

NEW YORK CITY COLLEGE OF TECHNOLOGY  
THE CITY UNIVERSITY OF NEW YORK  
DEPARTMENT OF RESTORATIVE DENTISTRY

**CUNY SCHOLARSHIP OF TEACHING AND LEARNING CONFERENCE  
OCTOBER 14, 2022**

**MAINTAINING RESTORATIVE DENTISTRY  
STUDENT EXTERNSHIP PROGRAM'S CONTINUITY  
DURING COVID PANDEMIC**

Presented by

Laura Andreescu, Assistant Professor

# ABSTRACT

- This presentation describes the challenges for continuing the Student Externship Program during the COVID pandemic and the implementation of innovative online pedagogies resulting in enhancing Restorative Dentistry students' learning experiences and maintaining their academic progress
- Motivated by program's success, the Externship Program Coordinator Prof. Laura Andreescu in collaboration with the Department Chair, Prof. Renata Budny, published articles in peer-reviewed publications, such as: the Journal of Dental Education (publication of the American Dental Education Association) and Journal of Dental Technology (publication of the National Association of Dental Laboratory)

# About the Restorative Dentistry Program at City Tech

The Restorative Dentistry Department was established in 1947 and is the largest program in the nation, accredited by the Commission of Dental Accreditation, offering a degree of Associate in Applied Science

Based on the industry's growing demands and the fact that there are only thirteen higher education Dental Laboratory Technology programs in the country, the necessity of enhancing the programs' curricula to meet the needs and expectation of the dental community becomes more evident

# About the Summer Externship Program

Since 2004, when it was implemented as a place-based learning experience, the Summer Externship Program is continuing as mandatory curriculum component of the Introduction to Restorative Dental Ceramics (RESD 1215) course, and counts for ten percent of the final grade of the course

The goal of the program is to enhance students' learning experiences outside the classroom, by allowing them, for twenty-four hours, to observe the daily laboratory operations, and to apply what they learned in school at the assigned dental practices or laboratories

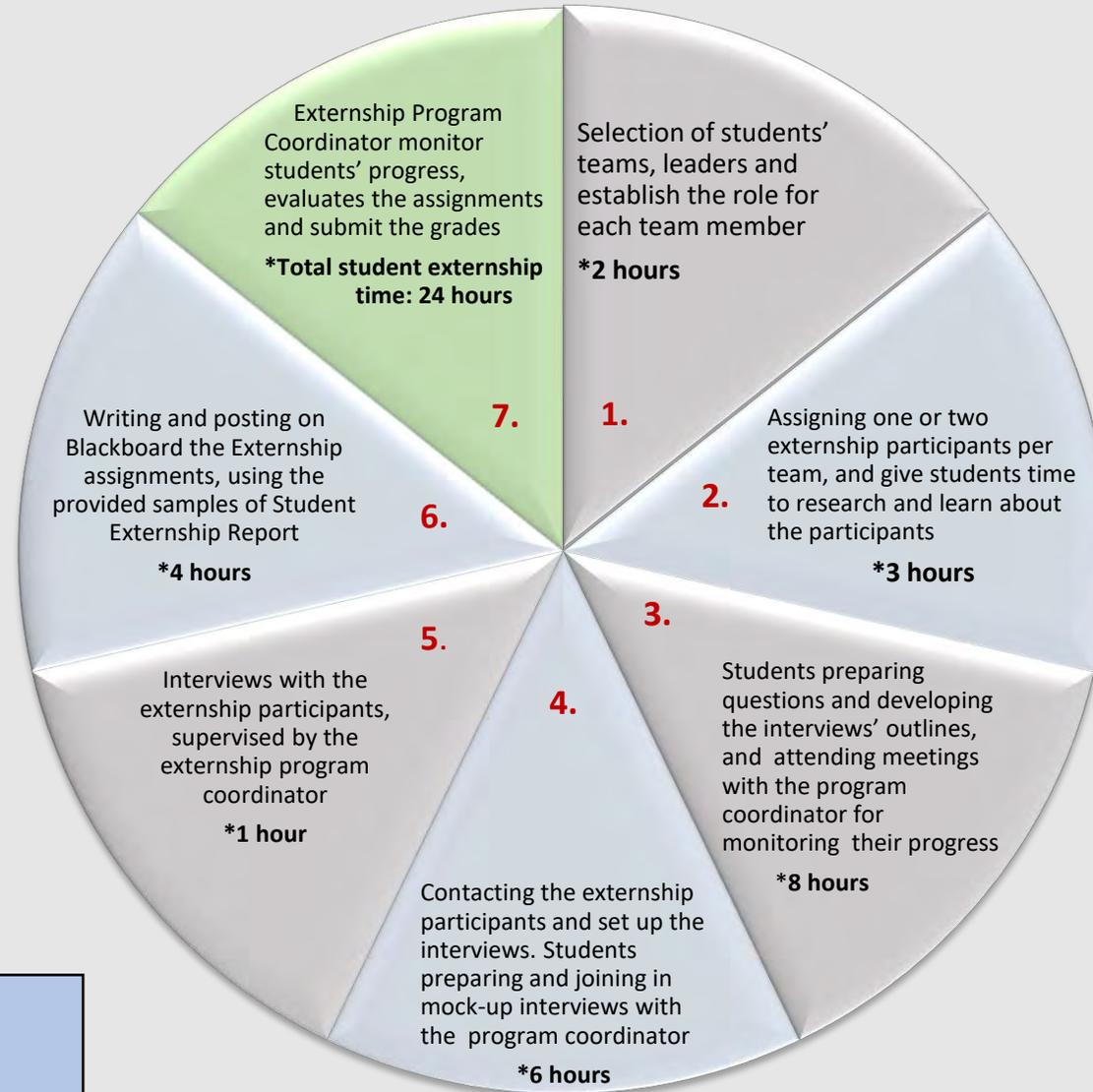
The Externship Program assignment and surveys include:

- students' written reports about their experiences, and what they learned
- students' surveys, designed as their feedback about their experiences and suggestions to improve the program
- externship participants surveys, designed as feedback about the attending students and the program

# EXTERNSHIP PROGRAM MODIFICATIONS DUE TO COVID PANDEMIC

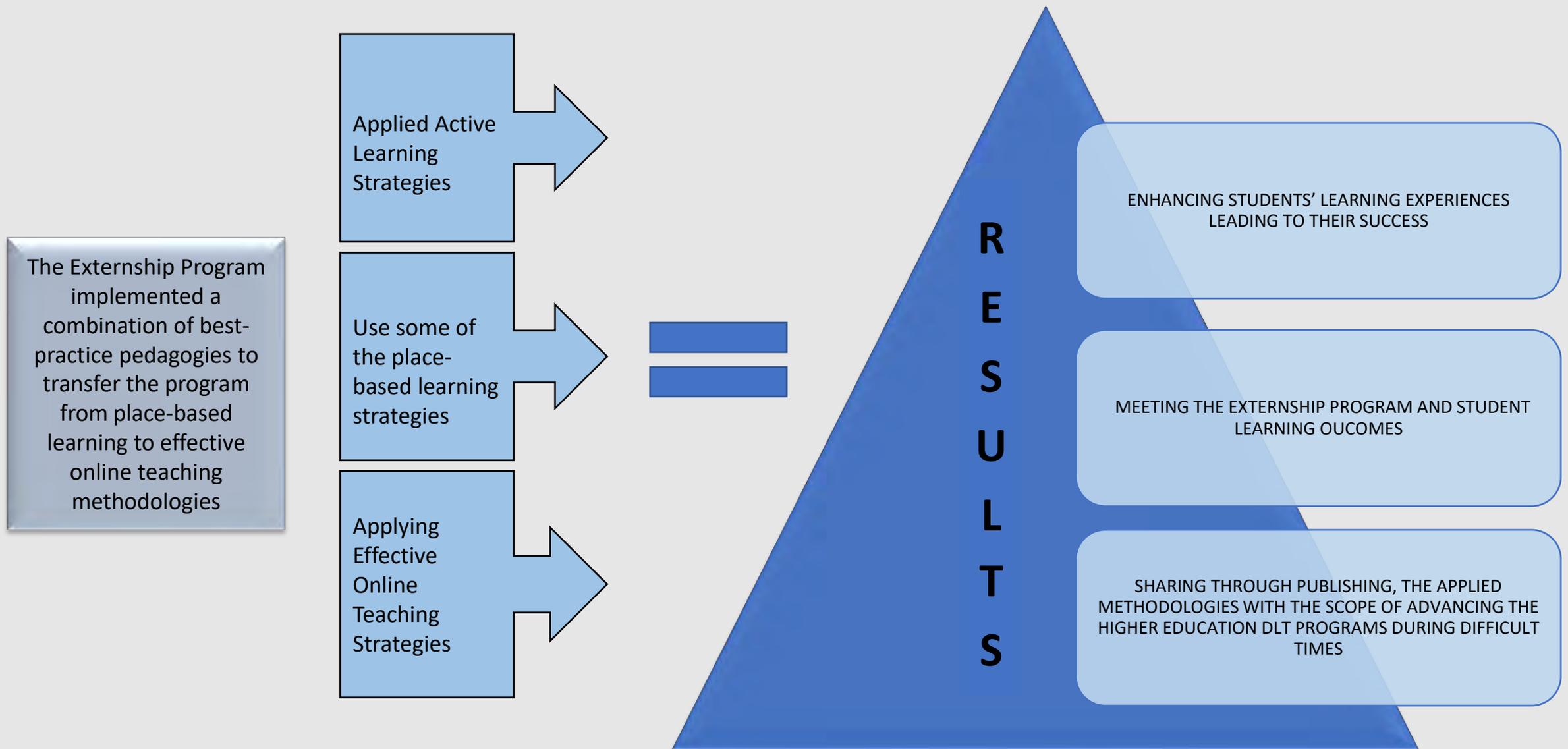
- During the COVID pandemic many of the higher education Dental Laboratory Technology programs around the country decided to postpone their clinical curriculum component, but for the academic years 2019-2020 and 2020-2021, the Restorative Dentistry Department at City Tech implemented innovative online educational methodologies to continue the Externship Program in order to:
  - meet the Student Learning Outcomes for the Introduction to Restorative Dental Ceramics RESD 1215 course
  - maintain students' academic progress
  - provide students with learning experiences outside classroom
  - comply and maintain the CUNY health and safety COVID guidelines and protocols
- The innovative online teaching pedagogies were developed using the resources offered by the college and the Association of College and University Educators

# HOW THE ONLINE SUMMER EXTERNSHIP PROGRAM WORKED:



\*Student time used to complete each step, totaling 24 hours

# INNOVATIVE TEACHING



# STRATEGIES FOR DESIGNING AN EFFECTIVE ONLINE CURRICULUM

## DEVELOP A DETAILED & INCLUSIVE SYLLABUS

Provide step-by step  
instructions and checklists

Provide externship schedule  
and due dates

Provide additional instructional  
materials:

- Reading materials using resources from ADA, NADL, ADEA
- Instructions and training resources for different online platforms and the Netiquette

## SET-UP OBTAINABLE GOALS AND ALIGN PLO'S WTH SLO'S

### RESD 1215 GENERAL EDUCATION STUDENT LEARNING OUTCOMES:

1. **Knowledge: (Lecture)** develop knowledge form a range of disciplinary perspectives and develop ability to deepen and continue learning:

- Depth of knowledge: engage in an in-depth, focused, and sustained program of study

2. **Skill: (Laboratory)** develop tools needed for communication, inquiry, analysis, and productive work:

- Inquiry/Analysis: derive the meaning from experience, as well as gather information from observation; describe and solve problems

3. **Values, Ethics and Relationships: (Externship)**

*Professional/Personal Development competency* where students learned to:

- work efficient and be responsible for their assigned tasks
- about their future profession by working in teams and interacting with dental professionals

*Ethics/Values competency* where students applied their gained educational knowledge to develop their critical thinking demonstrated during their interaction with the externship participants

- develop their teamwork and leadership skills

*Global/Multicultural Orientation competency* where students learned about:

- different types of dental practices (dental offices or laboratories)
- the roles of dentists, lab owners, managers, and technicians for the success of each case
- the challenges and hardships that the externship participants experienced during the pandemic

# Establishing a Productive Learning Environment

## Ensuring adequate access to learning for students

Assist students with their needs in using Collaborate Ultra, Webex and Zoom platforms

Provide links to online resources

Assist students to set-up virtual meetings for their interviews

## Promoting a learning and civil learning environment

Institute a compassionate and understanding environment open to students' needs and the hardship experienced by the externship participants during the pandemic

Maintain an environment of respect and professionalism

Motivating students by given them control over the teams' organization, preparing and organizing the interviews with the externship participants and encourage students to ask professional and career advise from the externship participants

# Assessing to Inform Instruction and Promote Efficient Learning

## Active Learning Strategies

Using groups to ensure active learning and to develop self-directed learners by encouraging students to work together and contribute to their team

Developing effective class sessions by conducting questions/answers virtual meetings and mock-up interviews

Teaching and reinforcing effective note-taking skills during the interviews and use them to complete the assignments

Facilitating engaging discussions by encouraging students to be inquisitive during their interviews with the externship participants

## Align the assignments with the SLO's

Provide students with useful feedback by stating clearly and specifically how to improve their work

Monitoring students' progress:

- students had the option to send their draft of the report to the program for review before posting in Blackboard
- Contact students that were late in competing their assignments and extending their due dates

Developing fair grading based on:

- Non-academic evaluation, such as students' participation and their teamwork performance
- Academic grading

Using students' achievements and feedback to improve the externship program, such as In the first year, when the program was online, some students suggested to have team leaders, therefore in the second year this measure was implemented

# CONCLUSION ABOUT THE ONLINE EXTERNSHIP PROGRAM



Even though many students expressed their wish to have had this experience in-person, given the COVID pandemic situation they understood that this was a great solution

Students had the opportunity to interact with dental professionals from around the country, learning different aspects of the Dental Laboratory Technology profession

Some of the Externship Program participants conducted virtual tours of their facilities, presented cases that they were working on and performed "live" demonstrations of laboratory procedures

For the academic years 2019-2020 and 2020-2021 all students successfully completed the Externship Program therefore the Student Learning Outcomes for the program were accomplished

The challenges and innovative teaching pedagogies used to maintain the continuity of the Externship Program during the pandemic were published in specialized peer-reviewed journals, to be shared with other higher education dental laboratory technology programs around the country

# INFLUENCE OF PANDEMIC ON DENTAL LABORATORY TECHNOLOGY EXTERNSHIP EXPERIENCES

By Renata Budny and Laura Andreescu

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ADVANCING THROUGH INNOVATION

ADEA THE VOICE OF DENTAL EDUCATION WILEY

## Influence of pandemic on dental laboratory technology externship experiences

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### 1 | PROBLEM

The COVID-19 pandemic limited students' access to externship sites hindering their progress through the curriculum.

Since its inception in 2004,<sup>1</sup> the externship program in the Restorative Dentistry Department at the New York City College of Technology has been an essential component of the 2-year dental laboratory technology curriculum. "The goal of the externship program is to introduce the dental technology students to the people and procedures that are part of the restorative dental process."<sup>2</sup>

During the mandatory 24-h in-person externship, dental laboratory technology (DLT) students learn about the profession by observing the daily operations of dental laboratories or dental practices. However, under COVID-19 restrictions, in-person experiences were not possible as local businesses were closed, and once reopened, the visits were prohibited or significantly limited. Therefore, alternative experiences were created to keep 48 freshman students in good academic standing, on track for graduation, and adequately prepared for employment.

### 2 | SOLUTION

With flexibilities offered by the Department of Education and Commission on Dental Accreditation, the program considered two options: to postpone the externships until restrictions are lifted and delay graduation or to offer online experiences without compromising graduation. Ultimately, the latter was chosen (Table 1).

In a virtual environment, the externship coordinator met with students weekly and led discussions about all

aspects of the dental laboratory profession. The students were ultimately divided into teams of two to four people and instructed to research assigned externship sites and professionals they were going to interview. The coordinator first ran mock-up interviews with each team, then participated, guided, and monitored the final interviews, and later evaluated students' reports. Emails, Zoom, Facetime, and WebEx made communications possible (Figure 1).

The industry's responses were plentiful and included laboratory owners, technicians, dentists, and prosthetodontists, most of whom were current or former industry leaders. Students interviewed not only local professionals but also those from Florida, Illinois, Michigan, Wisconsin, etc., who were not accessible in the past. The invitees offered virtual tours of facilities and explained daily operations; discussed the site's background, evolution, measures taken during the pandemic; and provided insights about current trends. Students gained insights into the dental team's inner workings and received valuable employment recommendations (Figure 2).

### 3 | RESULTS

By the end of the Spring 2020 semester, 48 freshman students completed externship requirements, a 100% success rate. Students improved their teamwork, communication skills, and gained a valuable understanding of dental and laboratory practices. However, they did not get the chance to spend time at the physical facilities, meet practitioners in person, or practice hands-on tasks. Yet, that did not prevent the sites from offering employment opportunities to many participants.

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TABLE 1 In-person and virtual externship experiences timelines

Timeline	In-person externship experience participants: individual students	Virtual externship experience participants: student teams (2-4 students)
January-March	Externship coordinator contacts the externship sites (dental offices and laboratories) via mail, email, or phone call to confirm the site's participation in the program	1. Externship coordinator contacts the externship sites (dental offices and laboratories) via email or phone call to confirm the site's participation in the program. 2. Externship coordinator groups the students in teams of two-four students. 3. Team leaders are selected by the team members
March-April	The externship coordinator assigns the externship sites to individual students	1. Externship coordinator assigns the externship site to each team 2. The team contacts the site and sets up a date for a virtual externship interview 3. The team communicates with the externship coordinator regarding the mock-up and final externship interviews 4. The team researches the assigned site and prepares interview questions
April-May	1. Student contacts the site and sets up dates for in-person externship experience 2. Student communicates with the externship coordinator regarding externship dates and on-site experience	1. The team and externship coordinator participate in virtual mock-up and final interviews 2. Each student submits a detailed report about the externship experience to the externship coordinator
May-August	1. The student completes a 24-h on-site externship experience 2. The student submits a survey about the in-person experience and a detailed report to the externship coordinator 3. The externship coordinator collects the survey from the externship site about student's participation	Externship coordinator submits student's externship grade based on student's participation, knowledge performance, professionalism, teamwork, mock-up and virtual interviews, and report (early August)
August-September	Externship coordinator submits student's externship grade based on student's participation, professionalism, site survey, student's survey, and report (late August-early September)	

Externship Sites, Students and Teams

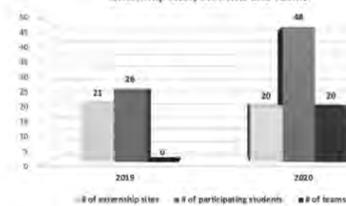


FIGURE 1 Externship sites, participating students, and teams

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Externship Enrollment and Completion

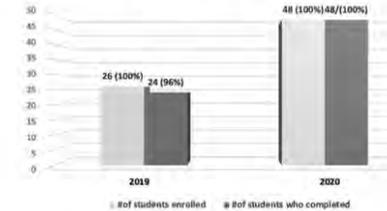


FIGURE 2 Externship enrollment and completion

The new experiences created enhancements that were not possible in the past. Students reached leading professionals across the country and gained access to multiple sites. The coordinator attended and evaluated students' performance during all interviews. Despite the hardship caused by the COVID-19 pandemic, externship assignments were completed sooner than in the past, allowing students to progress without delay.

In Spring 2021, due to continuous COVID-19 restrictions and overall reluctance to resume in-person experiences, once again 36 freshman students were offered virtual externship experiences to progress toward timely graduation.

### DISCLAIMER

The views expressed in the submitted article are authors' own and not an official position of the institution.

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# EDUCATION AND COVID 19

## By Laura Andreescu and Renata Budny

5/17/22, 10:18 AM

Journal of Dental Technology - March 2021



JDT FEATURE

By Prof. Laura Andreescu and Prof. Renata Budny

## EDUCATION and COVID-19

**C**COVID-19 pandemic disrupted not only global economies and businesses, including dental practices and laboratories, but also adversely affected education at all levels. The magnitude of this disruption will forever be ingrained in the future of humankind. Still, for the time being, dental technology higher education continues creating innovative solutions, contributing to timely graduation and gainful employment of its students tailored to the modern marketplace increasingly seeking college-educated dental technicians.

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To address new challenges brought by the pandemic, the dental laboratory technology program at New York City College of Technology (NYCCT), Brooklyn, N.Y., mobilized and modified

<https://jdt.bound.advanced-pub.com/?issueID=102&pageID=28>

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Journal of Dental Technology - March 2021

As offerings early on to the students, faculty, and staff could successfully transition to a distance learning environment. As a result, innovative pedagogies, best practices in distance learning, and enhanced team collaborations emerged. The initiatives included more significant preparation of students and faculty for online instruction, harmonization of teaching practices across the curriculum, and streamlining the delivery of education.

The measures taken to address the continuation of dental laboratory instruction during the pandemic included transparency among team members in rethinking, reassigning, and transferring all course components to distance learning. In the Department of Restorative Dentistry at NYCCT, the success of these measures was evident through the direct administrative support at all levels, starting with the chancellor, president, provost, dean, and the chair, and ending with the teams of faculty members who worked together on specific subject areas to facilitate the transition from in-person to online instruction. The guidance stemmed from the accreditation and professional organizations and the institutional administration to the program director, who engaged the coordinators in working closely with faculty teaching various sections of the same course. Departmental team building was based on the rapport between colleagues and the program director to aid in students' success. The weekly and sometimes daily meetings between the program director, course coordinators, and faculty proved to be valuable in keeping all in check with students' progress toward a timely graduation.

At the very beginning stages, the faculty were faced with having to rethink how to develop, deliver, and implement laboratory instructions that would allow the students to best complete the hands-on projects in a virtual environment. It was agreed that instructional videos of laboratory procedures with corresponding online assignments and exams would be created and monitored for progress.

The biggest challenge, however, was presented by the lack of expertise in online teaching on the part of many instructors. The issue was quickly addressed by institutional and departmental intervention through training. Creating one virtual course platform, Blackboard, to synchronize the delivery of instruction helped immensely in helping faculty up to speed. Course coordinators worked tirelessly with co-teaching faculty members to synchronize didactic and laboratory sessions with new course materials to provide uniformity across different course sections. Platforms like Zoom, WebEx, Blackboard Collaborate, and others were utilized to hold synchronous and asynchronous class sessions, faculty office hours, record presentations, and instructional videos. YouTube was used to store instructional materials that could be reused in future courses.

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who would train the rest of the faculty. Departmental training used virtual platforms and the utilization of various tools in online instructions like creating journals, exams, and pools of questions, recordings, grading, discussion boards, etc. Further, the trainers created a virtual platform for instructional materials, internally developed documents and video tutorials related to Blackboard, Collaborate, Ultra, Zoom, lecture and laboratory recordings, etc. Before the beginning of the fall 2020 semester, the trainers also created and distributed student-oriented presentations to ease students into online instructions, especially the freshman cohort.

Another challenge was the completion of the mandatory externship program involving 50 students scheduled to take place during summer 2020. For more than 14 years, the department instituted the externship program accommodating students to complete 24-hour in-person practice at the dental laboratory or dental office in New York City or the tri-state area. Since this option was not available while the businesses were shut down, the program rapidly shifted to a virtual externship. The students were grouped into small teams and assigned to interview doctors, lab owners, and dental professionals from across the country. The assignments included the research of the externship site, a virtual interview, and a written report on the lessons learned about the dental laboratory technology profession and how the sites dealt with the pandemic. The success of the externship program was evident by a 100 percent completion rate and by the magnitude of students offered job opportunities even before graduating from the program.

The knowledge and experience gained during the pandemic underlined the importance of integrating the online

*The implementation of online instruction advanced the program many years ahead.*



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**Thank you!**

**Any questions?**

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