2.12. Similarly, students in this study indicated that the quality of teaching and the quality of learning were highest in their online courses. Convenience for the student was the only measured item reported to be better in an in-person course. On another Likert scale from 1-4, this study found the convenience of in-person courses rated a 2.19, whereas online courses only scored mean of 1.70. This study also includes one curious anomaly: the mean scores for all delivery methods fell close to or slightly below the 'disagreement' level, suggesting that participating students "were not satisfied with any of the course delivery methods" (Naghneh, 2012, p. 66).

Finally, a few studies took a slightly different approach by naming specific practices or attributes of an online course that measurably contributed to students' engagement or satisfaction levels. Rhoads (2020) measured the impact of two kinds of Hyflex delivery modalities within

undergraduate programs: a 16-week traditional Hyflex course and a five-week Hyflex intensive. In each of these situations, students could either attend the course in-person or join synchronously over the internet. This study utilized a series of surveys given to all students in the Hyflex courses and corresponding in-person courses that did not offer a Hyflex option. Rhoads (2020) found that by merely offering the option to attend online, student learning and student satisfaction in a traditional, in-person course can be positively impacted when the course is built and organized according to a Hyflex modality, which features directions and expectations clear to all students (particularly if they cannot be in the physical classroom).

Doing this allows all students flexibility and access to their preferred learning environment (Rhoads, 2020). Rhoads' study of Hyflex classes, therefore, highlighted benefits that are also intrinsic to other forms of online classes.

Kauffman (2015) took a more direct approach and specifically listed "a broad range of factors that affect performance and satisfaction within the online learning environment." Among these factors, Kauffman found that students were most appreciative of online courses that were well-structured, interactive (according to constructivist learning theories), relevant to the student, and included frequent contact with and timely feedback from the instructor. Kauffman also suggested that the course's objectives be structured around materials organized into logical units or modules with learning goals stated clearly within each. Of most significant importance, however, seemed to be student collaboration with peers, which "develop[s] an online community of learners, rather than feelings of isolation" (Kauffman, 2015).

Taken altogether, the research that exists on student engagement and student satisfaction in online courses varies heavily between different studies. It can be argued that the mixed results reported above can come down to the vastly different contexts that these studies researched.

Many factors, including different age groups, subject matters, course levels, student demographics, and different instructors, can contribute to these studies' results in untold ways.

While most of these and other studies are focused on courses at the undergraduate and graduate levels, a limited number of studies indicate that similar results may be found at the high school level (Jeffrey, 2017; Lemmon, 2014). Jeffrey (2017) examined the level of student engagement and attitude towards reading in an online high school environment. Collecting data via a Google Doc, this study surveyed 51 students over a semester. While this study's primary focus had to do with students' attitude towards reading online, it also found that prior experience with online courses tended to contribute towards student engagement in an online high school class. In other words, students with more experience in online classes tended to report higher levels of student engagement in their current online classes. Additionally, the study found a slight indication that taking more than one online high school class at a time can contribute to satisfaction across multiple online classes (Jeffrey, 2017).

Lemmon (2014) measured student satisfaction towards varying degrees of teacher feedback in online classes at the high school level. After defining four levels of feedback, this study assessed the level of the feedback given to 83 students in the online classes of six different teachers at a large public district in Missouri. The researcher correlated that data to the overall student satisfaction that the student reported on course evaluations. Among the results was the significant positive correlation between the amount of feedback (regardless of level) and student satisfaction. There was also a significant positive correlation between the level of feedback (regardless of amount) and student satisfaction. "This study revealed there was a stronger correlation between students' perceptions of the amount of feedback they received and overall course satisfaction than the level of feedback they received" (Lemmon, 2014, p. iii).

It should be noted that neither Jeffrey (2017) or Lemmon (2014) specifically address both student engagement and student satisfaction, nor do they address specific comparisons to in-person courses. Instead, they provide helpful vignettes that give glimpses of specific elements of online courses and how they may compare to their in-person counterparts. In the absence of more robust data regarding online education at the high school level and how it compares to in-person learning, Wheatley (2016) wrote, "while we know there is a difference between adult learners and adolescent learners, some of the research about online higher education could be used in advisory capacity until more suitable research findings become available" (p. 86).

Conclusion/Summary

One cannot understate how online learning is and will continue to become a significant part of modern education. In this sense, the world of education seems to be in a state of constant revolution as newer technologies allow for more access to more significant educational opportunities for more students around the world. Just as generations of teachers of traditional courses have considered their students' needs, teachers of online courses must consider how their students' engagement and satisfaction are affected by the global trend of online learning.

Methods

This was a phenomenological mixed-methods study analyzing the variances in student engagement and student satisfaction in two sections of the same entrepreneurship class at a Christian high school in Southern California during the 2020-2021 school year. One of these two sections was a traditional in-person section, and the other was a fully asynchronous online course. These two sections shared the same LMS page using Schoology, aimed for the same learning targets, utilized the same resources, and completed the same assessments. The action

research study occurred in two stages to determine its results: a survey and a series of interviews. All students were surveyed first on their general engagement and satisfaction with the course. Then interviewees were selected based on their responses to the survey, a desire for demographic representation, and the willingness of the participant.

Participants

The participants in this study were the students enrolled in the entrepreneurship class at a Christian high school during the 2020-2021 school year. As a result of the COVID-19 pandemic, the original format of the entrepreneurship class at this school (which was exclusively in-person) was divided into two formats that students could take depending on which one better met their needs. Students could either take entrepreneurship in a traditional in-person format like usual or opt to take the class online in either a hybrid or an asynchronous format. For this study, students in either of those two online formats have been combined into one "online" group.

Fourteen participants, consisting of eleven males and three females, took entrepreneurship in-person. Of those fourteen participants, one was an international student and the rest were domestic students. In the in-person group, there were two juniors and twelve seniors.

Sixteen participants, consisting of eight males and eight females, took entrepreneurship in an online capacity. Of those sixteen participants, four were international students and twelve were domestic students. The online group included one sophomore, three juniors, and twelve seniors.

Altogether, the thirty students included in this study consisted of nineteen males and eleven females. There were twenty-five domestic students and five international students

enrolled in entrepreneurship. Finally, this collection of students in both sections included one sophomore, five juniors, and twenty-four seniors (see Appendix A).

Procedures

The design of the study was a mixed-method, phenomenological study. Each participant completed the initial survey, which included thirty-six non-leading questions (see Appendix C for the survey questions and see Appendix D for research-based connections to the topics of each question on the survey). These questions included both Likert-scale questions and openended short answer questions that allowed students to explain their level of engagement and satisfaction with their respective course. The survey was created using Google Forms and the link to the survey was posted to the LMS page that all students shared (whether in-person or online). Twenty-five minutes of class time were given to the students in the in-person section of entrepreneurship to complete the survey. For students taking entrepreneurship online, the survey was assigned to be completed as a part of a standard weekly update. In their case, the survey was first visible on Monday, accompanied by an email from the teacher about the survey's purpose. Students were required to complete the survey by the following Monday, giving them one full week to complete it at a time convenient for them. The teacher sent students who had not yet responded to the survey a reminder to complete it on Thursday of that week and one more reminder on that week's Saturday.

Results from the survey were collected one week after the survey first became available, and those results went on to guide the researcher in his selection of students to interview. The researcher selected five students based on the completeness of their responses to the survey and the need to represent each group of online, in-person, male, female, domestic, and international students. After seeking consent to be interviewed from the students and their parents/guardians

(see Appendix B for the permission letter), the researcher scheduled the interviews with the students at least three days in advance and provided each of them with the questions to be asked ahead of time. During the interview, a series of six non-leading questions were used (see Appendix E). These interviews were digitally recorded and later transcribed by the researcher and used to inform the rest of the results.

Throughout the process, anonymity was assured through various measures. First, the audio recordings were never played for, sent to, or shared with anyone other than the researcher. Second, no amount of unnecessary identifying information of students (including names, descriptions, experiences, or images/ videos) was ever collected or published as a part of this study. Third, the audio recordings of the interviews were deleted upon the completion of the transcriptions, which were usually completed within a few hours of the interview taking place.

Results

The purpose of this study was to compare the levels of student engagement and student satisfaction between an in-person section and an online section of the same entrepreneurship class at a Christian high school. To accomplish this goal, all students in the two sections completed a Google Form survey that contained 36 questions (see Appendix C). Overall, 30 students completed this survey. The second portion of the research study involved interviewing five students who were selected based on differences in gender, online/in-person attendance, and international/domestic status (see Appendix E). The survey provided the entirety of quantitative data collected in this study, but also included five questions which provided qualitative data. The interviews provided exclusively qualitative data.

Summary of Findings

Quantitative Data Results

Table 1 displays the raw data results from the 15 Likert scale questions from the Google Form survey's section on student engagement. Both online and in-person data results are represented on Table 1, totaling the data results from all 30 respondents. A mean score (from 1-5) is displayed in the right-most column.

Table 1

Combined Results of Survey Questions on Student Engagement Questions (1-18)

Q#	Abbreviated Question	1 (Min)	2	3	4	5 (Max)	Mean
1	How excited are you about the course?	0	0	7	15	8	4.03
2	How interested are you in the subject?	0	1	6	13	10	4.06
3	Interest compared to other courses?	0	0	3	16	11	4.26
4	How often do you think about the class?	0	10	14	6	0	2.86
5	How much effort have you put into this course?	0	2	10	13	5	3.70
6	How does effort in this course compare to other courses?	4	3	14	7	2	3.00
7	How much of a “routine” do you have with this course?	5	3	8	7	7	3.26
8	How difficult or easy is it to work for this class?	0	1	10	7	12	4.00
9	How difficult or easy is it to stay focused on this class’ work?	0	0	6	14	10	4.13
10	How difficult or easy is it to know what work you have to do?	0	0	2	4	24	4.73
11	How understandable were class notes?	0	0	1	6	23	4.73
12	How understandable were activities in this class?	0	0	5	10	15	4.33
13	How understandable were major research projects?	0	0	3	12	15	4.40
14	How easy to have questions answered?	0	0	1	6	23	4.73
15	Is there too little (1) or too much (5) contact with the teacher?	1	1	23	3	2	3.13

Table 2 displays the mean data results (from 1-5) for both online participants and in-person participants from the 15 Likert scale questions from the Google Form survey’s section on student engagement. The “Online Mean” represents 16 online participants, and the “In-Person Mean” represents 14 in-class participants. The p-value and F-stat are also displayed.

Table 2

Results of Survey Questions on Student Engagement Questions (1-18) Compared between Online and In-Person Students

Q#	Abbreviated Question	Online Mean	In-Person Mean	p-value	F-Stat
1	How excited are you about the course?	4.13	3.93	0.4611	0.559
2	How interested are you in the subject?	4.19	3.93	0.3957	0.745
3	Interest compared to other courses?	4.38	4.14	0.4300	0.642
4	How often do you think about the class?	3.25	2.43	0.0011	13.254
5	How much effort have you put in?	3.81	3.57	0.4791	0.515
6	How does effort compare to other courses?	3.31	2.64	0.1238	2.524
7	How much of a “routine” do you have?	3.44	3.07	0.4611	0.559
8	How difficult/easy is it to work?	4.19	3.79	0.3307	0.981
9	How difficult/easy is it to stay focused?	4.06	4.21	0.7652	0.091
10	How difficult/easy is it to know what to do?	4.56	4.93	0.1273	2.475
11	How understandable were class notes?	4.75	4.71	0.9251	0.009
12	How understandable were class activities?	4.25	4.43	0.7317	0.120
13	How understandable were research projects?	4.31	4.50	0.6782	0.176
14	How easy to have questions answered?	4.81	4.64	0.2454	1.410
15	Is there too little (1) or too much (5) contact?	3.13	3.14	0.9750	0.001

Table 3 displays the raw data results from the 16 Likert scale questions from the Google Form survey’s section on student satisfaction. Both online and in-person data results are represented on Table 3, totaling the data results from all 30 respondents. A mean score (from 1-5) is displayed in the right-most column.

Table 3

Combined Results of Survey Questions on Student Satisfaction Questions (19-36)

Q#	Abbreviated Question	1 (Min)	2	3	4	5 (Max)	Mean
19	How well do you think your teacher understood the subject?	0	0	2	7	21	4.63
20	How often did the teacher provide opportunities to ask questions?	0	0	0	9	21	4.70
21	How respectful was your teacher?	0	0	0	1	29	4.96
22	How understanding was your teacher to learning needs?	0	0	1	5	24	4.76
23	How interesting did your teacher make the subject?	0	1	1	8	20	4.56
24	How fair did assessments feel?	0	0	0	7	23	4.76
25	How relevant to the subject matter were assessments?	0	0	2	7	21	4.63
26	How well did lessons prepare you for projects/other assessments?	1	2	3	5	19	4.30
27	How enjoyable were lessons/notes?	0	4	6	11	9	3.83
28	How enjoyable were activities?	0	2	4	15	9	4.03
29	How enjoyable were major research projects?	0	2	6	10	12	4.06
30	How much has this class developed problem-solving skills?	0	6	6	13	5	3.56
31	How much has this class developed planning skills?	1	3	10	11	5	3.53
32	How much has this class developed your self-confidence?	2	8	6	11	3	3.16
33	How much has this class developed problem-solving skills?	2	2	7	15	4	3.56
36	Overall, how satisfied were you in the course?	0	0	1	8	21	4.66

Table 4 displays the mean data results (from 1-5) for both online participants and in-

person participants from the 16 Likert scale questions from the Google Form survey's section on student satisfaction. The "Online Mean" represents 16 online participants, and the "In-Person Mean" represents 14 in-class participants. The p-value and F-stat are also displayed.

Table 4

Results of Survey Questions on Student Satisfaction Questions (19-36) Compared between Online and In-Person Students

Q#	Abbreviated Question	Online Mean	In-Person Mean	p-value	F-Stat
19	How did your teacher understood the subject?	4.69	4.57	0.6878	0.165
20	How often did the teacher ask questions?	4.69	4.71	0.9136	0.012
21	How respectful was your teacher?	5.00	4.93	0.3092	1.074
22	How well did your teacher see learning needs?	4.94	4.57	0.0549	4.025
23	How interesting did the teacher make the subject?	4.81	4.29	0.0586	3.901
24	How fair did assessments feel?	4.81	4.71	0.6056	0.273
25	How relevant were assessments?	4.69	4.57	0.6878	0.165
26	How well did lessons prepare for projects/tests?	4.44	4.14	0.5502	0.366
27	How enjoyable were lessons/notes?	4.06	3.57	0.1433	2.273
28	How enjoyable were activities?	4.19	3.86	0.1960	1.758
29	How enjoyable were major research projects?	4.13	4.00	0.5757	0.321
30	How much did you develop problem-solving?	3.88	3.21	0.0854	3.189
31	How much did you develop planning?	3.88	3.14	0.0549	4.025
32	How much did you develop self-confidence?	3.31	3.00	0.4521	0.582
33	How much did you developed problem-solving?	3.50	3.64	0.6615	0.196
36	Overall, how satisfied were you in the course?	4.75	4.57	0.4405	0.613

Qualitative Data Results (Google Form Survey)

Table 5 displays the number of times a coded word was mentioned by a student in their response to #16 on the Google Form survey. This open-ended question asked students, “In detail, what activities or aspects in this course have been the most engaging/interesting for you?” These data results came from 16 online participants and 14 in-class participants. As a question asks for “positive” responses, coded words mentioned on this table are exclusively counting what

students pointed out as being positive attributes of the class. If their responses to #16 contained any “negative” responses (such as critiques, etc.), those data results were added to Table 6 for the results for #17.

Table 5

Coded Results of Google Form Question #16

Code	Online	In-Person	Total
Category 1: Student Engagement			
Excitement/Interest	5	7	12
Thinking About the Class	0	0	0
Effort	0	0	0
Routine	0	0	0
Ease	2	1	3
Student Choice	0	2	2
Accessibility/Intuitiveness	1	2	3
Contact with Teacher	0	1	1
Collaboration with Students	0	2	2
Category 2: Student Satisfaction			
Teacher Aptitude	0	0	0
High Quality Materials	0	0	0
Opportunities for Help	0	1	1
Respect	0	0	0
Fairness	0	0	0
Relevance/Realness	0	2	2
Preparing for Assessments	0	0	0
Enjoyment	3	2	5
Problem-Solving Skills	0	1	1
Planning Skills	0	0	0
Self-Confidence	0	0	0

Table 6 displays the number of times a coded word was mentioned by a student in their response to #17 on the Google Form survey. This open-ended question asked students, “In

detail, what activities or aspects in this course have been the least engaging/interesting for you?" These data results came from 16 online participants and 14 in-class participants. As a question asks for "negative" responses, coded words mentioned on this table are exclusively counting what students pointed out as being positive attributes of the class. If their responses to #17 contained any "positive" responses, those data results were added to Table 5 for the results for #16.

Table 6

Coded Results of Google Form Question #17

Code	Online	In-Person	Total
Category 1: Student Engagement			
Excitement/Interest	1	7	8
Thinking About the Class	0	0	0
Effort	1	4	5
Routine	0	0	0
Ease	0	2	2
Student Choice	0	0	0
Accessibility/Intuitiveness	1	3	4
Contact with Teacher	0	0	0
Collaboration with Students	0	0	0
Category 2: Student Satisfaction			
Teacher Aptitude	0	0	0
High Quality Materials	1	0	1
Opportunities for Help	0	0	0
Respect	0	0	0
Fairness	0	0	0
Relevance/Realness	0	0	0
Preparing for Assessments	0	0	0
Enjoyment	1	0	1
Problem-Solving Skills	0	0	0
Planning Skills	0	0	0
Self-Confidence	0	0	0

Table 7 displays the number of times a coded word was mentioned by a student in their response to #18 on the Google Form survey. This open-ended question asked students, “If you had to describe this course to a friend who was thinking about enrolling in it next year, what

would you say to them?" These data results came from 16 online participants and 14 in-class participants.

Table 7

Coded Results of Google Form Question #18

Code	Online	In-Person	Total
Category 1: Student Engagement			
Excitement/Interest	4	3	7
Thinking About the Class	0	0	0
Effort	0	0	0
Routine	0	0	0
Ease	6	6	12
Student Choice	0	1	1
Accessibility/Intuitiveness	3	2	5
Contact with Teacher	2	1	3
Collaboration with Students	0	0	0
Category 2: Student Satisfaction			
Teacher Aptitude	0	0	0
High Quality Materials	3	0	3
Opportunities for Help	3	1	4
Respect	1	1	2
Fairness	0	0	0
Relevance/Realness	6	5	11
Preparing for Assessments	0	0	0
Enjoyment	5	3	8
Problem-Solving Skills	1	1	2
Planning Skills	2	2	4
Self-Confidence	0	0	0

Table 8 displays the number of times a coded word was mentioned by a student in their response to #34 on the Google Form survey. This question asked students, “In what ways has this course matched or exceeded the expectations you had for it?” These data results came from

16 online participants and 14 in-class participants. As a question asks for “positive” responses, coded words mentioned on this table are exclusively counting what students pointed out as being positive attributes of the class. If their responses to #34 contained any “negative” responses (such as critiques, etc.), those data results were added to Table 9 for the data results for #35.

Table 8

Coded Results of Google Form Question #34

Code	Online	In-Person	Total
Category 1: Student Engagement			
Excitement/Interest	3	2	5
Thinking About the Class	0	0	0
Effort	1	0	1
Routine	0	1	1
Ease	4	2	6
Student Choice	1	1	2
Accessibility/Intuitiveness	3	3	6
Contact with Teacher	1	0	1
Collaboration with Students	0	1	1
Category 2: Student Satisfaction			
Teacher Aptitude	0	0	0
High Quality Materials	0	0	0
Opportunities for Help	2	3	5
Respect	1	1	2
Fairness	0	0	0
Relevance/Realness	0	2	2
Preparing for Assessments	0	0	0
Enjoyment	5	8	13
Problem-Solving Skills	0	0	0
Planning Skills	0	0	0
Self-Confidence	0	2	2

Table 9 displays the number of times a coded word was mentioned by a student in their response to #35 on the Google Form survey. This open-ended question asked students, “In what ways has this course not met the expectations you had for it?” These data results came from 16

online participants and 14 in-class participants. As a question asks for “positive” responses, coded words mentioned on this table are exclusively counting what students pointed out as being positive attributes of the class. If their responses to #35 contained any “negative” responses (such as critiques, etc.), those data results were added to Table 8 for the results for #34.

Table 9

Coded Results of Google Form Question #35

Code	Online	In-Person	Total
Category 1: Student Engagement			
Excitement/Interest	0	0	0
Thinking About the Class	0	0	0
Effort	0	0	0
Routine	0	0	0
Ease	0	1	1
Student Choice	0	0	0
Accessibility/Intuitiveness	1	0	1
Contact with Teacher	0	0	0
Collaboration with Students	0	0	0
Category 2: Student Satisfaction			
Teacher Aptitude	0	0	0
High Quality Materials	0	1	1
Opportunities for Help	0	0	0
Respect	0	0	0
Fairness	0	0	0
Relevance/Realness	1	1	2
Preparing for Assessments	0	0	0
Enjoyment	0	0	0
Problem-Solving Skills	0	0	0
Planning Skills	0	0	0
Self-Confidence	0	0	0

Quantitative Data Results (Interviews)

Table 10 displays the number of times a coded word was mentioned by one of the five students in their interviews.

Table 10

Coded Results of Five Student Interviews

Code	Int. 1	Int. 2	Int. 3	Int. 4	Int. 5	Total
Category 1: Student Engagement						
Excitement/Interest	3	1	1	1	0	6
Thinking About the Class	0	0	0	0	0	0
Effort	2	0	0	0	0	2
Routine	2	2	2	1	3	10
Ease	10	1	2	0	5	18
Student Choice	6	1	2	0	2	11
Accessibility/Intuitiveness	3	3	0	1	6	13
Contact with Teacher	0	2	3	1	1	7
Collaboration with Students	0	1	1	1	2	5
Category 2: Student Satisfaction						
Code	#1	#2	#3	#4	#5	Tot.
Teacher Aptitude	0	0	0	1	1	2
High Quality Materials	0	0	0	0	2	2
Opportunities for Help	2	0	0	1	1	4
Respect	0	3	0	0	1	4
Fairness	0	0	0	0	0	0
Relevance/Realness	4	6	1	2	4	17
Preparing for Assessments	0	0	0	0	0	0
Enjoyment	5	1	0	2	2	10
Problem-Solving Skills	0	0	0	0	0	0
Planning Skills	0	3	1	2	4	10
Self-Confidence	0	1	0	0	0	1

Discussion

Overview of the Study

While various forms of distance education created innovative learning opportunities for generations, the internet's advent allowed for those opportunities to become more accessible than ever. As the 21st century progresses, online learning is becoming a more viable and utilized form of education. The COVID-19 pandemic, in particular, showed educators worldwide that distance education is more possible than ever before. However, online learning environments still require significant investment and research compared to traditional educational settings.

This study sought to explore and compare the differences in student engagement and student satisfaction between an online and an in-person high school entrepreneurship class. By measuring various factors in the student experiences, the study's design intended to reveal any significant differences in how online or in-person students perceived, interacted with, or thought about their class.

Summary of Findings

Quantitative Data Results

In both student engagement and student satisfaction, the study found that most questions on the quantitative survey found no statistically significant differences (as determined by pvalue) between online students' and in-person students' experiences in the observed entrepreneurship classes. However, several trends and effective results still appeared in the data.

For the 15 quantitative questions dedicated to assessing student engagement levels (see Table 2 for details), nine of the fifteen questions returned higher (more favorable) mean scores for the online students compared to the in-person students. Metrics that fell into this category included measurements of students' interest levels with the course and its material, students'

effort levels, students' chances of having a routine for their work for the class, and the students' ability to have questions answered by the teacher. The most statistically significant result from these nine metrics that favored online students were the measurement of how often students thought about the class outside of their schoolwork (p-value of .0011). On this question, students in the online class reported that they thought about the class outside of their schoolwork at a significantly higher rate than students in the in-person section reported (3.25 mean for the online class vs. 2.43 mean for the in-person class). While not statistically significant (defined by having a p-value < 0.05), the only other result that approached statistical significance and favored the online class was for the question asking students how much effort they put into the entrepreneurship course compared to their other courses (p-value of .1238). Here, online students stated that they tended to put at least somewhat more effort into their work that the students taking the class in-person (3.31 mean for the online class vs. 2.64 mean for the inperson class).

On the other hand, four of the fifteen student engagement questions returned higher (more favorable) results for the in-person students than the online students. Metrics in this category included the students' ability to stay focused on their work for the course, how easy students felt it was to know what work they had to do in the course, and how understandable the class's projects and activities were. While not statistically significant, the question that most favored the student engagement in the in-person class was in response to the question asking how difficult or easy it was to know what work the students had to do (p-value of .1273). On this question, in-person students returned a higher mean result (4.93) compared to online students (4.56), signaling that in-person students had a much easier time knowing what they had to do to complete assignments in the entrepreneurship course.

Finally, there were two questions in this section that returned mean results that were statistically identical between the online and in-person students; these two questions asked how understandable the class notes were (p-value of .9251) and if there was too little or too much contact from the teacher (p-value of .9750). Overall, this study could conclude that this entrepreneurship class's online section was marginally more engaging to students than its in-person counterpart based on the many more questions that returned higher results for the online section of the class.

For the 16 quantitative questions dedicated to assessing student satisfaction levels (see Table 4 for details), there were no statistically significant results (defined by having a p-value < 0.05) in favor of either the online or the in-person entrepreneurship class. Still, fourteen of the sixteen questions returned higher (more favorable) mean scores for the online students compared to the in-person students. Metrics that fell into this category included how interesting the teacher made the subject, how effectively classwork prepared students for assessments, how enjoyable notes, projects, and activities were, and how well the class developed various skills (such as planning and self-confidence) in students. While none of these 16 results were statistically significant, the ones that were the most significant included the question assessing how well the teacher met the learning needs of the students (p-value of .0549; online students reported a mean result of 4.94 vs. in-person mean results of 4.57) and how well the course developed the student's planning skills (also a p-value of .0549; online student reported a mean result of 3.88 vs. in-person mean results of 3.14). Only two of the sixteen questions in this section returned a higher result whatsoever for the in-person students than online students, but none of those results were statistically significant. Those two questions asked students how well the class had developed their problem-solving skills (p-value of .6615; online student reported a mean result of

3.50 vs. in-person mean results of 3.64) and how often the teachers asked questions (p-value of .9136; online students reported a mean result of 4.69 vs. in-person mean results of 4.71). As with the section on student engagement, this section on student satisfaction can (more firmly) conclude that student satisfaction levels were higher for students in the online section of entrepreneurship than for students in the in-person section based on the number of more favorable results from students taking the entrepreneurship class online.

Qualitative Data Results (Google Form Survey)

The five qualitative questions on the survey were designed to allow students more open-ended opportunities to provide detailed thoughts on their experiences with the entrepreneurship course. The data results for these questions returned results that are mainly consistent with the previous quantitative results.

When asked what portions of the course have been the "most engaging/interesting to students" (#16 on the survey; see Table 5 for details), five online students and seven in-person students noted their excitement for the class and its entrepreneurial material, which made that code the most commonly mentioned term on the list. Students from both online and in-person sections also positively reflected on the accessibility/intuitiveness of the course design, their ease with completing course materials, and their enjoyment of the class itself. In-person students exclusively reflected on their appreciation of increased contact with the teacher and the ability to collaborate with students.

When asked what portions of the course were the "least engaging/interesting to the students" (#17 on the survey; see Table 6 for details), far more in-person students than online students answered that their interest level was low. Most in-person students also shared that the class was more challenging to follow than online students. Finally, two in-person students

articulated that some of the course material was particularly difficult, whereas no online students shared similar feelings.

When students were asked to hypothetically describe the course to a friend (#18 on the survey; see Table 7 for details), the codes that online and in-person students mentioned were statistically similar between the two sections of the course throughout the list of terms. In order, the items that were most mentioned were how easy students felt it was to complete the courses assignments, how relevant the material was to real-world situations, how much they enjoyed the class, how excited students were for participating in the class, and how accessible and intuitive the course design was to them.

When students were asked "in what ways has this course matched or exceeded" their expectations (#34 on the survey; see table 8 for details), the most popular answer from both online and in-person students was to mention that the class was enjoyable for them to be a part of. The next most common answers were students reporting that the class was accessible and intuitive and that the course materials were easy to complete. In no categories/codes were there statistically significant differences between responses from online or in-person students on this question.

Finally, when students were asked "in what ways has this course not matched" their expectations (#35 on the survey; see Table 9 for details), very few students mentioned any of the coded terms specifically. However, the only code that was listed by at least one online and one in-person student was the lack of enough "practice" of relevant or real-world situations.

Altogether, the five questions in the qualitative portion of the survey did not provide many vital points of difference between the students' online and the in-person experiences. Most of the responses that students named similar codes for each question across the two sections of

the entrepreneurship course. While this means that these questions didn't provide information relevant to the study's strict purpose, these questions still gave the researcher feedback on what specific elements and aspects of the course (regardless of format) are engaging or satisfying. This information may therefore go on to inform future modifications for the course nonetheless.

Qualitative Data Results (Interviews)

Of the five students that the researcher interviewed (see Table 10 for details), two of the students (interviews #1 and #2) were in-person students, while three students (interviews #3, #4, and #5) were online students. As a result of the open-ended questions and answers in the interviews, far more codes were mentioned and tracked by the researchers in this qualitative portion of the data collection process than in the previous section.

In terms of student engagement, online and in-person students combined to most often mention their appreciation of the ease with which they could complete their assignments, followed by the accessibility and intuitiveness of the course and its materials and instructions. One of the online students interviewed also mentioned six times their appreciation for the choices they were given on how and when to complete their assignments; the notion of student choice was a typical highlight by students throughout this study. When asked what was most appreciated about the course, one student that was interviewed responded by saying, “one of my personal favorites was the choice where you could either do the slideshow or you could do a video for the [project]” (Personal communication, 2021, February 17). This statement was about a major research project that students were assigned; students were given the choice to make their final presentation either by producing a slideshow (such as a PowerPoint) or by producing an edited video in the form of a documentary.

Regarding student satisfaction, online and in-person students most often mentioned their appreciation for the relevancy and real-world connections that the entrepreneurship class offers them. In the interviews, online students also said their enjoyment of the course and the respect that the teacher showed them more often than in-person students did. In-person students who were interviewed more often mentioned that their planning skills had been positively affected by the course. One student, who currently runs a pop-up business listed the entrepreneurship course's relevancy as her favorite part of the course, by saying,

> Now I go back to the lessons and apply it to my own business. And so, the fact that I can apply it to, right now, my personal life… it's so cool to me. Something I really take away from the school and the entire entrepreneurship classes is that [it has] really helped me a lot (Personal communication, 2021, April 18).

As with the quantitative data results received from the survey, the interviews' qualitative data results seemed to confirm the takeaways from the other sections of data. There were subtle differences in student experiences for the online and in-person sections; the experiences were broadly similar.

Analysis

Throughout each of the research stages, this study determined various minor differences in student engagement and student satisfaction for the online and in-person students in their respective entrepreneurship classes. Many of these conclusions confirm previous research conducted by a variety of studies and methodologies (Kauffman, 2015; Macon, 2011; Manion, 2019; Naghneh, 2012; Pucel & Stertz, 2005; Rhoads, 2020).

A key takeaway from this study is that students in a fully online environment prefer and appreciate a self-paced and asynchronous course. Students that are given the freedom to complete assignments according to what works best for their schedules find it easier to put more effort into their work and build their routines. One of the online students shared in their interview with the researcher that "it's easier to keep up with the work because I'm working at my own pace, which works better for me," and that "it's easier to space out our work throughout the week" (Personal communication, 2021, February 19). They also enjoy and feel more comfortable with the class as a whole. Finally, online students feel that they develop more "skills" like planning and self-confidence due to their independence. This fundamental conclusion aligns with previous research. Kauffman's (2015) study found the following: These findings are not surprising considering the nature of online learning. More responsibility is placed on the learner, especially in asynchronous courses. The student is responsible for reviewing course material, taking exams at scheduled intervals etc., which requires adequate self-regulation skills. Self-regulated students take control of their learning, developing appropriate metacognitive strategies such as planning, staying organized and motivated" (p. 7)

For in-person students, this study found two key advantages and appreciations. The first is the ability for students in a classroom to work directly with their teachers. In-person students in their qualitative responses listed their time spent in class as the most significant resource for their success. One student reflected on how getting live feedback from the teacher helped her during a particular in-class project. While a few online students also mentioned the value of being in contact with their teacher (via email, etc.), the in-person students appreciated the direct interaction and conversations they were able to have with the teacher.

The study found the second advantage for in-person students to be a collaborative environment with other students. One in-person student shared in her interview that being in class with other students helped her stay focused on her academic work, whereas she may have had more opportunities for distractions at home. She also shared that hearing the questions that other students have about the class materials or assignments helped her in ways that she didn't know she needed. Another in-person student explained in his interview that he got the most enjoyment out of group activities, which would be impossible in an online, asynchronous course. Many more in-person students mentioned this collaboration in class as a significant positive of their class. Research has been done to show the connection between increased cooperation with other students and increases in engagement and learning: "As students are expected to work more collaboratively with classmates, students' perception of their engagement in their learning and participation in courses increased (Gray, 2016, p. 3).

While this study revealed advantages for both the online and the in-person learning environments, there were also consensus takeaways that were clear advantages for students regardless of the course format. Both online and in-person students overwhelmingly shared that they appreciate choices in their coursework; while online students receive the benefit of choosing when they complete their work, all students can benefit from options in the work that is completed in the first place, such as the format of their submissions, the topic of their research, and much more. Students in both environments also shared appreciation for course material being relevant and tied to real-world situations. For example, various students clearly articulated that they expected to use the materials from this entrepreneurship course to make future decisions within their own lives and careers. Students in both sections also voiced appreciation for a course that was designed "well," with clear objectives and directions, easy-tonavigate webpages, and

high-quality materials (including videos, slideshows, and readings). The study showed these elements of good design to contribute to both engagement and satisfaction (Woldeab et al., p. 13-14).

Recommendations

In conclusion, this study showed (in line with previous research) that both online and in-person courses have the propensity to be valuable, engaging, and satisfying, or none of those things. While there are advantages and disadvantages inherent to either environment, instructors of all kinds should invest the time and effort needed to make their course designs beneficial to students in any of many ways, including room for students to explore their own choices in their coursework, relevance to the student's life and future, clear and intuitive design, high-quality materials, and respect and collaboration the instructors and their other classmates. In the end, deliberate course design is needed in either online or in-person formats to assure positive student outcomes, including student engagement and student satisfaction.

Limitations

Although the study was created and conducted using rigorous and research-based practices, there are still two significant limitations that prevented the study from being as thorough as it potentially could have been.

First, the study included only 30 participants. These 30 students were in one course (entrepreneurship) given by one teacher and split over two sections (online and in-person) at one school. These metrics would easily be considered a small sample size. While some of the starker conclusions may remain, a more extensive study of many hundreds or thousands of student experiences across many courses and instructors and schools may reveal tremendously different

takeaways than this study has. It is also the case that this study took place at a private Christian school, which may itself include cultural or practical values that affect the data results in ways that other studies would not see at other schools.

The second limitation of this study was that a handful of online students were international students living outside of the United States. While these students could participate in the Google Form survey, the researcher could reach just one of them to interview. It would have been a more thorough study if the researcher could have collected more qualitative data from international students.

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Appendix A

Basic Student Details

Below is a table displaying a limited amount of key information about the thirty-two students in this study. Results have been ordered first by whether the student was in-person (P) or online (O), then by male (M) or female (F), then by domestic (D) or international (I), and finally by grade level.

The students that were selected to take part in interviews were students numbered 1, 11, 17, 29, and 30.

#	In-Person (P) or Female (F)	Male (M) or International (I)	Domestic (D) or	Grade Level	Online (O)
1	O F	D	11		
2	O F	D	11		
3	O F	D	11		
4	O F	D	12		
5	O F	D	12		
6	O F	I	10		
7	O F	I	12		
8	O F	I	12		
9	O M	D	12		
10	O M	D	12		
11	O M	D	12		
12	O M	D	12		
13	O M	D	12		
14	O M	D	12		
15	O M	D	12		
16	O M	I	12		

#	In-Person (P) or Online (O)	Male (M) or Female (F)	Domestic (D) or International (I)	Grade Level
17	P	F	D	11
18	P	F	D	12
19	P	F	D	12
20	P	M	D	11
21	P	M	D	12
22	P	M	D	12
23	P	M	D	12
24	P	M	D	12
25	P	M	D	12
26	P	M	D	12
27	P	M	D	12
28	P	M	D	12
29	P	M	D	12
30	P	M	I	12

Appendix B

Permission Letter and Slip

This following letter and permission slip was sent to the parents or guardians of all thirty-two students in each section of entrepreneurship.

Permission Letter

Dear Parent/Guardian,

This year, I am completing a graduate program at Dordt University to earn a Master's degree in Teacher Leadership. A key element of completing this degree is an action research project that involves surveying and interviewing my students to receive data on the work that I

do as a teacher to improve my practices for future students. The project that I am completing will assess the levels of engagement and satisfaction that my students have with their Entrepreneurship class and then compare any differences between the in-class section and the online section.

For this project to be a success, I will need to collect very minimal and unobtrusive data about my students and their experiences. Data I will collect and discuss in my research includes the gender, grade level, and citizenship status of your student. The data collection process will also require audio recordings of interviews with students to receive more in-depth feedback. These audio recordings are for more efficiently and more accurately collecting the data produced in the interviews. No pieces of any recordings will be distributed to anybody, posted to the internet, or even saved on my computer after the conclusion of this research (May 2021). Furthermore, at no point will any students' names, images/videos of students, or descriptions of students be used, collected, recorded, discussed, or published.

Below this letter, you will find a permission slip that I am asking you to fill out to permit me to conduct my research. Your permission would be a tremendous help to me and my graduate work! I am also willing to keep you updated on the progress of my research as you request! If you have any questions or concerns, please email me at *******@****.com. – Mr. Jasper

Permission Slip

I,_____, as a parent/guardian of_____, grant permission for my student to participate in the graduate research project being conducted by Mr. Joseph Jasper through Dordt University. I understand that my student may be asked to participate in an interview with Mr. Jasper which

will be recorded digitally and that Mr. Jasper will keep the audio file until the conclusion of his research (May 2021). I understand that no identifying information about my students and no audio recordings of my student will be collected or published as a part of this research.

Signature:____Date:

Appendix C

Survey Questions

Below is the survey that was presented to all thirty-two students that participated in the study.

Section 1: Student Engagement Questions

1. How excited are you about being a part of this course?

   Likert scale: 1 = Not excited at all, 5 = Very excited

2. How interested are you in the subject of this course (entrepreneurship)?

   Likert scale: 1 = Not excited at all, 5 = Very excited

3. How does your interest in this course compare to your interest in your other courses? Likert scale: 1 = Much less interested in this course, 5 = Much more interested in this course

4. Outside of time spent in this class OR doing work for this class, how often do you think about this class?

   Likert scale: 1 = Never, 5 = Very frequently

5. How much effort have you put into this course?

   Likert scale: 1 = Almost no effort, 5 = A great deal of effort

6. How does the amount of effort you've put into this course compare to the effort you've put into other courses?

   Likert scale: 1 = Much less effort in this course, 5 = Much more effort in this course

7. How much of a "routine" (such as a regular time/day to check what's due and then work on it) did you find with this class?

   Likert scale: 1 = I have never had a routine, 5 = I had a regular, consistent routine

8. How difficult or easy is it for you to try hard on the work for this class?

   Likert scale: 1 = Very difficult to work hard, 5 = Very easy to work hard

9. How difficult or easy is it for you to stay focused on the work for this class?

   Likert scale: 1 = Very difficult to stay focused, 5 = Very easy to stay focused

10. How difficult or easy is it for you to know what work you have to do (and how to do it correctly) for this class?

    Likert scale: 1 = Very difficult to know what to do, 5 = Very easy to know what to do

11. How easy to follow/understand were the lessons (notes) that the teacher presented?

    Likert scale: 1 = Very difficult to follow, 5 = Very easy to follow

12. How easy to follow/understand were the activities that the teacher assigned during class time (provide examples for students)?

    Likert scale: 1 = Very difficult to follow, 5 = Very easy to follow

13. How easy to follow/understand were the major research projects that the teacher assigned during class time (provide examples for students)?

    Likert scale: 1 = Very difficult to follow, 5 = Very easy to follow

14. How easy was it to have your questions answered by the teacher?

    Likert scale: 1 = Very difficult to get answers, 5 = Very easy to get answers

15. How do you feel about the amount of contact you have with your teacher?

    Likert scale: 1 = There is not enough contact, 5 = There is too much contact

16. In detail, what activities or aspects in this course have been the most engaging/interesting for you?

    Open-ended short answer

17. In detail, what activities or aspects in this course have been the least engaging/interesting for you?

    Open-ended short answer

18. If you had to describe this course to a friend who was thinking about enrolling in it next year, what would you say to them?

    Open-ended short answer

Section 2: Student Satisfaction Questions

19. How well do you believe your teacher had a thorough knowledge of the subject matter?

    Likert scale: 1 = My teacher had very little knowledge of the subject matter, 5 = My teacher had a very complete knowledge of the subject matter

20. How often did your teacher provide opportunities to ask questions?

    Likert scale: 1 = Almost never, 5 = All the time

21. How respectful was your teacher to you and other students?

    Likert scale: 1 = Very disrespectful, 5 = Very respectful

22. How understanding was your teacher to the learning needs of you and other students?

    Likert scale: 1 = Very ignorant, 5 = Very understanding

23. How interesting did your teacher make the subject (entrepreneurship)?

    Likert scale: 1 = Very boring, 5 = Very interesting

24. How fair did your assessments (homework, projects, tests, etc.) feel? Likert scale: 1 = They were unfair, 5 = They were appropriately fair

25. How relevant to the subject matter (entrepreneurship) did your assessments (homework, projects, tests, etc.) feel?

    Likert scale: 1 = They were very irrelevant, 5 = They were very relevant

26. How well did the lessons (notes) prepare you for and help you during projects or tests?

    Likert scale: 1 = They were very unhelpful, 5 = They were very helpful

27. How enjoyable were the lessons (notes) that the teacher presented?

    Likert scale: 1 = Very unenjoyable, 5 = Very enjoyable

28. How enjoyable were the activities that the teacher assigned during class time (provide examples for students)?

    Likert scale: 1 = Very unenjoyable, 5 = Very enjoyable

29. How enjoyable were the major research projects that the teacher assigned during class time (provide examples for students)?

    Likert scale: 1 = Very unenjoyable, 5 = Very enjoyable

30. How much has this course developed your problem-solving skills?

    Likert scale: 1 = No growth, 5 = A lot of growth

31. How much has this course developed your planning skills?

    Likert scale: 1 = No growth, 5 = A lot of growth

32. How much has this course developed your self-confidence?

    Likert scale: 1 = No growth, 5 = A lot of growth

33. How much has this course developed a satisfaction with the school as a whole?

    Likert scale: 1 = No growth, 5 = A lot of growth

34. In what ways has this course matched or exceeded the expectations you had for it?

    Open-ended short answer

35. In what ways has this course not met the expectations you had for it?

    Open-ended short answer

36. Overall, how satisfied were you in this course?

    Likert scale: 1 = I am very unsatisfied with this course, 5 = I am very satisfied with this course

Appendix D

Interview Questions

The following table links each of the 36 questions on this study's survey (Appendix C) to the research study that inspired and validated the topic of the question.

Q#	Source(s)
	Section 1: Student Engagement Questions
1	Dixson (2015, p. 4)
2	Dixson (2015, p. 4)
3	Dixson (2015, p. 4)
4	Dixson (2015, p. 4), Hamane (2014, p. 10, 17), Kaufmann (2015, p. 4, 7), Macon (2011, p. 14)
5	Dixson (2015, p. 4), Hamane (2014, p. 10, 17), Kaufmann (2015, p. 4, 7), Macon (2011, p. 14)
6	Dixson (2015, p. 4), Hamane (2014, p. 10, 17), Kaufmann (2015, p. 4, 7), Macon (2011, p. 14)
7	Kaufmann (2015, p. 4), Macon (2011. p. 14)
8	Dixson (2015, p. 4), Hamane (2014, p. 17)
9	Hamane (2014, p. 17)
10	Kaufmann (2015, p. 7), Macon (2011, p.14)
11	Kaufmann (2015, p. 2), Macon (2011, p. 16-17), Schmidt (2012, p. 67-68)
12	Kaufmann (2015, p. 2), Macon (2011, p. 16-17), Schmidt (2012, p. 67-68)
13	Kaufmann (2015, p. 2), Macon (2011, p. 16-17), Schmidt (2012, p. 67-68)
14	Woldeab (2020, p. 5, 14)
15	Rhoads (2020, p. 107), Witowski (2008, p. 47)
16	Various Sources; Generic Question
17	Various Sources; Generic Question
18	Various Sources; Generic Question

Q#	Source(s)
	Section 2: Student Satisfaction Questions
19	Gray (2016, p. 3), Woldeab, D., Yawson, R. M., & Osafo, E. (2020, p. 13)
20	Baker (2018, p. 49), Hamane (2014, p. 162), Macon (2014, p. 14)
21	Witowski (2008, p. 117)
22	Witowski (2008, p. 117)
23	Gray (2016, p. 5)
24	Gray (2016, p. 3)
25	Gray (2016, p. 3), Kaufmann (2015, p. 8)
26	Kaufmann (2015, p. 7, 8)
27	Dixson (2015, p. 4)
28	Dixson (2015, p. 4)
29	Dixson (2015, p. 4)
30	Kaufmann (2015, p. 4, 9)
31	Kaufmann (2015, p. 7), Woldeab (2020, p. 18)
32	Gray (2016, p. 2), Harwood (2018, p. 1), Kaufmann (2015, p. 2, 4, 7-9, 27-28), Nalini (2020, p. 13), Rhoads (2020, p. 6), Witowski (2008, p. 117)
33	Various Sources; Generic Question
34	Various Sources; Generic Question
35	Various Sources; Generic Question
36	Various Sources; Generic Question

Appendix E

Interview Questions

Below is the list of questions that were asked to selected students based on the results from the survey (see Appendix C) and on prior rapport with the students. Possible follow-up or branching questions are listed underneath some questions, and could have been asked based on the students response to the main question.

1. What has been your experience with the entrepreneurship class been like this year?

General positives? General negatives? General comparison to other courses?

2. What has being (online/in-person) made easier about taking the course?
3. What has being (online/in-person) made more difficult about taking the course?
4. [Based on their answers to #11 on the survey,] What parts of this course have been the most engaging to you and what was engaging about them?
5. [Based on their answers to #12 on the survey,] What parts of this course have been the least engaging to you and what was not engaging about them?
6. What has been the most valuable takeaway from this course for you this school year?

Appendix F

Definitions of Coded Terms Used in Qualitative Results Analysis

Q#	Source(s)
	Section 1: Student Engagement Questions
1	Dixson (2015, p. 4)
2	Dixson (2015, p. 4)
3	Dixson (2015, p. 4)
4	Dixson (2015, p. 4), Hamane (2014, p. 10, 17), Kaufmann (2015, p. 4, 7), Macon (2011, p. 14)
5	Dixson (2015, p. 4), Hamane (2014, p. 10, 17), Kaufmann (2015, p. 4, 7), Macon (2011, p. 14)
6	Dixson (2015, p. 4), Hamane (2014, p. 10, 17), Kaufmann (2015, p. 4, 7), Macon (2011, p. 14)
7	Kaufmann (2015, p. 4), Macon (2011. p. 14)
8	Dixson (2015, p. 4), Hamane (2014, p. 17)
9	Hamane (2014, p. 17)
10	Kaufmann (2015, p. 7), Macon (2011, p.14)
11	Kaufmann (2015, p. 2), Macon (2011, p. 16-17), Schmidt (2012, p. 67-68)
12	Kaufmann (2015, p. 2), Macon (2011, p. 16-17), Schmidt (2012, p. 67-68)
13	Kaufmann (2015, p. 2), Macon (2011, p. 16-17), Schmidt (2012, p. 67-68)
14	Woldeab (2020, p. 5, 14)
15	Rhoads (2020, p. 107), Witowski (2008, p. 47)
16	Various Sources; Generic Question
17	Various Sources; Generic Question
18	Various Sources; Generic Question

Codes	General Definition
	Category 1: Student Engagement
Excitement/Interest	A student displaying enthusiasm (or general "engagement") about the course or its work
Thinking About the Class	A student thinking about the course outside of school
Effort	A student willing to try their best on coursework
Routine	A student finding a rhythm in their coursework
Ease	A student finding the workload manageable or doable
Student Choice	A student being given choices about how and when they complete objectives and assignments
Accessibility/Intuitiveness	A student being able to know what they need to do and how to do it correctly
Contact with Teacher	A student perceiving the teacher to be visible, accessible, and communicative
Collaboration with Students	A student working meaningfully and often with other students on shared tasks