

*Students' Perception of Their Experience in Courses Taught Through New Delivery Modes Compared to Traditional Modes*

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The European Conference on Education 2023  
Official Conference Proceedings

**Abstract**

Since even before COVID-19, one of the most important challenges of Higher Education has been and continues to be the need for innovative and flexible educational methods. We could all agree that one of the goals of Higher Education is to equip students with a variety of intellectual and practical skills that, at the same time, can help them develop competitive advantages, such as adaptability and critical thinking. Universities should encourage students to be engaged lifelong learners, questioning the status quo to change it. New technologies and different delivery modes must be implemented to achieve that. One of the strategic goals of Universidad de Monterrey (UDEM) is to provide flexibility and achieve student satisfaction in the modes of delivering academic teachings. UDEM implemented a methodology that combines the face-to-face mode with synchronous and asynchronous modes. In this study, the experiences of 185 students in courses implemented through the New Delivery Modes were compared with those of 115 students in courses with traditional modes. Students openly chose either mode freely. After the experiences in 2020 and 2021, it is safe to assume that the face-to-face (traditional) delivery mode would be preferred among students. The results obtained in this study reveal that both delivery modes satisfy students and favor their learning process. The combination of delivery modes provides flexibility so that universities can include them in their academic offer as a response to the interests and learning needs of today's students.

Keywords: Flexibility, Student Satisfaction, New Delivery Modes, Combination of Modes, Academic Offer

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## **Introduction**

During the Covid-19 pandemic, universities adopted various learning methods for educational activities. For example, the University of Sri Lanka implemented online classes in real-time without recorded lectures; face-to-screen, repeatable recorded online; Self, which consisted of only pre-recorded lectures; and mixed learning consisting of pre-recorded lectures and face-to-face learning. The study aimed to evaluate each learning method implemented to identify the preferred learning method of students.

It turned out that students enjoy interactive activities during classes and that there are no significant differences in grades between students taking courses through synchronous and asynchronous modes.

This study found that students preferred the mixed delivery modes, with online lectures in real-time, along with recorded lectures. Thus, they consider this the most appropriate to implement in the new normal [1].

In Bogota, Colombia, they measured the satisfaction level of 447 students through a survey to know the perception of their experience in virtual courses, taking into account elements of the pedagogical method of the University such as contents, materials, resources, teachers, and teaching strategies.

The results reported that only 23.5% of students are satisfied with participating in virtual courses. Therefore, they decided to take action to redesign the courses and teacher training programs. They concluded that they should strengthen each of the elements of the pedagogical model and review the program to select the courses to be implemented virtually [2].

Universities in Australia investigated synchronous and asynchronous class attendance as predictors of academic success in online education. Their results show that attendance to virtual or synchronous classes, plus the number of hours in which students interacted with the online learning system, had a significant relationship with academic success, concluding that the flexibility of online education can enable students to succeed in their studies [3].

At these universities, it was mentioned that the profile of their students and their needs are more diverse, as they may be older, part-time students, or part-time workers. Therefore, they need flexibility for their courses as they cannot attend at all times. Flexibility understood as the diverse offer of online and face-to-face courses to satisfy different needs.

In this research, it is reported that most universities have a traditional delivery mode (face-to-face classes); however, in the survey, the same institutions consider the importance of the profile of their students and have flexible modes to meet their needs. Thus, the improvement plans of universities are oriented toward a flexible and attractive teaching practice and innovative use of technology to create an interactive environment that promotes learning. Hence, universities continue to experiment with a wide variety of alternatives as regards delivery modes [4].

Globally, there is a need to expand the offer of delivery modes to make them more flexible and use new methods in courses that adapt to students' needs.

As a result of the analysis of global trends with international and national universities and in publications consulted, we found that flexibility is a crucial characteristic for students, academia, and employers. Flexibility is essential in lifelong learning, learning diverse subjects, developing a variety of transformative skills, making rapid prototypes, and generating proposals that are different from traditional ones [5-6].

At Universidad de Monterrey, as a result of new strategies, agile teams were created within the Vice-President's Office of Strategic Transformation, to work, with the SCRUM framework to solve the emerging needs of students, such as increased flexibility, among others. This study is based on the work done by one of the teams, the Curriculum and Competencies Agile Team.

To determine the flexibility level in the programs offered by the university, focus groups were conducted with students and teachers, as well as interviews with directors, who were asked about the different ways in which students can take their courses (face-to-face, synchronous, and/or asynchronous). The result showed low and medium flexibility, in more than half of the 39 programs explored, so we proposed to increase flexibility by offering more courses with different options of innovative modes to inquire about the level of satisfaction and flexibility in the delivery of courses. This is where the following question arises:

- What is the perception of students in their experience during courses taught through New Delivery Modes compared to those who take traditionally taught courses?

To answer this question and obtain evidence on the perception of the experience of our students by increasing the educational offer through New Delivery Modes, we programmed a pilot test at the professional level.

## **Goal**

To compare the perception of students in their experience in courses taught through New Delivery Modes with the perception of those taking courses through traditional modes, at the professional level.

## **Hypothesis**

Students' perceptions of their experience in the course is the same when taking courses through New Delivery Modes as through Traditional modes.

## **Methodology**

An experimental study was carried out on a sample of 300 students who were enrolled, voluntarily, in eight subjects, offered in two groups each, 16 groups from different academic programs, with intervention in groups taught through traditional and New Delivery Modes.

In sessions with directors and teachers, the details of the pilot test, the description of the New Delivery Modes, the resources necessary for their implementation, and the support available for teachers to design their class sessions were discussed.

Among the support provided to teachers to modify and strengthen their teaching methodology, a self-managed course was offered, focused on Active Learning, with contents such as a Guide for designing class sessions, based on the "Training from the Back of the Room" Methodology, "Using Brain Science to Make Learning Stick" by Sharon Bowman (2009), strategies that promote active participation and individual student responsibility with the 4 "C" [7] and the Shape your class tool, which consists of a virtual space to design and organize class sessions. This tool contains options that teachers can choose to plan the moments of their class with different strategies, learning tactics, types of evaluation, and technological resources [8].

Personalized pedagogical consulting by instructional designers and personalized technological consulting were also assigned.

In the course offerings catalog, subjects were published with the specification of the corresponding delivery mode combination so that, when choosing the group, students would be aware of the delivery mode.

Teachers were instructed to explain to their students, on the first day of class, the details of the New Delivery Mode in which the course would be implemented, they were also asked for consent to participate in this study and to answer a survey at the end of the semester.

## **Variables**

Traditional Mode was defined as courses taught by teachers entirely face-to-face.

New Delivery Mode is defined as the teaching delivery through different combinations of face-to-face classes, synchrony, and asynchrony, which consisted of the following:

- Face-to-face Alternative mode – Teacher-led course combining 60% face-to-face and 40% synchrony of the total number of sessions of the period.
- Asynchronous Alternative mode – Teacher-led course on a digital platform combining 40% synchrony and 60% asynchrony of the total number of sessions of the period.
- Flex mode – Teacher-led course combining 60% face-to-face, 20% synchrony, and 20% asynchrony of the total number of sessions of the period.

The dependent variable in this study is the perception of the students regarding the experience they lived during the course and type of delivery mode, valued through a survey with 6 attributes: Flexibility, Learning, Academic performance, Class participation, Self-management and Level of satisfaction, measured as the probability of recommending courses in new modalities to other students, based on the Net Promoter Score (NPS) indicator.

## **Survey**

A specially designed survey was applied to 300 students. In the survey, it is informed that responses are voluntary and data privacy is assured. It consisted of 12 questions to explore the six attributes mention before and a question about a recommendation to other students.

At the end of the semester, the teachers of each group were requested to ask their students to answer the survey voluntarily, where each statement was rated on a Likert scale from 1 (strongly disagree) to 10 (strongly agree) on the most positive and negative aspects of their

experience. A measure of loyalty or recommendation was included, measured with the Net Promoter Score (NPS) [9].

## Results

We used descriptive statistics to analyze the data. From a total study population of 300 students, we obtained a sample of 179 students, corresponding with 60% of the entire study population, accuracy level of 95% with a margin of error of 5%. Table 1.

Table 1: Surveys answered by groups of different methods

<b>Delivery Mode</b>	<b>Population</b>	<b>Answers n</b>	<b>Answers n</b>
Traditional Mode	115	66	57%
New Modes	185	113	61%
Total	300	179	60%

For data analysis, descriptive statistics and Student's t-test for independent samples were performed. Where the statistical hypotheses to be tested are  $H_0=$  and  $H_1=$  and the test statistic was:

$$\frac{\bar{x}_1 - \bar{x}_2}{S^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}$$

When comparing at a general level the perception of the experience of the students in their courses between the type of delivery mode, we observe in table 2 that, although the averages are very similar between them, when performing the Student's t test, we obtain a p value of 0.141, so we conclude that there is no statistically significant difference between the averages of the Traditional Modes (M=9.66; DE=0.647) and the New Delivery Modes (M=9.48; DE=0.994).

Table 2: t-Student test between delivery modes

<b>Delivery modes</b>	<b>n</b>	<b>Student's perception during their experience (average)</b>	<b>Standard Deviation</b>	<b>Value t</b>	<b>Sig. (bilateral) p</b>
Traditional Mode	66	9.66	0.647	1.481	0.141
New modes	113	9.48	0.994		

Table 3. As part of the research, the experience is the general average of all the attributes rated by students. We see that the Face-to-face Alternative mode stands out in all attributes; in the Flex mode, flexibility is significant, with academic performance and class participation as an area of opportunity, while in the Traditional Mode, class participation and self-management stand out, with an area of opportunity in flexibility. On the other hand, in the Asynchronous Alternative mode, the most significant characteristic is flexibility, and the rest

of the attributes remain as an area for improvement. This table shows that the experience is very similar among mode, except for the asynchronous mode, which had more characteristics to be improved.

Table 3: Comparison between the experience, rated by the students, in each delivery mode

Delivery Mode	Type of Mode	n	Flexibility	Satisfaction Level	Learning	Academic Performance	Class Participation	Self-management	Global Average
Traditional Mode	Face-to-face	66	9.3	9.5	9.6	9.6	9.7	9.7	9.6
New Mode	Asynchronous Alternative	23	9.0	8.8	8.6	9.1	8.7	9.2	8.9
	Face-to-face Alternative	35	9.9	10.0	9.8	9.8	9.9	9.9	9.9
	Flex	55	9.6	9.5	9.5	9.4	9.4	9.5	9.5

\*averages

Table 4. In the following table, results are shown to compare the traditional delivery mode with each of the New Delivery Modes separately; when running all the hypothesis tests, we can conclude that, there does exist statistically significant difference in the averages of the traditional mode with the Asynchronous Alternative mode, situation that is not presented when comparing traditional mode with the Face-to-face Alternative and Flex mode, where the null hypothesis is not rejected, which means that the students' perceptions of the experience taking the course, is the same as taking them in different modes.

Table 4: Test t-Student between the traditional mode compared, individually, with each one of the New Delivery Modes

Comparison between delivery modes	N	Student's perception during their experience (average)	Standard Deviation	Value t	Sig. (bilateral) p
Traditional face-to face	66	9.66	0.6466	-1.778	0.078
Face-to-face alternative	35	9.87	0.2950		
Traditional face-to face	66	9.66	0.6466	-2.184	0.031
Asynchronous alternative mode	23	8,90	1,51177		
Traditional face-to face	66	9.66	0.6466	1.274	0.206
Flex	55	9.47	0.9082		

\*p < 0 .05 - Student's t test

What is the probability of you recommending a classmate to take a course through New delivery modes?

When analyzing students' answers, the NPS was 74%, which is interpreted as excellent in terms of recommending a classmate to take a course through a New Delivery Mode.

Table 5. Net Promoter Score (NPS) of New Delivery Modes

Type of student	%	NPS
Detractor	6%	74%
Passive	13%	
Promoter	80%	



- Seven out of 10 students would recommend a New Delivery Mode to other students.
- NPS Interpretation.
- A value greater than 50% is considered excellent.
- More than 70 is exceptional.

### Discussion

In the research, with respect to the study goal, we considered the perception of the experience as the average rating of all characteristics (flexibility and satisfaction level, learning, academic performance, participation, self-management). We found that the overall average of the responses of our students show that students perceive their experiences with the New Delivery Modes without significant difference compared to the Traditional Mode although in the case of the Face-to-face Alternative mode, better rating averages appear in all attributes, and differences do not become significant (Table 2).

This evidence contradicts the myth of low student acceptance of online delivery modes. The pandemic of 2020 made us realize the need for a change in universities and their players to face the pedagogical, technological, social, and cultural needs to reformulate academic programs [10].

It is worth mentioning that in our university, the core is students and their needs, so changes were made in the educational offer, to increase flexibility, the satisfaction level, and the rest of the characteristics, face-to-face courses were implemented to compare them with New Delivery Modes, training and pedagogical changes were made, since all teachers participated in the training and the design of their class sessions, so they represent an important upside in taking care of the educational quality for our students [11-12].

This study was conducted to learn about students' perceptions of the changes in the educational offer. In the results, we find that although in general all the delivery modes analyzed in this study allow for the development of the six attributes, the New Delivery Mode Face-to-face Alternative was better evaluated than the Traditional mode. Students perceive all attributes positively, mainly the satisfaction level and flexibility, but no statistically significant differences were found, which confirms our hypothesis that students' perceptions of their experience is the same when taking their courses through New Delivery Modes as through Traditional mode (Table 3).

When comparing the Traditional mode and the Asynchronous Alternative Mode, a statistically significant difference was found. We consider it essential to analyze the factors that could have influenced this result in a following study (Table 4).

Regarding the NPS, the loyalty measure reports that seven out of 10 students would recommend a New Delivery Mode to other students, the figure above 50% is considered excellent, which confirms the students' satisfaction because they also recommend it (Table 6).

New Delivery Modes mainly provide satisfaction, flexibility, and self-management for learning, so students recommend them to their peers. This represents an innovation to broaden the options in educational offers and increase flexibility for our students. They are an essential option in Higher-Education systems around the world. As the global environment changes, new needs emerge, and the student body becomes more diverse, flexible delivery modes support students throughout their professional development and help prepare them to face the realities of an ever-changing world [13-14].

## **Conclusion**

Students highly accept New Delivery Modes, and we recommend their adoption to increase the educational offer in universities in response to the interests and learning needs of today's students. We consider that the challenge for universities is flexibility, innovation, teacher training, and educational anticipation, to provide the necessary means for the greatest development of students, considering the educational offer according to the needs, trends, future scenarios, technological resources, and experiences favoring the best version of the student, so that they may become competent individuals capable of easily adapting to any environment.

The New Delivery Modes are highly accepted by students, so we recommend their adoption to increase the educational offer in universities in response to the interests and learning needs of current students.

## **Acknowledgments**

Special thanks to *Karina Isabel Astorga Carrasco and María Elena Ramos Ordaz*, who supported study planning.



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