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Cost-Benefit Analysis model for Tertiary Education: Face-to-Face Versus Online Teaching-Learning Modalities

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ABSTRACT

The COVID-19 pandemic prompted a significant shift in educational delivery systems worldwide, transitioning from traditional face-to-face classes to online learning modalities due to community quarantine measures. This study conducts a cost-benefit analysis comparing face-to-face and online teaching-learning modalities among teachers and students at selected higher education institutions (HEIs) in Cebu City during the academic year 2020-2021. Employing a mixed-methods approach with a researcher-designed survey tool, the research involved 1,413 students and 65 teachers, with data gathered via Google Forms and analyzed using statistical techniques such as frequency counts, means, Chi-square, and ANOVA. Findings revealed that most student respondents were aged 20-21, female, and first-year students in BSBA programs, while teachers were predominantly females, aged 45-49, married, with over ten years of teaching experience. Expenditures during face-to-face and online classes showed comparable spending patterns, with mean expenses of Php 8,929.00 and Php 7,068.60, respectively. The net benefit favored face-to-face classes by Php 1,861.00. Both teachers and students acknowledged tangible and intangible costs and benefits associated with each modality. Significant relationships were observed between respondents' demographics, perceptions of costs, and benefits. The study concludes that while measurable costs and benefits exist for both modalities, implicit factors—such as engagement and learning quality—are vital in determining the most cost-efficient approach to maximize tertiary education outcomes.

INTRODUCTION

Due to the threat of COVID-19, colleges and universities are facing decisions about how to

continue teaching and learning while keeping their faculty, staff, and students safe from a public health emergency that is moving fast and not well understood. As a result, many institutions have opted to cancel all face-to-face classes, including laboratories and other learning experiences, and have mandated that faculty move their courses online to help prevent the spread of the virus that causes COVID-19 (Hodges *et al.*, 2020). Moving instruction online can enable the flexibility of teaching and learn anywhere, anytime, but the speed with which this move to online instruction is expected to happen is unprecedented and staggering to both teachers and students. As a result, faculty might feel to improvise quick solutions in less-than-ideal circumstances. No matter how clever a solution might be—and some very clever solutions are emerging—many instructors will understandably find this process stressful (Hodges *et al.*, 2020).

Traditional classroom teaching provides real-time face-to-face instruction and sparks innovative questions. It also allows for immediate teacher response and more flexible content delivery. On the other hand, online instruction dampens the learning process because students must limit their questions to blurbs, then grant the teacher and fellow classmates time to respond (Salcedo, 2010). Thus, resilience and connectivity will be the new watchwords as organizations seek to adjust to this unpredictable future (Westgarth, 2020).

Due to the pandemic, the entire world has no choice but to adopt this online learning modality. Thus, most college students, even without capacity or gadgets forced to enroll in order for them to continue and probably get a degree. "Does distance education cost more or less than traditional education?" but rather "Are the educational outcomes worth the cost?" (Thompson, 2007). Examining the cost-effectiveness of online learning programs is complicated because the constantly emerging nature of technology makes it complex to assess accurate costs (Bishop, 2000). Also, it is not easy to analyze the cost-effectiveness across institutions because different institutions have a unique background of the program development and analyze it based on different definitions of cost-effectiveness (Picciano, 2000).

The researcher has been connected in the academe for several decades now. Her many years of teaching have provided her with the opportunity to find the most suitable teaching approach that would enable her to catch the attention of business students towards learning entrepreneurship, management, business policy, and another interrelated field of discipline. However, the onslaught of the pandemic caused by SARS-COV 2 led to the prohibition of face-to-face classes and abruptly shifted towards online classes. Like any other teachers and faculty members, she was left with no choice but to adapt to the new normal in teaching, which requires adopting the existing educational technology like a learning management system and video conferencing.

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Hence, this study will analyze the cost-benefits of face-to-face versus online learning modality for both students and teachers. It is also used to determine the effect of using online learning modality during the pandemic by considering certain factors involved in the said analysis.

LITERATURE REVIEW

This study adopts the cost-benefit analysis theory, Moore's theory of transaction distance, and Taylor's transformative learning theory. The theory of Cost-Benefit Analysis (CBA), which contributes to the understanding by giving a formal description of the subject and examining the theoretical basis for some of the techniques that have become the accepted tools of decision-making worldwide. The cost-benefit analysis aims to provide a consistent procedure for evaluating decisions in terms of their consequences. Hence, it is widely used (Dreze & Stern, 1987). Transactional distance theory (TDT) is also viewed as a general distance education theory whereby either online or correspondence learning is included (Moore, 1993). By transactional distance, as distinguished from physical or temporal distance, refers to the psychological or communicative space that separates instructor from learner in the transaction between them, occurring in the structured or planned learning situation (Moore, 1997). learning modality especially during this time of the pandemic (Ally, 2004).

Since 1978 the theory of transformative learning, as defined by Mezirow, has stimulated much discussion in the field of adult education. Transformative learning is the social process of construing and appropriating a new or revised interpretation of the meaning of one's experience as a guide to action (Mezirow, 1994). The process of making meaning is shaped and circumscribed by meaning structures. It is the revision of meaning structures from experiences addressed by the theory of perspective transformation. Critical reflection is essential to transformative learning and is the conscious and explicit reassessment of the consequence and origin of our meaning structures (e.g., our orientation to perceiving, knowing, believing, feeling, and acting). It is a process by which humans attempt to justify their beliefs, either by rationally examining assumptions, often in response to intuitively becoming aware that something is wrong with the result of their thought, or challenging its validity through discourse with others of differing viewpoints and arriving at the best-informed judgment (Mezirow,1995).

As the Philippines enters various lockdowns every month — with Manila on its third strictest lockdown this 2021 since the COVID-19 pandemic broke out last year, online classes in the Philippines will continue. Most students and teachers would like to go back to face-to-face classes. However, they cannot do anything, for now, other than follow the government's recommendation to continue mobile learning. The Philippine government and the Department of Education (DepEd) announced last August 5 that the school year for this 2021 will officially open on September 13 and shall end on June 24, 2022. However, the fact remains that most youth cannot attend school, whether it is online or in modular classes, due to a lack of material resources and provisions (Childhope Philippines, n.d.).

In the study of Mahyoob (2020), it mentioned that COVID-19 has disrupted most of the industries in the world. Education is the only industry that is completely transferred to online mode in most countries around the world. Online learning is the best solution for continuing education during the pandemic, especially in tertiary education. It further evaluates the learners' new experiences in online education and to assess the feasibility of the virtual methods of learning. With this sudden shift away from the classroom in many parts of the globe, some are wondering whether the adoption of online learning will continue to persist post-pandemic, and how such a shift would impact the worldwide education market (Li & Lalani, 2020).

The study of Antonucci *et al.* (2017) highlights that online learning modality despite the emergency situation along its utilization of emerging technologies holds great promise for the future by overcoming traditional barriers to maintaining social contact, support exchange, and information acquisition. Khalil *et al.* (2020) in his study mentioned that the closure of educational activities in the Kingdom of Saudi Arabia due to the ongoing COVID-19 pandemic resulted in an unplanned shift from traditional learning to a setup that exclusively involves digital teaching and learning.

Stern (2020) continued that online learning modality greatly affects enrollments in which it continually grows at rates faster than for the broader student population and institutes of higher education expect the rate of growth to continue increasing. Some of the key findings of this said study are: (1) over 1.9 million students were studying online in the fall of 2003; (2) schools expect the number of online students to grow to over 2.6 million by the fall of 2004; (3) schools expect online enrollment growth to accelerate, the expected average growth rate for online students for 2004 is 24.8%, up from 19.8% in 2003; (4) majority of all schools (53.6%) agree that online education is critical to their long-term strategy; and (5) majority of academic leaders believe that online learning quality is already equal to or superior to face-to-face instruction. This last finding has been proven having "no significant difference" phenomenon. Meaning, the study declares that face-to-face instruction is but similar to online learning.

MATERIALS AND METHODS

This study applied the descriptive correlation research design using researcher-made questionnaire to determine the costs and benefits of face-to-face and online teaching-learning modalities. The study's focused environment are the Higher Education Institutions (HEIs) and State Universities and Colleges (SUCs) in

Cebu City specifically, the University of Cebu-Main Campus (UC-Main), University of Cebu-Maritime and Training Center (UC-METC), University of Cebu-Banilad Campus (UC-B), and Cebu Normal University (CNU). The research respondents were randomly selected. There will be one thousand four hundred seventy-eight (1,478), comprising of one thousand four hundred thirteen (1,413) students and sixty-five (65) teachers from the selected Higher Education Institutions (HEIs) and State Universities and Colleges (SUC). Inclusion criteria for the teachers are: legal age, full-time teacher regardless of tenure, teaching in the second semester in the school year, 2020-2021. For the students, they should be of legal age, taking full load in the second semester in the school year, 2020-2021. The researcher used a self-made survey instrument consisting of two (2) sets. The first set will be for the students consisting of two (2) parts. The first part deals with the personal profile of the students in terms of age, gender, course and year level and location. The second part pertains to the estimated costs and benefits of face-to-face and online teaching-learning modalities in terms of food, housing and rental, transportation, internet, textbooks and school supplies, while the third part pertains to the intangible costs and benefits of face-to-face and online teaching-learning modalities. The second set will be for the teachers consisting of two (2) parts also. The first part deals with the personal profile of the teachers in terms of age, gender, civil status, number of years in teaching and combined family income. The second part pertains to the items about the tangible costs and benefit of face-to-face and online learning, intangible cost and benefit of face-to-face and online learning.

RESULTS AND DISCUSSIONS

There were five (5) sections presented in this chapter. The first (1st) part shows the profile of the respondents in terms of age, gender, course and year level and location for the students and age, gender, civil status, number of years in service in teaching and monthly salary. The second (2nd) part present the costs-benefit analysis of face-to-face and online teaching-learning modality in terms of food, shelter, transportation, internet, textbooks, and school supplies. The third (3rd) part reveals the data about the tangible and intangible costs and benefits of face-to-face and online teaching-learning modalities. The fourth (4th) part shows the data pertaining to results on the test of significant relationship between the profile of the two groups of respondents and their perceptions on the tangible and intangible costs and benefits of face-to-face and online teaching-learning modalities. The fifth (5th) part reveals the data on the results on the test of significant difference on the perceptions of the students and faculty relating to the tangible and intangible cost and benefit of face-to-face and online teaching-learning modalities.

Profile of the Respondents

This part shows the data on the profile of the respondents. Tables 1 and 2 shows the students and teachers' age, gender, course and year level and location.

In table 1, more student-respondents were aged within the range of 20-21 years old, consisting of 49.40% of the one thousand four hundred thirteen (1,413) research respondents. Following the new curriculum concerning the K to 12 Enhanced Basic Education program, the age range of college students is within 19-22 years old. On the other hand, there were only sixty-three (63) or equivalent to 4.46% of the research participants who were aged 24-25 years old. In some instances, there are students whose school years were interrupted, or they cannot follow the required number of units to be taken in each semester. Therefore, they have to extend their college years. The Hamilton Project (2021) revealed that while the plurality of students at both four-year and public two-year institutions are between the ages of 18 and 24, students at for-profit institutions tend to be older: almost half are age 30 or older. Nonetheless, more than 20 percent of undergraduate students at four-year institutions are over the age of 24. Moreover, there were one thousand two hundred twenty-six (1,026) female students, comprising 72.61%, while there were only three hundred eighty-seven (387) male students, consisting of 27.39%. Thus, in the current generation, there were more females than males in the tertiary institutions. This data relates to the finding in the survey conducted by the Philippine Statistics Authority (2013) which shows that school attendance was higher among females than males. Females were aged 5 to 24 years who attended school during the school year- 2009-2010 comprised 64.9 percent of all females in this age group.

In comparison, 64.1 percent of all males aged 5 to 24 years old have attended school in the same school year. In terms of the course taken by the students, out of the one thousand four hundred thirteen (1,413) research respondents, five hundred fifty-four (554) were enrolled in the Bachelor of Business Administration program while only four (4) were taking Bachelor of Science in Civil Engineering. Since Cebu City is a highly urbanized city, most of the Higher Education Institutions (HEIs) are offering business administration programs since it demands the labor market. Also, many students preferred to take this course due to the vast work opportunities in store for them when they graduate. There were only a few students who will choose to take the engineering program because they have a slight preference for programs with lots of mathematics subjects. The foremost reason in taking the Bachelor of Science in Business was a strong passion for the profession, ranked first (1st). Other common reasons were the prospect of immediate employment and the influence of parents or relative(s). These reasons implied that the graduates had a good knowledge about the Business Administration

course when they enrolled in it. Therefore, it can be inferred that they believed that taking this course can provide them with immediate work or job after graduation since there are lots of job opportunities in this field (Dela Cruz *et al.*, 2014).

In addition, there were four hundred forty-two (442), or equivalent to 31.28% of the students who were in the second year at the time of the survey, while only four (4) were in the fifth year. Based on shared experience, the highest enrolment statistics in any educational institution is in the first year, and most of the bachelor programs require four years to complete except engineering and other specialized courses. Over 2,000 colleges and universities offer four-year programs in which students earn a bachelor's degree. The four years spent as an undergraduate at a university are typically known as the freshman, sophomore, junior and senior years (International Student, 2021). In terms of the student's location at the time of the survey, five hundred thirty (530) or equivalent to 37.51% were residing in Cebu City, while two (2) students resided in the Municipality of Cordova, Cebu. Since the research environment was the schools in Cebu, it was already expected that the students were residents in Cebu City and nearby municipalities.

Table 1: Profile of Student Respondents (n = 1,413)

Profile Indicators	**Frequency**	**Percentage**	
I. Age [in years]			
	18 - 19	390	27.60
	20 - 21	698	49.40
	22 - 23	166	11.75
	24 - 25	63	4.46
	26 and above	96	6.79
Mean : 21.10 StDev : 3.22			
II. Gender			
	Female	1026	72.61
	Male	387	27.39
III. Courses			
	BS Business Administration	554	39.21
	BS Nursing	196	13.87
	BS Custom Administration	131	9.27
	B S Accountancy	115	8.14
	B S Management Accounting	80	5.66
	BS Marine Transportation	68	13.87
	BS Marine Engineering	55	3.89
	B S Criminology	38	2.69
	B Arts	27	1.91
	BS AIS	24	1.70
	BS Mechanical Engineering	21	1.49
	B Elementary Education	20	1.42
	BS Real Estate Management	17	1.20
	D Midwifery	17	1.20
	B Secondary Education	16	1.13
	BS Hotel & Restaurant Management	14	0.99
	BS Office Administration	10	0.71
	BS Information Technology	6	0.42
	BS Civil Engineering	4	0.28
IV. Year Level			
	1st year	434	30.71
	2nd year	442	31.28
	3rd year	379	26.82
	4th year	154	10.90
	5th year	4	0.28
V. Location			
	Cebu City	530	37.51
	Cebu Province	296	20.95
	Lapu-lapu City	220	15.57
	Mandaue City	175	12.38
	Talisay City	141	9.98
	Toledo City	18	1.27
	Consolacion	17	1.20

	Danao City	11	0.78
	Outside Cebu Province	3	0.21
	Cordova	2	0.14

Table 2 shows the age, gender, civil status, years of teaching and combined monthly family income of the teacher-respondents.

The data shows that of the sixty-five (65) teachers who participated in the study, fifteen (15) or 23.08% were within the age bracket of 45-49 years old. These results mean that the different Higher Education Institutions (HEIs) and State Universities and Colleges (SUCs) were in the maturity stage of the age and life cycle.

On the other hand, only five (5) teachers were within the age bracket of 25-29 years old, consisting of 7.69%. Thus, this age bracket is within the young adulthood stage, yet the teachers are still on the verge of adjusting to their job as teachers and finding the most appropriate teaching approach that will enable the students to obtain deeper grasps on the subject matter.

This data presented above is in contrasts with the National Center for Education Statistics (n.d.), revealing that the private school and traditional public school teacher workforces were older than the public charter school teacher workforce in 2017–18. For instance, the percentage of teachers who were in the 60 and over age category was higher for private school teachers (15 percent) than for traditional public-school teachers (8 percent), and both percentages were higher than the percentage of public charter school teachers who were 60 and over (6 percent). In contrast, private school and traditional public-school teachers had lower percentages of their workforces in the age categories under 40 compared with public charter school teachers.

Table 2: Profile of the Teacher Respondents (n = 65)

Profile Indicators		**Frequency**	**Percentage**
I. Age [in years]			
	25 - 29	5	7.69
	30 - 34	10	15.38
	35 - 39	9	13.85
	40 - 44	12	18.46
	45 - 49	15	23.08
50 and above		14	21.54
Mean : 42.26 StDev : 8.35			72.61
II. Gender			
	Female	38	58.46
	Male	27	41.54
III. Civil Status			
	Married	44	67.69
	Separated	1	1.54
	Single	19	29.23
	Widow	1	1.54
IV. Years in Teaching			
	1 - 3 years	9	13.85
	4 - 6 years	5	7.69
	7 - 10	10	15.38
	More than 10y ears	41	63.08
Mean : 14.51 StDe: 8.87			
IV. Combined Monthly Family Income [in PhP]			
Php 9,520.00 - Php19,040.00		7	10.77
Php 19,040.00 - Php 38,080.00		45	69.23
Php 38,080.00 - Php 66,640.00		13	20.00

For instance, 14 percent of traditional public-school teachers and 16 percent of private school teachers were under 30, compared with 24 percent of public charter school teachers. Further, thirty-eight (38) female faculty members comprised 58.46% of the respondents, while twenty-seven (27) male teachers accounted for 41.54%. Thus, based on observation, the teaching profession is mainly subscribed to by females rather than males. In the Philippines, there is a need for a more nuanced view of gender equality. Historically, Filipino males were somewhat more educated than females. However, now the males are lagging behind the females, and the education gender gap is widening. This reversal was predictable early on in the 70s before it manifested itself in national statistics (Paqueo & Orbeta, 2019). Of the sixty-five faculty members who served as respondents in this study, forty-four (44) were married, comprising 67.69%, while only one (1) was widowed. Concerning the age of the faculty members, more of them were over 40 years old who is expectedly to be married. In the study conducted by Alufohai and Ibhafidon (2015) about the influence of teachers' age, marital status, and gender on students' academic achievement, it found out that there were 507 of the 1,689 students were taught by a single teacher, 600 of them were taught by married teachers, 237 were taught by separated teachers and 345 were taught by divorced teachers. Additionally, there were forty-one (41) teacher participants, comprising of 63.08% who had been teaching for more than ten (10) years, while there were five (5) who had been teaching for 1-3 years.

This data denotes that most teachers had been in the teaching profession for more than a decade or even longer. When a teacher reached this stage of one's career, it is expected that he or she had developed mastery in the teaching job in terms of the subjects or discipline

that he or she taught to the students within the one's line of expertise. According to Kini and Podolsky (2016), teachers continue to improve their effectiveness as they gain experience in the teaching profession. Teaching experience is, on average, positively associated with student achievement gains throughout a teacher's career. Of course, variation in teacher effectiveness exists at every stage of the teaching career: not every inexperienced teacher is, on average, less effective, and not every experienced teacher is more effective. In terms of combined monthly family income, there were forty-five (45) teachers who earned a combined family income in the range of Php 19,040.00-Php38,080.00.

This information indicates that the teachers in various universities in Cebu, both in the private and public, were earning an income above the minimum wage pay and can be perceived as substantial to cover the living expenses of their respective families. Those who earned between Php 15,780.00 to Php 31,560.00 per month belonged to the lower-middle-income class, while those who earned between Php 31,560.00to Php 78,900.00 belonged to the middle-income class (Albert, 2018). The middle class pertains to those with annual per capita incomes between two and fifteen- times the official poverty lines – equivalent to a monthly indicative family income (Albert *et al*., 2015). On the other hand, only seven (7) teachers whose earnings were within the range of Php 9,520.00 to Php 19,040.00. Therefore, it can be inferred that these respondents belonged to low-income earners but not poor to lower-middle-income classes. Those people who earned between Php 7,890.00 to Php 15,780.00 per month were within the poverty line and twice the poverty line, while those who earned within Php 15,780.00 to Php 31,560.00 were classified to be between twice the poverty line and four times the poverty line (Albert *et al*., 2018).

Cost-Benefit Analysis of Face-to-Face and Online Teaching-Learning Modalities

This part presents the cost-benefit analysis of face-to-face and online teaching-learning modalities.

In Relation to Cost on Food

Table 3 shows the cost-benefit analysis between face-to-face and online classes pertaining to the monthly cost on food.

Out of the one thousand four hundred thirteen (1,413) research respondents, eight hundred ninety-nine (899) or equivalent to 63.18% spent Php 1,001.00 to Php 5,000.00 on food while attending classes in the school. Also, four hundred seventy-nine (479) or 33.66% of the research respondents had the same range of expenses for food while having online classes. Therefore, most students spent within this range on food were either attending face-to-face classes or online classes. Therefore, it can be inferred that there is no difference between attending classes in school or online, considering that food is an essential commodity for everyone. On the other hand, seventy-seven (77), comprising 5.41% of the students, spent more than Php 5,000.00 on food while having the classes in school, while seventy (70), consisting of 4.92% of the students who also have the same level food expenditures. This data means that only a few students spent this much amount money on food, considering that they only rely on the allowance given by their parents or benefactors. Moreover, the students' mean expenses during face-to-face classes were Php 2,254.50, with a standard deviation of Php 1,962.40. While the mean expenses while having online classes was Php 1,643.80 with a standard deviation of Php 2,625.00. Hence, it can be inferred that the net benefit on students' food expenditures between face-to-face and online classes was Php 610.70. If one were to compare the prices of food in the canteens of private and public schools, a noticeable difference could be observed. Private schools have a higher rate when it comes to the range of prices in their food. Although most of the food being served can be considered healthy, food preparation is more costly and time-consuming. Nevertheless, this is just one out of many reasons why food is more expensive in private schools. Generally speaking, food in the Philippines is costly (Beboso, 2021).

Table 3: Monthly Cost or Expenditure on Food While Attending Face-to-Face and Online Classes (n = 1,413)

		Face-to-Face Classes		Online Classes	
	Monthly Cost	**Frequency**	**Percentage**	**Frequency**	**Percentage**
I.	Food (in Php)				
	Php 0 - Php 100.00	103	7.24	407	28.60
	Php101.00 - Php 500.00	118	8.29	235	16.51
	Php 501.00 - Php 1,000.00	226	15.88	232	16.30
	Php 1,001.00 - Php 5,000.00	899	63.18	479	33.66
	More than Php 5,000.00	77	5.41	70	4.92
Mean : StDev :			2,254.50 1,962.40	1,643.80 2,625.00	

In Relation to Housing and Rental

Table 4 shows the cost-benefit analysis between face-to-face and online classes pertaining to students' monthly cost on housing and rental.

Table 4: Monthly Cost or Expenditure on Housing and Rental While Face-to-Face and Online Classes (n = 1,413)

		Face-to-Face Classes		Online Classes	
	Monthly Cost	**Frequency**	**Percentage**	**Frequency**	**Percentage**
II.	Housing and Rental (in Php)				
	Php 0 - Php 100.00	659	46.31	1000	70.27
	Php 101.00 - Php 500.00	18	1.26	28	1.97
	Php 501.00 - Php 1,000.00	46	3.23	42	2.95
	Php 1,001.00 - Php 5,000.00	572	40.20	254	17.85
	More than Php 5,000.00	128	9.00	99	6.96
Mean : StDev :		2,079.30 3,769.70		1,272.10 3,345.10	

Out of the one thousand four hundred thirteen (1,413) research respondents, six hundred fifty-nine (659) comprising 46.31% spent Php 0 to Php 100.00 per month on housing and rental when they attended face-to-face classes inside the school premises. Likewise, the one thousand (1,000) or 70.27% of the research respondents had the same range of expenses for housing and rental while having online classes. Thus, the data denotes that most students had zero or very minimal housing and rental expenses while having virtual classes since those who originally came from other places and far from Cebu City, where their school is located, can stay home while attending classes. On the other hand, only eighteen (18), consisting 1.28% of the students, Php 101.00 to Php 500.00 for housing and rental while attending classes inside the classroom school, while twenty-eight (28), which is equivalent to 1.97% of the students had a similar level of food expenditures. This data means that only a handful of students spent on rental since they live with their respective families and do not have to pay rent. Moreover, the students' mean expense for housing and rental when they have to go to school to attend face-to-face classes physically was Php 2,079.30, with a standard deviation of Php 3,769.40. Moreover, the mean expenses for housing and rental while having online classes was Php 1,272.10, with a standard deviation of Php 3,345. Hence, it can be inferred that the net benefit on students' housing and rental expenditures between having face-to-face and online classes was Php 807.20. Dormitories and boarding houses play an integral role in providing housing facilities to individuals, most particularly students, who come from remote provinces and city outskirts. The influx of those seeking temporary living arrangements in significant cities of the country makes dormitories and boarding houses a thriving industry. All dormitories and boarding houses shall discount ten percent (10%) for all students. All boarders shall be treated in a just and humane manner (Andaya, 2016). According to data compiled by Wells Fargo (2021), room and board cost approximately $9,000 per year. If one attends a private college or leasing an off-campus house or condo, this can be $12,000 or more. Therefore, he or she needs to accurately estimate the cost of living in a dormitory or apartment and how much he or she be spending at the cafeteria, in the grocery store, at local restaurants, and student hangouts (College Choice.net. (2021).

In Relation to Transportation

Table 5 shows the cost-benefit analysis between face-to-face and online classes about the students' monthly transportation expenditures.

Table 5: Monthly Cost or Expenditure on Transportation While Attending Face-to-Face and Online Classes (n = 1,413)

		Face-to-Face Classes		Online Classes	
	Monthly Cost	**Frequency**	**Percentage**	**Frequency**	**Percentage**
III.	Transportation (in PhP)				
	Php 0 - Php 100.00	224	15.74	1,282	90.09
	Php101.00 - Php 500.00	390	27.41	86	6.04
	Php 501.00 - Php 1,000.00	400	28.11	39	2.74
	Php 1,001.00 - Php 5,000.00	403	28.32	16	1.12
	More than Php 5,000.00	6	0.42	0	0.00
Mean : StDev :		957.70 982.50		74.43 310.00	

Out of the one thousand four hundred thirteen (1,413) research respondents, four hundred three (403) or equivalent to 28.32% of them incurred Php 1,001.00 to Php 5,000.00 for transportation to attend school classes and going back to their place of residence. However, one thousand two hundred eighty-two (1,282) or 90.09% of the research respondents incurred zero to Php 100.00 when their classes were done online. Therefore, it can be denoted from the data presented above that the students' expenses for fares in going to school and back home decreased since they can stay at home to be able to attend classes virtually as long as there is stable Internet connectivity. Further, only six (6), comprising 0.42% of the students, spent more than Php 5,000.00 for transportation in traveling to the school to attend classes in the physical classroom, while nobody incurred this amount of transportation expense when they had their online classes. This data means that the students could save money since they do not need to ride the public utility jeepneys, bus, or any means of available transportation since online classes are remote, and they have option to stay at home and be safe from exposure from the COVID-19 virus. Moreover, the students' mean transportation cost when they had face-to-face classes inside the schools was Php 957.70, with a standard deviation of Php 982.50. At the same time, their mean expense while having online was Php 74.43 with a standard deviation of Php 310.00. Hence, it can be inferred that the net benefit on students' transportation expenditures between face-to-face and online classes was Php 883.27. From this data, it can be observed that there were significant savings on the part of the students for transportation expenses. The cities in the Philippines are spread out and not well-connected by public transportation. That said, in larger cities like Manila, people frequently take the bus and ride bicycles frequently to get around. An average travel cost for the Philippines is Php 500.00 per month if a person will ride a bus or transport pass, Php 8.00 for every one-way bus ticket, and Php 75.00 for a taxi ride (Wise, 2021).

In Relation to Internet Expenses

Table 6 shows the cost-benefit analysis between face-to-face and online classes about the students' monthly internet expenses.

Table 6: Monthly Cost or Expenditure on Internet While Attending Face-to-Face and Online Classes (n = 1,413)

		Face-to-Face Classes		Online Classes	
	Monthly Cost	**Frequency**	**Percentage**	**Frequency**	**Percentage**
IV.	Internet (in PhP)				
	Php 0 - Php 100.00	271	19.04	69	4.85
	Php101.00 - 500.00	593	41.67	201	14.13
	Php 501.00 - 1,000.00	166	11.67	254	17.85
	Php 1,001.00 - Php 5,000.00	393	27.62	893	62.75
	More than Php 5,000.00	0	0.00	6	0.42
Mean : StDev :		788.40 798.70		1,525.70 1,875.30	

Out of the one thousand four hundred thirteen (1,413) research respondents, five hundred ninety-three (593), comprising 41.67%, spent Php 101.00 to Php 500.00 per month for internet expenses when their classes were done inside the traditional classroom set-up. On the other hand, the eight hundred ninety-three (893) or 62.75% of the research respondent's expenses for internet while having online classes as Php 1,001.00 to Php 5,000.00. The data indicates that there was an increase in the number of students whose expenses on the internet when classes were done through the online platform since they have spent more on load cards for their cellular phones and internet modems so that their desktops and laptops will have internet connection for synchronous and asynchronous class activities. Also, they have to spend additional loads on research works and other performance tasks and course requirements. Some students even subscribed to various internet providers to ensure that they have a stable internet connection. On the other hand, when classes were conducted traditionally where there was direct or physical interaction between the teachers and the students, no one spent more than Php 500.00 internet, while there were six (6), equivalent to 0.42% of the total number of student-respondents. This data means that few students have to spend a significant amount of money on internet connectivity so that they will be able to attend virtual classes, work on their assignments, undertake research works and other school projects. In addition, the students' mean internet expense when they have to attend face-to-face classes in the school was Php 788.40, with a standard deviation of Php 798.70. Moreover, the mean internet expense while having online classes was Php 1,525.70, with a standard deviation of Php 1,875.30. Hence, it can be inferred that the net benefit on students' internet expenditures between having face-to-face and online classes was -Php 737.30. The shift to online classes as a precautionary measure against the spread of COVID-19 is a daunting prospect for students and teachers. Students have been complaining of slow internet connection in dormitories.

Other students have also raised concern that they will have no internet access in their hometowns, mainly if communities impose quarantine measures. Expenses for online access are expected to increase for internet cafes and mobile data, according to the survey conducted among 1,195 respondents, primarily students. It said students' weekly expenses on mobile data could go as high as P2,000 at an average of P100 weekly (Burgos, 2020).

In Relation to Textbook Expenditures

Table 7 shows the cost-benefit analysis between face-to-face and online classes about the students' monthly expenditures on textbooks. Out of the one thousand four hundred thirteen (1,413) research respondents, nine hundred ninety (990), or equivalent to 69.57%, spent Php 1,001.00 to Php 5,000.00 to purchase textbooks while the classes were done inside the classroom in the school. On the other hand, five hundred fifty-five (555) or 39.00% of the research respondents spent only Php 100.00 for textbooks when their classes used the online platform. Thereby, more students could save money in buying textbooks with the proliferation of the adoption of online classes by the universities where they study. One of the reasons for the decline in the students' expenditures on the abovementioned cost item for education was the availability of various e-books and online journals. So, the learning materials and resources need not be bought by the learners since they are accessible online. On the other hand, forty-eight (48), comprising 3.37% of the students, spent Php 101.00 to Php 5,000.00 for textbooks purchases when classes are in the traditional platform in a physical school, while only seventy-four (74), consisting of 5.20% of the students spent more than Php 5,000.00 to buy textbooks while their classes were undertaken online.

Table 7: Monthly Cost or Expenditure on Textbooks While Attending Face-to-Face and Online Classes (n = 1,413)

		Face-to-Face Classes		Online Classes	
	Monthly Cost	**Frequency**	**Percentage**	**Frequency**	**Percentage**
V.	Textbooks (in PhP)				
	Php 0 - Php 100.00	93	6.54	555	39.00
	Php 101.00 - Php 500.00	48	3.37	165	11.60
	Php 501.00 - Php 1,000.00	142	9.98	266	18.69
	Php 1,001.00 - Php 5,000.00	990	69.57	363	25.51
	More than Php 5,000.00	150	10.54	74	5.20
Mean : StDev :		3,505.00 4,797.00		1,517.60 3,536.30	

This data means that only a few students spent on procuring printed books as supplementary learning materials for the courses or subjects they took in the current semester. Moreover, the students' mean expense for textbooks when classes were face-to-face was Php 3,505.00, with a standard deviation of Php 4,797.00. At the same time, the mean expense for textbooks for those students' having online classes was Php 1,517.60, with a standard deviation of Php 3,536.30. Therefore, it can be denoted that the students' net benefit for purchases for printed books was Php 1,987.40. This means that the students could save their money in buying the books required by the teachers for each subject since there are many reference materials online that were free of charge. Books offer a great way of learning and at a much lower price than taking, for example, a specialist course. Moreover, by reading a book, a student consumes a considerable amount of research in a relatively short amount of time, and it is one of the best ways to improve one's skills (Consultants 500, 2020). Books and supplies cost anywhere from $1,200 to $1,500 depending on which courses the students are taking. Also, there is a need to purchase a backpack, notebooks, pencils, desk accessories, and printer paper. Textbooks are expensive. Fortunately, sites like Amazon and Chegg allow students to rent books or sell them back at the end of the term. One can also buy used books (College Choice.net. (2021).

In Relation to School Supplies

Table 8 shows the cost-benefit analysis between face-to-face and online classes about the students' monthly expenditures on school supplies.

Out of the one thousand four hundred thirteen (1,413) research respondents, four hundred seventy-two (472) or equivalent to 33.17% of spent Php 1,001.00 to Php 5,000.00 to purchase school supplies having classes inside the school's classroom. On the other hand, five hundred fifty-four (554) or 38.93% of the research respondents incurred Php 101 to 500.00 for buying school supplies when their classes were undertaken online. The same with other expenses, more students' expenditures for school supplies dropped significantly since they were administered online either through Google classroom or the university's learning management system. Also, they can email their research outputs, terms papers, and other class requirements instead of printing them, which cost ink, bond paper, and others. On the other hand, forty (40), comprising 2.81% of the students, spent more than Php 5,000.00 for the purchases of schools supplies when classes were done face-to-face between the students and

Table 8: Monthly Cost or Expenditure on School Supplies While Attending Face-to-Face and Online Classes (n = 1,413)

		Face-to-Face Classes		Online Classes	
	Monthly Cost	**Frequency**	**Percentage**	**Frequency**	**Percentage**
VI.	School Supplies (in Php)				
	Php 0 - Php 100.00	67	4.71	530	37.25
	Php 101 - 500.00	442	31.06	554	38.93
	Php 501 - 1,000.00	402	28.25	199	13.98
	Php 1,001 - 5,000.00	472	33.17	98	6.89
	More than Php 5,000.00	40	2.81	42	2.95
Mean : StDev :		1,598.90 2,777.30		1,034.00 3,908.00	

the teachers, while forty-two (42), consisting of 2.95% of the students' expenditures on school supplies was within the same range. This data means that a small number of students spent more amount of money on buying school supplies since online classes do not require these things. Moreover, the students' mean expenses for school supplies when their classes were conducted face-to-face was Php 1,598.90, with a standard deviation of Php 2,777.30. While the mean expenses for school supplies while having online classes was Php 1,034.00 with a standard deviation of Php 3,908.00. Hence, it can be observed that the net benefit of the students in terms of school supplies purchases was Php 564.90, which denotes that there were savings on money for this school requirement with the shift from face-to-face to online classes. As school opening draws near, manufacturers of school supplies, particularly paper-based products, have jacked up prices due to higher raw materials and foreign exchange costs. The Department of Trade and Industry (DTI) said several notebooks and pad paper brands increased prices due to the high cost of raw materials imported from China and the depreciation of the peso against the dollar. Seven brands of composition, writing, and spiral notebooks hiked prices between P1 to P4, while one brand did not make any price adjustment (Mercurio, 2018).

Summarized Cost-Benefit Analysis

Table 9 shows the summarized cost-benefit analysis of the students' various expenditures between having face-to-face and online classes.

Table 9: Summarized Data on Monthly Cost or Expenditure While Attending Face-to-Face and Online Classes (n = 1,413)

	Face-to-Face Classes		Online Classes	
Monthly Cost	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Php 0 - Php 100.00	8	0.56	21	1.48
Php 101 - Php 500.00	5	0.35	25	1.76
Php 501 - Php 1,000.00	11	0.77	46	3.23
Php 1,001 - Php 5,000.00	399	28.04	665	46.73
More than Php 5,000.00	1000	70.27	666	46.80
More than Php 5,000.00	40	2.81	42	2.95
Mean : StDev :	8,929.00 8,383.00		7.068.00 9,024.00	

Out of the one thousand four hundred thirteen (1,413) research respondents, one thousand (1,000) or equivalent to 70.27% spent more than Php 5,000.00 for food, housing and rental, transportation, Internet, textbooks, and school supplies while they were attending their classes in the classroom inside the school premises. Likewise, six hundred sixty-six (666) or 46.80% of the research respondents had the same expenses while having online classes. Thereby, it can be observed that more students were able to gain savings on living and school expenses with the adoption of online classes by the universities where they enrol in their courses or programs. Based on the detailed data, the students' expenditures for food, housing and rental, transportation, and school supplies decreased. On the other hand, five (5), comprising 0.35% of the students, spent Php 101.00 to Php 5,00.00 when their classes were done in the classroom, and they have to go to the school physically, while only twenty-one (21), consisting of 1.48% of the students had no expenditure to only Php 100.00 while their classes were done online. This data means that even though the students attended classes, not in the school, they still have to spend on

food, textbooks, school supplies, and the most significant expenditures on the Internet. Moreover, the students' mean living and schooling expenses during face-to-face classes were Php 8,929.00, with a standard deviation of Php 8,383.00. At the same time, their mean living and schooling expense while having online classes was Php 7,068.60, with a standard deviation of Php 9,024.30. Therefore, it can be denoted that the students' net benefit between attending face-to-face and online classes was Php 1,861.00. This means that the students could save their money for their living and schooling expenses with the usage of the online or virtual classroom. Although, their Internet expenses increased. School supplies, uniform costs, meals, and transportation add up to the costs as well. When an emergency occurs, such as a family member falling ill or a parent losing his job, it also usually forces the child to drop out of school. Not having access to education will affect a child's ability to get ahead in life and contribute to his family's betterment (Reyes, 2015).

Tangible and Intangible Costs and Benefits of Face-To-Face and Online Teaching-Learning Modalities

This part shows the perceptions of the students and teachers on the tangible costs and benefits of face-to-face teaching-learning modality.

Tangible Costs of Face-to-Face

Table 10 presents the tangible costs of face-to-face classes as perceived by the two groups of respondents. The highest consolidated mean of 3.70, based on the responses of the students (μ= 3.68) and the teachers (μ= 3.71), indicates that they strongly agreed that waking up early to prepare themselves to go to school was the tangible cost of face-to-face classes. This result means that the two groups of respondents perceived that the act of getting up early in the morning or even at dawn caused them physical exhaustion on school days. Sleep researchers have found that most adolescents and adults need more than 9 hours of sleep. They can get used to lesser, and might think that they had adjusted to lesser sleeping hours, but a person's brains and bodies will not be doing well with less sleep. Those of us who routinely get 6 hours of sleep or less are functioning just like someone who stayed up 48 hours straight after getting 8 hours of sleep regularly (The National Academies of Sciences, Engineering, and Medicine, 2021). Falling asleep in class makes it impossible to learn, but that is not the biggest problem for sleepy students. More common, less noticeable, and therefore much more of a problem is that students who do not get 8-9 hours of sleep find it more challenging to concentrate in class, and their ability to remember what they read or hear is impaired (Zuckerman, 2021).

Table 10: Tangible Costs of Face-to-Face Classes

Indicators		Students [n = 1,413]		Teachers [n = 65]		Consolidated [N = 1,478]	
		Mean	Int	Mean	Int	Mean	Int
1.	I have to wake up early in order to prepare myself to go school.	3.68	SA	3.71	SA	3.70	SA
2.	I have to walk from my house to the jeepney/bus station to get a ride to school and back home.	3.30	SA	2.79	MA	3.05	MA
3.	I have to endure the delay in travel time due to the congestion in traffic.	3.39	SA	3.55	SA	3.47	SA
4.	I have to withstand getting wet during rainy days and intense hot weather just to go to school on time and be back home.	3.46	SA	3.32	SA	3.39	SA
5.	I incurred lots of transportation costs in going to school and back home.	3.25	SA	3.62	SA	3.44	SA
	Aggregate Mean	3.42	SA	3.40	SA	3.41	SA

Legend:1.00-1.74 Disagree [D]; 1.75-2.49 Less Agree [LA]; 2.50-3.24 Moderately Agree [MA]; 3.25-4.00 Strongly Agree [SA]

On the other hand, the lowest weighted mean of 3.25 indicates that the students strongly agreed that incurring many transportation costs in going to school and back home was another tangible cost of face-to-face classes since the number of expenses can be accounted. Therefore, it can be inferred that the students' spent much fare in riding public utility jeepneys (PUJs) in going to the school to attend classes physically. Moreover, another lowest weighted mean of 2.79 (teachers' responses) and lowest consolidated mean of 3.05 indicate that the respondents moderately agreed that walking from their house to the jeepney or bus station to get a ride to go to school and back home was another tangible cost of face-to-face classes. These responses mean that their effort going to school caused them to be physically worn out since they feel tired. The aggregate mean of 3.41, based on the responses of the students (μ= 3.42) and the teachers (μ= 3.40), indicates that they strongly agreed that the physical effort that they exerted in going to school, enduring the long travel time due to the traffic congestion and high transportation cost was the tangible costs of face-to-face classes. These answers further

show that both learning parties experienced tiresome experiences with the rigors of going to school and going home. School is the basic foundation of knowledge being imparted to a child. It gives a chance to children to acquire knowledge in various fields of education, such as people, literature, history, mathematics, politics, and other numerous subjects. By obtaining knowledge, a person is in a better position to help other people. For example, an individual can calculate one's taxes easily and speedily if a person learns mathematics. Also, with better information, he or she can attract attention at a gathering by taking an active part in the discussion. However, spending eight long hours every day at the same old building filled with obnoxious children of different ages is not as easy as one thinks it to be. What is more, the never-ending homework that accompanies the students only adds to the hatred towards school. Undoubtedly, school is annoying and dull, with much effort going towards attaining good grades. Nonetheless, school is essential; hence, the parents pressure their children to work so hard. Giving school a miss means that learners miss a crucial stage of their life. Thus, out of the few negatives that come across going to school, it has several positives. Glance through the following lines to know the importance of school (Bridges to Success, 2016).

Tangible Benefits of Face-to-Face Classes

This part presents the tangible benefits of face-to-face classes. The data is presented in table 11. The highest consolidated mean of 3.73, based on the responses of the students (μ= 3.63) and the teachers (μ= 3.71), indicates that they strongly agreed that the tangible benefit of face-to-face classes is that they were able to attend and listen to the live class discussions of the teacher.

Table 11: Tangible Benefits of Face-to-Face Classes

Indicators		Students [n = 1,413]		Teachers [n = 65]		Consolidated [N = 1,478]	
		Mean	Int	Mean	Int	Mean	Int
1.	I can attend and be able to listen to the live class discussions of my teacher/ conduct direct class discussion.	3.63	SA	3.83	SA	3.73	SA
2.	I can directly ask question to my teacher or students when I/they have some points of clarification on the topic/ subject matter being discussed in the classroom.	3.41	SA	3.80	SA	3.61	SA
3.	I can easily communicate with my classmates regarding school projects and deliverables.	3.51	SA	3.75	SA	3.63	SA
4.	I directly and easily submit my projects, projects, school works to my teacher in school.	3.48	SA	3.62	SA	3.55	SA
5.	Attending to classes does not requirement Internet.	2.76	MA	2.74	MA	2.75	MA
	Aggregate Mean	3.36	SA	3.55	SA	3.45	SA

Legend: 1.00-1.74 Disagree [D]; 1.75-2.49 Less Agree [LA]; 2.50-3.24 Moderately Agree [MA]; 3.25-4.00 Strongly Agree [SA]

This result means that despite the physical exhaustion of going to school, both the students and teachers preferred the traditional teaching-learning modality since they can have more significant opportunities to have direct interaction and discussions about the subject matter presented in the class. Also, the students can easily interact with their classmates, which an essential element to their learning experience. The lowest consolidated mean of 2.75, based on the responses of the students (μ= 2.76) and the teachers (μ= 3.74), indicates that they moderately agreed that the tangible benefits of face-to-face classes were attending to classes does not require Internet. This result denotes that the two groups of respondents perceived in many cases that the non-usage of the Internet in classes benefits them. Nevertheless, this view may be accurate to other students since the existence of the Internet provided vast knowledge that is easy for the learners to access. The aggregate mean of 3.45, based on the responses of the students (μ= 3.36) and the teachers (μ= 3.55), indicates that they strongly agreed that the physical conduct of the teaching-learning activity where there are direct interactions between the students and the teachers affords excellent tangible benefit to both parties. Furthermore, face-to-face classes enabled the teachers to present the subject matter correctly, while the learners will ask questions to their teachers and even to their classmates. Face-to-face learning is where the teacher and the student meet in a set place for a set time, for either one-on-one learning or, most commonly, in group class lessons similar to what happens in school. Face-to-face learning is an effective way to learn knowledge and skills because it often combines different learning methods, including writing, reading, discussion, presentations, projects, group work, film clips, demonstration, and practice. The advantages of face to face learning include the following: the students will be able to concentrate harder on their learning because there will be less distracting than if they were at home, they can gain greater understanding, stories, and real-world examples from teachers and other students, have a greater chance of completing their course

successfully by doing it in a classroom situation, and it had been observed that completion rate of teacher-led classes is almost 5x higher than that of online learning), may feel more comfortable and learn more quickly in a familiar, traditional classroom situation, can access more information and richer understanding through teacher and other students' body language and voice and have the opportunity to connect with, problem-solve, and network with other students from a wide range of backgrounds (Headspace National Youth Mental Health Foundation, 2021).

Tangible Cost of Online Classes

This part presents the tangible costs of online classes. The data is presented in table 12. The highest consolidated mean of 3.65 and the highest weighted mean of 3.71 for the responses of the students indicate that they strongly agreed that the tangible cost of online classes is the requirement for them to be online all the time to be immediately updated with class activities, school assignments and other instructions on the part of the students. In addition, the teachers also have to be online most of the time since they are the ones who will provide the instructional materials and other assessment activities to guide the students' learning.

Another highest weighted mean of 3.63 indicates that the teachers strongly agreed that the tangible cost of online classes is the requirement for their stay in a place where the Internet signal is stable. It would be hard to place borderline on time with online classes as to when the students will pop up their queries and concerns. Hence, to address them, the teachers have to ensure that they have an Internet signal 24/7. Also, the students have to keep track of the various quizzes and examinations, performance tasks, and other course requirements. On the other hand, the consolidated mean of 3.26 and the lowest weighted mean of 2.97 for the students' responses indicate that they strongly agreed that another tangible cost of online classes is the purchase of laptops to answer examinations and perform school projects and tasks. On the part of the teachers, they have to have their laptops to create instructional materials, examinations with the table of specifications, and other teaching-learning materials. Another lowest weighted mean of 3.32 indicates that the teacher strongly agreed that the tangible cost of online classes entails them purchasing smart cellular phones to attend online classes. The virtual teaching approach requires teachers to be vigilant on students' concerns and requires assistance in accessing their account at the learning management system (LMS). Therefore, it would mean that teachers must have smartphones that are compatible with the school's LMS to access the same on their phones all the time. Also, it would be convenient for them to address students' queries immediately. The aggregate mean of 3.48, based on the responses of the students (μ= 3.43) and the teachers (μ= 3.54), indicates that they strongly agreed that the expenses incurred for Internet load, purchase of electronic gadgets, and adjusting to the accessibility of Internet were the tangible costs of online classes. These responses denote that the teachers and the learners spent much on the equipment needed to carry out the virtual teaching-learning platform efficiently. The dramatic shift to online learning as a result of the COVID-19 pandemic risks widening educational inequalities. Every day, hundreds of millions of students, teachers, and support staff participate in a learning revolution: the COVID-19 pandemic has upended the centuries-old tradition that students traveled to a physical institution to learn. In many places, school and university classrooms are on laptops and smartphone screens, and the Internet has replaced physical books (Nature Portfolio, 2020).

Table 12: Tangible Costs of Online Classes

Indicators		Students [n = 1,413]		Teachers [n = 65]		Consolidated [N = 1,478]	
		Mean	Int	Mean	Int	Mean	Int
1.	I have to incur more expenses for Internet / data to be able to attend online classes.	3.57	SA	3.62	SA	3.60	SA
2.	I have to stay in a place where the Internet signal is stable.	3.60	SA	3.63	SA	3.62	SA
3.	I have to purchase laptops to be able to answer examinations, perform school projects and tasks.	2.97	MA	3.54	SA	3.26	SA
4.	I have to purchase smart cellular phones to be able to attend online classes.	3.28	SA	3.32	SA	3.30	SA
5.	I have to be online all the time to be immediately updated with class activities, school assignments and other instructions.	3.71	SA	3.58	SA	3.65	SA
	Aggregate Mean	3.43	SA	3.54	SA	3.48	SA

Legend: 1.00-1.74 Disagree [D]; 1.75-2.49 Less Agree [LA]; 2.50-3.24 Moderately Agree [MA]; 3.25-4.00 Strongly Agree [SA]

Tangible Benefits of Online Classes

This part presents the tangible benefits of online classes. The data is presented in table 13. The highest consolidated mean of 3.69, based on the responses of the students (μ= 3.52) and the teachers (μ= 3.85), indicates that they strongly agreed that the tangible benefit of online classes is that examinations can be administered remotely. Also, the students can take their quizzes and examination remotely; they perform school works, projects, and tasks at home using the learning management system (LMS) utilized by the school like Google Classroom, Moodle, and many others. Furthermore, the teachers can also prepare their teaching lesson design, quizzes and exams, grade computation, and other works within the comforts of their respective homes. The lowest consolidated mean of 2.77, based on the responses of the students (μ= 2.68) and the teachers (μ= 2.86), indicates that they moderately agreed that the tangible benefits of online classes relate to the feeling that they do not feel tired since the contact hours between the teachers and classmates during synchronous classes are short. Both the teachers and the students enjoy the flexibility of time and teaching-learning environment in attending both the synchronous and asynchronous class activities based on their comfort and satisfaction.

Table 13: Tangible Benefits of Online Classes

Indicators		Students [n = 1,413]		Teachers [n = 65]		Consolidated [N = 1,478]	
		Mean	Int	Mean	Int	Mean	Int
1.	I am no longer physically exhausted in waking up early in order to prepare myself to attend classes because I am just at home.	2.92	MA	3.22	MA	3.07	MA
2.	I am no longer tired in going out of the house to be able to attend classes in the school.	3.20	MA	3.43	SA	3.32	SA
3.	I do not feel tired since my contact hours with my teachers and classmates during synchronous classes are short.	2.68	MA	2.86	MA	2.77	MA
4.	I am not exposed to extreme weather conditions like the heavy rain and intense heat since I just stay at home.	3.38	SA	3.71	SA	3.55	SA
5.	I can take exam, do school works and projects and perform my tasks at home using the learning management system (LMS) utilized by the school like Google classroom, Moodle, and etc.	3.52	SA	3.85	SA	3.69	SA
	Aggregate Mean	3.14	MA	3.41	SA	3.28	SA

The aggregate mean of 3.28, based on the responses of the students (μ= 3.14) and the teachers (μ= 3.41), indicates that they strongly agreed that the tangible benefits of online classes were: absence of exposure to the risks of contracting the virus outside their respective houses, not pressured with time in preparing themselves to go to the school. In addition, they can enjoy the comforts of staying at home in preparing instructional resources and assessment tasks on the part of the teachers. For the students, they do not have to wake up early to prepare themselves to attend their classes, the contact hours in the synchronous class session were short, they can take the exams at home through the LMS any online platform, and they were spared from going out of their house to go to the school. An online learning course is a teaching and learning arrangement wherein the students can take the courses using a computer, without being with a teacher or other students in a classroom. As a result, he or she has greater flexibility and can study from home. Most courses do not need the students to be online at a specific time of day or night, but they must actively participate in the course during the course time frame. The advantages of an online learning course include the following: the students can study in the comfort of their own home, or wherever they want, it costs less – no need to travel for training, and no parking expenses, courses fit around their life, family and other things they do, will avoid being late to class, or getting distracted in class, can learn from their peers, have access to the course 24/7, maybe more relaxed than in a classroom setting, able to build up their skills interacting with technology and suits if they have different learning styles and the delivery methods are different and engaging (Headspace National Youth Mental Health Foundation, 2021).

Intangible Costs of Face-to-Face Classes

This part presents the intangible costs of face-to-face classes. The data is presented in table 14. The highest weighted mean of 3.46 indicates that the students strongly agreed that the intangible cost of face-to-face classes was their worries during rainy days because they cannot ride the jeepney or bus immediately in going to school and back home. Usually, students have to struggle to ride any means of transportation during rainy days since available seats at jeepneys and buses are rare. So, they have to compete with other commuters. There are also instances

that they will get wet and stranded in a flood. Moreover, the highest consolidated mean of 3.34 and highest weighted mean of 3.22 for the responses of the teachers indicates that they strongly agreed that the intangible cost of face-to-face classes is that their respective families or benefactors are burdened with the cost of their weekly allowance in going to the school to attend classes activities and back home. Teaching in the traditional classroom set entails the teachers going to the school every school day to meet physically with the students and undertake class sessions based on the schedule. Hence, they have to spend on food, transportation, and other related expenses when they are in school. Also, the students need allowance to defray their expenses for meals, fares, school supplies, and projects.

Table 14: Intangible Costs of Face-to-Face Classes

Indicators		Students [n = 1,413]		Teachers [n = 65]		Consolidated [N = 1,478]	
		Mean	Int	Mean	Int	Mean	Int
1.	I am worried during rainy days because I cannot ride the jeepney/bus immediately in going to the school and back.	3.46	SA	3.08	MA	3.27	SA
2.	I got worried because I am always late in attending my first class because of the heavy traffic congestion in going to school.	2.89	MA	2.85	MA	2.87	MA
3.	I feel exhausted for long travel time in going to school and back home.	3.16	MA	3.35	SA	3.26	SA
4.	My family/benefactor is burdened with the cost of my weekly allowance in going to the school to attend classes and activities and back home.	3.22	MA	3.46	SA	3.34	SA
5.	I have to ensure the discomfort in riding jeepney/bus/ motorcycle in going to the school and back home.	3.16	MA	3.09	MA	3.13	MA
	Aggregate Mean	3.18	MA	3.17	MA	3.17	MA

The lowest consolidated mean of 2.87, based on the responses of the students (μ= 2.89) and the teachers (μ= 2.85), indicates that they moderately agreed that the intangible costs of face-to-face classes related to their worries about being always late in attending their first class because of the heavy traffic congestion are going to school. Usually, both the students and teachers experienced the challenge of arriving at the school before the scheduled time not to be late for their first class. However, there are factors in the society that are beyond their control, like the lingering problem of traffic congestion in Cebu City, where universities are located. The issue of the traffic situation in Cebu City made the travel time longer than usual and caused psychological stress to them. The aggregate mean of 3.17, based on the responses of the students (μ= 3.18) and the teachers (μ= 3.17), indicates that they moderately agreed that the intangible costs of face-to-face classes are the psychological stress caused by the traffic congestion during working days that extended traveling time to school and back home, the daily expenses or the needed allowance as well the distress in commuting. It can be inferred that face-to-face classes are more enduring for both the teachers and students due to regular meetings between them within the confines of classrooms or in the laboratories. Attendance is a priority for educators. Good attendance will indicate to educators an individual that needs help, what changes in teaching to make, which behaviors are to be encouraged or suppressed, and which schools need to advance. In addition, committed facilitators take students' attendance before teaching their subjects to determine the number of students who received their lessons. Also, the school authorities use student attendance to monitor, control and supervise students' activities in schools (Jones, 2016). Students ought to be present in school so that to benefit from the academic program in its totality. Lowly attendance for students may facilitate weakness in achieving quality education for graduates hence affecting community development. Student non-attendance is a problem that broadens outside the school. It affects the student, his or her family, and the community (Mugoro, 2014).

Intangible Benefits of Face-to-Face Classes

This part presents the intangible benefits of face-to-face classes. The data is presented in table 15.

The highest consolidated mean of 3.69, based on the responses of the students (μ= 3.65) and the teachers (μ= 3.73), indicates that they strongly agreed that the intangible benefit of face-to-face classes was that the students would be given a chance to experience the happiness of being able to meet and talk with their classmates. Furthermore, the teachers also experienced the same happy feeling when talking and chatting with their co-teacher and co-workers in the university. The lowest consolidated mean of 3.30, based on the responses of the students (μ= 3.22) who moderately agreed and the teachers (μ= 3.37), who strongly agreed that the intangible benefit of face-to-face

Table 15: Intangible Benefits of Face-to-Face Classes

Indicators		Students [n = 1,413]		Teachers [n = 65]		Consolidated [N = 1,478]	
		Mean	Int	Mean	Int	Mean	Int
1.	I feel contented when I can attend/conduct to live discussion about many topics in the class.	3.43	SA	3.68	SA	3.56	SA
2.	My confusion during class discussion can be immediately addressed when I can directly ask question(s) to my teacher.	3.39	SA	3.72	SA	3.56	SA
3.	I am happy when I can meet and talk to my classmates/ colleagues physically.	3.65	SA	3.73	SA	3.69	SA
4.	I am assured that my teacher/students receives/submits projects, assignments, and other school works.	3.59	SA	3.55	SA	3.57	SA
5.	I do not have to worry in looking for reference materials and resources to be able to do research and other requirements because I can easily go to the school library.	3.22	MA	3.37	SA	3.30	SA
	Aggregate Mean	3.46	SA	3.61	SA	3.53	SA

classes relates to the absence of worries in looking for reference materials and resources to be able to do research works and other requirements because they can quickly go to the school library. The university library provides services and resources to both the faculty members and students to undertake and attain the aims and objectives of the teaching-learning process. The aggregate mean of 3.53, based on the responses of the students (μ= 3.46) and the teachers (μ= 3.61), indicates that they strongly agreed that the intangible benefit of face-to-face classes was: the feeling of contentment in doing and attending the actual class discussions, clarifications can be done conveniently between the teacher and the students within the class hours, feeling of happiness in connecting with classmates (students) and colleagues in the university (teachers), submissions of course requirements would be direct and accessibility of the library for the reference materials. In this manner, there would be less psychological stress in finding ways to connect with stakeholders in learning, delays, and assurance in submissions of school deliverables and accessing learning materials. The most significant differences between online and face-to-face learning have always been in the realm of fostering connection and collaboration between learners. The loss that Learning and Development Professionals experienced with this abrupt stop of face-to-face learning delivery is this positive social impact. This is a valid concern. The importance of face-to-face interaction in education, for example, is vital. In-person social interaction has a richness that might feel hard to replicate in the digital world – but when it comes to the corporate world, it is not impossible (Cooke, 2020).

Intangible Costs of Online Classes

This part presents the intangible costs of online classes. The data is presented in table 16.

Table 16: Intangible Costs of Online Classes

Indicators		Students [n = 1,413]		Teachers [n = 65]		Consolidated [N = 1,478]	
		Mean	Int	Mean	Int	Mean	Int
1.	I am always worried if I cannot easily connect to the Internet and get into my online classes.	3.69	SA	3.51	SA	3.60	SA
2.	I feel anxious during rainy days since the stability of the Internet signal will be affected and might be cut or become unstable.	3.66	SA	3.51	SA	3.59	SA
3.	I got bored since I cannot get out of the house everyday because I have to stay at home to attend synchronous classes and do my requirements in various subjects.	3.03	MA	2.99	MA	3.01	MA
4.	I had a problem on how to raise the money in buying electronic gadgets needed for online classes and be able to comply the subject/course requirements.	3.18	MA	3.29	SA	3.24	MA
5.	I got worried when I submit my project, answer sheets, assignments, school works because my teacher might not be able to receive it on time/on deadline or whne the teacher submit the school requirements/deliverables like grades sheets, reports, and other important documents.	3.39	SA	2.83	MA	3.11	MA
	Aggregate Mean	3.39	SA	3.23	MA	3.31	SA

The highest consolidated mean of 3.60, based on the responses of the students (μ= 3.69) and the teachers (μ= 3.51), indicates that they strongly agreed that the intangible cost of online classes relates to the worries of not being able to easily connect to the Internet and get into online classes. This issue is genuine in an online class because there are times when the Internet connection will become intermittent, and the teacher or the student will be caught helpless when it is already the schedule of their classes, and then the connection will suddenly be lost. Moreover, there is caused stress for them since there no personal interaction between the parties of learning. Another highest weighted mean of 3.51 further indicates that students strongly agreed that the intangible cost of online classes relates to the feeling of anxiety during rainy days since the stability of the Internet signal will be affected and might be cut or become unstable. So, there are cases wherein they cannot join the virtual synchronous class sessions and will be marked as absent by their teacher. The lowest consolidated mean of 3.01 and the lowest mean of 3.03 representing the responses of the students indicate that they moderately agreed that the intangible cost of online classes relates to the feeling of boredom since they cannot get out of the house every day because they have to stay at home to attend synchronous classes and perform various requirements in various subjects. In many cases, the students and even most teachers would stay at home to prepare and undertake the online classes. Some teachers opted to go to the school for those who did not have an Internet connection at home, while students would look for places for more robust and stable Internet connectivity. Another lowest weighted mean of 2.83 further indicates that teachers strongly agreed that the intangible cost of online classes relates to their worries when they submit their deliverables like grade sheets, reports, and other vital documents for their immediate superior might not be able to receive it on time or the date of the deadline. There were instances when the instability of the Internet and other technical glitches caused the delay in the receipt of the documents submitted through email, and the tendency is that the sender might miss the deadline or submit the same on time. The aggregate mean of 3.31, based on the responses of the students (μ= 3.39) and the teachers (μ= 3.23), indicates that they strongly agreed that the intangible costs of online classes relate to their feeling of anxiety and apprehension when they cannot get in the virtual classroom like Zoom, Google Meet due to unstable Internet connection especially during bad weather conditions, the tiresome feeling of always staying at home, the psychological tension in looking for a budget to be able to purchase electronic gadgets like laptops, cellular phones and on being able to submit school deliverables on time. A study conducted by Michigan State University (2020) reveals that slow Internet connections or limited access from homes in rural areas can contribute to students falling behind academically. The results showed that the most rural and socioeconomically disadvantaged students are least likely to have broadband Internet access at home. Only 47% of students who live in rural areas have high-speed Internet access at home compared to 77% of those in suburban areas. Of those who do not have home access, 36% live in a home with no computer, and 58% live on a farm or other rural setting. Students with no high-speed Internet access at home are also less likely to plan to attend a college or university. On the other hand, students with Internet access have substantially higher digital skills, which are a strong predictor of performance on standardized tests.

Intangible Benefits of Online Classes

This part presents the intangible benefits of online classes. The data is presented in table 17.

Table 17: Intangible Benefits of Online Classes

Indicators		**Students [n = 1,413]**		**Teachers [n = 65]**		**Consolidated [N = 1,478]**	
		Mean	**Int**	**Mean**	**Int**	**Mean**	**Int**
1.	I can easily manage my schedule on when to attend online classes, work on my assignments, projects and subject/ course requirements/ school works.	3.13	MA	3.62	SA	3.38	SA
2.	I do not feel worry on what to eat when I am hungry since I am at home.	3.30	SA	3.34	SA	3.32	SA
3.	I do not have psychologically exhaustion in becoming late in attending synchronous activities since I do not have to travel.	3.09	MA	3.34	SA	3.22	MA
4.	The financial burden in buying books and other schools supplies is mitigated/lessened.	3.04	MA	3.22	MA	3.13	MA
5.	The learning management system (LMS) like Google classroom, Moodle, and etc. adopted by the school enabled me to experience and be updated on the new educational learning platform.	3.41	SA	3.69	SA	3.55	SA
	Aggregate Mean	3.19	MA	3.44	SA	3.32	SA

The highest consolidated mean of 3.55, based on the responses of the students (μ= 3.41) and the teachers (μ= 3.69), indicates that they strongly agreed that the intangible benefit of online classes relates the application of the learning management system (LMS) like Google Classroom, Moodle, and others adopted by the school, which enabled them to experience and be updated on the new educational learning platform. Furthermore, the absence of face-to-face classes enabled both the teacher and students to be privy to the latest technological innovations that aided in the teaching-learning process. The lowest consolidated mean of 3.13 and the lowest mean of 3.03 based on the responses of the students (μ= 3.04) and the teachers (μ= 3.22), indicates that they moderately agreed that the intangible benefit of online classes relates to mitigation in the financial burden in buying books and other schools supplies. The use of a learning management system and e-learning platforms lessened the requirement to buy printed reference materials since reports can be submitted online and need not be printed. Also, the Intern*et a*llows the opportunity for both the teachers and students to made use of e-books and online journals. The aggregate mean of 3.32, based on the responses of the students (μ= 3.19) and the teachers (μ= 3.44), indicates that they strongly agreed that the intangible benefits of online classes pertain to efficient management of time to work with school deliverables, lesser worry when feeling hungry within the comforts of being at home, no exhaustion in the attendance during the synchronous class schedule, no financial burden in purchasing printed teaching-learning materials and supplies and being able to navigate and utilize modern educational technology. Thus, using the learning management system led both the teacher and students towards efficient time management while enjoying the safety and security of being at home. Moreover, online classes do not require bulky reference resources and materials, and there is no need to travel in going to the school, which is tiresome and physically draining. Online learning as good as face-to-face learning, and in many ways, it is more effective than face-to-face learning. As research shows, 80% of organizations believe their use of digital learning will remain the same, increase or decrease only slightly as restrictions on live training ease. It is unlikely that e-learning will ever fully replace classroom learning. However, what is evident is that e-learning is here to stay, and organizations are increasingly looking at online learning as the future with no imminent plans to invest more face-to-face. The advantages of online learning are: it will save money and time, it g is much more scalable – unlike face-to-face learning where they are always restrictions on the number of learners that can be reached, allows to produce once and share with as many employees who need, can be accessed on learners' terms and is consistent. Classroom experiences largely depend on the instructor. Two different facilitators can deliver the same course material with vastly different impacts on the learners. E-learning ensures a level of consistency that is not achievable with face-to-face learning (Cooke, 2020).

Summarized Cost of Face-to-Face and Online Learning

This part presents the summarized data on the perceived tangible and intangible costs and benefits of face-to-face and online classes. The data is presented in table 18.

Table 18: Summarized Data on the Perceived Cost of Face-to-Face and Online Learning

Indicators		**Students [n = 1,413]**		**Teachers [n = 65]**		**Consolidated [N = 1,478]**	
Paired Variables		**Mean**	**Int**	**Mean**	**Int**	**Mean**	**Int**
A. Face-to-Face Classes							
	Tangible Cost	3.42	SA	3.40	SA	3.41	SA
	Tangible Benefits	3.36	SA	3.55	SA	3.45	SA
	Mean :	3.39	SA	3.48	SA	3.43	SA
	Intangible Cost	3.43	SA	3.54	SA	3.48	SA
	Intangible Benefits	3.14	MA	3.41	SA	3.28	SA
	Mean :	3.29	SA	3.48	SA	3.38	SA
	Overall Mean for Face-to-Face :	3.34	SA	3.48	SA	3.41	SA
B. Online Classes							
	Tangible Cost	3.18	MA	3.17	MA	3.17	MA

	Tangible Benefits	3.46	SA	3.61	SA	3.53	SA
	Mean :	3.32	SA	3.39	SA	3.35	SA
	Intangible Cost	3.39	SA	3.23	MA	3.31	SA
	Intangible Benefits	3.19	MA	3.44	SA	3.32	SA
	Mean :	3.29	SA	3.34	SA	3.32	SA
	Overall Mean for Online:	3.31	SA	3.36	SA	3.33	SA

Legend:1.00-1.74 Disagree [D]; 1.75-2.49 Less Agree [LA]; 2.50-3.24 Moderately Agree [MA]; 3.25-4.00 Strongly Agree [SA]

The consolidated aggregate mean of 3.43, based on the aggregate mean of 3.39 for the students' responses and aggregate mean of 3.48 for the teachers' responses, indicate that two groups of respondents in this investigation strongly agreed that there are both tangible costs and benefits in the traditional face-to-face teaching-learning modalities. These results can be inferred that there are expenses that the teachers can explicitly calculate, which relates to physically going to the school to attend classes. As a benefit to the face-to-face interaction between the teachers and learners, the exchange of ideas in the class is more natural, and the students would be given a chance to directly address their concerns when there are aspects in the subject that they needed assistance with they are confused. The teachers can also observe some non-verbal manifestations of the students in the class that would signify the need for intervention of problem that needs to be addressed. In addition, the consolidated aggregate mean of 3.38, based on the aggregate mean of 3.29 for the students' responses and aggregate mean of 3.48 for the teachers' responses, indicate that two groups of respondents in this investigation strongly agreed that there are intangible costs and benefits in the face-to-face teaching-learning modalities. This result denotes that there are implied costs and gains in the in-person teaching and learning approach. These implicit costs and advantages of the two modes of teaching are not numerically quantifiable, yet they are significant because they relate to the psychological well-being of the teachers and students. The consolidated aggregate mean of 3.35, based on the aggregate mean of 3.32 for the students' responses and aggregate mean of 3.39 for the teachers' responses, indicate that two groups of respondents in this study strongly agreed that there are both tangible costs and benefits of online teaching-learning modalities. However, there are also inherent advantages of a virtual class platform since it does not require the teachers to report to the school physically, but there are needed expenses like the cost outlay like food, housing, Internet load, books, and supplies. Although, transportation costs are mitigated significantly since travel is minimized. Also, buying school supplies is lesser than in the face-to-face mode of teaching. On the other hand, they can enjoy the comfort of less pressured to be late in attending their classes since they do not have to wake up early to prepare themselves for school nor to struggle with longer travel time with the traffic congestion is terrible. Further, the consolidated aggregate mean of 3.32, based on the aggregate mean of 3.29 for the students' responses and aggregate mean of 3.34 for the teachers' responses, indicate that two groups of respondents in this study strongly agreed that there are both intangible costs and benefits of online teaching-learning modalities. Aside from the quantifiable costs of online teaching-learning class activities, there are psychological costs like the stress when the Internet connectivity is not stable or very slow and cannot log in to the learning management system to take quizzes, exams, and attend synchronous class activities. On the other hand, there are also implied safety, security, and psychological benefits when the teachers and students do not have to face each other in carrying out the teaching and learning process.

Results on the Test of Significant Relationship Between the Profile and Perceptions on the Tangible and Intangible Costs and Benefits of Face-to-Face and Online Teaching-Learning Modalities

This section presents the results on the test of significant relationships between the profile of the student and teacher respondents and their perceptions relating to the tangible and intangible costs and benefits of face-to-face and online classes.

Relationship Between Profile of the Student

The data contained in the table 19 shows that there is a significant relationship between the year level of the student-respondents and their perceptions about the tangible costs and benefits of face-to-face and online teaching-learning modalities based on the Chi-square value of 21.482, which is greater than the critical value of 21.026. Thereby, the hypothesis is rejected. This result means that the knowledge gained by the students through the subjects taken in the program that they enrolled relates to their points of view on the noticeable price and advantages of the traditional classroom and virtual teaching-learning arrangements. Likewise, there is another significant relationship between the gender of the student-respondents and their perceptions pertaining to the intangible costs and benefits of face-to-face and online teaching-learning modalities based on the Chi-square value of 8.321, which is greater than the critical value of 7.815. Hence, the hypothesis is rejected. This result denotes that male respondent may have variations from females in terms of how they view the impalpable budget, rate, and gains from both the face-to-face and online classes.

Table 19: Relationship Between Profile of the Student Respondents and the Tangible and Intangible Cost and Benefits (alpha = 0.05)

Variables	Chi-Square	df	Critical Value	Significance	Result
I.Tangible Costs & Benefits					
Age	18.374	12	21.026	Not significant	Ho accepted
Gender	1.091	3	7.815	Not significant	Ho accepted
Course	52.405	54	72.153	Not significant	Ho accepted
Year Level	21.482	12	21.026	Significant	Ho rejected
Location	17.735	27	40.113	Not significant	Ho accepted
II. Intangible Costs & Benefits					
Age	10.951	12	21.026	Not significant	Ho accepted
Gender	8.321	3	7.815	Significant	Ho rejected
Course	51.155	54	72.153	Not significant	Ho accepted
Year Level	13.978	12	21.026	Not significant	Ho accepted
Location	18.873	27	40.113	Not significant	Ho accepted

Relationship Between Profile of the Teacher

This section presents the results on the test of significant relationships between the profile of the teacher-respondents and their perceptions relating to the tangible and intangible costs and benefits of face-to-face and online classes. Table 20 presents the data. The data shows a significant relationship between the gender of the teacher-respondents and their perceptions about the tangible costs and benefits of face-to-face and online teaching-learning modalities based on the Chi-square value of 9.234, which is greater than the critical value of 7.815. Therefore, the hypothesis is rejected.

Table 20: Relationship Between Profile of the Teacher Respondents and the Tangible and Intangible Cost and Benefits (alpha = 0.05)

Variables	Chi-Square	df	Critical Value	Significance	Result
A. Tangible Costs & Benefits					
Age	15.983	15	24.996	Not significant	Ho accepted
Gender	9.234	3	7.815	Significant	Ho rejected
Civil Status	9.220	9	16.919	Not significant	Ho accepted
Years in Teaching	11.565	9	16.919	Not significant	Ho accepted
Combined Monthly Income	11.170	6	12.592	Not significant	Ho accepted
B. Intangible Costs & Benefits					
Age	17.937	15	24.996	Not significant	Ho accepted
Gender	2.970	3	7.815	Not significant	Ho accepted
Civil Status	5.940	9	16.919	Not significant	Ho accepted
Years in Teaching	13.789	9	16.919	Not significant	Ho accepted
Combined Monthly Income	17.300	6	12.592	Significant	Ho rejected

This result can be inferred that there are differences in how males and females calculate the substantial costs and value gained from both the face-to-face and online classes. Also, there is a significant relationship between the combined monthly income of the teacher-respondents and their perceptions about the intangible costs and benefits of face-to-face and online teaching-learning modalities based on the Chi-square value of 17.300, which is greater than the critical value of 12.592. As a result, the hypothesis is rejected. This result denotes that the teachers' level of earnings correlates with their points of view on the implicit costs and advantages in traditional and virtual teaching and learning platforms.

Results on the Test of Significant Difference

This section shows the results on the test of significant difference in the perceptions of the respondents when grouped according to its profile pertaining to the tangible costs and benefits of face-to-face and online- teaching modalities.

Student Perceptions

This part reveals the results on the test of significant difference on the student-perceptions on the costs and benefits of face-to-face and online learning modalities when grouped according to the profile. Table 21 presents the data.

Table 21: Results on the Test of Significant Difference on the Perceptions on the Cost and Benefit of Face-to-Face and Online Learning Modalities When Grouped by the Student Profile (alpha = 0.05)

Grouped By Student Profile	F-Value	P-Value	Significance	Result
I. Age				
Tangible Cost & Benefits	1.81	0.011	Significant	Ho rejected
Intangible Cost and Benefits	1.47	0.072	Not significant	Ho accepted
II. Gender				
Tangible Cost & Benefits	0.58	0.448	Not significant	Ho accepted
Intangible Cost and Benefits	0.31	0.579	Not significant	Ho accepted
III. Course				
Tangible Cost & Benefits	1.21	0.241	Not significant	Ho accepted
Intangible Cost and Benefits	1.53	0.068	Not significant	Ho accepted
IV. Year Level				
Tangible Cost & Benefits	4.65	0.001	Significant	Ho rejected
Intangible Cost and Benefits	3.71	0.005	Significant	Ho rejected
V. Location				
Tangible Cost & Benefits	0.96	0.469	Not significant	Ho accepted
Intangible Cost and Benefits	0.76	0.658	Not significant	Ho accepted

The data contained in the table shows that there is a significant difference in perceptions of the students regarding the tangible cost and benefits of face-to-face and online teaching modalities when they are grouped according to age based on the P-value of 0.011, which is lesser than the alpha-value of 0.05. This data denotes that those students who belonged to the younger age bracket have different viewpoints in making comparisons on the expenses incurred when they have to go to the school physically and at the moment when they will have to log in online to be able to attend their classes. Moreover, there is a significant difference in the students' perceptions regarding the tangible cost and benefits of face-to-face and online teaching modalities when grouped according to year level based on the P-value of 0.001, which is lesser than the alpha-value of 0.05. This data can be inferred that the students' ideas relating to the physical effort exerted and the out-of-pocket payments in attending classes, whether on face-to-face or online modalities, differ considering that the variation in their age relates to

Table 22: Results on the Test of Significant Difference on the Perceptions on Cost of Face-to-Face and Online Learning Modalities When Grouped by the Teacher Profile
(alpha = 0.05)

Grouped By Teacher Profile	F-Value	P-Value	Significance	Result
I. Age				
Tangible Cost & Benefits	1.34	0.202	Not significant	Ho accepted
Intangible Cost and Benefits	0.90	0.610	Not significant	Ho accepted
II. Gender				
Tangible Cost & Benefits	5.14	0.027	Significant	Ho rejected
Intangible Cost and Benefits	2.54	0.116	Not significant	Ho accepted
III. Civil Status				
Tangible Cost & Benefits	2.26	0.090	Not significant	Ho accepted
Intangible Cost and Benefits	1.29	0.284	Not significant	Ho accepted
IV. Years in Teaching				
Tangible Cost & Benefits	0.75	0.777	Not significant	Ho accepted
Intangible Cost and Benefits	0.71	0.824	Not significant	Ho accepted
V. Combined Monthly Income				
Tangible Cost & Benefits	2.41	0.098	Not significant	Ho accepted
Intangible Cost and Benefits	2.77	0.070	Not significant	Ho accepted

their level of maturity in looking at things. Also, there is another significant difference in the students' perceptions regarding the intangible cost and benefits of face-to-face and online teaching-learning modalities when they are grouped according to year level based on the P-value of 0.005, which is lesser than the alpha-value of 0.05. This data denotes that the students' perspectives on the implicit price paid and the advantages of the traditional and conventional learning approach differ due to their age level and experience in life.

Teacher Perceptions

This part reveals the results on the test of significant difference on the teachers' perceptions on the costs and benefits of face-to-face and online learning modalities when grouped according to the profile. Table 22 presents the data. The P-value of 0.027, which is lesser than the alpha value of 0.05, indicates a significant difference in perceptions of the teachers about the tangible cost and benefits of face-to-face and online teaching modalities when grouped according to gender. This result means that the male teachers have different ideas from female teachers on the relative budgetary outlay on food, housing, transportation, Internet, books, and supplies. In actual practice, females are more concerned when it comes to expenditures related to school.

CONCLUSION

There are costs incurred and benefits gained in the face-to-face and online teaching-learning modalities with explicit numerical outlay. There are corresponding implicit costs and benefits towards both teaching-learning modalities that have no numerical or peso value but are essential in assessing the most cost-efficient teaching approach that would maximize the learning pursuit so the students in the tertiary level. These costs and benefits are related to a person's psychological and social well-being, whether a teacher or student. Moreover, there are benefits in the face-to-face teaching-learning modality that cannot be replicated nor gained in the online approach and vice-versa. Hence, one approach is not better than the other since they have inherent gains that are not present in the other pedagogical methodology.

On the basis of the aforementioned conclusions, the following advanced:

1. That the proposed cost benefit resilience model for online learning in higher education will be adopted by the Higher Education Institutions and State Universities and Colleges (SUCs);
2. The following are recommended as topics for further studies:

2.1. comparative study on the cost-efficiency of online and open education learning platform;

2.2. financial impact of the COVID-19 pandemic to the schools in Cebu; and

2.3. sustainability measures adopted by the schools amidst the COVID-19 pandemic.

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