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**Cover Page Footnote**

I would like to thank TU Dublin Blanchardstown for allowing me to carry out this research.

## **An Analysis and Comparison of the Learning Experiences of Fourth-year Business Students Before and During the Covid-19 Pandemic**

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### **Abstract**

In 2020, the Covid-19 pandemic brought about the closure of schools and third-level institutions across the world, causing teaching and assessment to switch from face-to-face to online. The objective of this research is to analyse and compare the learning experiences of college students before and during the pandemic. It presents a cross-sectional study of fourth-year business-faculty students at Technological University Dublin, using a mixed-method approach that included two focus groups and the distribution of a questionnaire. Findings from the focus groups highlighted students' perceptions of a lack of interaction with lecturers and with other students, but greater flexibility in online learning. The questionnaire found that students perceived that examinations were fairer during the online period, but they reported poorer engagement with their course, reduced concentration, reduced motivation and mental-health impairment. Variations between modules were found, but most students felt that a form of blended learning would be ideal in the future. It is suggested that the use of online learning needs to be tailored to the needs of the student and the particular subject in order to maximise benefits in educational delivery.

**Key Words:** Covid-19, Business Students, Analysis, learning experiences

## **Introduction**

The global outbreak of Covid-19 in March 2020 resulted in a major humanitarian crisis, leading to over 700 million cases and in excess of 7 million deaths worldwide (World Health Organisation; Hossain & Rahman, 2021). The global community brought about different ways of implementing 'social distancing', causing educational institutions to adapt to students off campus (Van Lancker & Parolin, 2020). Universities had to quickly change from their traditional methods of teaching to full-time online learning (Gewin, 2020; Joyce & Rudrani, 2020). By 25 March 2020, 150 countries had closed schools and universities, which affected over 80% of the world's student population (UNESCO, 2020).

Students had to switch rapidly from face-to-face to online learning, although they had not chosen online learning as their predominant choice of third-level education. This is what set the Covid-19 pandemic period apart from any other time in the university's mode of delivery. There was not sufficient time for lecturers to put a careful design and a development process in place to provide quality education (Rieley, 2020). In examining this experience from a student's perspective, this research provides information regarding the impact of these events on these students which could help to improve the delivery of this form of teaching in the future. It is hoped that the study would be of particular interest to Technological University Dublin (TU Dublin) and to Ireland's Higher Education Authority (HEA).

## **Context and Background**

TU Dublin was founded in January 2019 and is made up of three separate campuses which previously had operated as separate Institutes of Technology. The Business Faculty offers a variety of undergraduate courses, including Accounting and Finance, General Business, Sports Management and Coaching, International Business and Digital Marketing. Prior to 2020, online learning had been in place for more than 25 years but the distinct difference during the

pandemic was that the switch was an emergency action, and neither students or teachers had time to prepare. This research set out to identify the benefits and drawbacks of changing from face-to-face to online learning from the student's perspective. Fourth-year business students had spent greater than one year in third-level education prior to the Covid-19 lockdown and therefore were perceived to be able to compare face-to-face learning and examinations with online learning and examinations. This was a convenience sample and there was a mixed method of analysis which consisted of both a qualitative and quantitative component.

## **Literature Review**

The learning experiences during the Covid-19 pandemic will enable universities to establish which modules work best when available online and which modules benefit most from face-to-face interaction (Yang, 2021). Online learning is not a new style of delivery – Means et al. (2009) showed that an increase in technological innovation and internet accessibility has enhanced the enthusiasm for online learning since the beginning of the millennium. Online learning is growing at a fast rate in Ireland and globally, and this has stimulated a growing body of research, not least into the student learning experience (Yang, 2021). Before the Covid-19 pandemic, research and markets forecasted the online education market as \$350 billion by 2026, so this figure is likely to significantly increase after the pandemic (Koksal, 2020). Courses have introduced elements of online learning into their teaching programme. This can be even exemplified in the use of Moodle and Brightspace (Setiawan et al., 2021). Online learning is defined as a subset of distance learning and it is described as learning via internet, intranet and extranet (Keengwe & Kidd, 2010). Online learning can be offered via synchronous and asynchronous delivery. Synchronous delivery happens in real-time and this means that students and lecturers can engage in real-time online discussions and communication regardless of their location (Snart, 2010; Clark & Mayer, 2016). Asynchronous delivery does not require students to be present in the real-time delivery of lectures as learning can occur in accordance

with students' own schedules (Gagne et al., 2005). Going forward, blended learning is widely regarded as an approach that combines the advantages afforded by face-to face and online learning components (Rasheed et al., 2019). Blended learning has also mainly focused on physical or surface-level characteristics rather than pedagogical characteristics (Graham et al., 2013). Hrastinski (2019) showed in his research that blended learning should carefully incorporate classroom face-to-face learning experiences with online learning experiences to assist communities of inquiry.

Online learning can be an excellent alternative to face-to-face learning as it allows for expanding access, alleviating capacity constraints, capitalizing on emergent market opportunities and it also serves as a catalyst for institutional transformation (Freeman & Urbaczewski, 2019). Online learning allows learning to take place anytime and anywhere in various contexts and situations (Landrum et al., 2021). It allows for more flexibility than face to face classes and can facilitate educational disruption (Huang et al., 2020). It can be less intimidating than being in the lecture theatre and it can be student-centred as it allows them to learn at their own pace (Yang, 2021). The benefits of the asynchronous aspect of online learning are that students can control the time and pace of the lecture (Snart, 2010). Another survey conducted revealed that one in three students felt their experiences of home education were pleasant and 53% felt that they could concentrate better on their study and schoolwork (de Haas et al., 2020).

Thongsri and Bao (2019) showed that the effective implementation of online learning depends on how the programme is operated by lecturers. The move to online learning in March 2020 was sudden and many institutions were unprepared for this. During this difficult time, it was not a matter of whether online teaching could provide quality education, it was rather how academic institutions could adapt to online learning in a substantive manner (Carey, 2020). Due to the Covid-19 pandemic, online learning was the only solution available to third-level

institutions and the three biggest challenges faced with online learning were distance, scale and personalised teaching and learning. There was a lack of careful design and development processes in university courses to provide effective online education, resulting in emergency remote teaching (Hodges et al., 2020).

Even though online teaching is a good alternative to the lecture theatre, many students have a negative perception of it (Rohman et al., 2020). Some of the difficulties of online learning include a lack of community, difficulties understanding instructional goals, lack of personal attention and students finding the course boring and unengaging (Clark & Mayer, 2011). A study conducted by Parkes et al. (2015) backed up these assertions as it showed that students were unprepared for balancing their work, family and social lives in an online learning environment, and students were also found to be poorly prepared for several e-learning competencies and academic-type competencies. Other issues with the online learning environment include lack of peer support, poor study conditions, social isolation and loneliness which may have worsened psychological distress and the ability to learn effectively (Lukacs, 2021; Kim, 2020; Budzynski-Seymour et al., 2020). In particular, drawbacks of asynchronous aspects of online learning include students not interacting with their classmates and not getting instant feedback from the lecturer (Snart, 2010). Evidence has shown that not going to face-to-face classes for a prolonged periods of time can impact a student's performance (Kuhfeld et al., 2020). This was found in a study conducted in the Netherlands where there was little or no improvement while studying from home, and student success rates declined when long-term institutional closure was sustained (Engzell et al., 2021). Conversely, it has been shown that in many cases prior to the pandemic, students had become too dependent on face-to-face learning and were not doing enough independent learning. Online learning pushed more students to learn independently (Hasan & Bao, 2020).

Research has shown that students identify certain modules that they felt were not manageable online. It is not the case whether online learning offered a good learning experience, but rather it depended on the nature of the subject, how well the university was prepared to deliver the subject, whether the staff were trained to deliver the subject remotely and the availability of infrastructure in the university (Nguyen, 2015). These were Information Technology (IT) modules, laboratory and practical modules, laboratory science courses, foreign-language courses and mathematics (Xu & Jagers, 2013). These courses require a more hands-on approach and more student-lecturer and student-student discussions which is difficult to implement in an online setting (Jagers, 2012). During the Covid-19 pandemic, lecturers in these modules used several methods to get students to stay engaged in the material, including YouTube videos to summarise the work completed, WhatsApp groups set up in order for students to communicate with each other, and providing material on digital platforms such as Google Classroom (Irwansyah et al., 2021). To achieve academically, online students needed to be assisted in developing self-regulated learning techniques which would include time-management, critical thinking and effort regulation (Broadbent & Poon, 2015).

It has been established, that some courses have a more participative style of learning and others have a more autonomous learning style (Clerici et al., 2014). It is well recognised that preferred learning styles will impact students' learning outcomes in different learning environments and through different learning activities (Diaz & Cartnal, 1999). Online learning has shown to be well suited to students with an autonomous learning style as they have more control and can regulate their own learning. Students who have a participative learning style which would include interacting with peers and instructors had a more negative perception of online learning (Yang, 2021).

There have been many questions raised in universities regarding faculty's ability to deal with IT materials and online assessments and evaluations. In a study conducted by Galway-Mayo



Institute of Technology (GMIT), 45% of students felt that their learning was affected by poor broadband and interconnectivity (Finnegan, 2021). Some lecturers had provided handouts filled with text or PowerPoint presentations and this had affected visual and auditory learners negatively (Fleming & Mills, 2006). A solution to this is to ensure that lecturers receive support in online delivery and information about the variety of platforms and tools available, and that students receive an introductory course to help them become more familiar with the platforms and tools that are essential for online learning (Yang, 2021).

Many universities had to cancel the final semester examinations during the Covid-19 pandemic and this has had a significant impact on the assessment and evaluation process (Sahu, 2020). Some universities implemented multiple choice questions (MCQs) examinations in lieu of the end-of-semester exam papers, and these could be marked automatically by computer. This provided cost savings and efficiency for the university and instant feedback for students. Some lecturers ran their remote online examinations using the quiz function in Virtual Learning Environments (VLEs) such as Moodle and only made it available to students for a limited period of time. Open book examinations have also been used by lecturers, which permit students to use textbooks and their class notes while doing the examination and it also allows the examination to take place remotely (Draaijer et al., 2018; Fask et al., 2014).

It is difficult to invigilate examinations online and to rule out as to whether cheating has taken place (Watson & Sottile, 2010). A number of universities introduced proctoring systems which meant that students were monitored online when they were taking an exam remotely (Das, 2021). Laboratory tests, practical and performance tests are not achievable online (Sahu, 2020). Students that have poor internet access are at a clear disadvantage when doing online examinations and this could potentially adversely affect their Grade Point Average (GPA) (Alruwais et al., 2018). It is essential that members of faculty are clear in their instructions regarding examinations, assignments and projects (Joyce et al., 2020). Members of faculty with

the respective heads of school need to have a flexible guideline to keep in mind students that need extra supports or those that have disabilities (Lim, 2020).

Stress could have adverse effects on the learning and well-being of students (Al-Rabiaahab et al., 2020; Kafka, 2020). There have been several psychological problems developed by students since the beginning of the Covid-19 pandemic such as anxiety due to a lack of enjoyment and mental stress caused by online learning (Das et al., 2021; Bodrud-Doza et al., 2020). Students with increased anxiety may need to be provided with extra psychological support (Al-Rabiaahab et al., 2020). There are a number of questions that need to be asked such as whether universities have trained counsellors who can help students (Bothwell, 2020). University authorities should be encouraged to stay connected with students through online and social media platforms and continue to provide essential supports (Gewin, 2020).

### **Research Methodology**

This study was designed as a cross-sectional piece of research, gathering student opinions and perspectives of their learning experiences as a consequence of the switch from face-to-face learning and teaching to on-line learning due to the Covid-19 pandemic. This study used a mixed-methods approach which involved an element of quantitative and qualitative research. The first part of the research involved the conducting two focus groups. The first focus group had six female fourth-year students from General Business and Accounting and Finance. The second focus group involved eight students, including four males and four females, also from General Business and Accounting and Finance. The first key point discussed was the benefits and drawbacks of their experience online versus their experience in face-to-face learning. The second key point was the students' perception on the changes to the assessment and evaluation process, aiming to gain a further insight into which aspects of this they found beneficial and more challenging. The third topic discussed was whether students felt the transition to online

learning impacted their mental health and if adequate supports has been put in place. Conducting the focus groups first prompted the addition of some questions to the quantitative research, including a question regarding IT modules. A question about whether students felt they had more support in the online environment was also added.

**Table 1**

*Descriptive statistics (57 students)*

<b>Discipline</b>		<b>Age</b>	
General Business	4	18-22	34
Accounting and Finance	14	23-27	17
International Business	5	27-35	2
Digital Marketing	6	35+	1
Sports Management	17	Unknown	3
Unknown	11		
<b>Living at home</b>		<b>Gender</b>	
Yes	36	Male	31
No	8	Female	24
Unknown	13	Unknown	2

The second part of this research involved distributing this questionnaire to fourth-year students in the Business Faculty across several different courses. All students who attended on the selected days in March and April 2022 were included (57 participants from a total population of 87 students in the fourth year – Table 1). The questions in the questionnaire were compiled from data gathered in the literature review and the focus groups conducted earlier (Table 2). With each statement put to them, students had the options to ‘Strongly Disagree’, ‘Disagree’, ‘Neither Agree nor Disagree’, ‘Agree’ and ‘Strongly Agree’. Additionally, there were four open questions included for students to expand further on their experiences. These questions asked about the benefits of online learning, the drawbacks of online learning, the aspects of online learning students would like incorporated going forward and a free text section which allowed students to make any further comments. Data was subsequently input onto an Excel spreadsheet which allowed key findings to be highlighted and comparisons to be made between modules.

**Table 2***Student questionnaire*

<b>Students were asked to rate each of the following statements as ‘Strongly Disagree’, ‘Disagree’, ‘Neither Agree nor Disagree’, ‘Agree’, ‘Strongly Agree’.</b>
The Content of the module was covered better online than in face-to-face classes.
My Concentration was better online than in face-to-face classes.
The Engagement of the class was better online than in face-to-face classes.
The Lecturer communication was better online than face-to-face classes.
The Exam Preparation was better online than in face-to-face classes.
I felt that Project Work was manageable in an online setting.
I felt that Group Work was manageable in an online setting.
I felt my mental health was impacted by the changes in college during the Covid Pandemic.
The Mental Health and Support Services were as accessible during the Covid Pandemic as Pre-Covid.
I thought Information Technology (IT) Modules (if applicable) were done as well online as in the labs.
I thought that Language Modules (if applicable) were as manageable online as in face-to-face classes
I thought the Assessment and Evaluation of exams was as fair as when the college had invigilated exams.
I felt that pre-recorded lectures were better than live lectures.
I would like the option of blended learning going forward.
I felt that peer learning was difficult to achieve in an online setting.
I feel the college provided adequate supports to deal with the transition to full time online learning.
I felt that my time management was affected in my transition from face-to-face to online learning.
I felt I had less motivation while learning online.
I enjoyed the flexibility that online learning provides.
I had a problem with my internet connection which made online learning more difficult.
I felt that lecturers were not proficient in delivering online material.
I felt that the learning environment online could not replicate an in-class lecture.
I felt it was more difficult to get additional support with a module in an online environment.
I felt that there was much confusion over the assessment process due to the online environment.
I did not have access to equipment for online learning.
Moodle has been less helpful since coming back to college this year.
This year has been the easiest year of all my 4 years in college.
<b>Open questions</b>
What were the benefits to you of the online environment?
What were the drawbacks to you of the online environment?
What part of the online environment would you like incorporated into course delivery going forward?
Free Text/Comments

Ethical clearance was received from TU Dublin to conduct this research, and the Research Ethics and Code of Conduct of Good Research practice in TU Dublin was followed (TU Dublin, 2020). In order to keep data safe, it was stored securely, anonymity was ensured and all data was destroyed once results were collated.

## Findings

There were some significant findings from the quantitative and qualitative sections in this research. From the questionnaire, 73% of students felt that the engagement of the class was poorer online than in face-to-face lectures. This was also commented on by many students in the open questions outlining the drawbacks of the online environment as many felt there was no engagement online between the students and lecturer, and between students themselves. They felt that this made lectures more boring to attend. One student in the first focus group is quoted as saying ‘There were no discussions with the lecturer or interaction in the class in the online environment’. The students commented that as the pre-recorded lectures were not interactive, they found them boring – 38% of students felt that pre-recorded lectures were worse than live online lectures. This was contradicted by a finding in the Accounting and Finance subgroup in that a significant proportion (43%) preferred the online lectures. Comments in the open question suggested the reasons for this were that it allowed them to watch the lecture at their own pace and in their own time. Almost half of students (49%) felt that IT modules were not done as well online as in the laboratories.

Many students (58%) felt it was difficult to obtain additional support. This was contradicted in the first focus group where the students stated that ‘lecturers went more out of their way in the online environment as they knew we were in a more difficult situation being at home fulltime’. Almost a third of students (30%) felt the lecturers were not proficient in delivering material online. Students commented in the open question that lecturers were not prepared for the switch to online teaching, and 51% of students felt that the online environment could not replicate an in-class lecture. This was particularly common among Sports Management and Coaching students where 76% agreed with this statement (40% of International Business students strongly agreed). This was also commented on in the second focus group as one student is quoted as saying ‘It was difficult to ask questions in the online environment’. On the contrary,

43% of Accounting and Finance students felt the learning environment online could replicate an in-class lecture.

Almost two-thirds (63%) of students felt that their concentration was worse in online lectures than in face-to-face lectures. This was particularly prevalent in Sports Management and Coaching (82%). This was also mentioned in the open questions where students commented on having a lack of concentration in online lectures. In the open questions, students commented on how they felt they had more distractions in the online environment such as by children, pets and phone. This statistic was contradicted, as 43% of students in Accounting and Finance agreed that their concentration was better online than in face-to-face lectures and only 21% felt they had impaired concentration. In the first focus group, one student is quoted as saying ‘I felt my concentration was better online as I was able to watch lectures at my own pace and gain a better understanding of the topic’.

More than half (56%) of students felt that they had less motivation while learning online. Students commented on this in the open questions where many felt their motivation dropped. In the open questions, one student commented how they did all their lectures from their bed and another student felt their motivation dropped because of having no social life in the online environment and felt no comradery in the course. Almost two-thirds (64%) found group work manageable online, but in the open question on the questionnaire students commented on how it was more difficult to communicate for groupwork. In the first focus group one student stated, ‘I thought groupwork became harder in the online environment because I didn’t meet my group in person and it was hard to communicate by text’. Another student stated, ‘I thought the group assignments were more disorganised as I did not know the people in my group’. Regarding peer learning, 39% felt that it was difficult to achieve in the online environment. This issue was raised by students in the open questions when students discussed the drawbacks of the online

environment as many students felt no peer learning took place and it was difficult to interact with peers.

Just over 60% of students felt that the assessment and evaluation process was as fair an examination process as college invigilated examinations. In the qualitative questions, students commented that they found projects and assignments more favourable than invigilated examinations. They also commented that they learned more about the topic. Some students found it difficult to do examinations online as they found that using Word and Excel was more difficult during an examination as opposed to using pen and paper. They commented that they found it difficult to manage their time during an online examination.

A large majority (80%) of students enjoyed the flexibility that online learning provided. In the second focus group conducted, the students commented on how they enjoyed the flexibility that online learning provided and also noted how it was difficult to adapt to the structure of the college environment after being online for a long period of time. This was also commented on in the open questions, as many students commented on enjoying the flexibility of spending more time at home, and students commented on also not having to make long journeys to college, not using public transport and having less fuel costs.

Interestingly, in the open questions when students were asked about parts of the online environment they would like incorporated into course delivery going forward, some students commented how they would like tutorials online in the future as it is easier to work in small groups in an online setting, and 83% of students would like the option of blended learning going forward with their studies. Many students commented on this when asked about aspects of the online environment they would like going forward and their suggestions included the option of doing 2 or 3 days on campus and doing tutorials online. In the second focus group, the students collaboratively agreed that the best option going forward would be blended

learning. Two-thirds (65%) of students felt that their mental health was impacted negatively by the changes in college during the Covid-19 pandemic, and 30% of students felt it was more difficult to access mental health and support services during this time.

## **Discussion**

There were a variety of findings from the quantitative and qualitative sections in this research. This experience differs from previous examinations of online learning in that the switch had to be made quickly, and neither the student or teachers had chosen this model of education delivery or had much time to prepare for it. Some of the findings are similar such as the lack of engagement of the class online (Snart, 2010) when students cannot interact with their classmates, benefit from peer learning, get instant feedback from their lecturer or finding the online lecture boring and unengaging (Clark & Mayer, 2011). A significant number of students in this research expressed a preference for live online lectures rather than pre-recorded lectures. They emphasised the ability to interact with their lecturer and, if possible, with their class. In contrast, many students studying Accounting and Finance found pre-recorded lectures easier than live lectures. Research conducted by Kotb et al. (2019) showed that accounting lecturers were well prepared for online learning and that there is more pressure as students need to meet the requirements set by the professional bodies to gain exemptions in the professional examinations.

Impaired concentration and motivation were perceived by many students in this study group, a finding also highlighted by Hass et al. (2020). Trout's (2020) research into online learning conducted on before the Covid-19 pandemic found that students were more motivated as they had to rely on intrinsic motivation and the associated characteristics of curiosity and self-regulation to engage with their course. He also felt this was a factor as when students did an online course as they knew that this was going to be the mode of delivery for the course. In



contrast, Trout's research found that the switch to emergency online learning in a group of students with no prior exposure to online learning led to a decline in motivation.

A significant proportion of this study group perceived that their mental health was negatively affected by the switch to online learning during the pandemic. Research has shown that online learning can negatively affect student's mental health and cause anxiety in students and this is often caused by a lack of enjoyment and mental stress as a result of online learning (Das et al., 2021). The number who perceived that it was difficult to access services during this period is significant insofar as it is important that universities provide trained counsellors that can talk to students in need of these supports (Bothwell, 2020).

Students were very positive regarding the flexibility of online learning and many suggested that blended learning would be preferable in the future. The reason for this has been suggested in other research that has shown that this gives students the ability to learn in an asynchronous and synchronous manner (Clark & Mayer, 2016). The benefits of being at home and reducing the cost of living in college have also been highlighted elsewhere (Dhawan, 2020). This finding also coincided with the students' suggestions for the option of blended learning in the future. This result was not surprising as the literature review outlined that many students would like to avail of the benefits of both face-to-face lectures and online learning as part of their future studies (Rasheed et al., 2020). Students' positivity around the examination process during the Covid-19 pandemic in this study is worth further attention as both Al-Jarf (2020) and Botelho et al., (2018) found improvements in student learning when alternative examination methods such as MCQ's and assignments were used in lieu of invigilated written papers.

## Limitations and Conclusion

This research has a number of acknowledged limitations. The overall research sample is small and therefore conclusions from comparisons between groups are difficult to make, in particular comparisons between modules. The use of a cross-sectional convenient sample limited to those who attended lectures on a particular day may have introduced bias into the results, as this group may have been those that preferred to attend college and be on campus. This method also limited the number of students surveyed. The research examined a group of students who had to switch to online learning as a consequence of a pandemic, therefore the results cannot be generalised to all experiences of online learning. The restrictions imposed by the lockdown during the pandemic cannot be ignored as a contributory factor to the findings in this research. The group sampled had chosen to attend a college course on site and therefore their perception of the online experience may have already had a negative bias. The research did not quantify the amount of live versus pre-recorded lectures that each module received. Variations in the amount of each in the delivery of the module may have impacted on students perception of online learning during this period. The overall impact and isolation associated with the Covid-19 pandemic may have impacted on the students' mental health and therefore mental health impairment perceived and experienced cannot be attributed solely to the switch to online learning. This research examined students from only one year and one faculty and therefore it is difficult to generalise this result to the entire third level student population.

The switch from face-to-face to online learning during the Covid-19 pandemic had a variety of impacts on students. This study provides a cross-sectional survey of a group of students in the Business Faculty following their return to college. The findings in this group highlighted the negative effects on concentration, motivation and class engagement. Students commented on the lack of peer learning and difficulty at times in interacting with their class and teacher. They perceived the experience as impacting negatively on their mental health. Some students

enjoyed the extra time at home and were keen to have a more blended learning approach to their course in the future. There is a suggestion in the research that different modules are better suited to face-to-face learning than online learning. This is something that requires further in-depth investigation.

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