

THE IMPACT OF FACULTY STATUS ON EMS STUDENT SUCCESS

by

STEVEN LEE MOYERS

(Under the Direction of Karen L. Webber)

ABSTRACT

The use of part-time faculty members is substantial in the delivery of higher education instruction with the largest use occurring in the public two-year or community colleges. A review of the literature revealed that increased use of part-time faculty members leads to a decreased graduation rate and that students tend to have a higher level of performance from increased contact with full-time faculty members. Therefore, with little research on Emergency Medical Services (EMS) or EMS education, the purpose of this quantitative study, guided by social exchange theory, compared the impact of part-time and full-time faculty members with success indicators for an EMT, Advanced EMT, or paramedic program. Data was provided by Georgia Office of EMS and Trauma (OEMST) and the Technical College System of Georgia (TCSG) covering students enrolled in a Georgia TCSG EMS program during the period from August 2011 to May 2015 to encompass the new national standard EMS curriculum. The sample for this research included 6,114 TCSG student records and 7,090 OEMST student records. Findings discovered there is a relationship between faculty member status and their impact on EMS student success. Students with a full-time faculty member were more likely to graduate than students who had a Level 3 licensed EMS instructor. In addition,

students with more than one full-time instructor had a greater chance of graduation than those students with only one full-time instructor. This study supports the need to utilize more full-time than part-time faculty members and more Level 3 than Level 2 licensed instructors to lead an EMS program of study.

INDEX WORDS: Faculty, adjunct faculty, impact of full-time faculty, EMS, EMS students, EMS instructors, EMS program

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DEDICATION

This is dedicated to all those that serve our community and to those that answer the call when others will not, especially the EMTs and paramedics. This is dedicated to all in public safety and to all who persevere through challenges to achieve their educational endeavors. Sometimes the path takes a fork and you must keep moving forward. Always have a backup plan and always continue to pursue education and it will only open doors that you cannot see. I challenge all EMS professionals to never stop educating themselves and to never stop making the EMS profession even better and more educated. We must continue to grow our profession and we must insist on increasing our educational standards if we are to truly be considered a recognized profession. I would like to thank the Georgia Office of EMS and Trauma and the Technical College System of Georgia for taking the time to provide data and to answer questions aiding in my research. I dedicate this body of work to everyone who sets foot through the college doors. Yes, you can achieve and if I can do it, you can too. Just keep moving forward and you too can achieve. It just takes time and dedication.

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CHAPTER 1

INTRODUCTION

The use of part-time faculty is substantial in the delivery of higher education instruction and has been on the rise for the past few decades (Jacoby, 2006; Kezar & Maxey, 2013; Landrum, 2008; Thedwall, 2008; Umbach, 2007). Part-time faculty members are often referred to as adjunct, contract, clinical, research, visiting, lecturer, or contingent faculty members and, most often, are not included in tenure-track faculty appointments (Thedwall, 2008). For the purposes of this research, part-time, contingent, and adjunct faculty members are used synonymously as part-time non-benefited non-tenured faculty members serving as temporary or casual labor. The largest use of adjunct faculty members occurs in the community college setting (Benjamin, 2002; Gappa, 2000; Jaeger & Eagan, 2009; Jaeger & Hinz, 2008; Kezar & Maxey, 2013). With lack of funding to hire full-time faculty members, adjunct faculty members use occurs to address increased course offerings, to enhance access to higher education by diverse students, and to meet the expanded number of students seeking a post-secondary credential needed for today's workforce (Gappa, 2000; O'Meara, Terosky, & Neumann, 2008). While public funding for higher education has decreased, or remained flat, the cost to operate an institution and the demand for services continue to rise (Ehrenberg & Zhang, 2005; Gappa, 2000; Jaeger & Hinz, 2008). This confluence of events has thus given rise to an increase in the contingent workforce in academia.

There are various meanings to the term adjunct or contingent faculty member. What is clear is these individuals are not full-time tenure track professors, full-time non-tenure track professors, or full-time instructors or faculty members hired for the primary purpose of educating students. Adjunct or contingent faculty members are typically part-time college employees without employer-provided benefits who receive much lower compensation than their full-time counterparts (Gappa, 2000; Kezar & Maxey, 2013; 2016) and some are full-time college staff members or otherwise employed full-time by an institution teaching in an extra capacity (O'Meara, Terosky, & Neumann, 2008). Most contingent faculty member have a full-time career outside of an institute of higher education and teach for personal motivation or may be headed toward retirement and use teaching as a source of additional retirement income (Gappa, 2000; O'Meara, Terosky, & Neumann, 2008). Yet some may teach full-time in secondary education earning extra income teaching college courses part-time and others may teach part-time at several different institutions to acquire full-time equivalent hours and pay. Adjunct faculty members typically teach one to four courses depending on credit or contact hours and may teach every term or only one term per year. Their employment can be very casual, and they can be hired or offered courses to instruct at the very last-minute leading into a new academic term (Gappa, 2000). In addition, these adjunct instructors may or may not have access to the same resources as those teaching full-time. Some of these resources may include curriculum or teaching materials, preparation time, office space, computer or hardware resources, advisement knowledge, or professional development availability (Gappa, 2000; Kezar & Maxey, 2016). The lack of resources may result in contingent instructors who do not have the level of knowledge or thorough information on

instructional practices which could lead to discrepant learning outcomes (Gappa, 2000; Kezar & Maxey, 2016).

From 1969 to 2009, tenure-track faculty positions decreased from 78.3% to 33.5% or nearly 45% (Kezar & Maxey, 2013). Finkelstein, Conley, and Schuster (2016) found from 1979 and 2013 part-time appointments increased by 75% and while part-time faculty members made one-fourth of faculty in 1979, by 2013, part time faculty members accounted for 43% of the faculty workforce.

When comparing faculty member positions at public higher education institutions, the use of faculty types is broken down as seen in Table 1.

Table 1: Faculty Members Composition by Rank and Institution Type (2009)

	Public Research %	Public Comprehensive %	Public Two-Year %
Tenured / Tenure Track	48.9	42.8	17.5
Full-time Non-Tenure Track	24.4	11.4	13.8
Part-time Non-Tenure Track	26.7	45.8	68.7

Source: Kezar & Maxey, 2013

As shown in Table 1, the greatest use of part-time faculty members occurs in the public two-year or community colleges where nearly 69% of the faculty members in 2009 were part-time and non-tenure track. Yet, some scholars believe the use of part-time faculty member use in the two-year college setting can reach 80% (Thedwell, 2008).

Because community colleges typically have smaller budgets than larger public research or regional comprehensive universities, this sector of higher education would benefit from additional resources to aid in student success as they tend to have a higher number of students who are not prepared for a larger university system. Further, community colleges are more accessible than larger research or regional comprehensive universities thus community colleges attract and admit students who are typically less

prepared for postsecondary work (Benjamin, 2002). Faculty involvement with students is essential to student success and completion, and full-time faculty members spend more time than part-time faculty members with students outside of the classroom (Benjamin, 2002; Kezar & Maxey, 2016). Although complete use of full-time faculty members may be ideal, there are suitable uses for adjunct faculty members.

Understandably, institutions may utilize adjunct faculty members for various types of academic instruction. For example, in medical and health science related programs, on top of the practical benefit of providing active practitioners in the classroom, adjunct faculty members are needed for laboratory and clinical work whereby the student to instructor ratio is small and only needed at various times of the academic school year. Similarly, other skilled trade professions or other laboratory related instruction makes skillful use of part-time faculty members. Kezar and Maxey (2016) also recognize the value of using adjunct faculty members and they too recognize how they can be essential in supplementing permanent full-time faculty members by providing current field of study knowledge and practical real-world experiences to enhance current practice and quality for students.

In addition to highly specialized classroom instruction, the use of adjunct faculty members lends itself to providing highly qualified and specialized instruction as in the areas of the legal and medical professions. However, whereas there may be a need for some adjunct faculty use, high utilization of these faculty members seems counterintuitive in an arena where students are less prepared for college work, tend to have more outside distractions to school work, and where a higher attrition rate exists. Given that adjunct faculty members may be disconnected from the learning community

and its resources, it is incumbent upon department chairs, deans, or other comparable college leaders to observe and monitor adjunct faculty performance and to ensure they are providing the appropriate level of student learning.

Additionally, with contingent faculty members tending to have less experience and access to student resources (Benjamin, 2002; Gappa, 2000; & Landrum, 2008), it is a disadvantageous relationship to have increased adjunct faculty member use in a community college setting when “research has associated faculty-student interactions with a number of additional outcomes, many of which correspond to the goals of major initiative to improve student learning and success” (Kezar & Maxey, 2016, p.26). Many adjunct faculty members are hired late or only for random semesters with little time to prepare for class and thus may contribute to a lack of instructional quality (Gappa, 2000). Without the basic tools and preparation for teaching, adjunct faculty members are put at a disadvantage and positioned to fail in meeting expected standards of academic rigor and curriculum (Jolly, Cross, & Bryant, 2014). It is incumbent for all faculty members to understand and practice adult learning methods, curriculum development and delivery, instructional assessment, and student learning styles. While there is evidence to suggest that college administrators need to monitor adjunct faculty use as they tend to have less teaching experience, minimal instructional experience, and less participation in departmental or campus activities, there is a place for these contingent faculty members. “These part-timers are motivated to teach because of their intrinsic satisfaction with the work itself and their dedication to teaching and to the constituencies they serve” (Gappa, 2002, p.79). Further, not all part-time employees are interested in or seeking full-time employment. Some adjunct faculty members may enjoy the flexibility of part-time work

and extra income, yet others seek to teach the next generation of their profession and to provide their experiences but have no desire to give up practicing their non-academic profession full-time. In many instances, it is this motivated group of adjunct faculty members that contribute greatly to the students and to the full-time faculty from being in the field every day.

Whereas the focus of this paper is on the impact of faculty status on student success, with graduation and licensure, administrators should consider the use of adjunct faculty members versus full-time faculty members and their consideration relative to student outcomes. Hence, “a more meaningful approach to evaluating an institution is to determine how well it fosters student learning” and student learning and “effective education practice” (p. 25) is a goal of the *National Survey of Student Engagement* (NSSE) (Kuh, 2003). A key component to effective educational practices (Kuh, 2003) is providing students with purposeful and meaningful contact with faculty members. Kuh (2003) believes that casual contact with faculty members has little effect on learning gains. An increase in student enrollments at a time of economic restrictions that require a shift to more adjunct instructors in US colleges and universities today demand a review of their effect on the student.

Statement of the Problem

Previous studies indicate a mix of findings on the quality of instruction and expected learning that students receive from adjunct instructors. Accountable to measurable student learning outcomes, elevation of student retention and completion rates, and quality standards expected for college accreditation, we know little about if and how the quality of instruction differs when delivered by a full-time versus an adjunct

faculty member. “It would be of scholarly merit for future quantitative studies to explore the quality of instruction provided by part-time faculty as compared to that given by full-time faculty” (Jaeger & Hinz, 2008, p.282). This is important for all disciplines but particularly so for the healthcare field as students do, and will as graduates, treat sick or injured individuals in life-threatening situations.

The purpose of this study is to compare the impact of part-time and full-time faculty members and their instructor licensure level on student success as measured by student graduation and licensure attainment in an EMT, Advanced EMT, or paramedic program. An institution’s administrative team and faculty body should have a stake in assuring academic quality and rigor of course delivery to satisfy its purpose of providing higher education to its constituency and to those who award accreditation or to the peer institutions who may award transferability. Likewise, students should have an assurance they are receiving an equal educational experience or outcome regardless of their course faculty member status at the institution. However, though adjunct faculty members may be cheaper and easier to find and replace, student completion may be jeopardized. If the assignment of contingent faculty members hampers the important goals related to student success, there may be unintended negative costs related to educational outcomes and institutional reputation. These issues of part-time faculty member use as compared to full-time faculty member use on student success as measured using student graduation and licensure attainment prompts additional study and consideration.

Significance of the Study

Emergency Medical Services (EMS) is a pre-hospital medical system that provides out-of-hospital medicine with emphasis on emergency medical care. EMS

operates at a junction amid healthcare, public-health, and public-safety. For EMS to succeed and to be adequately staffed when citizens call 911, there must exist a substantial workforce of qualified EMTs and paramedics. However, much like nursing and other allied health professions, it is difficult to attract and retain qualified EMS personnel. For years, employers have struggled to hire and retain adequate staff particularly paramedics as many paramedics use the EMS profession as a stepping stone to other medical professions. In Georgia, there has been great attention to educating and training qualified staff by Georgia employers who continue to provide their own in-house initial education and by the states professional association, Georgia Association of EMS (GAEMS). GAEMS has even been successful at launching a Georgia State Senate Study Committee in the past and was able to put emphasis on the Technical College System of Georgia to increase promotion of EMS programs. EMTs and paramedics are essential in providing pre-hospital emergency care for medical and traumatic emergencies to reduce the likelihood of death and disability prior to arrival at a hospital emergency department.

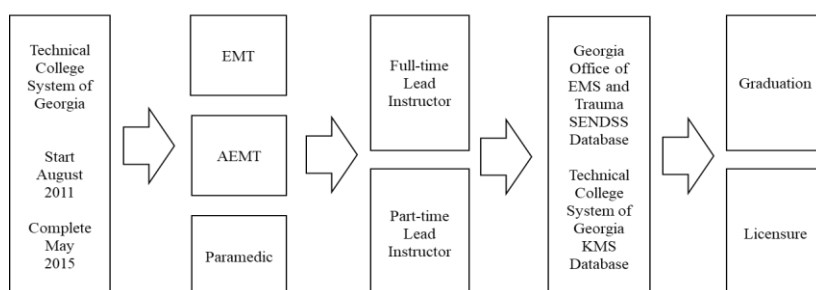
Emergency Medical Technicians (EMTs), Advanced Emergency Medical Technicians (AEMTs), and paramedics provide oxygen administration, airway and ventilation management, patient assessment, limited pharmacological administration, and provide medical and trauma care to adult and pediatric patients. In addition, at an advanced level, the Advanced EMT can perform advanced airway and ventilator skills, administer intravenous fluids, and administer some pharmacological medications. The highest level of provider, the paramedic, can perform further advanced airway skills, other lifesaving assessment and procedures, and administer more advanced medications.

The demand for quality patient care is expected by the public and the greater medical community. Therefore, it is essential that the EMS education community retain students in an educational program and produce qualified graduates who have acquired relevant knowledge and skills recognized by passing national board exams and obtain state licensures at the appropriate level of practice. In addition, the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) and the Committee on Accreditation of Allied Health Education program (CAAHEP) have requirement standards addressing the full-time and part-time faculty member ratio and their relationship to academic program quality. EMS educational programs have traditionally used both full-time and part-time faculty members to deliver instruction and, in some cases, use only adjunct or part-time faculty members when delivering an educational program.

EMS Education Programs in Georgia

As depicted in figure 1, EMS education in Georgia is primarily provided by the Technical College System of Georgia (TCSG), a two-year public technical community college system, and to a lesser degree, by private non-regionally accredited academies, ambulance services, and fire departments. EMS instruction is conducted utilizing a cohort model with a lead or primary instructor (full-time or part-time) who is licensed by the state (Level 2 or Level 3 instructor) to instruct and manage an EMS program. In addition, the program may employ other full-time and/or part-time faculty members to provide instruction under the direction of the lead or primary instructor often referred to as a course coordinator.

Figure 1. EMS Education Model



With a required student to instructor ratio of six to one, other instructors assist the primary instructor with skill labs and evaluations. The benefit of studying TCSG is there are standardized instructor credentialing, a statewide curriculum, standardized admissions criteria, and the same course numbers, competencies, and hours of instruction. TCSG does not provide faculty tenure and employs faculty members as either full-time or part-time instructors.

EMS Instructor Credential

For teaching an EMT program, Level 2 licensed instructors can lead an EMT and Advanced EMT program and Level 3 licensed instructors can lead all EMS programs to include paramedic. In addition to a Level 2 instructor license and EMS experience, an associate degree may be required and for teaching a paramedic program, in addition to a Level 3 instructor license and EMS experience, a bachelor degree may be required. Within higher education and beyond the general receipt of graduate training in the discipline, it is less common to require an instructor credential or license for providing classroom instruction to students. Traditionally, regional accreditors require those teaching in college transfer programs to have 18-semester hours of coursework in their field of study that signals expertise in the topic of instruction (Olsen & Spidell, 2007).

EMS Education Program

The TCSG provides a program of study at the EMT, Advanced EMT, and paramedic level. Upon completion, students obtain a certificate, diploma, or degree dependent upon general education course completion. The program courses are provided in Tables 2, 3, and 4. An EMS student enrolled full-time for 12-15 semester hours may take from one to four semesters to complete a program of study beyond any required general education coursework as seen in Tables 2-4. To examine this topic utilizing the TCSG Emergency Medical Services Education programs, it is necessary to review Georgia provider and licensure levels and their scope of practice.

Within the United States of America, the Department of Transportation (DOT) National Highway Traffic Safety Administration (NHTSA) governs EMS. NHTSA establishes national standards, provider levels, and educational standards for each state to adopt as part of their requirements to receive federal transportation funds. In 2007, NHTSA published their National EMS Scope of Practice document and recommended adoption by each state government. NHTSA also recommended each state adopt their new EMS educational standards so that each state has equivalent provider levels with the same education for in the event of another national disaster, like the 9/11 airline terrorist attacks in New York, Washington DC, and Pennsylvania, states could better rely on one another with a common understanding of each EMS provider's education and skill set. In addition, EMS providers could move from state to state with an easier reciprocity transition.

Shortly after NHTSA introduced the National EMS Scope of Practice, members of the Georgia EMS community began working on outlining policy and procedures for

each provider level to become compliant with changes to the scope of practice.

Specifically, the Scope of Practice document identifies authorized skills at each provider level, Emergency Medical Technician, Emergency Medical Technician-Intermediate, Advanced Emergency Medical Technician, Cardiac Technician, and Paramedic.

Table 2. EMT Essential Technical Courses and Credit Hours

Required Courses	Credit Hours
EMSP 1110 - Introduction to the EMT Profession	3
EMSP 1120 - EMT Assessment/Airway Management and Pharmacology	3
EMSP 1130 - Medical Emergencies for the EMT	3
EMSP 1140 - Special Patient Populations	3
EMSP 1150 - Shock and Trauma for the EMT	3
EMSP 1160 - Clinical and Practical Applications for the EMT	1
Total Credit Hours	16

Table 3. Advanced EMT Essential Technical Courses and Credit Hours

Required Courses	Credit Hours
EMSP 1510 - Advanced Concepts for the AEMT	3
EMSP 1520 - Advanced Patient Care for the AEMT	3
EMSP 1530 - Clinical Applications for the AEMT	1
EMSP 1540 - Clinical and Practical Applications for the AEMT	3
Total Credit Hours	10

Table 4. Paramedic Essential Technical Courses and Credit Hours

Required Courses	Credit Hours
EMSP 2110 - Foundations of Paramedicine	3
EMSP 2120 - Applications of Pathophysiology for Paramedics	3
EMSP 2130 - Advanced Resuscitative Skills for Paramedics	3
EMSP 2140 - Advanced Cardiovascular Concepts Credit hours	4
EMSP 2310 - Therapeutic Modalities of Cardiovascular Care	3
EMSP 2320 - Therapeutic Modalities of Medical Care	5
EMSP 2330 - Therapeutic Modalities of Trauma Care	4
EMSP 2340 - Therapeutic Modalities for Special Patient Populations	4
EMSP 2510 - Clinical Applications for the Paramedic I	2
EMSP 2520 - Clinical Applications for the Paramedic II	2
EMSP 2530 - Clinical Applications for the Paramedic III	2
EMSP 2540 - Clinical Applications for the Paramedic IV	1
EMSP 2550 - Clinical Applications for the Paramedic V	1
EMSP 2560 - Clinical Applications for the Paramedic VI	1
EMSP 2570 - Clinical Applications for the Paramedic VII	1
EMSP 2710 - Field Internship for the Paramedic	2
EMSP 2720 - Practical Applications for the Paramedic	3
Total Credit Hours	44

In the State of Georgia, EMT and paramedic programs receive approval by the Georgia Office of EMS and Trauma prior to the program start. When a student enters an EMT or paramedic program, they are registered into the state EMS database. Once the student completes the program, he or she is considered eligible by state officials to complete the national testing process provided by the National Registry of EMTs. Fundamentally, a student cannot be eligible for national testing and state licensure without completing a program of study.

Purpose of This Study

Using data from the Georgia Office of EMS and Trauma and the Technical College System of Georgia and guided by social exchange theory, this study will compare success indicators for students in an EMT, Advanced EMT, or paramedic program based on whether they receive instruction from full-time or part-time faculty members and a Level 2 or Level 3 instructor. Social exchange theory examines the individual employment relationship between an employee and an employer and the mutual benefits reciprocated (Blau, 1964; Cropanzano & Mitchell, 2005; Jepsen & Rodwell, 2010). My research questions are:

1. Is there a difference in graduation rates for EMT, AEMT and Paramedic students based on the amount of instruction by full versus part-time faculty?
2. Controlling for time status and number of instructors, does student academic ability (as measured by GPA) and receipt of financial aid contribute to graduation?
3. For EMT, Advanced EMT, or Paramedic students, is there a difference in state licensure attainment when led by a Level 2 licensed instructor versus a Level 3 licensed instructor, and do the instructor years of experience contribute to licensure

attainment? State licensure attainment is defined as: a student who completes the EMT or paramedic program of study, passes a national examination to receive national certification, and submits and receives a Georgia license at the appropriate level, and

4. Controlling for level of instructor license, do select student demographics characteristics (namely age, gender, race, and program) and select institutional characteristics (namely institution location of urban versus rural and institution size of enrollment) contribute to students' likelihood of licensure.

CHAPTER 2

LITERATURE REVIEW

Researchers of higher education have been concerned about the rapid increase in the use of adjunct faculty members, in recent years. One reason for concern is the possible difference in instructional effectiveness that might lead to lower student performance. After 1975, the use of contingent faculty in higher education increased by four-times or ninety-seven percent compared to full-time faculty's twenty-five percent increase (Benjamin, 1998). In 2006 alone, roughly 45% of undergraduate students were educated in 1,052 two-year colleges where 65.6% of faculty members were adjunct (Jaeger & Eagan, 2009). The growth in adjuncts over the recent decades raises concerns and studies have subsequently examined the potential detriment to the student and/or to higher education institutions with increased contingent faculty member use. Initially, more concern was on grades and grade inflation, but more recently on student learning and completion. Benjamin (1998) found full-time faculty members spend more than two-hours out of class preparing for each one-hour of classroom instruction but part-time faculty members paid by the actual course hour, spent only half as much time preparing for class. Activities include many facets that contribute to effective instruction and student success, including curriculum development, course lesson plan development, grading, student advising, and work with student clubs and activities (Benjamin, 1998).

While there are considerable studies that examine the work of college faculty members grading, faculty interaction with students and student learning outcomes, and

institutional impacts/unintended effects that have occurred due to the shift to more part-time and adjunct faculty member use, there is little research involving EMS Education. Researchers have examined various aspects of grades and grade inflation to seek comparison between full-time and part-time faculty members.

Faculty Interaction and Student Learning

Though there has been little study on student learning because of the increased use of contingent faculty members, it is known that increased faculty involvement with students leads to higher completion rates and student success (Benjamin, 2002) and student and faculty interaction is an important factor to successful student outcomes (Cotton & Wilson, 2006). However, given the increasing use of contingent faculty members, there is less student interaction and engagement with the use of contingent faculty members (Jaeger & Eagan, 2009; O'Meara, Terosky, & Neumann, 2008; Umbach, 2007). In addition, Webber (2012) found part-time faculty members to use some instructional technologies for student centered learning less than full-time faculty members and Umbach (2007), also found part-time faculty members less likely to use collaborative learning techniques and spent significantly less time preparing for classroom instruction thereby having a lower student academic expectation. These findings lead to mounting concern about the effectiveness of adjunct instructors. Students could become dissatisfied with their lack of faculty interaction which may in turn contribute to lower performance or possible dropping out (Jaeger & Eagan, 2009).

Strong and positive faculty and student interactions are important for student persistence, retention, completion, and overall student success (Kezar & Maxey, 2016). Likewise, student and faculty engagement in collaborative learning, academic challenge,

and other academic life activities such as study abroad, research, and student club involvement has a positive effect on student success (Kezar & Maxey, 2016).

Davis, Belcher, and McKitterick (1986) determined there is no difference when comparing the instructional effectiveness of part-time to full-time faculty members on student test scores and grades. While these authors recognize the growing number of part-time faculty members employed in the community college environment and find some differences between the two groups when considering curriculum input, resource availability, and institution commitment, they determined there were no learning outcome differences. Further, in their research examining college academic skill assessment in an English communications course when comparing student competency in a higher-level English course, student outcomes between those taught by full-time versus part-time faculty members showed no difference in learning outcome (Davis et al., 1986). Comparably, while comparing student learning in a community college basic math course, there was no difference in learning when comparing the results of one-hundred students equally divided between part-time and full-time faculty members (Bolge, 1995).

In contrast, other studies, reported different findings with respect to student outcomes and faculty member interaction. While researching student retention, Jaeger and Hinz (2008) and Jaeger and Eagan (2011) utilizing enrollment status, gender, ethnicity, age, citizenship, race, grade point average, campus location of rural versus urban, high school rank and high school grade point average, found greater exposure to part-time faculty members in the first year of college leads to decreased retention moving forward to the second year of college. Consequently, adjunct faculty members could also influence major selection in a positive way if left to later semesters of matriculation with

effective use (Bettinger & Long, 2010). Evaluating graduation rate, increased employment of part-time faculty members, decreases the college graduation rate (Calcagno, et.al, 2008; Ehrenberg & Zhang, 2005; Jacoby, 2006). Benjamin (2002) found greater demand on part-time and other adjunct instructional members diminishes the full-time faculty member involvement in undergraduate learning.

While colleges desire part-time faculty members to be as effective as full-time faculty members, Jolly, Cross, & Bryant (2014) purport that adjunct faculty members are not provided the basic tools of teaching to be effective and they find they are often denied professional development opportunities. In addition, they find that adjunct faculty members are often seen as transient members of the community college environment with little access to departmental and college campus activities. The lack of access can be a result of funding, a lack of availability given part-time status, or the part-time faculty members conflict with other career obligations. Also, examining student instruction, Baldwin and Wawrznski (2011) explored teaching and learning between part-time and full-time faculty members. Baldwin and Wawrznski (2011) found in some cases, there are no differences in introductory business type courses researched. However, in other courses they researched, there was a difference in student-centered learning with the belief that less student-centered learning is leading to less learning (Baldwin & Wawrznski, 2011). Baldwin and Wawrznski (2011) stated that further research should occur in comparing contingent faculty members and tenured track faculty members and they believe there are research gaps in comparing faculty members teaching practices among the different employment types.

Acknowledging the recent decrease in tenured faculty member and increase in contingent faculty members, Figlio, Schapiro, and Soter (2015) sought to add to this area of limited literature. The researchers identified that previous research only looked at a student's likelihood of taking another course in the same subject area and not how the student performed academically in the subsequent course when comparing the use of the two faculty member groups. Over a period of eight-years, these researchers analyzed eight different cohorts of freshmen to examine level of learning from contingent faculty or tenured track faculty members. However, in this study, contingent faculty versus tenure-track faculty members. While they found top contingent faculty members and top tenure-track faculty members perform the same, it is noteworthy that in this study, contingent faculty members were contracted long-term with employer provided benefits and work like traditional full-time faculty members. These long-term contracts and benefits thus leave the contingent faculty member with a stronger commitment to the institution than some of their contingent counterparts at other institutions (Figlio, Schapiro, & Soter, 2015). Although they offer some insight into the effectiveness of some adjunct faculty, the results offer limited usefulness into the outcome of student learning with contingent faculty member use since the typical or traditional adjunct or contingent faculty member are not utilized in the traditional manner at a typical college or university.

Institutional Impacts and Unintended Effects

In many instances, adjunct faculty members perform the same work for less pay than their full-time counterparts (Kezar & Maxey, 2016). With the continued growth and use of part-time faculty members, Washington (2012) highlights the demoralizing

feelings that adjunct faculty members may possess due to lower pay and benefits given their part-time status. Such concerns of lower status may also lead to a desire to unionize. Ehrenberg and Zhang (2005) recognize the growing movement by contingent faculty members to enter collective bargaining agreements given lower salaries and benefits. As part-time faculty member use, has increased at steady rates and as colleges have become increasingly dependent on their use, more part-time faculty members are turning to unions and more colleges are now facing union negotiations for improved pay and recognition. If contingent faculty members are not allowed to participate in faculty meetings and other campus governance processes, a feel for community and collegiality is lost which can have a negative effect on the faculty members and the institution (Kezar & Maxey, 2016; O'Meara, Terosky, & Neumann, 2008). With a lack of job security, adjunct faculty members tend to have a high turnover rate causing academic program instability (Kezar & Maxey, 2016; Smart, 1990).

Likewise, part-time faculty members can be less satisfied in their work environment with respect to perceived value and respect (O'Meara, Terosky, & Neumann, 2008). Some liberal arts faculty are hired more as a substitute for full-time faculty than for their expertise (Jaeger & Eagan, 2009). Conversely, while vocational or professional program contingent faculty members may be hired more for their expertise with having secured a professional identity outside of academia, they may be less invested in the overall institution (Jaeger & Eagan, 2009). "Improving the work environment for part-time faculty members at community colleges has the potential to increase their sense of commitment, which may have positive implications for a variety of student outcomes, including associate's degree completion" (Jaeger & Eagan, 2009, p.18). Part-time faculty

members need space to meet with students and need to be included in departmental meetings and decisions to feel further connected to the students and to the institution. Further, part-time faculty members need compensation for the time devoted to out class preparations and activities to encourage a sense of institutional responsibility and accountability.

Grading and Grade Inflation

Considering course difficulty and quality, instructor organization, knowledge, and presentation, examined grade inflation and its relationship to student course evaluation, Zangenehzadeh (1998), determined that a student's course grade factored into their perception of a quality course. For part-time faculty members seeking a full-time faculty appointment, this may very well factor into their assignment of grades. Examining the usefulness, prevalence, workload, and cost effectiveness of contingent faculty members, Halcrow and Olson (2008) found contingent faculty members may fear the awarding of a lower grade for how it might affect their student course evaluations. For those adjunct faculty members seeking a full-time teaching appointment, they either could intentionally or unintentionally inflate course grades to obtain better student classroom evaluations.

There is evidence of concern for letter grade assignment at many institutions, regardless of enrollment size. Researchers at a small private college (Kezim, Pariseau, & Quinn, 2005), at a small public university (Sonner, 2000), and at a medium size state university (Moore & Trahan, 1998), all found that grade inflation existed with adjunct and non-tenured faculty members when compared to tenured faculty members. Like other studies, these researchers suggest grade inflation is an ongoing issue with part-time

faculty member use. The average grade provided by full-time faculty members was two-tenths less than awarded by adjunct faculty members (Sonner, 2000).

Related to the outcome of grading, several studies explore grade inflation and seek to learn if differences exist between full-time and part-time faculty members. Kirk and Spector (2009) compared the grades for students taught by full-time and by part-time faculty members in an introductory accounting course and compared the same student's performance in an upper level business course. Using empirical data, they found grades are higher for part-time faculty member taught courses and they discovered students performed better in higher-level courses if taught by full-time faculty members. Further, they discovered students are less likely to enter the accounting field if taught by a part-time faculty member. Lei (2008), researched course assessment techniques, finding a difference between full-time and part-time faculty members. Lei (2008) considered gender, weekend or evening hours, on/off campus, class level of remedial or non-remedial, class size, and assessment technique and method. In studying full-time versus part-time faculty members with doctorate versus non-doctorate education, this author discovered that different faculty members differ in their use of course item assessment, objective written examinations, written research papers, and group projects finding full-time faculty members learn to use assessments from professional development activities with part-time faculty members rely on personal experience, former instructors, or other colleagues. This gives credence that part-time faculty members can lack necessary professional development and current assessment techniques. In addition, Lei (2008) determined part-time faculty members rely more on objective examination while full-

time faculty members use other contemporary assessments techniques such as cooperative learning and group projects.

Examining gender, high school rank, and graduate record exam score, Birnbaum (1977) researched and explored the phenomenon of grade inflation. He explored changes in academic standards, changing social factors, the civil rights movement, the Vietnam War, and changes in student preparation. Birnbaum (1977) discussed faculty members' behavior in failing students and made the point that faculty members were becoming reluctant to fail students, a potential integrity issue. Although not able to prove the hypothesis that grade inflation was a result of a better-prepared student, increased student achievement, admitting more females, student major, or courses enrolled, Birnbaum (1977) did find some evidence, although not conclusive, that grading policies may be the reason for increased GPA.

At a southern flagship state university, Mathies and Webber (2009) analyzed average undergraduate GPA over a twenty-year period, using scholastic aptitude test, gender, race, major, high school grade point average, financial aid status, and term grade point average. Seeking to determine what factors would contribute to an increase or to a decrease in the average student GPA from 1995 to 2004, Mathies and Webber (2009) delineated retention and graduation rate pressures, individual motivation, high school success, financial pressures, and student choice of major as possible causes. In addition, they identified two gaps for further research one is the exploration between a rise in grades and faculty member's incentives for quality instruction and the second is to explore the relationship between faculty member evaluation by students and the grades awarded by faculty members.

Although some scholars have identified possible contributors to grade inflation, some such as Mathies and Webber (2009) are cautious to attribute increased GPA to grade inflation, citing a complex mix of factors that can influence grades. Others, such as Kohn (2002) and Landrum (2008) found no grade inflation. Moreover, Landrum (2008) finds part-time faculty members perform as well as full-time faculty members on student evaluations and with course grade distribution. Landrum accounted for subject knowledge increase, evaluation methods, office hours, student participation, grades, and end of course rating. While there have been mixed results with respect to grades and grade inflation, there is continued awareness and concern for the continued growth in adjunct faculty member use; as such, many higher education professionals have explored various other aspects of adjunct faculty member use to determine their impact on the quality of higher education and on student learning outcomes.

Licensure

While there are many certification or credentialing exams that lead to a professional license to practice, most notably in healthcare and medicine, there is little literature that focuses on the instructor's impact in the process. What literature was discovered focuses on traditional pedagogy and instructional strategies such as teaching critical thinking or problem based learning. In review of nursing literature, (Beers & Bowden, 2005), found it helpful for the nursing educator to deploy problem based learning concepts to improve critical thinking. They found this method would transfer cognitive knowledge to application of knowledge. Also on nursing education, Ukpabi (2008) found with a nursing profession short of graduates to meet workforce demands needed to identify strategies to improve graduation and licensure pass rates and notes that

with three decades of nursing education research, there has yet to be comprehensively identifiable factors that can predict nursing licensure exam (NCLEX-RN) success.

Seeking strategies to improve the EMT basic pass rates in North Carolina, Less (2005) found the need to implement a basic-skills review to increase college academic ability.

Again, this EMS study focused on the student and their preparation and ability to pass the national board exam and not on the instructor's impact in the process.

EMS Education

There is limited research on EMS education or those that teach in EMS. *Taking the Pulse of Training Transfer: Instructor Quality and EMT Certification Examination*, Russ-Eft, Dickison, and Levine (2010) found that quality of instruction can influence EMT certification test outcomes. Further, instructor qualities such as enthusiasm and practical knowledge have greater influence on training transfer than other qualities like professionalism (Russ-Eft, Dickison, & Levine, 2010). Margolis, Studnek, Fernandez, & Mistovich (2007) identified 12 strategies leading to a successful EMT-Basic educational program.

The strategies were identified as accepting highly motivated students, assuring institutional support, delivering multiple assessments, creating standardized lesson plans, providing a higher than minimum competency level expectation, hiring qualified faculty, maintaining effective communication in all aspects of program and with instructors, ensuring instructor consistency, providing clearly developed objectives, providing timely feedback to students on written and practical evaluations, requiring prerequisites, and teaching test-taking skills. Similarly, Margolis, Romero, Fernandez, & Studnek (2008) identified 12 strategies that leads to a successful paramedic program. These strategies

include: achieving and maintaining national accreditation; high entry requirements and prerequisites; providing clear student expectations; providing a culture valuing continuous review and improvement; creating own examinations and other associated curriculum materials; emphasizing basic level concepts throughout program; offering frequent case-based scenarios; exposing students to numerous advanced life support clinical situations; creating and utilize validated examinations; providing frequent student performance feedback; incorporating critical thinking and problem solving into all testing; and deploying predictive testing with analysis prior to certification testing.

While there is a significant number of studies and research surrounding the use of adjunct faculty member use with conflicting conclusions in some cases, there is minimal research on EMS faculty members as well minimal research on the effectiveness of instruction for education and training of EMTs and paramedics. A 2004 *State of EMS Education Research Project: Characteristics of EMS Educators* (Ruple, Frazer, Hsieh, Bake, & Freel, 2004) examined characteristics of those recognized as prehospital emergency medical service EMS educators.

Their project found 72% of survey respondents were male and 94% of the respondents were white, non-Hispanic. Most EMS educators reported working part-time with 35.5% of the respondents having some college education, 24% a bachelor's degree, 8.7% a master's degree, 1.4% a doctoral degree, and 21% an associate degree (Ruple, et al. 2004). The educators taught in a variety of settings with 26.5% teaching in a community college setting and less than 5% in a four-year college or university setting (Ruple, et al. 2004).

While EMS instruction is ongoing, efforts to restructure EMS education, as it is envisioned in the *EMS Education Agenda for the Future*, are redefining the mission of EMS education programs and the scope of work for EMS educators. Ruple et al. (2004) believe that rather than merely delivering a prescribed curriculum, EMS educators will be expected to ensure that all adult learners learn and perform at high levels of competency. EMS educators must find ways to support and connect with the needs of all the adult learners in their classrooms. This new mission requires substantially more knowledge and skill on the part of EMS educators and the implementation of a more student-centered approach to providing EMS education.

To prepare EMS professionals in the future, additional study of EMS education and training is needed. EMS education professionals must stay current on educational practice and engage students in the learning process. Finally, EMS educators must continue to prepare themselves academically, be accessible to students, and be effective leaders when engaged in instructional activities.

Theoretical Framework

Acknowledging the role and value of adjunct faculty members in college instruction, social exchange theory (Blau, 1964; Jepsen & Rodwell, 2010) will guide my research and its place in workplace behavior whereby trust, obligation, and mutual commitments lead to high-quality relationships (Cropanzano & Mitchell, 2005). For social exchange to exist, interaction must occur between parties with an achievement of result (Blau, 1964). Social exchange theory is used to understand contingent workforces and organizational commitment along with the reciprocal exchange between the two to include status, attitudes, and behaviors (Chen et al., 2009; Connelly & Gallagher, 2004;

Umbach, 2007). “The workplace social exchange relationship is important in understanding organizational harmony and productivity. Social exchange theory is a key framework for examining the employment relationship from the individual level” (Jepsen & Rodwell, 2010, p.20). When an individual provides rewarding services to another, there is an obligation for reciprocal benefit and social exchange garners stronger feelings of personal obligation than do economic exchange (Blau, 1964). Individuals who feel valued, supported, and rewarded will in exchange provide greater organizational commitment (Umbach, 2007) and thus should produce equal work results when comparing part-time to full-time faculty members.

Sonner (2000) recognizes the lack of academic integrity by part-time faculty members less vested in the institution as part of his grade inflation examination. His study gets to the heart of what academics and colleges aspire, integrity, and for integrity to exist, there must be social exchange and reciprocation between the faculty member and the institution. The institution seeks faculty members who will teach, mentor, and nurture students to excel at the highest levels and in return faculty members presume support by the institution with all the tools and resources necessary to accomplish said mission (Umbach, 2007). Similarly, perceived organizational support by employees produces increased commitment and performance by the employees for the employer (Chen et al., 2009; Rhoades & Eisenberger, 2002). If this were to exist, one might presume there could be no difference between full-time and part-time faculty members performance; however, other research demonstrates that part-time faculty members are not equally supported in compensation, preparation time, professional development, access to resources such as office space and information technology, and in the feeling of being treated as an equal

faculty member as full-time faculty members are (Experiences, 2010; Gappa, 2000; Kezar & Maxey, 2016; Umbach, 2007). If we are to improve performance, we must improve the social exchange and expectation between parties.

Satisfactory instructional performance and the production of desired outcomes can be a result of how an employee perceives his or her value and commitment from their employer (Gappa, 2000; Jepsen & Rodwell, 2010; Rhoades & Eisenberger, 2002). Essentially, there is a give and take or social exchange relationship between the employee and employer or faculty member and college to reciprocate for the betterment of each other or for the relationship of the two (Cropanzano & Mitchell, 2005; Jepsen & Rodwell, 2010). Conversely, a lack of institutional commitment may lead the part-time faculty member to not perform at an optimal level given no reciprocation for equal exchange of work expectation which may lead to a negative outcome for the student, the institution, and the faculty member. In the norm of reciprocity, there is mutual benefit and reciprocal exchange of two parties with both parties imposing obligation and imputed value for the obligation of repayment and indebtedness (Gouldner, 1960). This means there must be equal exchange between the two parties for both sides to flourish with success.

As identified, ensuring institutional support, maintaining effective communication in all aspects of program and with instructors, ensuring instructor consistency, achieving and maintaining national accreditation, providing clear student expectations, creating own examinations and other associated curriculum materials, and providing frequent student performance feedback are all aspects that lead to a successful EMS program (Margolis, Romero, Fernandez, & Studnek, 2008; Russ-Eft, Dickison, & Levine, 2010). However, because most EMS educators work part-time (Ruple, Frazer, Hsieh, Bake, &

Freel, 2004) this seems unachievable given the time and energy necessary to adequately fulfill each task. Achieving program accreditation alone requires a full-time program director engaged in instruction and the supervision thereof.

Often part-time or in some cases Level 2 EMS faculty members do not receive the same level of support and are not provided the same level of commitment and tools to be as successful as their full-time counterparts. They earn less compensation, have less access to professional development activities, and less access to an adequate numbers of skill instructor and evaluators for practical skill teaching and evaluation laboratory. In EMS instruction, there are lectures, labs, and clinical instruction. Full-time faculty members tend to have more preparation time to prepare for classroom instruction than part-time faculty members. Therefore, part-time faculty members may not be as successful as full-time faculty members when it comes to student graduation and licensure attainment. It is recognized that this is not an absolute and faculty member who teach for their profession may have a stronger commitment to the profession than the institution and therefore are not in need of receiving institutional rewards and recognition (Kezar & Sam, 2011). Likewise, contingent work is not a uniform decision and there are different contractual reasons for among the various forms of contingent work arrangements and there are also differences in the reasons why workers accept such contingent arrangements (Connelly & Gallagher, 2004). As there are few studies on EMS Education and none that explore the evaluation of faculty members' time status or licensure level with respect to graduation and licensure attainment, this study will contribute to our understanding of EMS student success by examining the effects on

student outcomes that results from part-time faculty members compared to traditionally more supported full-time faculty members.

CHAPTER 3

DATA AND METHODS

This study focuses on student outcomes associated with the use of full-time faculty versus part-time faculty members to lead an EMT or a paramedic program in the state of Georgia, namely graduation of students and the percentage of students who earn licensure. The use of part-time faculty is substantial in the delivery of higher education instruction and has been on the rise for decades (Kezar & Maxey, 2013). This quantitative research study merits attention since institutions officials wish to retain students who can succeed at achieving licensure after their program of study. In addition, since accreditation agencies such as the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) and the Committee on Accreditation of Allied Health Education Program (CAAHEP) have core requirements addressing the full-time and part-time faculty ratio and its relationship to academic program quality to include graduation and licensure attainment, it is important to monitor student success rates based on faculty member classification. There are few studies that exist on EMS education or practice and none on the impact of faculty status on EMS student success between full-time versus part-time faculty member use. My research questions are:

1. Is there a difference in graduation rates for EMT, AEMT and Paramedic students based on the amount of instruction by full versus part-time faculty?
2. Controlling for time status and number of instructors, does student academic ability (as measured by GPA) and receipt of financial aid contribute to graduation?

3. For EMT, Advanced EMT, or Paramedic students, is there a difference in state licensure attainment when led by a Level 2 licensed instructor versus a Level 3 licensed instructor, and do the instructor years of experience contribute to licensure attainment? State licensure attainment is defined as: a student who completes the EMT or paramedic program of study, passes a national examination to receive national certification, and submits and receives a Georgia license at the appropriate level, and

4. Controlling for level of instructor license, do select student demographics characteristics (namely age, gender, race, and program) and select institutional characteristics (namely institution location of urban versus rural and institution size of enrollment) contribute to students' likelihood of licensure.

This chapter will cover the description of Georgia EMS Program, description of the sample, and researcher bias and assumptions.

Description of Georgia EMS Program

The State Office of EMS and Trauma approves an EMS program, and, like most allied health programs, students are accepted as a cohort into an approved program of study. Students are not free to pick and choose their individual courses or to self-pace themselves through the program of study. Traditionally, a program of study is conducted during the day in a block of four to eight hours per day over two to three days per week or during the evening in a block of four hours per night over two to three evenings per week; thus, from a calendar perspective, it takes longer to complete an evening program than a day program. This quantitative study will examine individual student data provided by the State of Georgia Department of Public Health (DPH) Office of EMS and

Trauma (OEMST) and the Technical College System of Georgia (TCSG). The OEMST utilizes Georgia's State Electronic Notifiable Disease Surveillance System (SENDSS) for their course registration system and subsequent EMS personnel licensure database. The data will be limited to students who received instruction in the TCSG beginning fall semester 2011 when Georgia began using the new national EMS Education Standards and the licensure levels of EMT, Advanced EMT (AEMT), and Paramedic and completing by spring semester 2015. Each year there are approximately 2,500 students who enter an EMT, AEMT, or paramedic program in the state.

The Technical College System of Georgia (TCSG) is a two-year public state technical community college system consisting of 22 colleges with 85 satellite campuses and one University System of Georgia technical division offering the associate degree, diploma, certificate, continuing education, and adult literacy courses and programs to 27,000 students (tcsge.edu, 2016). Each college can offer the EMT, AEMT, or paramedic program. While EMS instruction occurs in other institutions or academies across the state such as fire departments, private ambulance services, or for-profit private non-regionally accredited schools, this study will encompass Georgia's technical colleges as they provide a uniquely uniform state curriculum with standardized courses of instruction, and consistent minimum admission criteria. Students who are accepted into one of the TCSG programs complete an equivalent program of study irrespective of the college enrolled as each college follows a prescribed statewide course of study.

This standardized TCSG state curriculum was written to follow the national EMS Education Standards by TCSG EMS instructors and approved by TCSG administration and the State Board of the Technical College System of Georgia prior to use in August

2011. All TCSG colleges must follow the standardized state curriculum to include all student-demonstrated competencies, objectives, and credit hours. Cognitive, psychomotor, and affective domains are included within the didactic, laboratory, and clinical aspects of the uniform curriculum.

Description of the Sample

EMS Students and Their Path to Graduation

TCSG EMT, AEMT, and Paramedic students, in the state of Georgia, who began their EMS program between August 2011 with a completion date by May 2015 were included in this study. Typically, a single primary instructor (course coordinator) leads an EMS program or cohort of students throughout their program of study. This lead instructor provides the primary didactic instruction with assistant instructors aiding the lead instructor with psychomotor instruction labs and psychomotor evaluation and in some cases didactic instruction. For psychomotor labs and evaluation, the State Office of EMS requires one instructor per six students.

In an academic year, TCSG enrolls approximately 2,500 students in EMS programs. I utilized student data provided by the TCSG system office. This data included all EMS students, 7,046, who entered a program beginning fall semester (August) 2011 and completed by spring semester (May) 2015. There were 64 Emergency Medical Responder records eliminated as this certificate program does not lead to licensure or to the EMS workforce for employment on its own. In addition, there were 868 records that had no instructor of record and a 0.00 GPA that were eliminated. It is believed that these students enrolled but never started the program. The remaining 6,114 records were used in this study.

EMS Program Faculty Instructors

In the State of Georgia, all EMT and paramedic instructors receive a license by the Georgia Office of EMS and Trauma to teach at the EMT and/or paramedic level. Level 2 instructors are currently licensed Georgia Advanced EMT, paramedic, registered nurse, physician assistant, or physician provider, have completed a state approved EMS curriculum course, and have demonstrated successful proficiency on a Georgia EMS approved written and practical examination. Level 2 instructors are licensed to teach EMT and Advanced EMT courses. In addition to the Level 2 instructor requirements, Level 3 instructors must also have an associate degree or college hour equivalent from a regionally or a nationally accredited institution. Level 3 instructors are licensed to teach EMT, Advanced EMT, and paramedic courses. In the technical college system, instructors are either full-time or part-time and are not offered tenure status.

Prior to beginning a cohort program of instruction, the Georgia Office of EMS and Trauma must approve the program. Therefore, once a course is approved and assigned a course number, the course coordinator must enter individual student data into a database at the beginning of the instructional program and upon completion of the instructional program. This process provides limited student demographic data, program completion, and state licensure attainment tracking.

Data for this study was obtained from the OEMST SENDSS database and individual's licensure status was calculated from students who completed a TCSG program and were taught by a level 2 or Level 3 licensed EMS instructor. This data included 32,052 EMS students who entered a program beginning January 2011 and ending December 2017. There were 24,962 records eliminated as either not provided by

the Technical College System of Georgia or for not occurring during the study period of August 2011 to May 2015. The remaining 7,090 records were used in this study. Of the 7,090 records, 94 records did not include an age, 110 records did not include a gender, and 284 records did not include a race.

I obtained the institution of instruction and instructor years of teaching experience from the Georgia Office of EMS who issue and maintain instructor level license. In addition, they provided student program of study, age, gender, and race. The Technical College System of Georgia system office provided a dataset for analysis providing student financial aid status, program of study, grade point average, and instructor type and count (full-time and/or part-time).

Table 5 identifies the two dependent variables, graduation and licensure, and the set of independent or control variables chosen and guided from the literature review. Following the descriptive statistics and correlation analyses, logistic regression models were developed using the variables identified in Table 5.

Table 5: Variables and Their Source

Dependent Variables	Description	Source
Graduation	Student program graduation	TCSG
Licensure	Student completion, passing national board examination, and obtaining state licensure	OEMST
Independent / Control Variables		
Program/Major	Type of program EMT, AEMT, or paramedic	OEMST/TCSG
Instructor Type	Lead instructor full-time or part-time employment	TCSG
Instructor Experience	Years teaching experience of lead instructor	OEMST
Instructor License	State Instructor license (Level 2 or Level 3) of lead instructor 1 for Level 3; 0 for Level 2	OEMST
Institution Location	Urban or Rural	GA Dept. Community Affairs mapping
Institution Size	College enrollment (small <2,500; medium 2,500 – 6000; large >6,000)	TCSG 2016 Factbook for AY'15 enrollment
Student Age	Age of student at time of cohort entry	OEMST
Student Gender	Gender of student	OEMST
Student Race	Race of student	OEMST
Student Program/Major GPA	Student final program GPA	TCSG
Student Financial Aid	Student receiving some type of financial aid in first term of enrollment 1 for yes; 0 for no	TCSG

Procedure for Receipt of the Data

Following University of Georgia (UGA) Institutional Review Board (IRB) approval, the Georgia Office of EMS and Trauma provided individual student data from the state database, SENDSS. The database provided the following: cohort approval number, technical college location, instructor license level and years of experience, student licensure attainment result, and student age, gender, and race. All individual instructor or individual technical college data will remain confidential, not published, and

de-identified. All individual student data will remain confidential, not published, and de-identified reporting in the aggregate only. The Technical College System of Georgia provided student data from the TCSG Knowledge Management System (KMS) identifying each student's instructor status (full-time, part-time, or both), instructor count, GPA, and financial aid status. All individual student data will remain confidential, not published, and de-identified reporting in the aggregate only.

Upon receiving the data, I organized and analyzed the data using correlation and logistic regression modeling to determine if there is a significant difference in graduation and/or licensure when compared to instructor status considering the independent or control variables from Table 5.

Analytic Procedure

Once the data was received, I reviewed all data points to look for missing data and outliers. Seemingly incorrect data was verified where possible; if it could not be verified, that data point was omitted. Once the dataset was cleaned, I ran descriptive analyses to examine the data and look at data distributions. Pearson correlations were also run to further examine relationships among the main variables (shown in Table 5). Tables that show descriptive and correlation analyses are included in Chapter 4.

Following a descriptive examination of the data, binomial logistic regression analyses were completed to examine the contribution of instructor time status and licensure level on student graduation and licensure attainment. The general equation for the logistic regression can be stated as:

$$\text{Log } Y/(1-Y) = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \dots b_nX_n + e$$

To address Research Questions 1 and 2, three binomial regressions examined the contribution of time status and the number of instructors on student graduation. To address Research Questions 3 and 4, two binomial regressions examined the contribution of level of instructor license and years of instructional experience on student licensure attainment.

Researcher Bias

I am a Georgia licensed and nationally registered paramedic, a Georgia licensed Level 3 paramedic instructor, a National Registry of EMT's testing representative, a site visitor team captain for the Committee on Accreditation of EMS Professions, and have served as a site visitor for the Southern Association of Colleges and Schools Commission of Colleges. I have been involved in EMS since 1987 (30-years) and a college instructor since 1995 (22-years). I began as an adjunct EMT instructor in what is now known as the Technical College System of Georgia and I have held subsequent positions of full-time instructor, clinical director, program director, dean of health sciences, and now vice president of operations and dean of education at a large hospital based urban EMS service. I have served on or chaired several statewide EMS committees, consortiums, advisory councils, and EMS curriculum committees.

CHAPTER 4

RESULTS

This chapter records the results and analysis from the 6,114 Technical College System of Georgia records and from the 7,090 Georgia Office of EMS and trauma records. Again, the Technical College System of Georgia data is focused on graduation and the Georgia Office of EMS and Trauma data is focused on licensure.

Students from the TCSG Data for Graduation

The Technical College System of Georgia provided data for EMS students enrolling on or after August 2011 but before May 2015. The August 2011 date as the starting point for data collection was chosen because a new national curriculum for EMT, Advanced EMT, and paramedic was originated at that time. May 2015 was chosen as students have up to two-years to submit for state licensure following program completion. Initially, there were 7,046 records but after removing 64 emergency medical responder students and 868 missing instructor records, there were 6,114 records for study. The group included 1,727 emergency medical technician (EMT) students, 831 advanced emergency medical technician (AEMT) students, 2,299 combined EMT and AEMT students (in an academic program called EMS Professions), and 1,257 paramedic students. Table 6 provides a summary of the students in the study.

Table 6. Summary Statistics of Predictor and Outcome Variables TCSG Graduation

Variable	Observ	Mean	Std. Dev.	Min.	Max
Graduation	6,114	.5611711 (56%)	.4962846	0	1
FT Instructors	6,114	1.031567	.9299801	0	6
PT Instructors	6,114	1.559863	1.721516	0	15
Total Instructors	6,114	2.59143	2.254225	0	18
Percent Full time	5,597	.4054103 (41%)	.3251118	0	1
EMT	6,114	.2824665 (28%)	.4502358	0	1
Advanced EMT	6,114	.1359176 (14%)	.342729	0	1
EMT/AEMT Combo	6,114	.3760222 (38%)	.4844253	0	1
Paramedic	6,114	.2055937 (21%)	.4041679	0	1
Financial Aid	6,114	.7672555 (77%)	.4226153	0	1
GPA	6,114	2.604035	1.008139	0	4.00

Note: 3,431 students graduated; FT is full-time; PT is part-time; EMT/AEMT Combo is the EMS Profession diploma containing both levels of instruction.

Table 6 shows there were 3,431 (56%) total graduates consisting of 983 EMT, 600 AEMT, 1,132 EMT/AEMT, and 716 paramedic students. Students having some form of financial aid were 77% and the mean GPA was 2.60 out of a possible 4.00. A variable for percent of full-time instruction was created to examine the level or intensity of instruction by full-time faculty. For this sample, the mean percent of FT instruction was 41% (SD=.325). Included in the full-time instructors and the part-time instructor's observations are 517 records with 0 instructor provided but other variable data appeared useful with financial aid status, useful GPA, and some individuals graduated. The 517 records without instructor variable are included for descriptive analysis but are omitted for some analyses such as the regression models.

To further explore the data, bi-serial correlations were run. Table 7 shows the Pearson correlation values for graduation, instructor status, and student GPA.

Table 7. Correlation Coefficients for Graduation, Instructor Type, and GPA
5% critical value

	Observation	Graduation
Graduation	6,114	
FT Instructor	6,114	0.3029***
PT Instructor	6,114	0.1624***
Total Inst Count	6,114	0.2490***
GPA	6,114	0.5049***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

As shown in Table 7, there is a statistically significant correlation, $p < .001$, between graduation and the number of full-time instructors, part-time instructors, total instructor count, and GPA. However, it is noteworthy to point out that the correlation between graduation and the number of full-time instructors is much stronger as is the total number of instructors than the similar correlation between graduation and the number of part-time instructors. The relationship between graduation and part-time instructors ($r = .162$) is low and may be of little practical significance.

Logistic Regression Analysis for Graduation

To address Research Questions 1 and 2, logistic regressions were completed to examine the contribution of instructors, GPA, and financial aid on graduation. The first step of the regression, shown in Table 8, sought to examine the contribution of the instructor alone, not including other student demographics. As shown, the total number of instructors and the percent of full-time instruction contributed to students' likelihood of graduation. For each unit increase in the number of total instructors indicated a 1.192 times greater likelihood of graduating ($p < .001$). For each one-unit percent increase in instruction from full-time faculty, the likelihood of graduating increased by 1.70 ($p < .001$).

Table 8. Logistic Regression Analysis with Dependent Variable Graduation

Observations (n=5,597)					
LR chi2(2) = 197.89					
Prob > chi2 = 0.0000					
Pseudo R2 = 0.0264					
Independent Variable	Coef.	Odds Ratio	Std. Err.	z	P>z
Total Instructors	.1757549	1.192146	.0181078	11.57	0.000
Percent Full-time	.533742	1.705302	.1439794	6.32	0.000
_cons	-.2519948	.7772488	.0454582	-4.31	0.000

Note: Log likelihood = -3648.5472; _cons estimates baseline odds

A second logistic regression model was developed to examine additional variables and their contribution to graduation. Table 9 presents the results for the full model.

Consistent with Table 8, the total number of instructors (full-time and part-time) and the percent of full-time instructors contributed to students' likelihood of graduation. Results show that when holding constant for all other variables in the model (including the total number of instructors), students who have a higher percentage of full-time instructors are more likely to graduate. For each unit increase in the number of instructors indicated a 1.176 times greater likelihood of graduating ($p < .001$). For each one-unit increase in full-time instructor percent, the likelihood of graduating increased by 1.91 times ($p < .001$). Also shown in Table 9, students with a higher GPA were more likely to graduate.

Compared to students in the AEMT program, EMT, Paramedic, and EMT/AEMT combination students were more likely to graduate.

Table 9. Logistic Regression Analysis with Dependent Variable Graduation

Observations (n=5,597)					
LR chi2(2) = 1949.68					
Prob > chi2 = 0.0000					
Pseudo R2 = 0.2601					
Independent Variable	Coef.	Odds Ratio	Std. Err.	z	P>z
Total Instructors	.1621518	1.176039	.0207812	9.18	0.000
Percent Full-time	.6493447	1.914286	.2087202	5.96	0.000
GPA	1.470763	4.352555	.2009202	31.86	0.000
Financial Aid	-.0122818	.9877934	.0802321	-0.15	0.880
EMT	-.2842387	.752587	.0864169	-2.48	0.013
Paramedic	-1.214124	.29697	.0377678	-9.55	0.000
EMT/AEMT Combination	-.7275894	.4830721	.0542725	-6.48	0.000
_cons	-3.49262	.0304211	.0054253	-19.58	0.000

Note: Referent category was students in the AEMT program;
Log likelihood = -2772.6543; _cons estimates baseline odds

A third logistic regression model was created for analysis of the full-time and part-time instructor count. Consistent with general findings in Tables 8 and 9, results on the effect of number of instructors shows that students with more full-time instructors have greater odds of graduating. As shown in Table 10, each increase in the number of full-time instructors doubled the odds of graduating. Conversely, students with more part-time instructors were less likely to graduate (odds ratio = 1.098, $p < .001$).

Table 10. Logistic Regression Analysis with Dependent Variable Graduation

Observations (n=6,114)					
LR chi2(2) = 624.27					
Prob > chi2 = 0.0000					
Pseudo R2 = 0.0745					
Independent Variable	Coef.	Odds Ratio	Std. Err.	z	P>z
FT Inst Count	.6928598	1.999425	.0696453	19.89	0.000
PT Inst Count	.0932954	1.097786	.0222419	4.60	0.000
_cons	-.5665303	.5674911	.0253229	-12.70	0.000

Note: _cons estimates baseline odds

Data Related to Licensure

Georgia Department of Public Health's Office of EMS and Trauma provided data covering 7,090 EMS students entering a TCSG college on or after August 2011 and completing on or before May 2015. Consistent with the rationale for graduation, the August 2011 begin date was chosen due to the start of the new national curriculum for EMT, Advanced EMT, and paramedics, and, May 2015 was chosen since students have up to two-years to submit for licensure.

The dataset consists of variables that aim to measure factors affecting license post entering a Technical College System of Georgia EMS program. Table 11 shows the summary statistics licensure level (EMT, AEMT, and paramedic), age, gender, race, institution location, institution size, coordinator license level, and coordinator years of experience.

Of the 7,090 observations in Table 11, 54% were EMT, 36% were AEMT, and 10% were paramedic. Further, 62% were male, 79% were Caucasian, 16% were African American, and 3% were Hispanic. There were 81% of the observations in an urban location with 56% from a large institution with greater than 6,000 student enrollments. Overall, 39% achieved a license. Further, 1,099 (28.76%) out of 3,821 EMTs were licensed, 1,192 (46.44%) of 3,821 AEMTs were licensed, and 461 (65.67%) of paramedics were licensed. Fifty-eight percent of the paramedic instructors were Level 3 and 40.88% of their students achieved licensure in the time frame used for this study.

Table 11. Summary Statistics of Predictor and Outcome Variables OEMST

Variable	Obs	Mean	Std. Dev.	Achieved Licensure	Min	Max	Description
Licensure	7,090	0.3881523 (39%)	0.4873639		0	1	1=Yes; 0=No
EMT	7,090	0.5389281 (54%)	0.4985175	1,099/3,821 (28.76%)	0	1	1=Yes; 0=No
AEMT	7,090	0.3620592 (36%)	0.4806297	1,192/2,567 (46.44%)	0	1	1=Yes; 0=No
Paramedic	7,090	0.0990127 (10%)	0.2987001	461/702 (65.67%)	0	1	1=Yes; 0=No
Age	6,996	26.68654	8.024672		12	76	Applicant Age
Gender	6,980	0.6247851 (62%)	0.484213	1,825/4,471 (40.82%)	0	1	1=Male; 0=Female
Caucasian	6,806	0.7873935 (79%)	0.4091816	2,304/5,643 (40.83%)	0	1	1=Yes; 0=No
African- American	6,806	0.1588304 (16%)	0.3655448	386/1,365 (28.28%)	0	1	1=Yes; 0=No
Multiracial	6,806	0.0280635 (3%)	0.1651663	135/475 (28.42%)	0	1	1=Yes; 0=No
Hispanic	6,806	0.0257126 (3%)	0.1582882	119/459 (25.93%)	0	1	1=Yes; 0=No
Location- Urban	7,090	0.8111425 (81%)	0.3914230	2,246 (39.05%)	0	1	1=Urban; 0=Rural
Size- Small	7,090	0.0454161 (5%)	0.2082296	139/322 (43.17%)	0	1	1=Small <2,500 enrollment; 0=No
Size- Medium	7,090	0.3908322 (39%)	0.4879713	1,102/2,771 (39.77%)	0	1	1=Medium 2,500-6,000 enrollment; 0=No
Size- Large	7,090	0.5637518 (56%)	0.495954	1,511/3,997 (37.80%)	0	1	1=Large >6,000 enrollment; 0=No
Coordinator License	7,090	0.5751763 (58%)	0.4943511	1,667/4,078 (40.88%)	0	1	1=Level III; 0=Level II
Coordinator Years	7,090	7.2823700	6.3745050		0	19	Years Licensed as instructor

Note: For EMS students enrolling on or after August 2011 and completing on or before May 2015, in the Technical College System of Georgia, the mean licensure attainment for 7,090 students was 39%.

Table 12 shows the correlation between licensure, licensure level, and coordinator years of experience. As shown, there is a statistically significant correlation, $p < .001$, between licensure and the coordinator license level (although the correlation value of .049 indicates it to be of little practical significance). There is no significance between licensure attainment and the coordinator's years of experience.

Table 12. Correlation Coefficients Between Licensure, Coordinator Level, and Coordinator Years of Experience

	Observation	Licensure
Licensure	7,090	
Coordinator License Level	7,090	0.0492***
Coordinator Years' Experience	7,090	0.0070

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Logistic Regression Analysis for Licensure

To address my third and fourth Research Questions, two similar logistic regressions were run to see if instructor type and other demographic characteristics contributed to obtaining licensure. Table 13 shows results for the contribution of the coordinator's licensure level.

Table 13. Logistic Regression Analysis with Dependent Variable Licensure

				Observations (n = 7,090)	
				LR $\chi^2(1) = 17.25$	
				Prob > $\chi^2 = 0.0000$	
				Pseudo R ² = 0.0018	
Independent Variable	Coef.	Odds Ratio	Std. Err.	z	P>z
Coord License Level	.2053684	1.227977	.0608468	4.14	0.000
_cons	-.5743844	.5630514	.0213708	-15.13	0.000

Note: Log likelihood = -4726.8905; cons estimates baseline odds

Shown in Table 13, compared to students who received instruction from a Level 2 licensed instructor, students who had a Level 3 licensed instructor had odds that were 23% more likely to earn licensure.

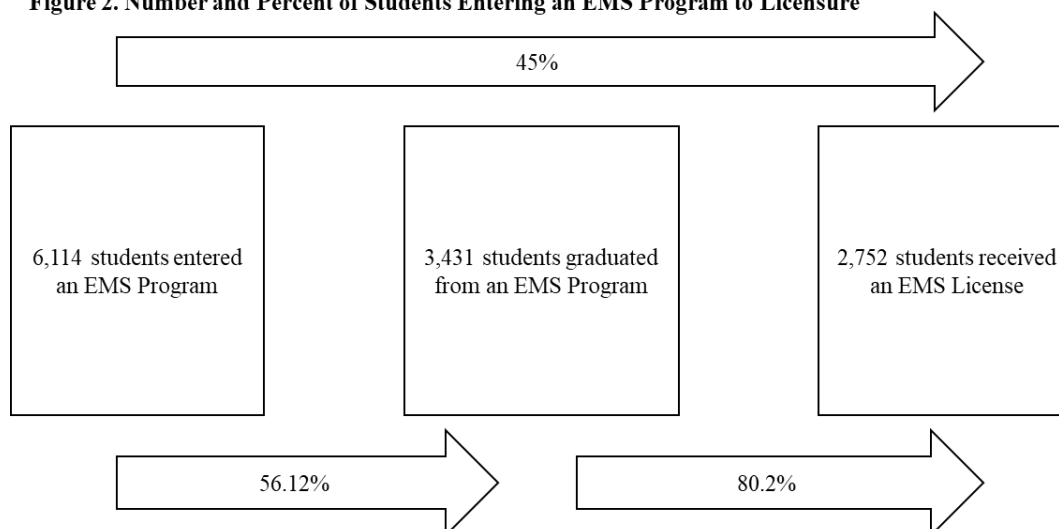
Table 14 shows the results from the full logistic model for licensure. As shown, when a larger set of independent variables was included in the model, the contribution of the coordinator level was no longer significant. However, other variables did contribute to students' likelihood of earning licensure. Specifically, and holding constant for all other variables in the model, paramedic students had odds that were 2.11 times more likely to earn licensure than AEMT students, but students in the EMT program were .52 less likely to earn licensure than peers in the Advanced EMT program. A student from an urban location had odds that were 1.2 times more likely to obtain licensure than a rural location student and male students had odds that were 1.25 times more likely than female students to obtain licensure. Compared to students in a small sized institution, those in medium or large size institutions were significantly less likely to earn licensure. Student race nor age were significant in contributing to licensure nor was the coordinator's years of experience.

As pictured in Figure 2, there were 6,114 students enrolled in an EMS program and 3,431 or 56.12 percent graduated. Of the 3,431 graduates, 2,752 or 80.2% achieved an EMS license. Of the 6,114 students enrolled, only 2,752 or 45% achieved a license. When considering the 7,090 students in the licensure data set, 39% achieved a license.

Table 14. Logistic Regression Analysis with Dependent Variable Licensure

Observations (n=6,799) LR chi2(12) = 473.89 Prob > chi2 = 0.0000 Pseudo R2 = 0.0519					
Independent Variable	Coef.	Odds Ratio	Std. Err.	z	P>z
Coordinator License	-.0059599	.9940578	.0554666	-0.11	0.915
EMT	-.7290514	.4823664	.0264095	-13.32	0.000
Paramedic	.7462356	2.109046	.2029389	7.76	0.000
Location-Urban	.1816446	1.199188	.1032338	2.11	0.035
Medium Size	-.2824427	.7539398	.1040464	-2.05	0.041
Large Size	-.3185086	.7272328	.1110995	-2.08	0.037
Student Age	.0033709	1.003377	.0032615	1.04	0.300
Gender-Male	-.227717	1.25573	.0675369	-4.23	0.000
Race Caucasian	.1917972	1.211425	.1913691	1.21	0.225
Race Black	-.2547496	.7751105	.1312546	-1.50	0.132
Race Hispanic	-.2010202	.8178959	.1863659	-0.88	0.378
Coordinator Years	-.0052761	.9947377	.0044164	-1.19	0.235
_cons	.166204	.74884	.2317318	0.72	0.473

Note: The reference group in Advanced EMT (AEMT), small size institutions, and Multiracial students; Log likelihood = -4324.8898; cons estimates baseline odds

Figure 2. Number and Percent of Students Entering an EMS Program to Licensure

Limitations

While this data proved useful in studying EMS instructors and their impact on student success, there were some limitations. First, the study period, limited to 3.5 years, followed the implementation of a new national curriculum which caused instructors to change their organization of course content and their lesson plans from the previous long-standing curriculum. In addition, the National Registry of EMTs, the national testing organization used for state licensure, had to make changes to adopt to the new national content prior and on-going during this period. These items together have the potential to produce different results and conclusions from a longer study period with a larger dataset. Likewise, a longer study period utilizing a familiar curriculum and instructional strategies leading to known success measures may produce different results and conclusions.

Secondly, there was the limitation that the two datasets were not linked together as the two state agencies were not able to share data. While given the structure and nature of the program and the state licensure and course approval process, the separate datasets include the same students, it would have proved more helpful if the two state agencies would have merged their data into one linear dataset. Although I carefully reviewed and made efforts to check some questionable data points, I completed subsequent analyses assuming that data entered into the respective systems was accurate. For the students in the TCSG data set that had zero instructors and a 0.00 GPA, I assumed that those students never actually started an EMS program and were therefore excluded from analysis. Finally, this research did not include any qualitative data from instructors on their view of student preparation and performance.

CHAPTER 5

DISCUSSION AND IMPLEMENTATION

Emergency Medical Services (EMS) is a pre-hospital healthcare component that provides out-of-hospital patient care with emphasis on emergency medical care. EMS operates at a junction amid healthcare, public health, and public safety. For EMS to succeed and to be adequately staffed when citizens call 911, there must exist a substantial workforce of qualified EMTs and paramedics. The future workforce of licensed EMTs and paramedics exist only when they receive high quality training from knowledgeable instructors. Some previous literature found that while part-time instructors may bring active work experience to the classroom if employed full-time in a profession, they are not as engaged with student learning and their success and do not have the same level of instructional preparation or commitment to student success as full-time instructors (Benjamin, 1998; Cotton & Wilson, 2006; Jaeger & Eagan, 2009; Jolly, Cross, & Bryant, 2014; Umbach, 2007). With the need for a robust EMT workforce and with employers, college administrators, accreditation agencies, and state regulators focused on student learning and outcomes, the purpose of this study is to compare the impact of part-time and full-time faculty members and their instructor licensure level on student success as measured by student graduation and licensure attainment for students in in an EMT, AEMT, or paramedic program in the state of Georgia.

Discussion

Findings discussed in Chapter 4 indicate that the type of Emergency Medical Service program, faculty member time status, the number of program instructors, and licensure level of the instructor have an impact on EMS student success. The findings on 6,114 observations determined that students who had a higher percentage of instruction from full-time faculty members were more likely to graduate (Research Question One). Further, results also showed that having a higher number of both full-time and part-time instructors had a positive effect on graduation. As might be expected, students with a higher GPA were more likely to graduate, and unexpectedly, results showed that receipt of financial aid did not contribute to a greater likelihood of graduating from an EMT or paramedic program.

The finding that the mix and higher number of total instructors increased probability of graduation may likely come from increased instructor interaction and part-time instructors being able to work closely with the student in labs or with tutoring while the full-time instructor handles other administrative duties or is allowed additional instructional preparation time. Another possibility could be the lowering of instructor to student ratio thereby the student getting more intense instruction. Additionally, controlling for instructor licensure level, results determined that students who were instructed by Level 3 (requiring an associate degree or equivalent college hours) licensed instructors were more likely to achieve licensure than those who was instructed by Level 2 (requiring a state approved curriculum course and a proficiency exam) licensed instructors (Research Question Three). Further below, I discuss these findings and will

offer educational leaders and state regulatory leaders considerations for how an EMS program is staffed.

Similar to previous studies (Calcagno, et.al, 2008, Ehrenberg & Zhang, 2005; Jacoby, 2006), I found, that instruction led by part-time faculty members resulted in a decreased likelihood of college graduation. Often, there is less student interaction and engagement with part-time instructors (Benjamin, 2002; Cotton & Wilson, 2006; Jaeger & Eagan, 2009; O'Meara, Terosky, & Neumann, 2008; Umbach, 2007), and part-time instructors are less likely to use collaborative learning techniques and are more likely to spend less time preparing for classroom instruction (Umbach, 2007). Further, part-time faculty members often have decreased access to professional development (Jolly, Cross, & Bryant, 2014) and may not know of or have access to campus resources that might lend to increased student assistance or learning.

Because findings showed that full-time faculty member instruction leads to a greater likelihood of graduation, policy changes should be considered that would provide administrators the necessary assets to employ more full-time faculty members who can serve as leads in EMS program of instruction. These assets would likely require additional operating funds to employ more full-time faculty members (FTEs), additional professional development funding, and additional office space and associated support resource funding. Perhaps part-time faculty members should be limited to assisting with lab psychomotor instruction or to assisting with psychomotor formative and summative assessments as they may lack formal pedagogical training and with being part-time may not have the time to fully devote to adequate instructional preparation and student engagement. Further, it is conceivable that a program with more full-time faculty

members would allow for more instructional preparation, multiple opportunities for student-faculty interaction, and possibly a lively and engaged classroom (Benjamin, 2002; Jaeger & Eagan, 2009; O'Meara, Terosky, & Neumann, 2008; Umbach, 2007).

The finding that a student assigned to a full-time instructor is more likely to graduate than a student having a part-time instructor is consistent with previous literature in that students tend to have higher academic achievement when associated with the greater interactions that full-time faculty members can offer (e.g., Kezar & Maxey, 2016 p.25; Umbach, 2007). In general, full-time faculty members are on campus more, spend more time with instructional preparation, and are more likely to engage the student in collaborative learning techniques leading the student to earn higher grades. Full-time faculty may also be involved in campus committees, be more involved with student affairs and learning support resources, and have access to other faculty members who may be able to enhance classroom instruction with their professional or subject matter expertise. Likewise, full-time faculty members might interact with other faculty members and collaborate on teaching strategies or other enhanced instructional techniques learned at conferences and staff development sessions.

Interestingly, this research also discovered that higher total EMS faculty member count led to an increased likelihood of graduation. Specifically, for each unit increase in the percentage of full-time instructors a student had, their likelihood of graduating increased by nearly two-times (1.70) and this was statistically significant ($p < .001$). Typically, EMS and paramedic programs are designed to use one full-time instructor and then add more instructors as needed. While this discovery needs more research, it is conceivable that this would occur in that a program with multiple faculty members would

teach the parts of the curriculum that they have a stronger knowledge base, interests, or experiences as opposed to those programs where an individual faculty member, teaching the entire program, must be an expert in all aspects of the curriculum. Further, it is conceivable that a program with more full-time faculty members would allow for more instructional preparation, multiple opportunities for student-faculty interaction, and possibly a lively and engaged classroom.

Research Question Two sought to determine if student academic ability (as measured by GPA) and receipt of financial aid contributed to graduation. Consistent with previous literature (Kuh, 2003), students in this study with a higher GPA were significantly more likely to graduate. Again, as was found in the literature (Umbach, 2007), students have a higher level of performance from increased contact with a full-time faculty member. This can occur because full-time faculty members may be on campus or available to the student more often, having more time to adequately prepare for instruction, and with full-time faculty members tending to have a higher level of student academic performance expectation.

Consistent with social exchange theory (Blau, 1964; Jepsen & Rodwell, 2010), when a part-time faculty member does not feel they are receiving an equal reciprocal exchange, their performance or results may be lower than their full-time counterparts and in many instances, part-time faculty members are not afforded the same level of classroom instruction preparation and pay, or they do not have the time to commitment to the extra efforts needed. Although this study did not examine specific activities in the classroom, it seems reasonable that part-time faculty in this study may have interacted

less with students outside their limited aspects of the program, and if so, may have minimized chances for students to learn from them.

Concerning financial aid, while 77% of the students who graduated had some form of financial aid, it did not prove to be of significance in predicting the likelihood of graduation. This finding might be due to the relatively short nature of an EMS program or to the relatively low tuition costs of attending a TCSG institution, but future studies may want to explore the types of financial aid used. Perhaps some students, such as parents with young children, may benefit from financial aid such as the HOPE grant, but may still not have funds for daycare. As well, additional, financial aid above that needed for course registration may allow students to work fewer hours and thereby have more time to study and prepare for classes which might lead to a higher GPA.

Research Question Three sought to determine if a faculty members EMS Instructor licensure level made a difference in student licensure attainment. Specifically, seeking to determine if there is a difference in student state licensure success when led by a Level 2 licensed instructor versus a Level 3 licensed instructor and if the instructor's years of experience contributed to student licensure accomplishment (Level 2 licensed instructors can only teach EMT and AEMT courses while Level 3 licensed instructors can teach all courses to include paramedic). Moreover, students who were instructed by a Level 3 licensed instructor were 1.22 times more likely to achieve licensure than those who had a Level 2 licensed instructor, but there was no relationship between the instructor's years of experience and the student's licensure fulfillment. While further study is warranted, it is possible that Level 3 instructor's students might achieve more success than Level 2 instructor's students as Level 3 instructors are required to an

associate degree or equivalent college hours, tend to have a greater commitment to the instructional process having more instructional experience and professional development, and are more likely full-time faculty members as opposed to Level 2 licensed instructors who are more likely part-time faculty members. Further, it is more likely that Level 3 instructors have a broader and more in-depth knowledge base with having the ability to teach at the paramedic level. These findings, collectively, support the need to review instructor course coordinator requirements and suggests that a lead instructor should be full-time and at a Level 3 licensure level.

Research Question Four sought to determine if there were student demographics or institutional characteristics that contributed to the likelihood of attaining licensure. Results found a student from an urban location had a greater likelihood of achieving licensure than those from a rural location as do those who attended a small institution versus those attending a medium or large size institution. While further study would be warranted, it is possible that students in an urban location, a population greater than 50,000, might have a better secondary education system. A larger population area means a larger tax base and that may likely result in greater resources for the postsecondary institution that houses the EMS program. Similarly, a more urban environment may increase the likelihood a student comes from a household that is in support of higher education attainment and be better prepared for college level work than those in a rural setting with a population less than 10,000 (Rosigno, Tomaskovic-Devey, & Crowley, 2005). Still, to encourage enrollment, administrators in small rural areas should bring employers on campus to address the job market with pay, benefits, and stability. This could be accomplished with an open house and ambulance demonstration. It could prove

beneficial for employers to partner with colleges to provide scholarships or work for a student in school

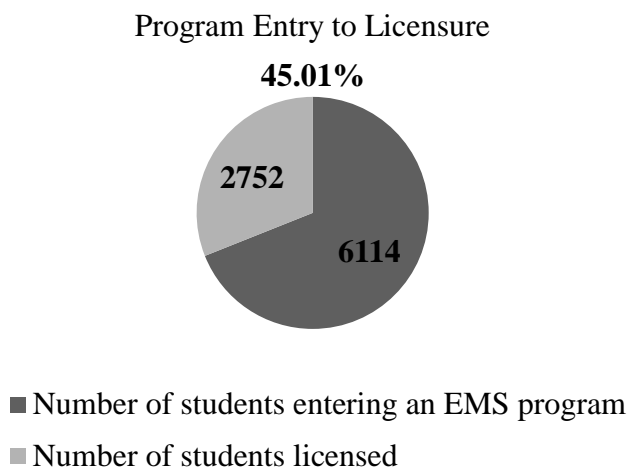
In review of institution size, results herein were potentially skewed because there were only two small size colleges in the sample compared to eleven medium and nine large size institutions, and while race nor age were significant in contributing to licensure, male students were 25% more likely than female students to obtain licensure. While in this study it is not clear why 63% of the EMS enrollment is male, it is consistent with the current high percentage of male EMS personnel in the state of Georgia at 80%. Although it is not possible to examine from the data used in this study, there is the perception that EMS is still a male dominated field. It is a positive point that female participation is increasing in general and that this data set had 37% female EMS or paramedic students. In addition, some female students will use an EMS program as an entryway to another allied health program of study typically working in a more controlled hospital environment. While considering the EMS workforce demands for qualified and licensed EMTs and paramedics, any opportunity that leads to an increase in success measures of increased student graduation and increased student licensure numbers must be implemented and utilized as swiftly as possible as there continues to be great demand for workers.

Workforce and Program to Licensure

EMS employers are in a continued need of licensed EMTs and paramedics to sustain a strong workforce, and they routinely compete among themselves for applicants (Blau & Chapman, 2016). However, in this study spanning over a three and one-half year

period from August 2011 to May 2015, and as seen in Figure 3, only 45% of the 6,114 students who began a program of EMS study achieved a license to work.

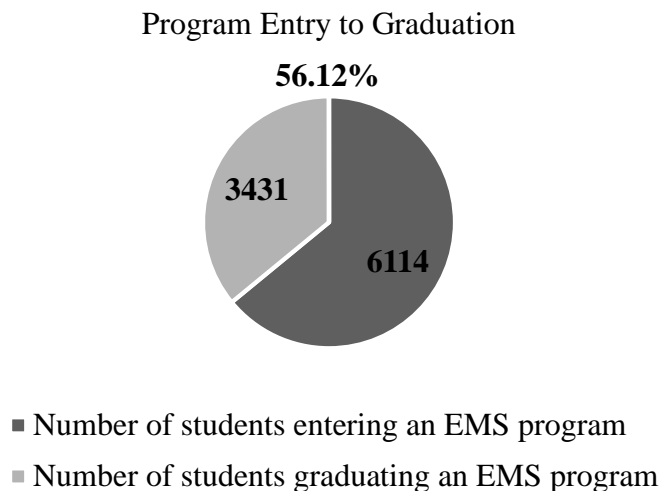
Figure 3. Program Entry to Licensure



As Georgia continues to increase in population and as the geriatric population continues to increase, the need for EMS and prehospital medicine will continue to rise. Therefore, it is imperative that all educational institutions implement any conceivable option (s) that would lead to an increase in the likelihood a student will graduate once entering a program. As shown in Figure 4, 56% of students in this study who entered an EMS program graduated. By comparison, this is high when considering the average twelve-year national graduation percentage, from a public college with a certificate or associate degree, is 21% (Digest of Education Statistics, 2016). Even still, institution leaders surely hope to create and enact policies and procedures that support *all* students who enroll to successfully graduate. Findings from this study lead to the conclusion that EMS graduation rates might be even higher with greater use of full-time faculty members. As discovered in this research, full-time faculty members are more likely than part-time faculty members to have greater student learning outcomes through greater

student interaction and learning. In addition, full-time faculty members likely have more time to devote to instructional preparation and to professional development.

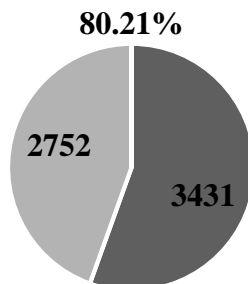
Figure 4. Program Entry to Graduation



Furthermore, with 80% of those who did graduate and achieve licensure, as shown in Figure 5, the use of more full-time instructor use could increase licensure numbers even higher. Again, as revealed in literature and study, full-time faculty members tend to have greater access to learning resources, more professional development, and more time to devote to the student (Benjamin, 2002; Landrum, 2008; Kezar & Maxey, 2016; Umbach, 2007). In addition, full-time faculty members are seemingly more invested in the student outcome given their full-time employment as opposed to a part-time faculty member with less access to learning resources, professional development, and time to devote from their full-time employment (Cotton & Wilson, 2006; Jaeger & Eagan, 2009 Jolley, Cross & Bryant, 2014). Likewise, the use of Level 3 instructors who have greater academic requirements and experience may be more likely to be employed full-time should be utilized to increase the success of students in attaining licensure.

Figure 5. Program Graduation to Licensure

Program Graduation to Licensure



- Number of students graduating an EMS program
- Number of students licensed

As reported in Chapter 4, students in this study are more successful in their academic goals for graduation and licensure consistent with that found in other literature (Jaeger & Eagan, 2009; Umbach, 2007). Although students were more successful with full-time faculty members, higher education officials continue to employ significant numbers of part-time faculty members. Indeed, financial constraints are a likely driver for this. Caution on the use of part-time faculty is warranted and when it does happen in EMT programs, it seems beneficial to have part-time instructors participate with psychomotor skill labs, formative and summative assessment, and tutoring as well as offering professional development workshops or other activities that ensure active engagement of part-timers with the campus and with full-time faculty colleagues.

Instructor and Institution

Social exchange theory (Blau, 1964; Cropanzano & Mitchell, 2005) can be used to understand contingent workforces and organizational commitment along with the reciprocal exchange between the two to include status, attitudes, and behaviors. It seems likely that a part-time instructor may not provide the same elevated level of attention to

student learning and achievement as full-time instructors when they receive less compensation with no benefits, receive less access to resources, and, as a result, they may feel underappreciated spending less time preparing for instruction. Also, when a part-time instructor perceives a lack of organization support, the literature tells us they will not be as committed to perform for the employer (Chen et al., 2009; Rhoades & Eisenberger, 2002). Therefore, when the part-time faculty member is not provided compensation for instructional preparation, adequate time and compensation for professional development, and the same resources as a full-time faculty member, their results are likely not going to be the same. The same holds true for instructor licensure level. With a Level 3 instructor having more professional development or continuing education requirements than a Level 2 instructor, Level 3 instructors require more institutional support. Therefore, it would appear to be of institutional benefit to employ full-time Level 3 licensed instructor faculty members for primary lead instruction and supplement in labs and assessments with part-time faculty members or provide more support, training, and pairing of full-time faculty members with part-time faculty members so that part-time instructors become more aware of teaching pedagogies that are particularly helpful with the EMS students and become more engaged with colleagues and students. By doing so, the part-time faculty member is compensated for their instructional time with no need for outside of class preparation or compensation, and with the part-time faculty member working alongside a full-time faculty member, any resource needs can be more readily accessible with a full-time faculty member presence. In the end, with a more mutually benefiting relationship, this might lead to be a more productive and engaged part-time faculty member more committed to the organization and thereto the student.

As demonstrated in literature and in the findings herein, and in consideration of social exchange theory, it seems unwise for an institution to offer an EMS academic program with only part-time instructors and with only Level 2 licensed instructors. The institution choosing to use part-time faculty members should do so in a manner that best assists the full-time faculty members and students by offering lab support, small group sessions, current field practice, and practical application to didactic instruction. It would not seem appropriate for a part-time faculty member to lead an entire program of study that leads to a healthcare licensure let alone in a career field in desperate need of quality candidates to sustain an adequate workforce. It is incumbent on college administrators to reevaluate this practice given the literature and outcomes known and find the funding to hire more full-time faculty members. While money for salaries is always limited, a case will need to be made to either redistribute money from underperforming programs, reallocate funds from other parts of the budget, or to charge a premium tuition for the EMS program.

Similar to previous findings, (Margolis, Romero, Fernandez, & Studnek, 2008; Russ-Eft, Dickison, & Levine, 2010), a successful EMS program can benefit from policies and instructor programs that ensure institutional support, instructor consistency, and providing frequent student performance feedback, it takes full-time faculty members with the dedication, time, and energy necessary to adequately fulfill each task (Ruple, Frazer, Hsieh, Bake, & Feel, 2004). Furthermore, with a workforce in great demand for licensed professionals, it is incumbent on our accreditors, state agency heads, and state regulators to uphold guidelines that require strong standards for the use of knowledgeable and engaged instructors.

Recommendations

Results herein support the recommendation that The Technical College System of Georgia officials consider the employment of full-time Level 3 licensed instructor faculty members in a lead instructional role as much as possible and limit part-time faculty member use. Likewise, these results lead to the conclusion that the Georgia Office of EMS and Trauma should only approve as much as possible programs that will be led by a full-time faculty member with a Level 3 instructor license. The merit of these results and recommendations should be led by the employers who can drive these changes through the involvement of the professional association, the Georgia Association of EMS, and through the Georgia Office of EMS and Trauma's advisory council, the Emergency Medical Services Advisory Council. With these simple changes, more students can be positioned to increase their likelihood of graduation and subsequently receive their EMS license to work for as it stands now, there are not enough EMTs and paramedics to staff the ambulances in the state of Georgia.

Future Study

From this body of research, there are future studies that are recommended. Unexpectedly, it was discovered that a higher number of total full-time and part-time faculty members led to an increased likelihood of graduation. Above I have speculated on some possible reasons for this, but more definitive research is warranted to determine the cause. This study also concluded that Level 3 instructors had greater success than Level 2 instructors and more study is warranted such as instructor academic preparation to further determine the cause that might lead to future instructor requirements. While years of instructor experience did not lead to any significant result, study is warranted with faculty

academic credentials and surveying of what they feel would contribute for increased student success. Future studies may wish to examine any possible interactions between licensure level, years of experience and time status. Finally, future study is warranted to determine why urban institutions had greater success as opposed to rural locations and study could look further at the success rate from the ten different EMS regions across the state of Georgia. Future studies may also wish to gather information from students who did not successfully graduate or earn licensure. Qualitative data gathered through individual interviews may yield more nuanced information on students' interactions with instructors and students' perceptions of the quality and overall effectiveness of EMT instructors.

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