Business Viability & Communication Potential of Modern Education Models

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Abstract

The COVID-19 pandemic has impacted the education sector at large. This study aims to investigate which current education model best balances the sub-criteria of business viability and communication efficacy in the milieu of our modern context. In this study, five education models have been studied in order to uncover their performance in these two sub-criteria. Each model is analyzed in terms of its objective performance. The results reveal that in-person education provides slightly better scores for communication efficacy as well as much higher student and faculty satisfaction, while online education is incredibly economically viable. While the data is unclear, in ideal circumstances, the model that best balances the sub-criteria is the hybrid education model.

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Justification & Research Question

Education is a fundamental part of the human condition. Throughout the ages, every culture, country, and religion has had a strategy for how to educate its members, whether informally or formally. For instance, Liberty University is a Christian higher education institution that trains students using a university lecture model, as is common in this day and age. However, if you go back to the times of Jesus, religious education typically happened in a very different way. Aspiring learners would apprentice under a rabbi and submit totally to their teachings, often traveling and devoting all free time to this effort (Gracin & Budiselic, 2019). Separated by over 2000 years, these two cultures and communities had the same goal but drastically different approaches. It should also be noted that some types of education models and strategies can actually be quite harmful. A classic example of this is the Hitler Youth program during World War II. The United States Holocaust Memorial Museum (2020) details this harmful education model:

> [T]he Nazi regime planned to indoctrinate young people with Nazi ideology. This was part of the process of Nazifying German society. The aim of this process was to dismantle existing social structures and traditions. The Nazi youth groups were about imposing conformity. Youth throughout Germany wore the same uniforms, sang the same Nazi songs, and participated in similar activities. (para. 11)

This model focused on isolated indoctrination that was incredibly harmful. These two examples highlight an essential truth. Namely, there are many different educational models that pursue results, but not all of those models are beneficial.

The global value of education has only increased in the current day. While there are many viable models of education available in the modern world, some are more holistically beneficial

than others, as detailed in the preceding examples. It is also widely affirmed that while the evidence on which model is the most effective holistic communication medium is mixed (Baum & McPherson, 2019), fully online education has proved itself to be the most cost-effective and profitable model (Chau, 2010). However, studies have failed to isolate which models most effectively balance both business viability and communication efficacy. Given the momentous effects of the COVID-19 pandemic on the education sector at large, a review of current educational practices and models is helpful for determining what direction should be taken by education as the proverbial dust begins to settle. Historical examples and modern upheaval both attest to the fact that there is no one size fits all approach to education. Therefore, the primary goal of this study is to perform a literature review in order to investigate which current education model best balances the sub-criteria of business viability and communication efficacy in the milieu of our modern context.

Literature Review of Educational Models

For all of recorded history, until around the mid-1970s, all education fell under the umbrella of in-person education (Geiger, 2014). In this study, this term refers to any sort of education that was given and received in a fully in-person environment, unaided by digital technology, letters, or any other sort of distance-learning medium. However, because of the comparatively recent advent of widespread access to digital technology, there are new education models to consider. In this study, five education models are studied. These models include in-person, online, hybrid, experimental, and international. The first three categories provide the breadth of available mediums, while experimental and international models provide further data for comparative analysis. In each category, a summarization of the model, its features, and its

history is introduced. Then, each model is analyzed in order to uncover its objective performance in the areas of business viability and communication efficacy.

In-Person Models

As mentioned earlier, the in-person model of education is the prevailing historic model. Throughout all time, people, communities, and civilizations needed to find ways to educate their members, so they gathered together and used the physical resources that they had at the time. Now, the essential attribute of this model is that every aspect of the educational process is performed face-to-face and with physical, material resources. For instance, in a fully in-person school model every class would be held live with a professor or instructor and any learning materials or homework would be handed out on paper and returned the following day or days in the same way. Physical presence is the hallmark of this model. In his historical overview, *The History of American Higher Education: Learning and Culture from the Founding to World War II,* Roger Geiger (2014) tracks the history of higher education in the United States from the founding of the first university on October 28, 1636, in Massachusetts all the way to the educational scene during the second World War. What is so striking about this vast swath of time is that every different type of educational system that Geiger highlights are all in-person models by necessity. With this in mind, it is evident that in-person education is the most time-tested model available to the world today. However, when the modern educational landscape is surveyed, it is also an outdated model at many levels of education. A 2019 Gallup survey published by *NewSchools Venture Fund* details statistics on this subject:

> Sixty three percent of high school students in the United States use digital learning tools at school to learn every day. This compares to 45 percent of elementary students, although

> the actual figure may be lower as the survey only included elementary school students in the third grade or above. (p. 10)

The data about universities is even more striking. According to Brown et al. (2015), "The learning management system (LMS) is a remarkable phenomenon in higher education…the LMS has seen unprecedented adoption rates. Estimates of colleges and universities running an LMS are almost always near 99 percent" (p. 40). So, with this in mind, the communication efficacy and business viability of this model must be examined to consider its future relevance.

Communication Efficacy

While the amount of fully in-person programs in practice is exponentially decreasing, for many, teachers and students alike, the allure of face-to-face educational time is incredibly compelling. The *ECAR Study of Faculty and Information Technology* formulated by Galanek & Gierdowski (2019) highlights this allure:

> A majority (51%) of faculty prefer to teach in a blended environment that includes both face-to-face and online components. However, combining the proportion of faculty who prefer a completely face-to-face teaching environment (43%) with those who prefer a mostly face-to-face environment (30%) reveals that faculty preferences skew heavily in the direction of face-to-face interactions with students. (p. 3)

While this study favors hybrid education, which will be studied shortly, the core value of face-to-face instruction is evident. When a similar study is considered, it is found that students hold a similar valuation of face-to-face instruction, if with a bit more nuance. The *ECAR Study of Undergraduate Students and Information Technology* (2019) reports that "[w]hile the majority of students (70%) prefer mostly or completely face-to-face learning environments, specific demographic factors influence these preferences" (Galanek & Gierdowski, p. 3). So, while this

study does not conclusively or holistically reveal that in-person education has a high communication efficacy, it begins to suggest this reality.

Now, to properly analyze communication efficacy, communication must be defined and evaluative criteria proffered. There are, of course, a vast array of different definitions of communication available within scholarly circles, some of which can be more helpful than others. For instance, one journal article from the 1950s defined communication as the "discriminatory response of an organism to a stimulus" (Stevens, 1950, p. 689). While this definition and others are accurate, it also lacks popular clarity. Therefore, for the purpose of this study, the following definition of communication was used. Put succinctly, communication is "the meaningful exchange of information between two or a group of people" (Velentzas et al., 2014, p. 117). This definition provides clarity and simplicity as an overarching touchpoint to which each area of evaluative criteria will return to.

Since every education model has varying degrees of communication potential, the function of these criteria is to examine which model fosters the most fertile ground for compelling communication. The same criteria were used to study each model. Regarding communication efficacy, four evaluative criteria that relate to student success metrics were employed. These include time-to-degree data, test and course scores, graduation rates (Graham, 2021), and attention span.

A recent Pew Research Center study (2022) put it this way:

> When it comes to the type of learning environment youths prefer, teens strongly favor in-person over remote or hybrid learning. Fully 65% of teens say they would prefer school to be completely in person after the COVID-19 outbreak is over, while a much smaller share (9%) would opt for a completely online environment. (Anderson et al., para. 3)

This data provides a compelling foundation for communication efficacy in in-person education. While this data does not overtly assert high learning outcomes in in-person education, it does suggest this reality. However, an examination of the evaluative criteria will provide greater insight. Due to the outdated and sparse nature of this model in the modern higher education landscape, there is little available up-to-date data; however, history may be conferred.

Regarding time-to-degree data, the National Center of Education Statistics writes that "Forty-four percent of 2015–16 first-time bachelor's degree recipients completed their degree 48 months or less after first enrolling in postsecondary education" (2019, para. 2). In another study by the same Center, graduation rates were found to be trending positively. They write: "In 2020, the overall 6-year graduation rate for first-time, full-time undergraduate students who began seeking a bachelor's degree at 4-year degree-granting institutions in fall 2014 was 64 percent" (2022, para. 2). Furthermore, in a study analyzing the quantitative differences in student success rates between online and in-person postgraduate students, Wang et al. (2021) discovered that "No significant difference was observed in the overall average scores, as well as in the average scores of the lower and higher-performing students between the two teaching modes" (p. 4).

Business Viability

In this study, business viability has been defined with the goals of sustainability and accessibility in mind. Secondly, because this study seeks to discover which model balances both business viability criteria and communication efficacy criteria, each definition can assume balance outside of its context. Therefore, the working definition for business viability in this study is any model which can provide sustainable educational offerings at the lowest cost. This data will be balanced with the examination of which model provides the highest quality education in the communication efficacy sections.

Now, the prospect of effectively running a school as a business can be highly complicated. Depending on the model, many different factors are involved. However, there are a few main areas of study that are helpful to consider. Rice et al. (2020) write, “School finance is a broad and evolving field encompassing three resource-related functions - revenue generation, resource allocation, and resource utilization - all aimed at providing educational opportunities and producing educational outcomes” (p. 333). Rice and his colleagues provide an effective framework through which to study business viability. Revenue generation is associated with criteria such as the number of students using each model, tuition rates, and other income sources. Revenue allocation refers to how and to what the money moves to throughout each model. Lastly, resource utilization highlights the technologies and systems a school uses. In-person education models can vary significantly within these parameters, but when the data is considered, some conclusions can be made.

However, one more general factor is worth noting. That is that each model, and especially in-person education, have considerably different approaches to student offerings and experience. However, each model is expected to provide education at a certain standard. What is that standard? Rice et al. (2020) continue by analyzing the Campaign for Fiscal Equity v. The State of New York’s conclusions on educational adequacy:

> To ensure a sound basic education, the court held that the state must provide at least the following resources: (1) sufficient numbers of qualified teachers, principals, and other personnel; (2) appropriate class sizes; (3) adequate and accessible school buildings; (4) sufficient and up-to date books, technology, and learning materials; (5) suitable curricula, including an expanded platform of programs to help at-risk students by giving them “more

> time on task"; (6) adequate resources for students with extraordinary needs; and (7) a safe orderly environment. (p. 340)

These seven resources provide structure to the following analysis of business viability.

First, the revenue generation of fully in-person programs has been historically strong but is fading fast due to a concern over the system being technologically outdated. As referenced earlier, this model is practically non-existent at the university level. As with most every educational institution, the main flow revenue comes from tuition costs. However, this model is now typically found at the high school level and below. Even so, revenue generation will remain strong if students continue to pursue in-person education models, though this may be an uphill battle as the cost of most in-person universities continues to skyrocket (Commonfund, 2009). In-person education models have many different areas to allocate revenue towards. Powell et al. (2012) write, "Institutional leaders must justify the expenditures required to operate their institutions and to generate the expected outputs—degrees awarded to students" (p. 121). Furthermore, the type of university also informs revenue allocation in in-person models. Leslie et al. (2011) assert:

> For public universities, these relationships tend to follow expected paths. For example, a large proportion of tuition revenues tend to be spent in the functional category of instruction. Private universities evidence a somewhat different pattern, with revenues generally expended in the pursuit of merit aid and research. (p. 614)

Lastly, infrastructure such as buildings, classrooms, IT, dormitories, and campus grounds must be maintained alongside of paying faculty and staff and providing scholarships. The resources that in-person models utilize are fairly basic, confined to physical tools such as classrooms, papers, whiteboards, and other common classroom items that facilitate learning.

Online Models

Online education has been the model most familiar with daring news articles and big promises over the last decade or so. The popularity and controversy over this model was especially heightened recently due to the COVID-19 pandemic, with dozens of peer reviewed studies being released on the topic. However, while newer than most, online education is not as cutting-edge as some may think. Though, to be sure, the application of new technology in the field has increased its acceptance because of financial viability, time management, and accessibility, among other factors (Konetes, 2011). Fully remote education is a recent phenomenon that has been made possible through rapid technological advances in recent years as well as lowered cost of content creation in general through video-sharing platforms such as YouTube or Vimeo. This model is the polar opposite of in-person education as it provides all curriculum and relational interaction through digital means such as pre-recorded seminars, video calls, or robust learning management systems that support assignment submittal, resource reading, and faculty feedback. There is a need to thoroughly examine and adjust the growing movement of online education and its applications in order to rival in-person learning in terms of efficiency. A program's design and implementation must be examined, and the economic, cultural, and educational shifts facilitated by online learning must be understood. It is possible to engage and collaborate virtually in a captivating way that encourages intentional learning (Altmann et al., 2019). Online education is a growing reality with incredibly positive implications if instituted effectively. Furthermore, there is a wealth of recent data regarding both the communication efficacy and the business viability of this model, especially due to the recent COVID-19 pandemic. Damsa et al. (2021) write, “The physical closure of higher education

institutions due to the COVID-19 crisis accelerated the digitalization of teaching in the sector at record speed…" (p. 1).

Communication Efficacy

Unlike in-person education, the research on the communication efficacy of online education is a bit less positive and more inconclusive, with many more possible confounding variables present. Bettinger et al. (2017) write, "While online course-taking is both prevalent and growing, there remains relatively little evidence about how taking a course online, instead of in-person, affects student success in college" (p. 2). This sentiment isn't just confined to this study. Another group of researchers verbalizes this hesitance about making stark claims about the efficacy of online education in this way:

What do we know about the educational effectiveness of online instruction in all its varieties compared to traditional methods? Not much. Thorough surveys of this literature find very few examples of well-designed experiments and quasi-experiments, and these generally do not find statistically significant differences in student outcomes between online or hybrid courses and traditional (McPherson & Bacow, 2015).

So, with this in mind, it is important to be wary of claims that online education is markedly better or worse than in-person education. However, some data available does suggest that the communication efficacy of fully online education is lower than that of in-person education when comparing student success through grades. Bettinger et al. (2017) go on to explain this lowered communication efficacy:

> The estimated effect of taking a course online is a 0.44 grade point drop in course grade, approximately a 0.33 standard deviation decline. Put differently, students taking the course

> in-person earned roughly a B- grade (2.8) on average while their peers in online classes earned a C. (p. 19)

This data follows similar trends when time-to-degree and graduation rates are considered. For instance, it was found that online courses led to lower completion rates and, therefore and longer time-to-degree than in-person education (Atchley et al., 2013). Furthermore, while typical non-completion rates are less than 50%, in online education, the non-completion rate ranges from 70-90% (Delnoij et al., 2020). Lastly, attention span in online education contexts seems to be lower than in in-person contexts. Geri et al. (2017) write, "According to a comprehensive study of MOOC learners, which involved analysis of nearly seven million MOOC video viewing episodes, the engagement time in viewing video lectures was six minutes at most" (p. 38). Also, students in online education typically have to combat more distractions than in-person students, leading to a lower attention span for the content (Blasiman et al., 2018).

Business Viability

As before, revenue generation, revenue allocation, and resource utilization will provide the framework for understanding the literature on the business viability of online education models. Without a doubt, online education has provided the greatest surge in education revenue generation in recent years. For instance, even thirteen years ago, Chau (2010) wrote, "The monetary success of the University of Phoenix and the financial windfall of online learning are not lost on the minds of many traditional brick and mortar schools" (p. 180). This trend has only continued, especially through the COVID-19 pandemic. Bettinger et al. (2017) write, "The promise of cost savings, partly through economies of scale, fuels ongoing investments in online education by both public and private institutions" (p. 2). Revenue generation in this area of education has been incredibly robust. Statista (2022) reports, "By 2026, the global e-learning

market is forecast to reach almost 400 billion U.S. dollars. In 2019, the global e-learning market was sized at almost 200 billion U.S. dollars" (para. 1). With all this in mind, it is clear that online education has incredibly high current performance and the possibility of future growth in regard to revenue generation.

Revenue allocation reveals a similarly positive result. Overall, within a fully online model, the literature seems to reveal that there are less areas to allocate money towards, which typically means it is more cost-effective. For instance, Chau (2010) further writes, "Online classrooms allow institutions the possibility of reducing cost through the reduction in the fees associated with maintaining facilities, hiring more staff, money for extra hours associated with extra teaching loads or extra office hours, and so on" (p. 184). Since revenue doesn't have to feed as robustly back into the model to support its growth, high earnings are probable. McPherson and Bacow (2015) write, "Asynchronous online courses are attractive to institutions because of their low marginal cost and their potential to expand markets substantially by offering credit-bearing courses to students in distant locations" (p. 141).

International Models

How education is viewed and practiced internationally is also worth examining. While a proper analysis of all of the major international education models is far beyond the scope of this study, specifically, Finland will provide an effective comparative case study. Following nationwide education reform occurring in the 1970s, Finnish students have consistently been top performers in international subject testing. These reforms included outstanding teacher preparation, a rejection of standardized testing, freedom of education method for teachers, and nationwide equity of educational opportunity just to name a few (Morgan, 2014). Furthermore,

the public education system in Finland, including universities, is all supported through taxation and is, therefore, free of charge.

Communication Efficacy

For many years, Finland has been a prime example of what education could be. By embracing innovation and engaging in sweeping reform, Finland has transformed their education system to be one of the best in the world (Schleicher, 2019). However, "Finland's strong performance occurred only after specific reforms were made. Therefore, policymakers in countries with poor or average results in international testing should be hopeful that they can achieve improvements" (Morgan, 2014, p. 456). In the vein of communication efficacy, this strength comes in the evidence of high student achievement.

Regarding the first evaluative criteria, time-to-degree, Finland performs above average. Every few years, the Organization for Economic Co-operation and Development uncovers educational data from countries around the globe. In a recent study, it was found that "in Finland, 46% of bachelor's students graduate within the theoretical programme duration. Across the OECD, the completion rate within the theoretical programme duration ranges from 12% to 69%" (Education at a Glance, 2022, para. 29). This above-average time-to-degree statistic begins to highlight the presence of effective communication in this model.

Secondly, the same study highlights the nature of graduation rates in Finland. It was found that "In Finland, 80% of women graduated within three years after the end of the theoretical programme duration at bachelor's level, compared to 66% of men" (Education at a Glance, 2022, para. 30). This can be compared with the United States of America, where 60 percent of males and 67 percent of females graduated within six years (National Center for Education Statistics, 2022). Comparatively, these statistics reveal that students in the Finnish

education model typically have higher graduation rates than those in the United States of America for both men and women.

Next comes the question of test and course scores. This is perhaps the most effective model we have currently of communication efficacy in education. This is also where the Finish education model especially excels. Again, referencing data from the Organization for Economic Co-operation and Development, it is found that Finnish students perform above average in every measurable category as of 2018 (Schleicher, 2019). This level of student success is unprecedented in most nations and calls for deeper analysis and consideration of how and why this is achieved.

As previously mentioned, the education model in Finland is primarily in-person with relatively low usage of technology. This model supports recent attention span studies which assert that communication is more effective and falls upon more receptive listeners when it is performed in an in-person context free of distracting technology. Korving et al. (2016) define attention: “We regard attention to be: concentration on a specific subject in a certain period of time or focusing attentional resources on a subject during a period of time” (p. 152). In their study on attention spans in education, they go on to analyze the difference in attention when a lecturer is highly visible versus when they are not visible. In the study, one group of students was presented with a highly visible lecturer, and another group was presented with a less visible lecturer. The authors conclude, “The significant difference between mode1 and mode2 consists of more reported attention in mode1 compared to mode2” (p. 157). This study concludes that students presented with a lecturer rather than just content retain attention more effectively. Therefore, because of the nature of the model, Finnish students have a greater opportunity for higher attention levels.

Business Viability

Revenue generation for education in Finland is quite simple since it is all funded through the state. The European Commission notes:

> In Finland, education is publicly funded. Only two percent of pupils in compulsory education attend schools that have a private provider…Education from pre-primary to higher education is free. School meals and learning are provided free and access in remote and sparsely populated areas is ensured through free school transport. (Finland, 2023, para. 2-3)

Therefore, as long as the Finnish government continues to provide funding, this educational model will have a reliable source of revenue generation. In a study by Statistics Finland, it was found that in 2020 Finland spent 12.4 billion dollars on education-related expenses, consisting of 5.3% of the country's GDP, which is down from the previous decade but consistent with the year before (Statistics Finland, 2022).

Secondly, most Finnish schools run on a mostly in-person model, using technology but much less than other European nations (Kupiainen, 2022). Therefore, their revenue allocation looks similar to many other recorded nations using mostly in-person models. For example, in a study by the National Center of Education, it was found that Finland spends approximately $11,000 per student in elementary and secondary education and approximately $18,000 per student in post-secondary education. Both of these statistics fall roughly in the middle for expenditure levels in countries around the world (National Center for Education Statistics, 2022). These statistics reveal that the revenue allocation of Finnish schools is comparatively average when paralleled with other nations.

Lastly, the question of resource utilization must be considered, as it is inextricably tied to the first two categories. As mentioned earlier, on average, schools in Finland utilize significantly less technology in the classroom than other European education systems (Kupiainen, 2022). Surprisingly, Finland hasn't adopted education technology as readily as other nations, but as was analyzed in the previous section, the communication efficacy of their system is admirable. So what resources are utilized? The Finnish government uses its education model to nurture and resource highly trained and capable teachers to then feed back into the system. Saloviita (2019) notes, "In Finland, the government has shown steady interest in teacher education, which also has been regulated by law in more detail than any other academic curriculum" (p. 323). Therefore, it seems that the resource most invested in is the teachers themselves. In fact, Uusiautti and Määttä (2013) highlight:

> Since its infancy, teacher training has had admirable educational goals…The teacher's task and position are respected; in fact, they are downright honorable. In the Finnish society, teachers are considered capable of changing the future and enhancing the ethical and social goals as well as the equality of the society. (p. 10)

This "resource utilization" is both financial and societal.

Experimental Models

Education reform will always be a challenge. Nations, systems, and schools settle into models both financially and culturally that are difficult to alter. However, there are still many proposed ideas for how educational models could be improved. Ken Robinson was at the forefront of education reform for decades. In his book, *Creative Schools* (2015), co-written with Lou Aronica, they propose that there should be a new model of in-person education that is not tied to the Industrial Revolution model. This conviction is primarily evident through the practice

of standardized testing. Designing schools around creative exploration rather than competency evaluation promotes deeper learning and healthier, more holistically minded learners (Robinson & Aronica, 2015). These proposed models and the research behind them should be considered when designing or reforming curricula or school systems, and it is helpful to briefly consider as a comparative tool.

Communication Efficacy

As experimental models are not regularly practiced in actual educational contexts, there is little hard data. Therefore, qualitative studies will be considered. In any case, early results are promising. For the sake of this study, exploratory models that prioritize creativity or competency evaluation were considered. In the same text as above, Robinson & Aronica go on to write that our current systems of standardization in education alienate students who are not predisposed to learn in that way. Therefore, if creative expressions of education through movement and sound and more were included, communication efficacy in schools would increase drastically (2015). Many studies have correlated the relation between more creative opportunities at school and higher student satisfaction. Runco et al. (2017) assert:

> Several lines of research imply that schools are not fulfilling the creative potentials of students. The 4th grade slump in creativity…was originally explained in terms of a lack of support at school, and although there are alternative explanations for the slump (e.g., brain maturation leading to conventional tendencies), recent research continues to lament educational support for the creative potentials of students. (p. 242)

These studies and more assert that communication efficacy grows in relation to creative opportunity.

Business Viability

Charter schools provide a helpful framework for exploring the business viability of more creatively focused schools. The revenue generation system for this model is quite different than what is typical. Gronberg et al. (2012) write:

> The finance mechanisms for OE charter schools and for traditional school districts are quite different. OE charter schools do not have a tax base from which to draw funds and are therefore solely dependent on state and federal transfers, charitable donations, and other non-tax revenues such as food service activity. (p. 305)

Revenue allocation follows a similar trend. Gronberg et al. (2012) continue by revealing that "in 2008–2009, OE charter schools received an average of $9654 in revenues and spent $8700 per pupil on operations, while traditional school districts received $10,281 and spent $8490" (p. 306). The only notable unique resources utilized in charter schools would relate very specific to the creative offerings supplied.

Hybrid Models

Lastly, hybrid education hopes to strike a balance between all the models. It is both in-person and online and was recently experimental. It is not tied down by geographical area. Put plainly, the idealized goal of hybrid education is that curriculum and interaction occur in an intentional blend of in-person and remote environments. Nisar et al. (2022) note, "If planned well, the best aspects of online and in-person learning are combined in hybrid courses, while making sure that education is increasingly attainable for a lot of students" (p. 9728). This style allows both flexibility and accountability. Another study ran an experiment to discover a more effective model for online collaborative learning in software engineering education environments. There was a present difficulty in asynchronous learning and distractions of online

education that affected individual achievement as well as group efficacy. The researchers proposed a peer tutoring model that improved individual achievement (Neill et al., 2017). This simply highlights the assertion that for hybrid education to reach its highest potential, it is instrumental that the system is thoughtfully designed.

Communication Efficacy

As previously mentioned, the allure of hybrid education is incredibly high. This model promises the socio-emotional and practical benefits of in-person learning with the ease, flexibility, and technological integration of online models. However, the current data reveals that the follow-through on that promise has not been consistent. On one hand, some studies have shown that hybrid education is a poor communication medium to students. In writing about blended learning in community colleges, Mohammadian et al. (2021) discovered that "Though more accessible and convenient, studies have indicated that online education in community colleges have poorer outcomes in student achievement and retention" (p. 23). On the other hand, studies have also shown that hybrid education can be a positive and innovative communication medium. Gulosino & Miron (2017) write:

> A U.S. Department of Education meta-analysis of experimental results published between 1996 and 2008 is often cited by proponents of online schooling because the authors concluded that courses that combined face-to-face instruction with online education is modestly superior to traditional education… (p. 7)

With this in mind, an analysis of the evaluative criteria provides a measure of clarity. Time-to-degree data on blended learning models seems to be positive. A study on hybrid education in higher education reported that "the incorporation of the blended learning

experience, during the period 2007–2010, was seen to have contributed to a positive evolution and trend in the results achieved…" (Lopez-Perez et al., 2011, p. 823).

Studies on graduation rates provide a clear picture, albeit a negative one. In the same study as previous, Mohammadian et al. (2021) found that in-person courses had a "statistically significant lower withdrawal rate…than the hybrid courses" (p. 22). This means that students involved in hybrid courses were not finishing their programs at a noticeably lesser level than those involved in in-person programs. Furthermore, Gulosino & Miron (2017) also discovered that "the on-time graduation rates for full-time virtual and blended schools (40.6% and 37.4% respectively) were less than the national average of 81.0%" (p. 26). This disparity is incredibly wide and alludes to significant problems in the application of hybrid education models in relation to graduation rates.

The available data on student performance in hybrid education models is convoluted. For example, in a study by Avi & Gold (2007), a comparison of traditional F2F [face-to-face] courses and hybrid courses did not show a statistically significant difference in student retention or grade point average. This seems to reveal that hybrid education models are a viable alternative to in-person models. However, in another study performed by Cavanaugh & Jacquemin (2015), it was found that a student's GPA directly related to their objective success or failure in a hybrid course, with students with higher GPAs adjusting more effectively to hybrid learning than those with lower GPAs.

Throughout the available scholarly literature, differing claims continue to be made. In a study comparing student outcomes in a therapeutics course divided into hybrid and in-person models, it was found that there were "statistically significant differences between the final exam scores from both groups, being that the b-learning [blended learning] group achieved higher

scores" (Jesus et al., 2017, p. 138). However, a 2021 study found that "students in the F2F courses had significantly higher success rates when comparing only passing and failing grades in a study between in-person and hybrid" (Mohammadian, p. 22). Depending on the study considered, the outcome seems to differ widely. In any case, further research with a consistent study design would be beneficial to provide clarity on this area of communication efficacy. For, "As student outcomes should be top priority for any collegiate institution, the impact of hybrid instruction on student learning has a far-reaching effect on whether or not colleges will begin offering or expanding their hybrid programs" (Lamport & Hill, 2012, p. 50).

The effect of hybrid education on the attention span of students seems to be directly related to technological ability and interactivity. However, hybrid learning often relies on students' willingness to engage in hybrid learning. This substructure of engagement is then supported by the two aforementioned aspects. Regarding technological ability, "75% of students and 72% of teachers were lacking in skills to utilize ICT based learning components due to insufficient skills and experience in computer and internet applications" (Kintu et al., 2017, p. 4). This inadequacy naturally leads to lower engagement and attention span. Further, Jensen (2011) notes in her study that when comparing in-class lectures to blended instructional formats, students were more likely to be engaged by interaction in the in-person context. Lastly, it was found that educational interactivity was effective in increasing student attention spans (Geri, 2017).

Business Viability

Unlike many online education models, hybrid education typically is not a separate revenue stream for universities. Rather, it is built-in into the common offerings of the school and therefore supported mainly through tuition and endowment funds. However, because of the

robust integration of education technology into most hybrid education programs, other revenue generation streams and growth opportunities are possible. For instance, in a recent statistical study on the digital market, Statista notes that in the area of digital education in universities, there is an expected revenue of $3,790 per user Furthermore, Statista also notes that this education sector is expected to have a 12.49% annual growth rate (Online University Education, 2023). Therefore, it can be safely asserted that the expected revenue generation for hybrid education systems is trending positively.

Regarding revenue allocation, the scene begins to get a little more complicated. Returning again to hybrid education's promise of the best of both in-person and online education, the flip side of that coin is that both contexts and infrastructures must be paid for. Pakdaman et al. (2019) reveal that some studies assert that blended models of education have higher costs than traditional education. However, they also note that some studies claim the opposite. In either case, it is clear that this model necessitates all the costs associated with physical infrastructure as well as the digital infrastructure associated with online learning mediums. Nevertheless, Pakdaman et al. (2019) conclude that while hybrid education has high startup costs, "The blended approach provides a more acceptable economic condition in the future, because of the lack of environment for incorporation in the traditional system and infinite capacity of the e-learning system" (p. 6).

The major resources utilized in this model are teacher training and IT infrastructure. While the economic viability of this model is supported by the growing ed-tech industry, its efficacy is rooted in teacher training. Abusalim (2020) writes:

> Regarding predictability of satisfaction, the results showed that training of faculty accounted for 28% of satisfaction while IT infrastructure accounted for only 3%. Though

> both were found to affect student satisfaction, the degree of effect is different; namely training of faculty had a much higher impact and was a stronger predictor of student satisfaction. (p. 1215)

This study reveals that investments in high-quality, digitally trained faculty will support the business viability of this model.

Methodology

Much of the data uncovered in the literature was quantitative as per the evaluative criteria. However, the aim of this study is the uncover which education model best balances excellence in both the business viability and communication efficacy categories. With this in mind, there needs to be some sort of bridge between the data present in each category of this study. A Likert scale proves to fill this evaluative gap. Hampson (2014) defines the Likert scale succinctly:

> A Likert-scale questionnaire is a questionnaire with a series of statements or questions, which can be rated according to the intensity of reaction the respondent indicates…Likert scales elicit a numerical response, so they can be analysed as scale data (which assumes that the numbers are exact intervals on a scale), but they can also be analysed as categorical data. (p. 3)

When the data is understood through a Likert scale, proper conclusions about which educational model best balances all the criteria will be able to made. Furthermore, this form of analysis will provide conclusions on the strengths and weaknesses of each model related to each set of criteria. This provides information on specific goals if readers are not looking for a balance. Therefore, in this analysis of the literature review, each model will be scored on a Likert scale of 1 to 5, indicating if the model meets the standard of each criteria or not, and to what degree. While the

criteria provide the framework through which to understand the data, the standard refers to the excellence or lack thereof in that category. For Communication Efficacy, this would refer to levels of student achievement. For Business Viability, this would refer to economic sustainability and lowered costs that maintain excellence.

Analysis

In-Person Models

	Does Not Meet Standard 1	Mostly Does Not Meet Standard 2	Inconclusive Data 3	Mostly Meets Standard 4	Meets Standard 5
Communication Efficacy					X
Business Viability		X			

For in-person models, a rating of 4 was given for communication efficacy for the following reasons. First, the literature review revealed that both faculty and students preferred a mostly in-person format for their education. While not associated with hard data like time-to-degree metrics or student test scores, these data are still incredibly important to incorporate into a final analysis and scoring. One could have all the money in the world and incredible digital infrastructure, but if students don't want to learn in that environment communication efficacy will be low. Student and faculty buy-in is very important, and that is something this model has. Secondly, this model has high time-to-degree rates and a vast amount of historical data to

support its usage and success. Student success in in-person models is consistently above the average when compared with hybrid and online models.

On the side of Business viability, this model is the most expensive of all the models. This is mostly due to the fact that every educational resource is physical and therefore bought and must be maintained. Large amounts of funding have to go towards buildings, classroom materials, textbooks, staff salaries, and more. Furthermore, because of these costs, universities have increased tuition rates much more than many families can afford, so the future economic sustainability of these models seems to be in jeopardy. Again, since the standard for this category is sustainability and low costs, this model mostly does not meet the standard.

Online Models

	Does Not Meet Standard 1	Mostly Does Not Meet Standard 2	Inconclusive Data 3	Mostly Meets Standard 4	Meets Standard 5
Communication Efficacy		X			
Business Viability					X

A rating of 2 was given to the communication efficacy portion of the Online Models analysis for two main reasons. First, while there is a wealth of recent data on online models of education, especially due to the COVID-19 pandemic, there is still a sense of confusion among the scholarship as to whether this model is effective or not in regard to communication. The reason a score of 3 was not chosen, however, is because it seems that a slight majority of the data reveals

lower student success, attention, and graduation rates in online models than what would be found in a traditional in-person educational environment.

On the other hand, the business viability of this model is incredibly clear. This model is incredibly profitable and also does not require many expenses since there are no buildings, fewer faculty, and more contained infrastructure. Furthermore, since funds don't have to be funneled as robustly back into the system, profits continually grow while expenses grow at a slower rate. This model is sustainable, scalable, and relatively cheap. Therefore, the standard of the criteria is fully met.

International Models

	Does Not Meet Standard 1	Mostly Does Not Meet Standard 2	Inconclusive Data 3	Mostly Meets Standard 4	Meets Standard 5
Communication Efficacy					X
Business Viability				X	

This portion of the study was the first of two comparative models that provided international and emergent context for applications of the three main models. Now, as was mentioned previously, every country's education model could not be analyzed, so this section is devoted to the analysis of the literature review's findings on Finland's education model. As a brief review, this model is primarily in-person, with strong support structures and complete funding from the state at every level.

Regarding communication efficacy, Finland's application of the in-person model heartily meets the standard. As was cited in the literature review, first, their time-to-degree statistics are consistently above the global average, indicating speed of learning. Secondly, graduation rates are also impressively high, especially among women. Finnish schools consistently outperform US Schools in this category. Thirdly, when it comes to testing and course scores, Finnish students outperform the global average in almost every category, landing among the global leaders in many subjects. Lastly, their in-person model contributes to higher attention span capacity among students. All of these factors and more lead to an excellent score in the area of communication efficacy.

Regarding business viability, a score of four was provided. This is in noticeable contrast with the in-person model score of one for two main reasons: Comprehensive state funding and sustainable outlook. Every level of the education system is fully funded by the government, which makes the question of business viability a bit of a moot point. However, because of this system, the financial considerations of the model are very secure and, in Finland's case, strongly supported both fiscally and culturally. Secondly, the role of the teacher in Finland is similar in stature and educational rigor to a doctor or lawyer in the United States. This means that there are very high capacity, high output "investments" for the lack of a better term, feeding directly back into the system that supports its continued viability. Therefore, while this is not a very transferable model to the global scale, at least quickly, these considerations affect why a score of four was given despite all of the physical infrastructure and salary constraints of this model are considered.

Experimental Models

	Does Not Meet Standard 1	Mostly Does Not Meet Standard 2	Inconclusive Data 3	Mostly Meets Standard 4	Meets Standard 5
Communication Efficacy			X		
Business Viability		X			

Of every model studied in this paper, the experimental model category is the one with the least amount of hard data to consider in terms of the sub-criteria that have guided this evaluation. This reality makes sense as what makes these models experimental is that they are not in widespread practice yet, either due to already not meeting these standards or because there is not yet enough data or compelling evidence to practice them in a widespread educational context.

Therefore, a score of three was given in the area of communication efficacy because there simply is not enough hard data yet within the sub-criteria that allude to whether or not these models would be effective. There is quite a lot of optimistic speculation and a large cache of inspiring stories, that, while hopeful, cannot be objectively applied to this study.

However, there was a little more available data in the area of business viability. Naturally, these models are financially risky to a fault because they are new and not time-tested in any way. This reality weighs down the ability of this model to fully meet the criteria standards from the outset. Furthermore, as it was found that these models typically receive less funding than standard models and from less diversified sources, a score of two was given in the area of

business viability. A one was not given because there are real funding sources available and because of the nature of the model. While some contexts could be quite expensive, others could be quite affordable, all depending on the priorities of the school. For instance, a film school would need to invest in large amounts of expensive film, audio, and production equipment while a design school would have much less expensive materials to acquire in order to function at an excellent level.

Hybrid Models

	Does Not Meet Standard 1	Mostly Does Not Meet Standard 2	Inconclusive Data 3	Mostly Meets Standard 4	Meets Standard 5
Communication Efficacy		X			
Business Viability			X		

This particular portion of the analysis is quite interesting as much of the excitement about the future of education revolves around this idea of the possibilities of hybrid education. In fact, my own predispositions were that this model would be the most effective in both subcategories, which after the research turned out to not be the reality, at least how the model is applied currently.

In the area of communication efficacy, the data was mixed but ended up trending more negatively than positively. For instance, as was previously noted, while time-to-degree statistics don’t note any significant difference between in-person and hybrid programs, the graduation

rates of hybrid programs fall woefully behind those of in-person programs. Furthermore, the data is mixed on the subject of student success in these sorts of programs, with some studies indicating higher success rates than average, some indicating lower, and some indicating no significant difference in the data. Lastly, a general lack of technological fluency and effective program design make this model more ineffective than not in the area of capturing students' attention spans.

The question of business viability is both more complex and simpler in various areas. For instance, any form of digital education is expected to have aggressive, positive economic growth opportunities both now and in the future, with both the industry offerings expanding and technological access of possible recipients increasing. Therefore, in one sense, the business viability of this model is secure. However, there are complicating issues. Studies are mixed on whether running a hybrid education model is more or less expensive than a traditional in-person model. On one hand, some researchers assert that if you have to create and maintain effective in-person and online educational contexts, the business sustainability and effectiveness of such systems are to be in doubt. However, others assert that while there are high startup costs to this model, the potential growth and comparatively low continuing costs make the model incredibly viable. Therefore, the mixed data makes a firm result difficult to assert.

Conclusion

In this COVID-19 era, the education world has been feverishly attempting to discover how to effectively apply various education models with middling success. Within this variability and exploration, an applicable evaluative model is needed. By discovering which model satisfies both communication potential and business viability to a mutually satisfactory degree using a Likert scale, the outcome of this study is a highlighted education model that best satisfies the

criteria of communication potential and business viability in a positive way. Now, as may have been expected, the data is less clear and binary than one might hope. According to the Likert Scale analysis out of 10, the following scores have been recorded. The in-person model received a score of 7. The online model received a score of 7. The international model, in the case of Finland, received a score of 9. The experimental model received a score of 5. Lastly, the hybrid model also received a score of 5. Therefore, the most effective model in this study was the international model in Finland, which is an in-person, robustly state-supported model. This is no coincidence. As per popular thought and thorough research, the best communication outcomes occur in in-person contexts. What draws the Finnish model to the lead, however, is in their approach to business viability. As the entire model is supported by the government in a satisfactorily staffed and managed way that is also fiscally responsible when considering the national budget, the question of business viability has few negative or challenging aspects to consider.

So, the overall result is that while the extremes are obvious, the desired balance is highly dependent on the unique application of each model. For instance, regarding business viability, online education is a clear winner. It has incredibly high growth potential, high revenues, and relatively low overhead costs. On the other hand, regarding communication efficacy, in-person education provided slightly better scores as well as much higher student and faculty satisfaction. One would imagine that the balance is then hybrid education, however, at this point it seems hybrid education performs universally poorer in both categories as opposed to better.

Can the Finnish model be transferred, however? Typical U.S. in-person models received a lower score in the business viability areas due to many schools being under-resourced while also needing to maintain many physical resources and infrastructure. However, they still

performed admirably when put under analysis. It seems that this study has circled through all the options only to land where many of us start this discussion. Even with all the problems, traditional in-person education still receives the highest score. Secondarily, though, with online education also receiving a high score, if an intentional investment is given to improving the communication efficacy of such models, online education could achieve the best balance in the coming years.

The result is that while the extremes are obvious, the desired balance is highly dependent on the unique application of each model. For instance, regarding business viability, online education is a clear winner. It has incredibly high growth potential, high revenues, and relatively low overhead costs. On the other hand, regarding communication efficacy, in-person education provided slightly better scores as well as much higher student and faculty satisfaction. One would imagine that the balance is then hybrid education. However, at this point, it seems hybrid education performs universally poorer in both categories as opposed to better. In conclusion, U.S.in-person models and online models performed the same, with the in-person education model in Finland achieving the best balance between communication efficacy and business viability.

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