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TEACHING TRANSPORTATION ONLINE – A CASE STUDY

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TEACHING TRANSPORTATION ONLINE – A CASE STUDY

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Abstract

Transportation and its affiliated sister channels like warehousing, port/terminal operations, logistics, and supply chain provide exciting as well as lucrative career options for those with an awareness and aptitude for the rigors of these professions. Progressing in this field requires formal education, which has traditionally meant an interruption in the existing career. This paper gives an insight into the experiences of a university as it adopted the online delivery of its courses for this niche student body. The narration and concluding analysis are presented in the form of a SWOT analysis. The threats and weaknesses faced by the institution were considerable, but the inherent strengths and the opportunities of online education create an overall positive outcome.

Key words: Work-Force Development, Supply Chain, Transportation, Logistics, Online Program, SWOT

JEL Codes: L91, O18

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1. INTRODUCTION:

Transportation and, its sister channels including warehousing, logistics, port/terminal operations, and supply chain, have seen a consistent demand for skilled operators and managers. Prospective candidates often come from within the industry because they have both the required skills as well as the necessary aptitude for working in this demanding profession. It is, however, challenging both for the candidates as well as academics to bridge their availability and come on campus with the necessary rigor of formal academic education. This challenge is further increased by the fact that some of the skills and knowledge required to perform the necessary tasks in their roles as either first-line supervisors or managers require both theoretical knowledge that can be imparted in a classroom as well as practical skills that need exposure to the work environment (O*NET, 2019).

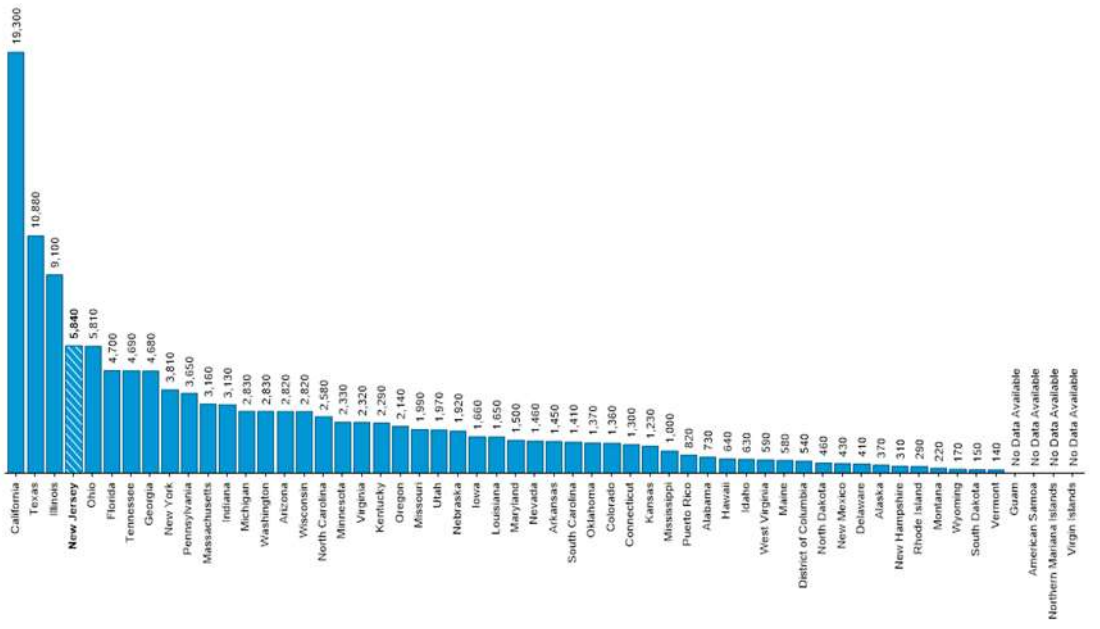

Figure 1: Projected 2026 Employment for Transportation, Storage, and Distribution Managers (Median wages (2018): US: $94,730; NJ: $111,750 annual). Source: CareerOneStop.

Modern teaching tools have provided alternative means of imparting education without the need to attend classes on campus. The School of Business, within which the transportation program is held, surveyed its stakeholders (faculty and staff, students, alumni, and regional employers) to have a better understanding of itself and the perception held by others. Surprisingly the stakeholders ranked online programs as a dominant threat to the School of

Business's future. Ironically, moving the newly developed program online was also the most viable solution to the conundrum of providing education to working individuals with varying hours as well as a constant need to travel. Therefore, the program faculty not only had the traditional challenges involved with developing an online program, but they also had to face the systemic problem of doing so in an environment that was not naturally conducive to this mode of delivery.

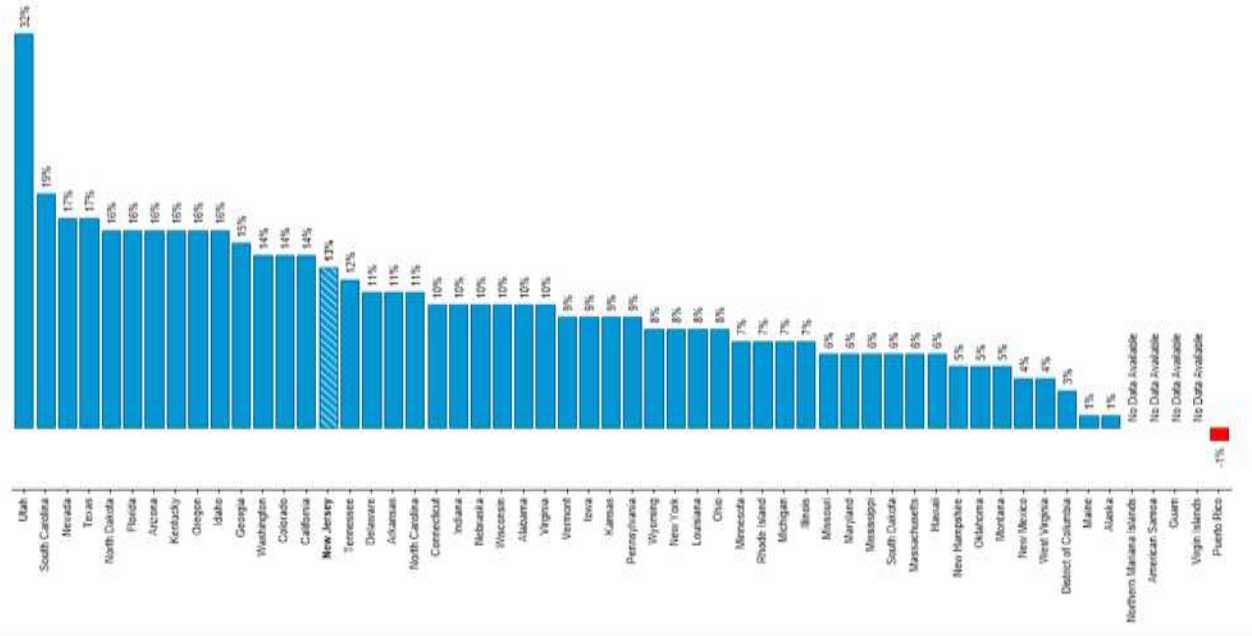

Figure 2: Projected Employment, Percent Change 2018-2028 for Transportation, Storage, and Distribution Managers in UNITED STATES. Source: CareerOneStop.

This paper shares the experiences of a small public university as it launched a degree program aimed specifically at providing education for students desiring either entry as first-line supervisors or transition to managerial positions in transportation-related careers in a broad range of industries including ports, transportation, warehousing, wholesale trade, government, and manufacturing. While the degree was originally designed as a traditional on-campus degree, it was transitioned to an online program in response to the feedback received from the prospective and enrolled students. Students that were interested in the program were almost always working professionals closely associated with the transportation industry.

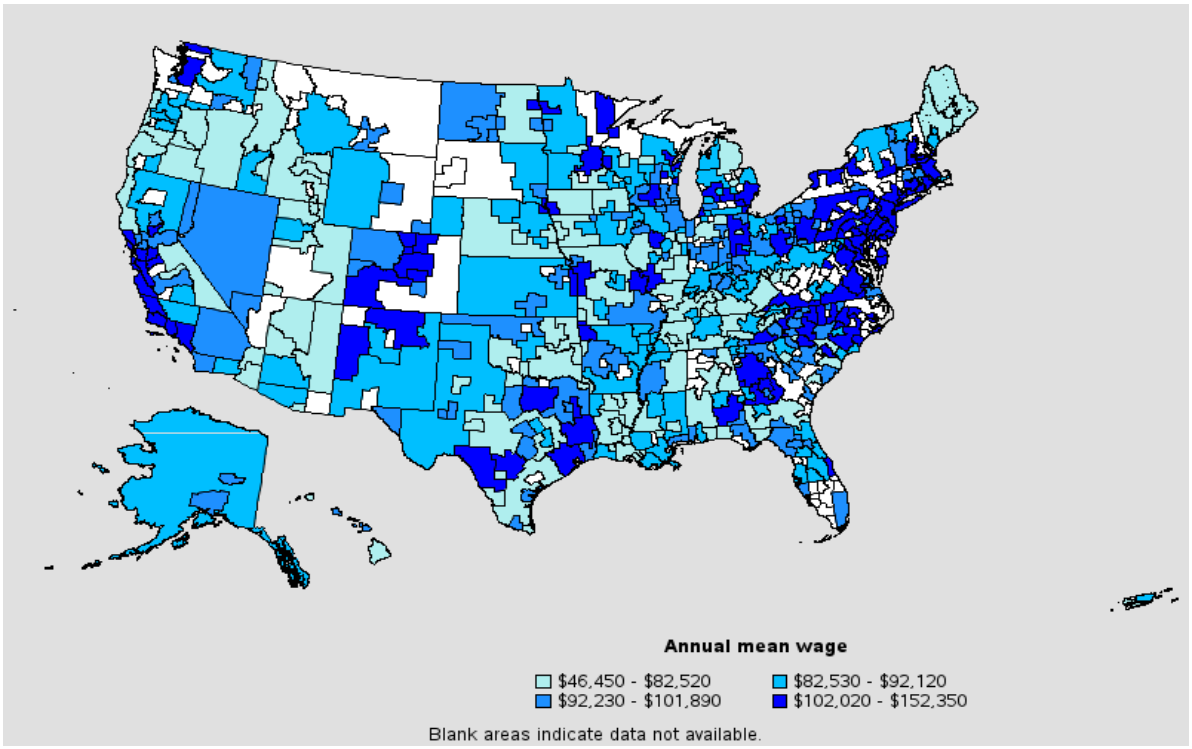

Figure 3: Annual mean wage of Transportation, Storage, and Distribution managers by area. may 2018 (source: https://www.bls.gov/oes/current/oes113071.htm).

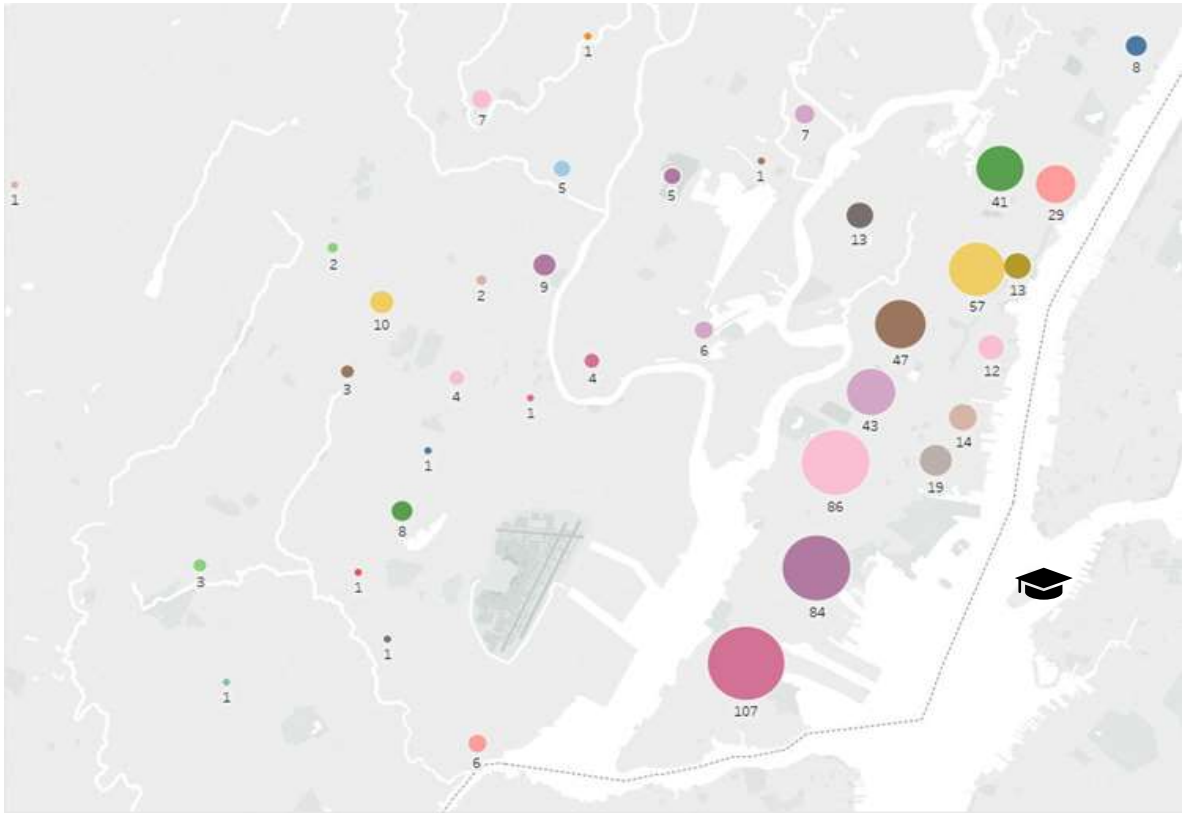

Figure 4: Enrollment Analytics - Online Student Geolocation.

2. LITERATURE REVIEW:

The literature review shows a considerable decrease in traditional demand compared to online learning (Olatunji, 2013). Fewer lessons were delivered orally and through the use of written materials. Learners preferred the use of the internet and mobile devices due to their flexibility and convenience (Eaton, 2001). Online education makes career development a more accessible objective for instructors and students. Learners can attend classes at the places of their convenience, and instructors can issue assignments, communicate, and guide students at their convenience (Noble, 2017). Online education enables learners to access assignments, schedules, course materials, and lessons instantly. Instructors easily track the progress of learners through the use of online media such as the internet, and emails (Dunlap & Lowenthal, 2018). The application of online learning has facilitated research among learners by personalizing and obtaining answers and feedback to various challenging questions. Students and instructors are also able to communicate with each other and exchange ideas globally without necessarily traveling or incurring huge expenses (Ortagus, 2017).

On the other hand, online education entails strong self-motivation and time management skills, which are not evident in today's learners (Allen & Seaman, 2013). The use of the internet does not assure the learner of immediate feedback from the instructor. Since learning takes place online, there is minimal direct contact with classmates and instructors, and this may hinder the monitoring of learners. Online learning is subject to interruption with network connections, electronic devices, and browser compatibility (Harasim, 2017). Again, the practice results in less social interaction among learners and can impact their psychological development negatively. Learners perceive online learning and teaching as a dynamic and exciting experience (Goodman et al., 2019). Instructors believe that online learning and teaching is a challenging task that requires additional training, as most of the instructors are not used to computers. A study conducted by Babson Survey Research Group has shown that the demand for distance education is consistently increasing though it is concentrated in a relatively small number of institutions. Another interesting finding of the same study, that was also noted at the university that is the subject of this case study, is that distance enrollments remain local, i.e., the majority of the students who took distance courses also took on-campus courses and resided in the same state as the institution (Seaman et al., 2018). Although there is considerable literature available on online learning, the specific field of transportation has not been the focus of many studies. Therefore, there is a clear gap that this study can address.

The difference between our current study and the existing literature is that the existing literature mostly focuses on the analyses of online education in general, while this study focuses on the challenges of teaching Transportation online. Therefore, the study fills the gap left by the existing literature when it comes to addressing online education in the transportation and logistics sector.

3. METHODOLOGY OF THE STUDY:

This study adopted a narrative inquiry research framework. Most of this work is based on an interpretation of the stakeholder interviews and group discussion. Stakeholders, including students, educators, administrators, and career development personnel, have participated in the discussion, and the narrative interpretation is based on their experiences and knowledge on online education. In addition to the narrative approach, the study also reviewed relevant materials and previous studies to reflect on the stakeholders.

Along with the aforementioned research method, the study will answer the following questions: what are the threats, opportunities, strengths, and weaknesses of offering a transportation program online. What are the benefits and challenges of the online program for workforce development in transportation and logistics operations and management?

4. THE ONLINE PROGRAM MIGRATION EXPERIENCE:

This study utilized SWOT analysis to investigate internal strengths and weaknesses and external opportunities and threats for better understanding the online transportation courses. In addition to the SWOT analysis, the impact of the online programs is analyzed based on the enrollment and online courses being offered.

4.1. SWOT Analysis:

The narration of this case is in the form of a SWOT analysis based on the faculty's experience with transitioning and running the program online. As could be expected, while this experience was overwhelmingly positive, it did have its share of challenges. The analysis below summarizes the experience.

4.1.1. Strengths Leveraged:

- Elimination of travel time

  Health, time & cost: The School of Business is located in Downtown Jersey City, an area often referred to as the "Wall Street West" due to its high concentration of Wall Street companies (Timmons, 2001). This does help the school deliver a unique business environment experience. However, along with that comes the challenge of traveling into a city that is ranked amongst the top three longest commutes within the country (Anderson, 2019). Commuting is known to adversely impact the students' wellbeing (Chatterjee et al., 2020; Hansson et al., 2011; Künn-Nelen, 2016) as well as academic performance (Contreras et al., 2018; Tigre et al., 2017) and retention (Butt et al., 2019). There is also a monetary cost associated with travel. Online mode of delivery eliminates these negative impacts.

- Flexible allocation of study time

  Critical with employed/family: One of the critical advantages of online education is the flexibility that it brings (Yang & Cornelius, 2005). Students are no longer restricted to a particular schedule that may conflict with their work or family obligations. This is particularly critical in light of the reduction in traditional-age students and the recruitment focus on mature adults.

- Discussion forum helps reduce inhibition

  Accent/cultural inhibitions: The School of Business is part of a Hispanic Serving Institution (HSI), and is located in Jersey City, which is one of the most diverse cities in New Jersey, and the second most diverse in the country (Jersey City, 2020). With this diversity comes the challenge of assimilation in a one-size-fits-all classroom. It is here that race, gender, accent, self-image, etc. influence the students' ability to participate proactively in discussions. Online discussion forums are blind to these factors and promote participation (Commander et al., 2012).

- Reduced disruption to career and earnings

  Supports continued/returning students: One of the benefits that come with the flexibility of online education is the ability to continue one's career and, by extension, earnings. This is important as while employers expect the employes to update their skills and knowledge, company support is not always forthcoming. Mature students have to balance their desire for education with commitments to their family and employers.

- Possible to teach utilizing online tools such as TMS, WMS, ERP, other analytical tools

Supports teaching optimization for SCM: Supply Chain Management is evolving into an exercise in optimization using data-crunching software (Singh, 2003). Increasingly this software tends to be web-enabled for convenient collaboration between Supply Chain partners (Adriana & Cristian, 2011; Chou et al., 2004). This easy access is equally convenient for students to learn of technologies that they would have to use in the workplace. It is now possible to teach utilizing online tools such as transportation management systems (TMS), warehouse management system (WMS), enterprise resource planning (ERP), other analytical tools such as Tableu, R, Python, and Excel Dashboard. This awareness has also led some of the SCM software vendors to offer free student access.

- Can easily integrate online resources like YouTube videos and web-based articles

  Internet as a knowledge source: Faculty that teach in higher education often come from the era of physical libraries and are used to search through journals and textbooks for information. Online resources are easily accessible, therefore, students prefer to have the instructional material web-based. Videos also have the ability to better convey information (Adriana & Cristian, 2011; Snelson, 2008). YouTube not only has content that is pedagogically relevant but is also legally accessible. It is also possible for the faculty to easily add new content and share it with the students privately. This is an option that the faculty involved in the transportation program has often used.

4.1.2. Weakness Addressed:

- Challenging to deliver community service and experiential learning through field trips associated with transportation

  Online and virtual experience: Transportation is a physical activity. Field trips are known to increase learning performance amongst its students (Putz et al., 2018). Due to its social impacts, students involved in learning about transportation also benefit from undertaking Community-Engaged Learning (CEL). However, the challenge in undertaking any sort of field activity is that of temporal and spatial coordination of the students in an online environment. By its very nature, online programs have a broader geographical market. To insist on having all the students together at the same time and place would have essentially negated the program's unique selling point i.e. flexibility. An option explored was to involve the students in a project for the City. The project was completed in an asynchronous format by the online students. It was voluntary and did demonstrate the viability of such an approach. This is an approach consistent with

Extreme E-service Learning (Waldner et al., 2010). Other alternatives being considered are transportation games and simulation (Zhu et al., 2011).

- Inhibited interaction between faculty and students

  Video conference, Panopto, Discussion Board: One of the limitations of an online course is the lack of face-to-face interaction. This greatly reduces the effectiveness of communication between the faculty and students. Live video interactions used either as a required part of the course or optional to simulate in-person meeting during office hours, greatly help reduce some of the communication limitations. The faculty involved have used Skype and other similar video conferencing tools with good results. The School of Business is further exploring the concept of a Live Studio which would facilitate face to face interaction like a regular classroom (Aisner & Schmitt, 2015; HBS Online, 2020; Hearing, 2016).

- Increased dependence on writing skills

  The Hub: remote writing coaching: In the absence of face-to-face communication, the emphasis shifts to written communication, both for delivery as well as assessment. This "written" communication may well be in the form of posts on the discussion forum or essays and reports. This could well be a strength as it encourages the development of writing skills which as often cited as one of the weaknesses of current college students (White, 2013).

- (Myth) Requires less effort from faculty

  Lack of supporting teaching resource: Faculty need to be innovative and collaborative in approach. Often the challenges include perceptions of the administration regarding effort required to design and conduct online courses. Lack of classroom time is interpreted as lack of work. The effort behind the scenes in running an online course goes underappreciated. The immediate impact of this is the lack of support in terms of time and resources allocated for these courses. The faculty have to create resources which in turn increases the workload.

4.1.3. Opportunities Capitalized:

- Easier to collaborate with other institutes

  Currently reaching out to community colleges and other Universities for transfer and exchange of students. As of February 2020, the School of Business has signed articulation agreements with two community colleges and is in talks with another three. However, the scope of collaboration with the online mode of delivery goes beyond the

national boundaries. There are plans of joint programs with universities in Asia and Europe.

- Increased geographical reach

  University was traditionally a local institution; this has given it a broader footprint: As mentioned above, online programs have made it possible for the University to reach out beyond the region and go global.

- Veterans and active-duty military personnel

  Enables enrollment of one of the key interest groups: The transportation programs are closely allied with the military, which is often considered the origin of the field of logistics. These closely allied specializations of Logistics and transportation support the transition of ex-servicemen from military to civilian life. The program has consistently attracted veterans who have been involved in activities that are complementary to a career in logistics and transportation during their service.

- Capitalizes on educational materials freely available in public domain

  As a professional course that addresses a field of general interest, there are many open educational resources available for use as instructional material. Initiatives such as Open Textbook Library provide supporting resources freely, which can take considerable financial stress off the students (Monaco, 2019; Petrides et al., 2011). There are also various other sources besides standardized textbooks that can cover the learning objectives, including reports by governments or NGOs.

4.1.4. Threats Mitigated:

- MOOCs (Massive Online Open Courses)

  Establishing a niche: MOOCs seem to concentrate on topics of general interest. They have proven to be a support resource rather than a competition due to the specific focus of the transportation program (Belleflamme & Jacqmin, 2015).

- Direct competition from some very well established globally ranked universities

  Program differentiation: The general trend in universities is to focus on either the supply chain in business schools or transportation engineering in technical schools. The program that was developed deliberately focused on transportation and port operations and management to differentiate from the rest. With the strong business school background, it was also able to have an identity separate from the maritime academies.

- Easy to replicate the program

Advantage of being in a small pond: Again, being a niche program with a focus on transportation and port in a business context has reduced the incentive for other universities to emulate and compete.

- Rapid changes in technologies and industry trends

  Small and agile: Both the School of Business as well as the program, are relatively small and agile. The faculty involved have, therefore been able to keep up with changes in the operating environment by concurrent changes in the topics covered in the courses.
- Difficult to change the curriculum associated with professional associations

  Flexibility in signature/capstone assignments: The courses and the program have been designed to afford flexibility when it comes to the signature assignments and the capstone course. This permits the faculty to work with the students when they have specific interests that need to be accommodated e.g. career objective, licensing etc.

4.2. Impact Analysis:

The very significant impact of migrating the program online was the increase in program enrollment along with retention. The online courses were quickly filled by students that had them as a requirement for their major along with those that didn't need to take them but thought they were a more suitable option. The mandatory written discussions used to compensate for the lack of in-class interaction helped develop the writing skills of the students (a constant concern in the current age).

The program has shown a steady increase in enrollment. The enrollment figures for the years are:

- F 2017: 3
- F 2018: 13
- F 2019: 24
- Projected for 2021: 16

The faculty also have gained recognition and were invited to act as external reviewers and research partners by other institutions. The faculty have reached out to experts in the industry and taken their recommendations for enhancing the program and the students' marketability for the current demands in the industry. These experts have also agreed to formally be part of the Management Departments advisory Committee. There are plans to

include an online Community Engaged Learning (e-CEL) course in the program. The success of the Bachelor's program has prompted the administration to support the development of a Master's program. To support further opportunities for the program and its students, the faculty have initiated online support with the School of Business career services.

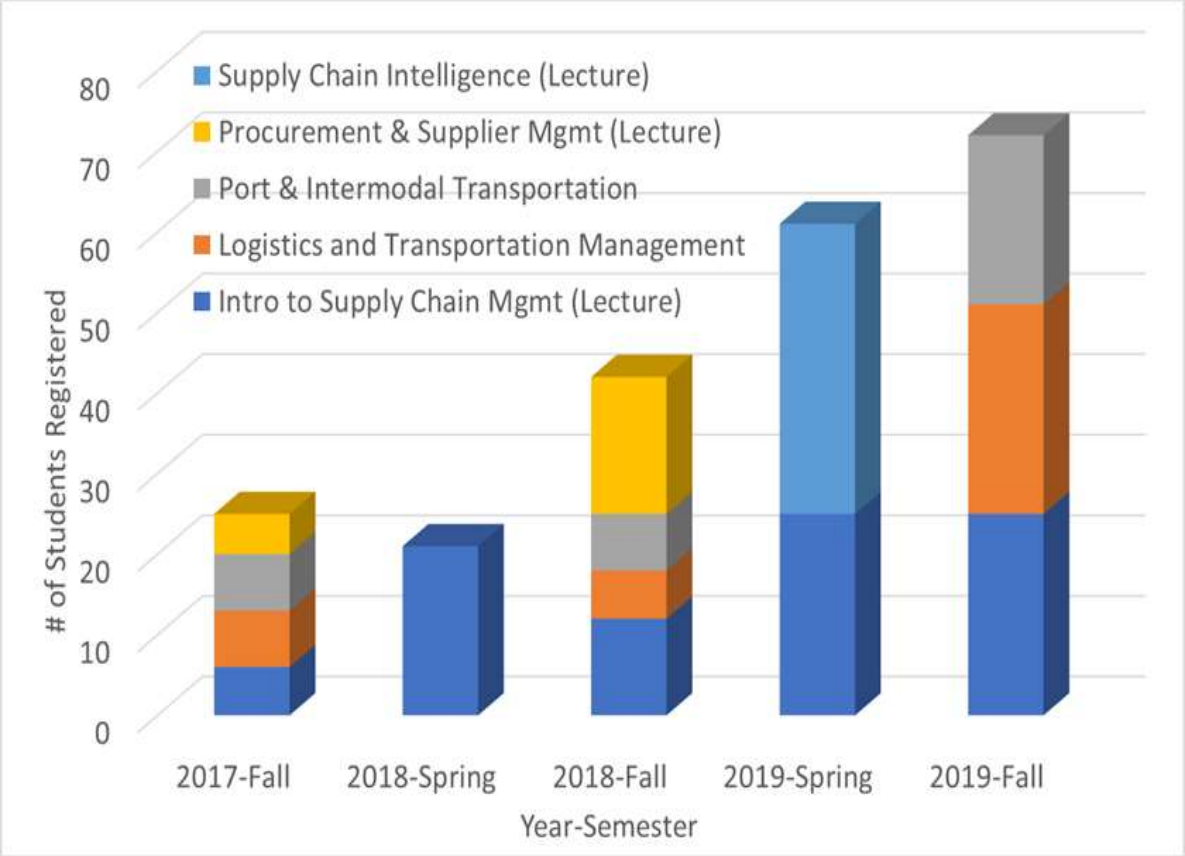

Figure 5: Impact Analytics -Online Student Course Enrollment.

5. CONCLUSION:

This study used SWOT analysis to understand the regional needs of logistics, port terminal, distribution, manufacturing, and supply chain operation and management. Since work-force development through supply chains and logistics online programs is a nationwide phenomenon as well as in New Jersey, the experience of NJCU using SWOT analysis techniques will be valuable to the audience. It will help medium-sized public universities to develop online supply chain and maritime port management programs.

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