

An Analysis of the Status of Undergraduate Transportation Management Education in the United States

Richard D. Stewart, Ph.D., CTL
Professor, Department of Business and Economics
Director, Transportation and Logistics Research Center
Co-Director, Great Lakes Maritime Research Institute
Old Main 135, University of Wisconsin-Superior
Superior, WI 54880
United States
Office 715-394-8547
Fax 715-394-8374
rstewart@uwsuper.edu

Natalie Burger
Research Assistant, Transportation and Logistics Research Center
nburger2@uwsuper.edu

Erica Hansen
Research Assistant, Transportation and Logistics Research Center
ehansen3@uwsuper.edu

Gavin Johnson
Research Assistant, Transportation and Logistics Research Center
gjohns31@uwsuper.edu

ABSTRACT

The cost effective and environmentally beneficial management of transportation systems in the United States is essential for the economy and the nation's civilization. Ensuring a steady supply of educated individuals with a background in transportation is key to the ongoing efficient management of transportation systems. This paper examines one hundred and seventy of the non-engineering undergraduate degrees in the fields of supply chain management, logistics, and transportation, including joint majors present within universities in the United States. The curriculum for each degree was evaluated to determine the extent to which the students were taught transportation and related courses. Each university's relevant degree website was also examined to catalog additional best practices in education, such as required internships, that were used to support teaching transportation outside of formal classroom instruction.

BACKGROUND

Transportation as an academic business discipline focuses on the five modes (rail, land, marine, air, and pipeline), examining their economics, operations, and management. Transportation has been a discipline at some U.S. universities for close to a century. Syracuse University started

their first transportation and traffic specialization in 1919 and the H. H. Franklin Chaired Professorship in Transportation was endowed in 1920.¹

Transportation as an academic discipline has waxed and waned over the decades. Rational for its periods of decline include a lack of understanding of the importance of transportation by academics, few quality textbooks, a movement towards generalization in business schools and a periodic lack of demand by employers for students with an educational background in transportation.² A 1977 survey of institutions teaching transportation and business logistics courses found that the demand for these students, measured by post-graduation placement, was as great as any other field in the business schools.³

Business logistics has been taught as a distinct subject since the 1960s when companies began to adopt the total cost approach. One of the first business logistics courses was taught at Michigan State University circa 1960.⁴ Logistics became embraced as an academic subject and at times replaced transportation. Business theory practices focused on the total cost approach evolved, and by the mid-1990s the concept of supply chain management (SCM) emerged as a distinct discipline at universities. While industry and academics debate if SCM evolved from logistics, includes logistics, or intersects logistics, it is increasingly being recognized as a separate academic discipline.⁵

To clarify, SCM theory holds many different facets that take place in everyday business, such as procurement, marketing, warehousing, and distribution that are all taught as separate disciplines. Transportation is one of these facets that business leaders have come to recognize can greatly affect their bottom line. Transportation as a cost of SCM has increased during the past five years. A shortage of truck drivers, increased regulatory requirements, fuel prices and congestion have all contributed at various times to the rise in the cost of transportation. Managers are trying to find ways to address this spending, which means that they, and new managers they hire, understand the role and operations of transportation.⁶

METHODOLOGY

The University of Wisconsin-Superior (UWS) research team focused on analyzing the best practices in transportation management education at the undergraduate level in non-engineering degrees starting with determining which universities offered related business degrees. Urban planning degrees and engineering degrees can focus on transportation planning and infrastructure but the scope of this research did not include those degrees. The first task in this analysis was to create an inventory of universities that advertise that they offer a related undergraduate management major. This list would provide the research team with a base that could be useful in determining common themes and best practices. In order to address the topic of best practices in transportation education a decision was made to limit the scope of the research by the following parameters

- A. Limit the list of universities for further analysis to those offering bachelor's degree with a major in transportation, logistics, supply chain management (SCM) or a combination of those disciplines, and market themselves as teaching transportation, because each of these management disciplines sees transportation as a component of their field of study.

- B. Limit the list to those schools that required all students in the above major to have at least one course in transportation, logistics or SCM. This would ensure that a student with that major would have discipline specific courses.
- C. Engineering schools may teach a variety of transportation courses as part of a civil, marine, mechanical or other engineering major. However, it was decided that data collection and analysis of these programs should be part of a future study, and not included in the scope of this research.
- D. Urban planning programs also teach transportation planning courses. However, such programs were not evaluated as the focus of this research was on management degrees.

The team was unable to find a single comprehensive published inventory of all the universities in the U.S. that provide the relevant bachelor's degrees. In 2010, the American Society of Transportation and Logistics (AST&L) published research by Ozment and Keller about universities that taught transportation, logistics and supply chain management education. The Ozment and Keller study focused only on universities that were accredited by the Association to Advance Collegiate Schools of Business (AACSB).⁷ The UWS team revisited the AACSB university listing and decided to expand the data set. The team examined professional organizations and societies that publish a listing of universities with degrees in the relevant disciplines. The team also looked at academies because of their longstanding focus on logistics. The following list includes the sources that were examined.

- a. Universities accredited by the Association to Advance Collegiate Schools of Business (AACSB)
- b. American Society of Transportation and Logistics (blanket waiver schools)
- c. Council of Supply Chain Management
- d. Institute of Supply Management
- e. Council of University Transportation Centers
- f. Society of Logistical Engineers
- g. Military academies, as they indicated offering transportation courses in their degrees
- h. The five federal academies: West Point, Annapolis, U.S. Air Force, U.S. Coast Guard, Kings Point
- i. The state maritime academies: Great Lakes, Massachusetts, State University of New York, Texas A&M, California, Maine

The list of sources was divided by the research team. Each researcher analyzed all universities falling under the source's listing. The AACSB website offers a search into the different types of programs it accredits. When searching in the 2015 AACSB University listing for supply chain management, logistics and transportation programs, the research team initially searched using the language from the Ozment-Keller study, but discovered the search issued zero results. This appears to be because the AACSB has changed its search engines since 2010. The research team then went through the AACSB listing for general business programs reviewing them for relevant degrees in order to expand the inventory of universities. Academic institutions listed by the professional organizations were researched. The military academies were examined because of the critical value of logistics to the military. The five federal academies were also reviewed for

relevant programs. Lastly, maritime academies were analyzed, as they have been teaching transportation courses for many decades.

An excel data base was created to house the inventory of relevant degrees. Universities that were found to offer supply chain management, logistics, or transportation programs were added to the inventory. For each university listed, the research team reviewed related university publications and or websites to collect the following data:

- i. University name
- ii. Location
- iii. Contact information
- iv. Website link to degree details
- v. Degree offered (Note: if more than one relevant bachelor's degree is offered at a university, each degree has an individual listing)
- vi. Which source(s) the university was listed in

In order to collect the relevant data listed above, the research team examined the websites of each university in the list of sources. Data analysis was complicated by the lack of a common format in how each university's websites are constructed. This fact meant that each website had to be methodically examined to extract the relevant data. Once the relevant program was found, the information on the curriculum found in Tables 2, 3, 4 and 5 was found on that page or a nearby link, in the academic catalog, or a combination of these. The other, more qualitative, data found in Table 5 was found by looking throughout the website of the department or college in which the relevant degree was housed.

LIMITATIONS OF METHODOLOGY

The research team at the University of Wisconsin – Superior decided on the method of investigating the websites to acquire an idea of the common best practices for freight transportation education in order to establish a base of relevant degrees. The research team understood the inherent limitations of using websites as a resource. University websites offer what the people in the university or program find most important to display to the general public. The target markets that universities reach out to include prospective students and also companies that are seeking graduates with education relevant to the transportation industry. Another issue in accessing the websites was the inconsistent updating of website information. Some websites had been recently updated others had information that was years old and frequently there was a mix of old and new data. This fact made it difficult to determine with absolute certainty that all information gathered was current as of 2015. The reality is that university websites are often more of a marketing tool than a repository of accurate and current information.

The team felt that accessing the ubiquitous university websites that are designed to convey information about degree programs would provide more data than a survey with common return rates of 30% or less. A survey of certain degrees may be useful for future research in order to get more in depth information on particular programs.

While conducting the research website reviews were the main source of information, this was the most complex aspect of the research. Websites are used by universities to market programs and set themselves apart from each other. In line with these goals there was no common website format for all universities. When the team was looking at individual websites considerable time was spent following the many different links looking for critical information. It is difficult to go in and look at every link on a website. When looking for the indicators for the research it took several links before relevant information was found, if it was found at all.

One of the major difficulties the research team ran into was there was not always a clear listing of the required and elective courses offered for one of the relevant degrees. On-line catalogs provided courses but it was not always clear at that link alone. In the course catalog, course numbers and abbreviations were used instead of the courses full name. When this happened it was necessary to look at other links to get the full name and which parameters the course would fall in.

DEGREE ANALYSIS

A summary of the relevant majors collected from university websites can be found in Table 1. All of the listed degrees were advertised in the cited sources as teaching transportation as part of their curriculum. This study's sample includes a total of 162 U.S. universities listing 170 relevant bachelor's degrees that were found after looking at over 500 universities. The listing is a significant sample but is not to be considered an inclusive listing of all the universities in the U.S. that teach transportation.

Degree Titles	Total Number of Each Degree
Logistics and SCM	22
Information Systems and SCM	2
Accountancy and SCM	1
Logistics and Operations	1
Transportation and Logistics	4
Supply Chain Management	90
International Business and Logistics	2
Operations and SCM	29
SCM and Transportation Management	1
Logistics Management	4
Purchasing and SCM	1
International Transportation and Trade	1
Maritime and SCM	2
Transportation and Urban Infrastructure	1
Marine Transportation	2
Industrial Distribution and Logistics	1
Manufacturing and SCM	1
Transportation	1
Logistics Information Systems	1
Logistics and Intermodal Transportation	2
SCM, Logistics, and Transportation	1
Total Number of Degrees	170

Table 1: An Inventory of 170 Bachelor’s Degrees from 162 U.S. Universities in Supply Chain, Logistics, Transportation or a Combination of those Disciplines

COURSE ANALYSIS

The research team reviewed each of the 170 bachelor degree programs and determined the following:

- a. Course name, course number, and amount of credits in required courses that have the name transportation, supply chain management or logistics in them that must be taken by students in that major as a core course.
- b. Course name, course number, and amount of credits in elective courses that have the name transportation, supply chain management or logistics in them that may be taken by students in that major.

This step was taken in order to further determine the level of education that is given on the topic of transportation. A best practice in teaching transportation would be to offer courses, either mandatory or elective in transportation. This step analyzed each of the courses offered in the related degrees. Courses may cover more than one discipline. A typical SCM textbook will have at least one chapter, out of 14 or more, on transportation.⁸ Some textbooks may have two. The broad complex nature of SCM means that a textbook introducing the student to all aspects of SCM will allocate only a small portion of its content to transportation. While the student may have been introduced to the subject of transportation this course cannot compare to an in depth course focused on transportation using a transportation text book. Indeed, it is also common of a transportation or logistics textbook to introduce the subject of SCM in a single chapter.⁹

Required Course Analysis

Table 2 analyzes all 170 relevant undergraduate degrees that have at least one required course in supply chain management, logistics, or transportation. The sum of the total number of degrees noted on the table is greater than 170 because some programs require courses in more than one of the relevant areas. The research team took note of required core courses that did not have the words transportation, logistics, or supply chain management in the title but seemed as though the nature of the topic would be transportation related.

- Supply chain management was the most frequently required course with 81.76% of the universities requiring a SCM course.
- A logistics course is required for 44.12% of the degrees.
- A course in transportation is required for 22.8% of the 170 degrees
- A total of 1.18% of the degrees analyzed required a combination transportation and supply chain management course.
- Degree programs that require a combination course of transportation and logistics is 17.65% of the degrees reviewed.
- Degree programs that require separate core courses in both SCM and transportation represent 17.65% of the degrees evaluated.

Analysis of 170 Relevant Degrees in U.S. by Required Course			
		Number of Degrees	Percentage of all Degrees
1	Degrees with transportation core courses required	44	
	Percentage of all degrees		25.88%
2	Degrees with logistics core courses required	76	
	Percentage of all degrees		44.70%
3	Degrees with SCM core courses required	139	
	Percentage of all degrees		81.76%
4	Degrees with transportation/SCM core courses required	2	
	Percentage of all degrees		1.18%
5	Degrees with logistics/transportation core courses required	30	
	Percentage of all degrees		17.66%
6	Degrees with logistics/SCM core courses required	30	
	Percentage of all degrees		17.66%
7	Degrees with other required core courses that may have transportation component not included in list 1	47	
	Percentage of all degrees with other required core courses with transportation component		27.65%
8	Degrees that require both transportation & SCM courses	30	
	Percentage of all degrees		17.65%
9	Universities that provide a required transportation course per lists 1,4,5,7. Overlapping has been removed	95	55.88%
10	Universities that do not provide required transportation courses per lists 1,4,5,7	75	44.12%

Table 2: Analysis of the 170 Relevant Undergraduate Degree by Required Course

Degrees Requiring More Than one Relevant Course

The next analysis that was done looked at undergraduate degree programs that have more than one required course in the areas of transportation, logistics, and supply chain management. The research was done to determine how likely it was that additional subject matter core courses would be required in one of the relevant majors.

Number of degrees that require more than one transportation course	11	
Percentage of total of 44 degrees requiring at least one transportation course		25%
Percentage of total 170 degrees		6.4%
Number and percentage of the 75 degrees that require at least one logistics course	19	
Percentage of 75 degrees requiring at least one logistics course		25.33%
Percentage of total 170 degrees		11.18%
Number of the 139 degrees that require more than one SCM course	81	
percentage of the 139 degrees that require at least one SCM course		58.27%
Percentage of total 170 degrees		47.65%

Table 3: Analysis of U.S. undergraduate degrees that require more than one relevant courses in each topic

Elective Course Analysis

The research team analyzed elective courses offered on the three relevant topics of transportation, logistics and supply chain management. Elective courses related to transportation were specifically analyzed. Table 4 below displays the frequency of electives offered relating to the topic of transportation. This graph shows how many degrees offers elective courses related to transportation. For example, there are 71 universities that do not offer an elective course in “transportation”, “logistics”, “supply chain management”, or a combination of those.

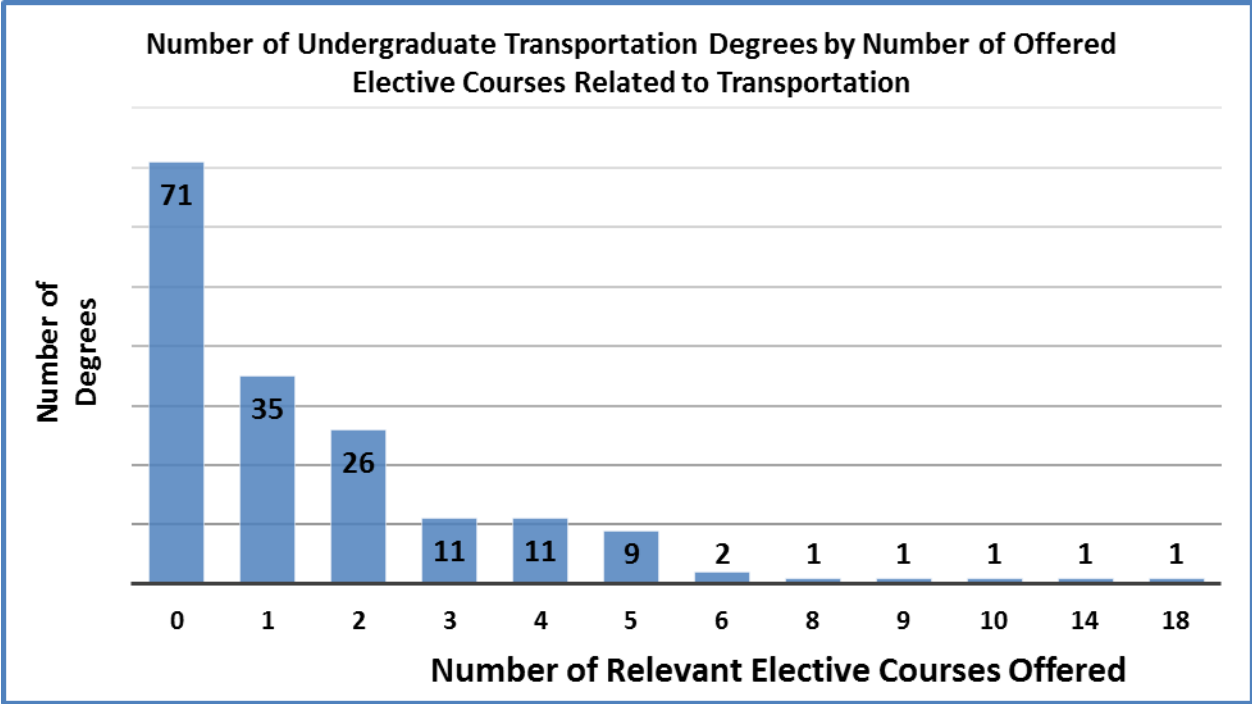


Table 4: Number of Undergraduate Transportation Degrees by Number of Offered Elective Courses Related to Transportation

Table 5 lists the number of electives offered in each of the three relevant topics. Courses were sorted into the topic areas by analysis the title of each elective course. To be deemed relevant, the elective course needed to have the words transportation, logistics, supply chain management, in the title. Elective courses with a combination of these words were also included.

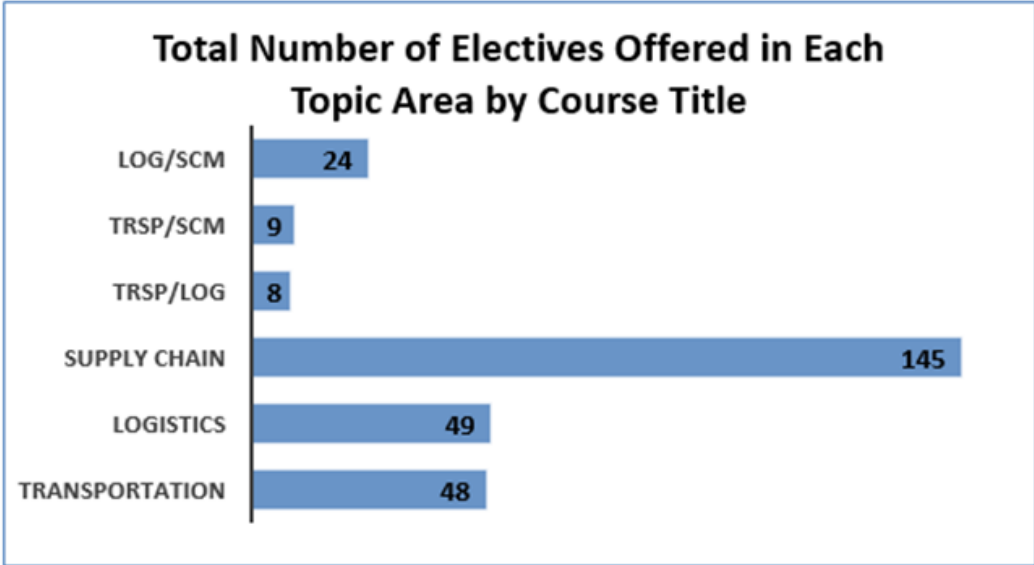


Table 5: Total Number of Electives Offered in Each Topic Area by Course Title

ADDITIONAL INDICATORS OF BEST PRACTICES IN TEACHING TRANSPORTATION MANAGEMENT

Student Clubs

The research team also looked into whether or not each university offered a student club specific to the relevant degree. Student clubs offer leadership opportunities, interaction with peers, interaction with professionals, frequent publication of newsletters and the possibility of improved morale. Student clubs may be segmented into two types, branded, and non-branded. Branded clubs may have affiliations to professional organizations such as a Student CSCMP Round Table hosted by the students of a specific university. Non-branded clubs may closely interact with professional organizations, but are not formally branded by one. The T&L Club, the student club at the University of Wisconsin, Superior is an example of this. The researched team observed that very few of the student clubs did not offer some type of networking opportunities for the members of the club.

Relations with Professional Organizations

The research team noted that another common practice of transportation management programs is to be affiliated with various industry-specific professional organizations. The initial plan for this information was to categorize the professional organizations into formal and informal interactions. Formal interactions were such as donations for scholarship and research fellowships, and supporting a student chapter of the organization. Informal interactions would include the organization being listed on the website, or if the students attended a meeting. This type of data was difficult to find on the websites and even more difficult to categorize into these two groups.

They noted that most universities affiliated with professional organizations had student clubs sponsored by the organization as well. These could be chapters of the organizations or just a recognized student organization through the university with ties to the professional organization. Many programs had a student chapter of the professional organization, such as American Production and Inventory Control Society (APICS) and CSCMP, which served as the student club for the program. The research team noted that a few schools had professional organizations sponsor case study competitions, as well as research fellowships. A common practice the research team noted when looking for these affiliations was the types of activities that a professional organization may offer a program, but still happened if an organization was not listed. This practice was networking with industry professionals, attending seminars and conferences, as well as having speakers on campus. If not supported by a professional organization, these activities were usually supported by an active student club or a center within the academic department specific to the program. Although these types of activities were not originally a part of the research, the team found it pertinent to note them.

Carol Colston stated in 2001 “it has become increasingly important for organizations to be actively involved in workforce education and learning in order to develop and retain a high performing workforce”.¹⁰ One of the major issues the study found with these partnership is that there often is a lack of management and the cost associated with these programs, as a major problem that prevents the start or continuation of such programs. When organizations are looking

to invest in higher education programs they are looking for high quality programs that can translate to on the job application. Richard Burke from Kansas State University wrote a paper in 2003 that also looked into the importance of partnerships between schools and professional organizations.¹¹ Burke discussed the challenges our country is facing with the switch from a manufacturing economy to a knowledge base economy. This stresses the importance of educational professional partnerships. He stresses the involvement between employers and educational intuitions to work together to create programs that will create a workforce for today and tomorrows global economy.

The association between schools and professional organizations was one of the key indicators the research team looked at in determining whether there were any connections between the school's programs and a related professional organization. A professional organization can have benefits to all parties involved. The school, the student and the professional organization all can benefit from each other's involvement with one another. One of the many reasons organizations would want to partner with schools is to help develop a workforce that would better suit their workforce needs. Being involved with each other means that the school will know what the employers are looking for in future employees.

We looked into formal and informal connections between schools and professional organizations. The team defined a formal connection as a school and organization have planned networking, meeting, or any other events that connects the two. This information was found on most websites. This was indicated by a student chapter of the organization or some type of logo of the professional organization on the website. An example would be Texas A&M and the Council of Supply Chain Management Professionals (CSCMP) where Texas A&M has a student round table on their campus.¹² The partnership is listed on both of their websites, so the team would consider this a formal partnership. For an informal partnership the team looked at relationships where there may be contact such as the exchange of newsletters or giving updates to one another. The difficulty in determining the level of involvement from the university websites resulted in the finding from this portion of the research being a qualitative rather than quantitative set of results.

Admission Requirements

To further analyze each program, the research team looked into academic-related common practices. They noted whether or not the program required the student to achieve a specific status before being admitted to the college, department, or program. The team found that 95 or 55.88% of the programs required this admission in order for the student to take upper level courses (300+ and 400+).

Internships

Internships in business schools have long been considered a very valuable educational process. An extensive literature review found that internships serve three stakeholders: students, companies and educators. Among other benefits, internships improve business school curriculums.¹³ Internships have been found to make students more marketable and increase their pay.¹⁴ Hiring managers look at a possible employee's resume for work experience, but the type of knowledge of a specific sector an internship can offer is what sets graduates with internship experience apart. Many new hires many have an idea of what the industry is about from

classroom learning, but that cannot replace the basic skills a student learns from experiential learning such as an internship.¹⁵ For logistics internships, employers expect the students to get industry experience, human relations experience, and enhance classroom learning.¹⁶ From the data available on the universities' websites, the research team noted whether the program required an internship in order for the students to complete the program, offered an internship as an elective for the program, or did not have an internship specifically as part of the degree progress but the department or college recommended that the students take part in one.

Analysis of 170 Transportation Management Undergraduate Degrees in the U.S. by Common Internship Practices	Number of Schools	Percentage
Program requires an internship in order to earn the degree	25	14.71%
Program offers internship to be completed as an elective	47	27.65%
Program recommends internship, not specifically part of degree progress	67	39%
Degrees that require an internship and a course in transportation	9	5.29%

Table 3: Internships requirements in relevant degrees

Accreditation

It was also noted that many of the relevant programs were housed in a college or school that is accredited by the AACSB. In the 2010 study by Ozment and Keller, there were 59 degree programs accredited by 475 AACSB accredited universities. This number has increased by 62 since the 2010 paper for a total of 121 relevant degrees offered by 454 AACSB accredited universities. The 121 degrees represent 26.65 % of the 454 total degrees types offered by AACSB Schools. The research team also analyzed how many of the programs accredited by AACSB required a course specifically with the word “transportation” in the course name.

Analysis of AACSB and non-AACSB accredited Transportation Management Undergraduate degrees in the U.S. (total of 170 programs)	Number of programs	Percentage 170 degrees with relevant major
Number of AACSB accredited relevant programs that had relevant degree programs	121	71.18%
Number of AACSB accredited schools that require a course in transportation	26	15.29%
Number of non-AACSB accredited degree programs evaluated	49	28.82%
Number of non-AACSB accredited degree programs that require a course in transportation	18	10.59%

Table 4: AACSB Accredited and non AACSB accredited schools relevant degrees and courses

CONCLUSIONS

Transportation related business degrees, including supply chain management have increased but remain a low percentage of available degrees offered by the over 500 universities reviewed. Researchers found 170 relevant degrees at 162 universities. Supply Chain Management, a very recent discipline, had the most degree programs with a total of 90.

Of the 170 relevant degrees, courses in transportation are the least required, with 22.8% of the 170 degrees requiring at least one core course on this topic. Once again, transportation as a unique subject, is least frequently required course when more than one relevant core course is required for graduation. The team was unable to determine the rationale for this. As far back as the 1960's Studies have cited a shortage of faculty with the relevant experience and education to teach transportation.¹⁷

Supply chain management electives are overwhelmingly more available than transportation or logistics electives. However there are electives offered in all the subject areas though not at every university.

Of the 170 programs researched, 109 offered a related student club, which is approximately 64.12%. The researched team observed that very few of the student clubs did not offer some type of networking opportunities, as mentioned below, for the members of the club.

There is a clear indication in these disciplines of involvement by programs in professional organizations either formally or informally. The review of websites did not allow for an accurate quantitative measure. A survey may be the best tool for determining the numerical level of involvement in each category.

It is interesting to note the low the percentage of schools is that require an internship to graduate. Internships by their nature require significant resources in order to establish relationships with companies, maintain relationships, prepare students, monitor student internships and measure the quality of the internship experience. This demand on scarce resources may be a reason why so few schools require internships even though there benefits are well understood and documented. An area of interest that needs further research is the level of education required for a student to undertake an internship. Some universities required admission to the school of business, relevant upper level courses or a combination of them. However some institutions apparently allowed internships to be taken at any stage of the student's academic career.

The number of AACSB accredited business schools offering relevant degrees has increased. Future research should be done to determine if the increase is mostly in in teaching Supply Chain Management rather than other disciplines.

ACKNOWLEDGMENTS

The University of Wisconsin-Superior, the Center for Freight Infrastructure Research and Education and the Intermodal Association of North America.

Endnotes

- ¹ Whitman School of Management., "Historical Highlights," 5, accessed February 10, 2015, https://whitman.syr.edu/programs-and-academics/academics/scm/pdf/MS_SCM_2013_web.pdf
- ² Farris, Martin T. Gilbert Gifford, Donald Harper, Warren Rose, Hugh Norton, James P. Linnett, "Transportation Education: An Evaluation", *Transportation Journal*, Vol. 11, No. 4, (Summer 1972), pp. 26-39.
- ³ Gilmour, Peter, 1978, "The Current Status of Business Logistics Education", *The Transportation Journal*, Vol. 18, No. 2 (Winter 1978), pp. 71-78.
- ⁴ Ballou, Ronald, H., 2006, "The evolution and future of logistics and supply chain management", *Production*, Vol.16 No.3 São Paulo Sept./Dec. 2006. p. 1.
- ⁵ David, Pierre, *International Logistics* 4th Edition, Cicero Books, 2013. pp. 46-48.
- ⁶ Russell, Dawn, John J. Coyle, Kusumal Ruamsook and Evelyn A. Thomchick, "Logistics: The real impact of high transportation costs", *CSCMP's Supply Chain Quarterly*, 1st Quarter 2014.
- ⁷ Ozment, John and Scott B. Keller, "The Future of Logistics Education", *Transportation Journal*, Volume 50, Number 1, (Winter 2011).
- ⁸ Wisner, Joel, Keah-Choon Tan, Keong Leong, 2016, *Principals of Supply Chain Management 4th Edition*, Chapter 9 Domestic US and Global Logistics, pp 299-342.
- ⁹ Coyle, John, Robert Novack and Brian Gibson, 2016, *Transportation: A Global Supply Chain Perspective 8th Edition*, Chapter 1, pp. 3-32.
- ¹⁰ Colston, Carol Lynn. 2003. "A Descriptive Study of Learning Partnerships between Organizations and Higher Education Institutions to Support Workforce Development and Retention: Organizational Perspectives." Order No. 3070145, Capella University. <http://search.proquest.com/docview/305211826?accountid=9358> .
- ¹¹ Burke, Richard Kent. 2003. "Workforce Education and Training in Southwest Kansas: Perceptions of the CEOs of Businesses, Industries, Professional Services and Governmental Agencies." Order No. 3090347, Kansas State University. <http://link.uwsuper.edu:2059/docview/305319371?accountid=9358>.
- ¹² Texas A&M CSCMP Student Roundtable, <https://cscmp.org/roundtables/texas-am-university-roundtable> , accessed January 15, 2016
- ¹³ Gerken, Maike, Bart Rienties, Bas Gieshers and Karen Konings, 2012, "Enhancing the Academic Internship Learning Experience for Business Education – A Critical Review and Future Directions, Chapter 2", *Learning at the Crossroads of Theory and Practice, Research on Innovative Learning Practices*, Edited by Van Der Bossche, P, Gijsselaers, W.H., Milter, R.G., Springer <http://www.springer.com/978-94-007-2845-5>
- ¹⁴ Gault, J., Leach, E., & Duey, M. (2010). Effects of Business Internships on Job Marketability: The Employers' Perspective. *Education & Training*, 52(1), 76-88. Retrieved from http://digitalcommons.wcupa.edu/mark_facpub/2
- ¹⁵ McCrea, B. "What hiring managers are looking for today", *Supply Chain Management Review*. 2012. Accessed July 24, 2015 from http://www.scmr.com/article/what_hiring_managers_are_looking_for_today/D2
- ¹⁶ Knemeyer, Michael and Paul, Murphy. "Logistics Internships: An Employers Perspective", *Transportation Journal*, Volume 41, Number 1, (Fall 2001)

References:

Ballou, Ronald, H., 2006, "The evolution and future of logistics and supply chain management", *Production*, Vol.16 No.3 São Paulo Sept./Dec. 2006. p. 1

Burke, Richard Kent. 2003. "Workforce Education and Training in Southwest Kansas: Perceptions of the CEOs of Businesses, Industries, Professional Services and Governmental Agencies." Order No. 3090347, Kansas State University. <http://link.uwsuper.edu:2059/docview/305319371?accountid=9358>

Colston, Carol Lynn. 2003. "A Descriptive Study of Learning Partnerships between Organizations and Higher Education Institutions to Support Workforce Development and Retention: Organizational Perspectives." Order No. 3070145, Capella University. <http://search.proquest.com/docview/305211826?accountid=9358> .

Coyle, John, Robert Novack and Brian Gibson, 2016, *Transportation: A Global Supply Chain Perspective* 8th Edition, Chapter 1, pp. 3-32.

David, Pierre, *International Logistics* 4th Edition, Cicero Books, 2013. pp. 46-48.

Farris, Martin T. Gilbert Gifford, Donald Harper, Warren Rose, Hugh Norton, James Bennett, "Transportation Education: An Evaluation", *Transportation Journal*, Vol. 11, No. 4, (Summer 1972), pp. 26-39.

Gerken, Maike, Bart Rienties, Bas Gieshers and Karen Konings, 2012, "Enhancing the Academic Internship Learning Experience for Business Education – A Critical Review and Future Directions, Chapter 2", *Learning at the Crossroads of Theory and Practice, Research on Innovative Learning Practices*, Edited by Van Der Bossche, P, Gijsselaers, W.H., Milter, R.G., Springer <http://www.springer.com/978-94-007-2845-5>

Gilmour, Peter, 1978, "The Current Status of Business Logistics Education", *The Transportation Journal*, Vol. 18, No. 2 (Winter 1978), pp. 71-78.

Knemeyer, Michael and Paul, Murphy. "Logistics Internships: An Employers Perspective", *Transportation Journal*, Volume 41, Number 1, (Fall 2001)

McCrea, B. "What hiring managers are looking for today", *Supply Chain Management Review*. 2012. Accessed July 24, 2015 from http://www.scmr.com/article/what_hiring_managers_are_looking_for_today/D2

Ozment, John and Scott B. Keller, "The Future of Logistics Education", *Transportation Journal*, Volume 50, Number 1, (Winter 2011).

Russell, Dawn, John J. Coyle, Kusumal Ruamsook and Evelyn A. Thomchick, "Logistics: The real impact of high transportation costs", *CSCMP's Supply Chain Quarterly*, 1st Quarter 2014.

Whitman School of Management, "Historical Highlights," 5, accessed February 10, 2015, https://whitman.syr.edu/programs-and-academics/academics/scm/pdf/MS_SCM_2013_web.pdf

Wisner, Joel, Keah-Choon Tan, Keong Leong, 2016, *Principals of Supply Chain Management* 4th Edition, Chapter