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by

Sofia A John

May 2019

EVALUATION OF THE EARLY ALERT SYSTEM AS A NURSING STUDENT SUCCESS INITIATIVE

A Doctoral Thesis Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Doctor of Education

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May 2019

Acknowledgement

‘To God be the glory, great things He has done.’ 1 Peter 4:11- If anyone speaks, they should do so as one who speaks the very words of God. If anyone serves, they should do so with the strength God provides, so that in all things God may be praised through Jesus Christ. To Him be the glory and the power for ever and ever.

As a first generation immigrant family to this land of opportunity, our parents impressed upon us the importance of honoring God, of serving family/church/community, and of the worth of education. With these values and foundation, I finished my undergraduate education in nursing, at which time my Father specifically challenged me: ‘In this country you have many opportunities- we didn’t have these opportunities growing up- so don’t stop here, go as far as you can!’ Even though I love to learn, that very challenge resonated with me and was my fuel to go back to school and ultimately to complete the doctorate work. I thank my parents for the sacrifices they made so I can have a better opportunity and future.

I’m so grateful to my precious Brother and Sister who has been my never-ending support and strength, you have no idea how much you inspire me with your love and grace. To my breath-taking Son, Nieces, and Nephews: your child-like faith, laughter, and joy has encouraged me and kept me young at heart through this process- I pray you are challenged to fulfill all that God has planned for you, and I challenge you with the same words your Grandfather spoke to me: In this country you have great opportunities, Go as far as you can! In honor of my Aunt, who was a nurse and educator in a time with limited opportunities, her achievement and strength will always be an inspiration. I’m grateful to

a wonderful set of Family and Friends who have checked on me and encouraged me to continue when I wanted to stop.

To my Church Family who has prayed me through, I felt the strength of God through you. To several of my Colleagues who understood the task and provided encouragement along the way; especially to a great Colleague and Friend whose brilliant mind and tender heart has pushed me to the finish line, thank you so much. To my Professors and Committee Members, thank you for your guidance and expertise as I navigated this program and process.

Finally, to all the immigrants to this land of opportunity, I encourage you to fulfill all that God has for in store for you and Go as far as you can!...because this land affords the opportunities, of which I am a witness. To God be the glory and the power for ever and ever. Amen.

EVALUATION OF THE EARLY ALERT SYSTEM AS A NURSING STUDENT SUCCESS INITIATIVE

An Abstract
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Abstract

Background: The viability of nursing education programs depends on their licensure exam pass rates. Annual pass rates for the National Council Licensure Examination-RN (NCLEX-RN®) must be 80% or higher for program approval by the Texas Board of Nursing (TBON). Sixty-one RN programs out of 100 across Texas were required to write self-study reports for years 2013- 2015 due to NCLEX-RN® pass rates below 80%. The TBON self-study analysis from 2013- 2015 noted deficiencies in the identification of at-risk students, and remediation plans. **Purpose:** The present study investigated outcomes of one specific remediation strategy for at-risk students, the Early Alert (EA) system, at an urban community college. The EA system is a collaborative student remediation that the Associate Degree in Nursing (ADN) program has employed since 2013. However, to date, no data have described intervention outcomes in terms of student grades or pass rates. Therefore, this study sought to analyze ADN student outcomes under the Early Alert remediation system. Specifically, this study asked: 1) What was the frequency of passing for students within the EA system? 2) How did the academic advisor contact and completion of the EA process correlate with the student pass rate? **Methods**: This was a mixed-method study that analyzed archival student-remediation record data from the EA system as well as interviews with advisors. Data included grade outcomes for students referred to the EA system in academic years 2015, 2016, and 2017. Methods used included frequency analysis of passing vs. non-passing grades for EA system participants in 2015, 2016, and 2017, and Spearman's rho correlation of academic advisor progress recorded in the EA system tracking with student grades. Exploratory analyses were conducted using interviews of advisors to understand other factors that may have affected

EA system implementation and student success. **Results:** In answer to the question of EA system effect on pass rate, the finding was 78% of the nursing students referred to EA system passed while 22% did not (n = 568). However, there was no correlation between student grade and advisor contact (r_s = -.008, p = .863). While the results suggest that the majority of students referred to the EA system did pass, the EA system dataset was limited because of the inconsistency of data entry about advisor contact frequency. No information existed about the nature of the advisory and faculty contact. Interviews with advisors indicated that overall the EA system helped to identify at-risk students early enough to address academic and personal issues. Challenges included contacting students in a timely manner with other department responsibilities, getting students to respond to advisor contacts, and closing the loop with improved documentation and communication between faculty and advisor related to student needs and remediation. Future research could include the tracking of faculty contact in remediation efforts, in addition to advisor contact, in regard to student outcomes.

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Chapter I

Introduction

Nursing programs have acute accountability for student pass rates on the National Council Licensure Examination-Registered Nurse (NCLEX-RN®). Nursing program approval by the Texas Board of Nursing (TBON) requires an annual, minimum 80% pass rate by first-time NCLEX-RN® testers (Texas Board of Nursing, 2014). Falling below 80% incurs program consequences, including program suspension, inability to enroll new students, and/or program closure. In Texas, thirty professional, Baccalaureate of Science in Nursing (BSN) and Associate Degree in Nursing (ADN), nursing education programs out of 100 were required to submit a Self-Study Report to Texas Board of Nursing Staff in 2014 due to 2013 NCLEX-RN® pass rates fell below 80% (Hooper, 2014). Sixty-one professional nursing (RN) programs in Texas were required to write self-study reports during three years based on 2013, 2014, and 2015 NCLEX-RN® pass rates (Hooper & Ayars, 2017). The increase in numbers of the nursing programs failing to meet the 80% or higher pass rate is primarily attributed to the NCLEX-RN® passing standard being raised by the National Council of State Board of Nursing (NCSBN) Board of Directors in December 2012 (Hooper, 2014). Every three years the NCSBN conducts the NCLEX-RN® Practice Analysis and develops the subsequent test plan, with the next one to be implemented in 2019 (In Focus, 2019). Table 1 shows the effect of raising the pass rates in December 2012 and made effective April 1, 2013, on Texas programs' and US programs' pass rates. The Texas Board of Nursing (2016) stated:

> As expected, the pass rates dropped by approximately 8% in 2013 and they are rebounding to the norm. Statistics from NCSBN related to trends in NCLEX-RN®

examination pass rates after an upward change in the passing score indicate a usual drop in pass rates followed by a rebound upward in about two (2) years. (Para. 2)

Table 1

Comparison of Texas RN Pass Rates with the National Average

Year	2015 First-Time Candidates Passed/ Attpted	2014 First-Time Candidates Passed/ Attempted	2013 First-Time Candidates Passed/ Attempted	2012 First-Time Candidates Passed/ Attempted
Average for Texas Programs [a]	85.22% 9,485/11,130	81.02% 9,560/11,800	83.93% 9,290/11,069	90.70% 9,627/10,614
National Average [a]	84.18% 132,864/157,842	81.74% 127,181/155,585	84.29% 130,613/154,954	90.22% 135,211/149,869

[a] Texas Board of Nursing (January, 2016).

Nursing self-study reports may be followed by a variety of program requirements and restrictions. The 2013-2015 TBON self-study report analysis indicated that nursing program weaknesses are "lack of early recognition of at-risk students" and "ineffective remediation plans." The corrective measures included in this report for these weaknesses are "develop criteria to identify at-risk students" and "strengthen remediation plans" (Hooper & Ayars, 2017, p. 53). Therefore, nursing programs across the state instituted a variety of student success programs to promote and to raise these pass rates, as seen in the self-study reports by the various nursing programs across the state (Hooper & Ayars, 2017). Strategies include prevention efforts, such as stringent entrance exams and program admission criteria. Other strategies target support for students already enrolled, such as availability of academic advisors to address student personal and academic issues and

monitoring of student progress at the level of passing individual courses.

The present study addressed the implementation of a nursing student remediation strategy termed "Early Alert system" at a large community college in Southeast Texas. The Early Alert (EA) system is an initiative to remedy pass rates by including criteria to identify at-risk students early in the program and initiating the remediation process to improve student success at the level of individual courses. The Early Alert system is a "collaborative effort between professors and counselors/academic advisors to help students who are at risk of failing one or more of their classes" (Early Alert, 2016, p.1). At the community college in this study, this student success initiative was initiated college-wide in 2013. The health sciences programs, including nursing, were mandated to implement the Early Alert system to assist with early recognition and reporting of at-risk students followed by collaborative remediation. The collaborative or integrated advising/remediation model creates a more coordinated and connected approach to advising that creates a more seamless advising and accessing experience for students with a holistic approach (Joy, 2014).

Statement of the Problem

The Associate Degree Nursing (ADN) program at this large community college has mandated and instituted, along with other academic and workforce programs, the use of the Early Alert system for identifying and remediating at-risk nursing students. This nursing program maintains strict criteria for student advancement within the program; a score of 75% (a grade of C) or higher in individual courses is required to progress to the next level of the program. Therefore, a very dynamic remediation process was needed to assist students who may be at-risk for attrition. An at-risk indication applies to students

who may have excessive course absences or tardiness, academic issues such as exam failure, and/or personal issues that increase the risk of course failure (Early Alert, 2016). This specific ADN program has adhered to a TBON self-study report in implementation of Early Alert as a remediation strategy; but how effective is this remediation strategy? Although initiated and in place since 2013, no study has analyzed the effects of the Early Alert system on nursing student outcomes at this community college. No evaluation of this remediation program or assessment of its effects on nursing students and the program has followed the implementation.

Purpose of the Study

The purpose of this study was to examine the effect of the Early Alert system on students in the nursing courses who were referred for remediation during the 2015, 2016, and 2017 years. The Early Alert system is an academic collaborative advisement and remediation strategy for at-risk students aiming to prevent individual course failure (Early Alert, 2016). Therefore, the goal of this study was to assess the benefit, if any, that the Early Alert system provided to student outcomes and pass rates in individual courses as the initial steps toward retention and graduation, and eventually NCLEX-RN® success.

Research Questions

To examine the effect of the Early Alert system on student outcomes, this study investigated the following research questions for students enrolled in a local ADN program in the years 2015, 2016, and 2017:

Q1) What was the frequency of passing for students enrolled within the Early Alert system?

Q2) How did the academic advisor contact and completion of the Early Alert

system correlate with student pass rate?

These research questions aimed to generate data indicating intervention effectiveness, or lack thereof, to inform nursing educators in how to promote student success in the ADN nursing program.

Context for the Study

This study was undertaken in a context where the NCLEX-RN® pass rate is paramount for program existence, at an urban community college ADN program. The study population was diverse in demographics and academic background. With the changing dynamics of the student population, there are challenges that nursing colleges face in maintaining student graduation and success rates. Student success in the nursing program and on NCLEX-RN® is extremely vital to the success of the overall program. Since the nursing state board has increased the difficulty of the exams and types of questions presented, there is greater responsibility and work on the part of nursing educators to improve graduation rates and the caliber of student performance.

In addition, nursing programs continue to experience disturbingly high attrition rates (Hooper & Ayars, 2017; Peter, 2005). At a community college level, such as where this study takes place, the diversity of the student population is even a greater challenge, and more students are facing greater stress factors (Peter, 2005). Therefore, it is imperative to improve resources and support for this population of students to decrease attrition and increase graduation and pass rates.

Significance of the Problem

The Associate Degree Nursing program instituted the Early Alert system as its collaborative remediation process in 2013, but no data has been collected indicating

efficacy within the ADN program. Resources and remediation efforts need to be directed to alternatives if the present strategy is deemed as ineffective, or if evaluation highlights ways to improve this remediation. Data on Early Alert system student outcomes in the specific courses where students were identified as at-risk are needed to inform on whether to alter, enhance, or discontinue this program in favor of other strategies. The noted high accountability for retention, graduation, and NCLEX-RN® pass rates demands selective strategizing for individual course remediation. As the Texas Board of Nursing has identified in its nursing program self-study reports, corrective measures include "strengthen remediation plans" in nursing programs to assist with student success (Hooper & Ayars, 2017, p. 53). Therefore, the process of the Early Alert system was reviewed and evaluated as the remediation strategy for the nursing program to assess its effect on student success in the nursing courses and need to "strengthen" the remediation process.

The Need to Study Remediation Strategies in a Community College

The data from this study were collected from a large community college located in Southeast Texas. Over the years of 2013-2015, the community college's ADN program achieved NCLEX-RN® pass rates below the 80% threshold set by the Texas Board of Nursing (TBON). As a consequence of these sub-standard pass rates, the ADN program was required to submit a self-study report, and to document strategies for improvement. The nursing program was also barred from admitting any new students for two semesters.

The college had to select and continuously monitor remediation strategies that could help improve student success and improve NCLEX-RN® pass rates. One main remediation strategy documented to TBON self-study report was the use of an Early Alert system. The Early Alert system seeks to integrate both topics for student success

described above- the importance of passing within individual courses and advisor contact, toward student success.

Educational Value of the Study

If the Early Alert system is the primary and formal collaborative or integrated advisement and remediation strategy for the nursing program, then research studies are needed to assess the effect of such programs on student success and to inform the overall nursing education program planning. Further, although this study solely addressed the ADN program within a broader college, the results may aid in informing other programs within this health sciences community college which currently mandate, but have not published, any outcomes regarding this remediation approach.

Limitations of the Study

This study was limited in population to students within the ADN program who were referred to the Early Alert system in the years 2015, 2016, and 2017. This study was also geographically limited to a single-site location, at a large, urban health sciences community college in Southeast Texas.

Definition of Terms

Retention is the percentage of a school's first-time, first-year undergraduate students who continue at that school the next year. For example, a student who studies full-time in the fall semester and continues to enroll in the program the next semester is counted as retained (FAFSA, 2014). Retention is also defined as a student successfully completing the semester of the nursing program with a grade of 75% or higher and therefore being able to progress to the next course/semester in the program. In this specific ADN program, all courses interpret passing as a grade of at least 75%.

Attrition is a reduction in the number of students who progress to the next semester. The goal of the nursing program is to reduce the attrition rate for the number of students progressing to the next semester who has been identified as at-risk in the Early Alert system.

Progression in this study refers to passing the current semester coursework and advancing to the next semester of the program.

Remediation is the action of remedying something, the giving of remedial teaching or therapy. For the purpose of this study, the remediation was the Early Alert system or process initiated and implemented by the community college and ADN program used in this study.

At-risk student refers to a student who has been identified as more likely to be in danger of academic failure. In nursing, at-risk students are described as "those struggling to succeed in their concepts or practica coursework" and who "cannot identify, preform, or describe nursing tasks" (Walker, Franklin, & Borum, 2010, p 123). For the Early Alert system, the student is identified as at-risk if there is excessive course absence, tardiness, exam failure, and/or personal issues that affect course performance.

Summary

In summary, this study evaluated the effects of one remediation strategy, the Early Alert system, on student retention and pass rate within an Associate Degree Nursing education program at a large, urban community college. The drive to collect and to analyze these data was the need to determine remediation success in order to enhance or change what interventions are needed and used. The end goal of the research was to gather information that can be used toward planning for, and promoting, student

graduation from the ADN program, and licensure by passing the NCLEX-RN®. In the next chapter of literature review, prior research data was gathered related to nursing courses and its correlation to NCLEX-RN® pass rate and remediation need, advisement and its effect on students, and history, background, and research findings of early alert warning systems for at-risk students and the remediation process.

Chapter II

Literature Review

This study examined the effects of the Early Alert remediation strategy on Associate Degree Nursing/Registered Nursing (RN) students' grades and progression at a community college in the years 2015, 2016, and 2017. This chapter provides the rationale for this study by presenting a) the dire need for high National Council of Licensure Examination (NCLEX-RN®) pass rates, which is tied to passing course content, b) the implementation of remediation strategies to promote student success, and c) the specific adoption of the Early Alert system as a remediation strategy.

The Problem: Nursing Student Failure Rates on the NCLEX-RN®

The viability of nursing programs in Texas requires annual NCLEX-RN® pass rates of 80% or higher (Texas Board of Nursing, 2014). Failure to attain that rate can result in program sanctions, and the inability to enroll new students. Besides nursing programs' viability, the NCLEX-RN® pass is essential to student attainment of the end goal: professional licensure and workforce entry. Additionally, a student's failure to complete a nursing program would result in not a waste of financial resources but also failing to provide new nurses for the current nursing shortage (Bureau of Labor Statistics, 2017; Roa, Shipman, Hooten, & Carter, 2011). According to the Bureau of Labor Statistics, the nurse shortage will exceed 1 million nursing vacancies which need filling by 2022 (Lippincott Nurse Education, 2017). Therefore, strategies to maintain nursing student enrollment and course success toward ultimate RN licensure are needed.

How are Nursing Programs Responding to this Problem?

Nursing education programs strive to attain the 80% required NCLEX-RN® pass

rate by using multiple strategies to maintain program operation. Opportunities to remediate sub-standard NCLEX-RN® pass rates occur along the entire timeline from nursing student pre-admission to pre-exam review. Key areas include admission requirements, such as HESI A2 (Health Education Systems, Inc. Admission Assessment) scores and prerequisite courses, as well as progress within the program once the student is admitted. NCLEX-RN® pass rates have been found to correlate with both pre-admission criteria and Registered Nursing program grades once students are already enrolled (Robert, 2018). The focus of this study is on remediation strategies for those students already enrolled in the nursing program.

Individual Course Grades as an Important Remediation Target toward NCLEX-RN® Success

Many authors have reported the correlation between students' passing a course and the NCLEX-RN® passing (e.g., Kaddoura, Flint, Van Dyke, Yang, & Chiang, 2017; Sears, Othman, & Mahoney, 2015; Trofino, 2013). These studies provided strong evidence of the importance of students' passing courses in nursing programs. These findings make student outcomes in individual courses an important remediation target for RN programs as part of efforts to improve NCLEX-RN® outcomes.

Sears, Othman, and Mahoney (2015) reviewed the correlation between nursing students' grades and NCLEX-RN pass rate. They concluded that the majority of studies investigating students' GPA in relation to NCLEX-RN® scores found predictive value in student achievement on nursing course content. Similar findings were also reported by Trofino (2013) who investigated two nursing courses, Pharmacology and Advanced Medical-Surgical, at an ADN program in Pennsylvania. The author found that the grades

in the courses had strong correlations with NCLEX-RN pass rates. Passing the Pharmacology course (n=90 students) was found to be associated with an 11-fold higher possibility of passing the NCLEX-RN®, and passing the Advanced Medical-Surgical Nursing course (n=96 students) was associated with a six-fold increase in passing the NCLEX-RN® .

In a different study, Kaddoura, et al. (2017) investigated predictors of NCLEX-RN® pass rates in two accelerated Bachelor of Science in Nursing (BSN) programs. Kaddoura et al. studied 235 BSN students' NCLEX-RN® scores to determine the correlation among their demographic characteristics, course grades at or below a C, end of program GPA, and HESI exit exam scores. Using regression analysis, the group found that the proportion of grades at or below a C formed the strongest predictor of NCLEX-RN® pass rates, followed by cumulative GPA and HESI Exit Exam scores.

Significant correlation of passing grades with NCLEX-RN® outcomes was also reported by Whitehead (2016). Whitehead studied the NCLEX-RN® results for 334 graduates of a BSN program in San Antonio, where the program NCLEX-RN® results had declined over the years 2009-2014. This study found that ethnicity, ATI scores, and nursing GPAs significantly correlated with NCLEX-RN® pass status.

Several studies have also found a positive correlation between science or anatomy class grades and NCLEX-RN® pass status. Examples include the work of Schooley and Kuhn (2013), Elder, Jacobs, and Fast (2015), Shaffer and McCabe (2013), and Wambuguh, Eckfield, and Hofwegen (2016). Despite the correlation between the grades of the two courses, Garner (2018) did not find any discipline-specific, non-nursing courses which were significantly predictive on NCLEX-RN® outcomes in a review of the literature.

Some studies (DeLima, London, and Manieri, 2011; Gilmore, 2008) found no correlation between cumulative GPA and NCLEX-RN® pass status. Kaddoura et al. (2017), found a total GPA grade did not correlate with NCLEX-RN® pass status. However, the preponderance of studies found a significant association between either pre-nursing GPA, nursing course grades, science course grades, or cumulative GPA, and end NCLEX-RN® pass status (Garner, 2018).

Further, course passing grades were tied to overall program retention. For example, Abele, Penprase, and Ternes (2013) studied 327 nursing students in a BSN or accelerated program who were either currently on probation, or who had been readmitted after dismissal, at a Midwestern university. Abele et al. (2013) found that among these 327 students, for every course failed, the odds of completing the program were at least halved in comparison to students with one fewer failed course. Therefore, there was about a 36% chance that a student who had failed two classes would complete the program. This study also found a course grade, in addition to the overall number of course failures, ws significantly predictive of success in completing the program.

Drawing from their study, Kaddoura et al. (2017) found that students with a grade of C or below were at-risk of NCLEX-RN® failure. They suggested that providing timely and tailored remediation on an individual bases for at-risk students was critical in promoting NCLEX-RN® sufficiency. Other scholars, like Abele, Penprase, and Ternes (2013), suggested the need for early identification of at-risk students. Early identification would allow faculty to provide the necessary early intervention to support these struggling students to be successful in their studies. Students who receive early intervention and faculty support are more likely to be successful in a nursing education program (Dante,

Valoppi, Saiani & Palese, 2011).

Does Advisor Contact Make a Difference in Nursing Student Grades and NCLEX-RN® Pass Status?

The conclusions that attrition or program success in the previously-noted studies was better-achieved with advisor or faculty support, form a second target for remediation. Studies indicate that the quality in the advisor-student relationship serves to increase the student's involvement and persistence in college and to prepare the student for future decision-making situations (Frost, 1991). Academic advisors must be accessible and approachable, be concerned about individual student success, be able to help students set goals, be knowledgeable about program requirements, and help students become self-directed learners (Council for the Advancement of Standards, 2005).

Studies on student advisement vary in approaches from one-on-one faculty advisors to non-faculty advisors and from individual to group advisement. These studies included two-year and four-year college settings. There were also various foci for academic advising used in the studies, such as prescriptive advising, developmental advising, intrusive advising, and integrated advising. The prescriptive advising model holds that the academic advisor tells the student what to do, and the student does it. Prescriptive advising is linear communication from the advisor to the advisee and places most of the responsibility not on the student, but the advisor. This type of advising requires the advisors to have all answers to students' problems (Missouri State, 2015). The developmental advising model holds that the academic advisor and the advisee are partners in educational discovery in which responsibility is shared between the participants (Missouri State, 2015). Intrusive advising is multi-faceted in that it involves a

combination of advising sessions with specific goals targeted for the student, is more highly-structured than alternative advising programs, and intends to intervene with at-risk students to keep students on track to graduate (Morillo, 2012). The integrated advising model creates a more coordinated and connected approach to advising that creates a more seamless advising and accessing experience for students with a holistic approach (Joy, 2014). There was one study found on a collaborative integrated academic advisement and its effects on student retention (Sastre et al, 2010). Sastre et al. suggested that a collaborative method is "more effective in promoting student wellness and career counseling than the traditional one-on-one faculty advisor system" (p. 429).

Overall, studies conducted on academic advisement show positive effects on student development but mixed results on student retention. A study conducted by Pargett (2011) showed that there was a relationship between academic one-on-one faculty advising and student development, student satisfaction with college, and positive development as a student. Pascarella and Terenzini (1980) found that as student interactions with faculty member increased, so did student retention. Conklin (2009) reviewed mandatory developmental and intrusive advisement by a faculty member and its effect on nursing student success and found that having a one-on-one faculty advisor is related to a positive impact on student development. The results of Conklin's study indicated that students who received developmental and intrusive advising reported significantly higher satisfaction with academic advising than those who did not.

However, Conklin (2009) also found that there were no significant differences between the two groups at the end of first semester GPA or satisfaction with the nursing program. Chi-square analysis did not indicate a significant difference between the two

groups in first semester retention. Further, a dissertation study conducted by Burt (2009) on effects of intrusive advising for the first time in college African American college students revealed no statistically significant differences between the groups that received intrusive advising and those who did not in terms of student retention.

Theoretical Framework for Student Remediation/Advising and Success Initiatives

The Early Alert remediation system is a collaborative or integrative initiative to assist students in both the academic and personal areas as early as possible in order to enhance student retention and progression. When the remediation initiative is collaborative and student-centered, there are increased chances of student success. In their review of collaborative versus one-on-one advisement in a medical school program, Sastre et al. (2010) suggested that a more collaborative method is "more effective in promoting student wellness and career counseling than the traditional one-on-one faculty advisor system" (p. 429). The theoretical frameworks discussed in the following sections provide the basis of collaborative and integrative academic remediation and retention; they are O'Banion's Model of Academic Advising and Tinto's Theory of Student Retention.

Academic advising: O'Banion model of academic advising . An integrative approach served as a theoretical framework for collaborative student advising in this study. According to O'Banion (1972), advising is a process in which advisor and advisee enter a dynamic relationship respectful of the student's concerns, with the advisor serving as teacher and guide in an interactive partnership aimed at enhancing the student's self-awareness and fulfillment. The model signifies an integrative approach with five steps involved in the advising process: The exploration of life goals, vocational goals, program choice, course choice, and scheduling options (Burton &

Wellington, 1998). This suggests that O'Banion's model is one of integrative advising with a collaborative effort on improving student success. This study is mainly focused on a collaborative approach to advising, utilizing both academic and non-academic members and resources to increase student success.

Student retention: Tinto's theory of student retention. When the remediation approach is based on a dynamic, respectful student relationship, the success and retention of the student are more likely to happen. Tinto (1993) stated that "the model is intended to speak to the longitudinal process of departure as it occurs within an institution of higher education" and focuses primarily "on the events which occur within the institution following entry and/or which immediately precede entrance to it" (p. 112). A key concept addressed by Tinto (1993) is that retention rates increase as students are academically and socially integrated into the college culture. This model supports the notion by Pascarella and Terenzini (1980) about the correlation of student interactions with faculty members and student retention.

What is the Early Alert System in Higher Education?

The early alert or warning system in higher education is defined as "formal communication systems institutions put into place to help with the timely identification and intervention of students who display attrition risk factors." (Simons, 2011, p. 3). The early alert warning system has been in use for more than a decade in higher education and provides feedback on a student's situation whether academic, social or otherwise (Hanover Research, 2014). The early alert warning system is used in many higher education entities across the United States, including nursing programs. The early alert system allows for "faculty and staff to intervene before more serious consequences occur,

such as course failure or withdrawal from the institution" and is a "systematic program that allows for two key components- alerts and intervention" (Hanover Research, 2014, p. 5).

Dwyer (2017) examined the relationship between the use of an early alert system at a Virginia Community College and persistence for both students taking developmental education courses and students taking college-level courses. Findings indicated there was a significant and positive impact on persistence for students who were flagged than students not were flagged in the early alert system. Students who were flagged by the early alert system were 20 times more likely to persist than students who were not flagged by the system.

The Early Alert System Remediation Strategy in the ADN Program

The Early Alert system in the ADN program in this study is an intervention designed to document students identified as at-risk of failing a class and to involve faculty and counselors in a prevention effort (Early Alert, 2016). The Early Alert system is implemented college-wide at the community college. Early Alert can be initiated for risk factors such as attendance and tardiness issues, poor academic performance, or personal issues threatening to impact student passing. The Early Alert system is a mandatory remediation effort and policy within the nursing program, and all faculty must participate.

The mandatory Early Alert system policy is a uniform statement that is included in the syllabus for each nursing course, and students are notified at the beginning of each semester of the required, follow-through process for students who are identified as at-risk within the course.

Steps for Implementing the Early Alert System

The community college has specific steps and guidelines for the initiation, data entry, and student follow-up within the Early Alert system (Early Alert Program, 2016). When a student is identified as at-risk by the faculty member, the faculty member logs-in to the PeopleSoft Administration system and access the class roster. The faculty then clicks on the Early Alert system tab and indicates the student(s) as at-risk and in need of assistance. The faculty then clicks on the "Early Alert Reason" tab and indicates the specific reason for this alert. The reasons available are attendance, academic, or personal issues. Once the faculty submits the early alert, an email notification is sent to the faculty, the student, and the campus advising/counseling manager. An academic advisor contacts the student for each early alert that is initiated by a faculty member. The students must in turn contact the advisor, who schedules an appointment, assesses the student's needs, and recommends helpful resources for improvement. These resources include tutoring, career counseling, further advising, personal counseling services, workshops, and campus involvement.

The academic advisor assigned to the particular student will enter the Early Alert system via the PeopleSoft System and make the necessary comments under the Person Comment Entry as it relates to the student. The advisor addresses an early alert for attendance & academic reasons, while a counselor addresses the early alerts due to personal issues. The advisors and counselors are then able to run queries for the Early Alert system at individual campuses to schedule activities as needed. The advisor or counselor record the student contact or completion accordingly in the electronic system. The Early Alert system remediation process must be completed by the student prior to the

next exam in the course, as indicated in the Early Alert system policy. The electronic Early Alert system database is maintained by the Student Services Center within the college where the nursing program resides. A summary of the Early Alert system intervention process is provided in Figure 1.

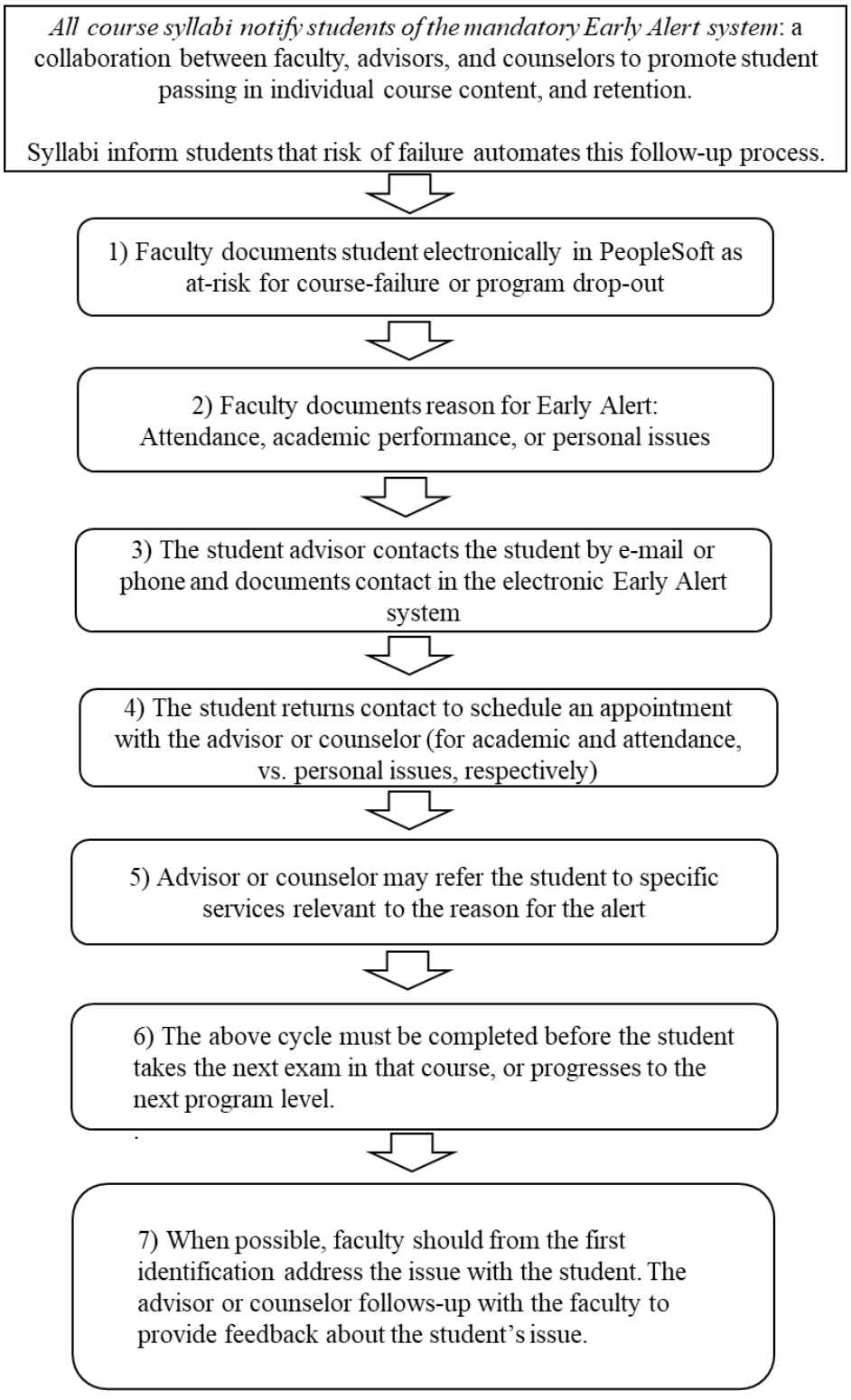

Figure 1. An overview of the Early Alert system remediation process.

Initial Implementation of the Early Alert System

Although the Early Alert system could be used earlier on an elective basis within the community college, by 2013 the Early Alert system process became mandatory system-wide. College faculty, advising, and information technology (IT) representatives were involved with the initial planning and implementation of the Early Alert system. Grant funding was used for the initial review of the Early Alert system in 2012 and implementation in 2013 system-wide for all campuses and programs of this large community college. Once the grant funding ended, the Early Alert system continued, but not as well managed, according to the community college health sciences president, who was assigned to spearhead the review of the Early Alert system in 2015 (personal communication, March 6, 2018).

In mid-2015, a system-wide review was initiated of the Early Alert system by the new chancellor of this community college (Enhances Process, 2015). A committee made up of faculty, staff, and IT worked together to review and recommend enhancements to the existing Early Alert program. The scope of the Early Alert system continued to be used in the early identification of at-risk students. As a result of this review process, the recommendations were made to remain with the current tool in PeopleSoft, to develop training and end-user standards, and to form a sub-committee to determine enhancements and recommendations for faculty, advisors, and students. A timeline was developed for Early Alert system project enhancements. The findings also indicated that the college needed to improve faculty knowledge and use of the Early Alert system, pursue additional technical enhancements, and work with advisers on implementation activities.

Preliminary data collection for the Early Alert system was performed in spring

2016, as part of the review process initiated in 2015, data findings shown in Table 2. The data from 2016 indicated the system was being implemented, and that faculty and advisors were following through on executing this mandated intervention.

Table 2

Preliminary Findings as of 2016 for Campus-Wide Use of the Early Alert System

Preliminary data regarding Early Alert	
A) Total alerts received by college:	Health Sciences- 361
	Northwest- 1050
	Northeast- 713
	Southeast- 904
	Southwest- 1100
	Central- 1086
B) Top 5 courses with most alerts:	ENGL 1302- 172
	EDUC 1300- 213
	ACCT 2301- 215
	LEAD 1370- 245
	ENGL 1301- 276
C) Reasons for alerts:	Academic- 58%
	Attendance- 40%
	Personal- 2%
D) Early Alert follow up status:	
	Completed- 42%
	Not Completed- 45%
	Unable to Contact- 13%
E) Students completion status:	Completed- 42%
	Not Completed- 58%
F) Early Alert student's grades:	Grade C or above- 38%
	Grade D or below- 30%
	Grade Incomplete- 7%
	Grade W- 25%

Why Conduct the Present Study?

These preliminary data demonstrated that the Early Alert system was being used, and that system-wide, more students failed, failed to complete, or withdrew from a course (62% for all three categories) than passed with a C or above (38%). These preliminary data also indicated that while the Early Alert system was being used across a breadth of departments and campuses, the use was inconsistent or incomplete. Only 42% of referrals reached completion status in the Early Alert system. Additionally, no data in this 2015 review revealed outcomes specifically within the ADN program. Therefore, the present study sought to address the gaps and questions remaining about Early Alert implementation within the ADN program. Should the ADN program continue the use of Early Alert as a dominant remediation strategy? Data regarding student pass rates in individual courses, and the effect of advisor contact on student progression were needed to inform this decision. The present study analyzed pass rates for Early Alert students and correlates the quantity of advisor progress recorded in Early Alert with student grades for the years 2015, 2016, and 2017.

Summary

The literature review identified multiple studies that reviewed academic advisement and its effect on student success. The studies included various academic advising methods used and various populations reviewed. However, limited findings on a collaborative and integrated advising process and its effects on student retention and success. Therefore, the present study investigated what effect the specific collaborative remediation strategy, Early Alert system, had on student grade outcomes and retention.

Chapter III

Methodology

This chapter describes the methods used to analyze the effect of the collaborative early alert intervention method on student grades and retention. Early Alert is a remediation strategy in the Associate Degree Nursing (ADN) program in the Health Sciences College branch of a community college. The purpose of this study was to analyze outcomes of the Early Alert system in order to inform decisions in the choice of remediation strategy toward NCLEX-RN success. This mixed-method study using the Early Alert system archival student-remediation record data and advisor interviews were implemented to understand better both the outcomes and the reasoning for why these outcomes existed.

Research Questions

The research questions in this study sought to analyze the impact of the Early Alert remediation system on student outcomes. This study investigated two research questions related to the nature of the effects of the Early Alert system on student course grades and retention for these effects. The research questions were:

1) What was the frequency of passing for students within the Early Alert system?

2) How did the academic advisor contact and completion of the Early Alert system correlate with student pass rate?

The research questions (RQ), null (H_0), and research alternatives (H_A) hypotheses are:

$H_0$1) The number of RN students referred to the Early Alert system who pass the referring course will be equal to the number of students who fail the given course.

H_A1) The population of students referred to the Early Alert system will have a

higher frequency of passing than the non-passing end-of-course grades.

$H_0$2) No correlation exists between academic advisor contact and completion of the Early Alert system and student pass rate.

H_A2) A correlation exists between advisor contact and completion of the Early Alert system with the student passing ($\geq$ 75% grade).

In addition to the hypothesis testing, this study examined the accessible reasons from operators of the Early Alert system on the value of the program, the nature of its implementation, and suggestions for improvement.

Study Approval

Institutional Review Board (IRB) approval was sought by all participating institutions. The community college at which the data was collected and interview conducted, and the university under which the study was orchestrated, rendered IRB approval for use of the archival data analyzed and for the advisor interviews.

Study Population

The population for this study consisted of ADN nursing students at a community college in Southeast Texas. The data included only ADN students who were referred to the Early Alert system in the years 2015, 2016, and 2017. Specifically, the population included students enrolled in the ADN from semesters in summer and fall of 2015, spring, summer, and fall of 2016, and spring, summer, and fall of 2017. Study eligibility requirements were 1) student enrollment in the ADN program in 2015, 2016, and 2017 and 2) student identification as at-risk via referral to the Early Alert system, as evidenced by electronic entry.

Protection of Subjects and Confidentiality

The electronic data collection and interview process adhered to the specific permission granted by the IRBs of participating institutions. Individual participant identity, identifying information, grades, or other outcomes remained confidential, as data were reported in aggregate. For the advisor interviews conducted, description of study and nature of interview, especially maintaining confidentiality, was presented to the advisors who work with the Early Alert system. Consent was received for the interview, the recording of interview, and the publication of findings from the interview.

Study Design

The study was a mixed-methods study which included both quantitative and qualitative analyses. The quantitative study design was a retrospective and descriptive analysis of archival data on student grade outcomes within the Early Alert system. The analysis was quantitative and correlational. The quantitative and correlational design was necessary to (1) Analyze frequencies of student passing vs. non-passing grades for the Early Alert system participants in years 2015, 2016, and 2017, and to (2) correlate quantity of advisor progress recorded in the Early Alert system with student grades for years 2015, 2016, and 2017.

In order to comprehend the archival dataset analyses, qualitative design was added. Interviews of the advisors who worked with students referred for the Early Alert system were conducted to better understand their overall experiences with the Early Alert system and working with at-risk students. Two or more methods or triangulation was part of this study to identify the workings or experiences with the Early Alert system processes. According to Patton (1999), triangulation refers to the use of multiple methods

or data sources in research to develop a comprehensive understanding, validation, or verification of the phenomena. Methods triangulation (Denzin, 1978; Patton, 1999), or the use of different methods of data collection, more specifically explains the methods used in this study with the archival dataset and interviews to better assess consistency of the findings of the Early Alert system processes.

Data Collection

The archival, electronic dataset was received from the Early Alert system for the health science college of the community college system studied. Early Alert system data included all ADN students, from generic and transition nursing programs, who were referred to the Early Alert system in the years 2015, 2016, and 2017. The dataset received were individualized by semesters: summer 2015, fall 2015, spring 2016, summer 2016, fall 2016, spring 2017, summer 2017, and fall 2017. Data of the Early Alert system was received via e-mail in the form of Excel spreadsheets from the community college system database.

For advisor interviews, per interview protocol approved, an initial recruitment for interview message was emailed to all the advisors who worked with Early Alert system at the health science college of the community college studied. Once email responses were received from advisors voluntarily agreeing to do the interview, the researcher met with each advisor to first receive consent, which included consent for the interview, for the recording of the interview, and for the publishing of the interview. The interview was conducted and recorded upon consent and agreement from the advisors. A semi-structured interview process was conducted with all the advisors receiving the same standard five questions. The questions are as follows: The interview questions were as

follows:

1) What has been your experience with the Early Alert system as an advisor at the college?
2) What is the process for data entry with the Early Alert system in your experience?
3) What is the process for contacting students as part of the Early Alert system?
4) What challenges have you faced with the Early Alert system process?
5) What are your recommendations to improve the Early Alert system based on your experience with the system?

Limitations of the Data

Upon receiving the archival data, it was clear that the EA system dataset was limited because of the inconsistency of data entry about advisor contact, no information existed about the nature of the advisory and faculty contact, and no data existed on faculty contact in the remediation process. As a result, it was necessary to pursue further exploratory analyses in the form of advisor interviews to determine contributing factors to the relationship between EA system implementation and student success.

Data Analysis

Data collected were entered into further Excel or SPSS documents for storage, organization, and analysis. Excel and SPSS were used to analyze these data statistically. Descriptive statistics in the form of frequencies were run for the study population, overall Early Alert system contacts made, and overall course grade outcomes. Correlation studies were conducted by Spearman rank-order test between the independent and dependent variables to determine correlation strength and direction. The Spearman rank-order

correlation coefficient (Spearman's correlation, for short) is a "nonparametric measure of the strength and direction of association that exists between two variables measured on at least an ordinal scale" (Spearman's Rank-Order Correlation using SPSS Statistics, 2018). Both variables of advisor contact and completion, and of grade, were measured on an ordinal scale. Analytical approaches used are summarized in Table 3.

Table 3

Analytical Measures per Research Question

Research Question	Measure
RQ1: What is the frequency of students enrolled in EA passing?	1) Frequency analysis of passing grades in total sample 2) Frequency analysis of passing grades by course 3) Frequency analysis of passing grades by term
RQ2: Does degree of advisor contact in EA correlate with student grade?	1) Spearman Rho analysis of grade in response to advisor contact 2) Regression analysis of grade in response to leveled advisor contact 3) Exploratory analysis of advisor interview data

Analyses Approaches:

(a) The analyses methods used included:

- Frequency analysis of passing vs. non-passing grades for Early Alert system participants in years 2015, 2016, and 2017
- Spearman's rho correlation of academic advisor progress recorded in the Early Alert system tracking with student grades.
- Descriptive cross-tabulations of specific courses and end-of-semester grades.

- Exploratory analyses were conducted using interviews of advisors to understand other factors that explain EAS implementation and student success.

Variables and their Measurements

RQ1) What was the frequency of passing for students within the Early Alert system?

The measurements variable for RQ1 is an end-of-course grade (A, B, C, D, F, I for incomplete, or W for withdrawal). Frequency of grades is interpreted in conjunction with enrollment in the Early Alert system. Since all subjects in the population were enrolled in Early Alert, that status is a constant, not a variable. Negative control was not available since the Early alert system is mandatory for the entire community college for students identified as at-risk in individual college courses.

RQ2) How did the academic advisor contact and completion of the Early Alert process correlate with the student pass rate?

The independent variable for RQ2 was the amount of advisor contact (EA status) completed. The dependent variable was student end-of-course grade. The variables within the EA status were as follows: 'Made contact- Completed,' 'Unable after 3 Attempts', '1st attempt', 'Initiated,' or no entry/blank. In the Early Alert system, an attempt is made by the program designated advisor to contact the specific student once an Early Alert is initiated for the student by the faculty member, per the Student Center Director at the Community College Health Science campus (personal communication, March 9, 2018). An advisor makes up to three attempts to contact the student. If the contact of the student is made by the advisor and the student completed the Early Alert system, then 'Made contact- Completed' status is entered for the student by the advisor in the EA column or

as the EA variable. If the student does not respond after three attempts at contact, an entry of 'Unable after 3 Attempts' is entered by the advisor. If a contact was made, in other words the student responded to the contact, but did not follow through with meeting the advisor, then an entry of '1st attempt' was entered. If the contact was initiated but no student response, then 'initiated' was entered. There were also instances when there was no entry made for students by the advisor, which was observed to be primarily in the summer and fall 2015 semesters before the internal review of the Early Alert system was conducted by the community college in mid-fall 2015 and early spring 2016.

Also for RQ2, data collected from the advisor interviews were analyzed to understand better the Early Alert system processes and correlation of academic advisor contact and completion and student pass rate. The four advisor interview responses were analyzed for overall Early Alert system processes. The advisor's experience and perspectives were gathered and analyzed on the following areas: individual experience with the Early Alert system, process for data entry for the system, process for contacting students, challenges faced with the system, and recommendations to improve the remediation system. A summary of the overall study questions, design, and methods is presented in Figure 2.

Summary

The goal of this research was to understand how collaborative remediation processes relate to student academic outcomes. The Early Alert system is a collaborative process to identify and intervene with at-risk students to increase student success. Using the Early Alert system archival dataset and advisor interviews, this study analyzed student pass rate and how advisor contact effect student pass rate. Is there a relationship

to student grades and outcome based on the Early Alert system, a remediation intervention that has been employed at the community college for many years? As yet no data exist to evaluate Early Alert effect on student grades and retention. Therefore, this mixed-method, using both descriptive and correlational analyses and advisor interviews, research design was employed to determine Early Alert referral effect on end-of-course grades, and advisor contact within Early Alert effect on the end-of-course grades.

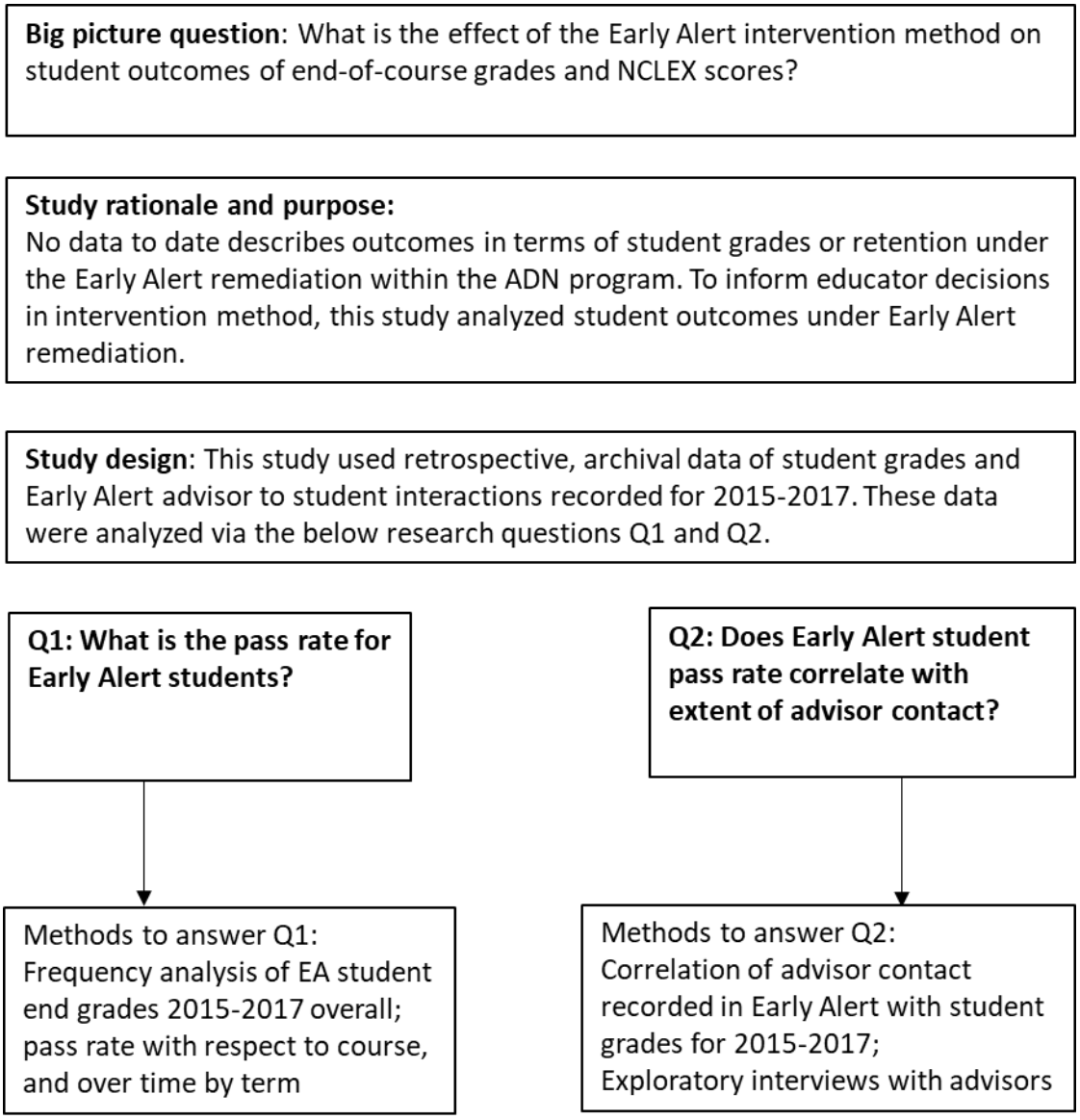

Figure 2. A summary of the study questions, design, and methods.

Chapter IV

Findings/Results

This study examined the effect of one specific strategy, the Early Alert system, as a nursing student success initiative within an Associate Degree Nursing (ADN) program at a large community college. Early Alert is an academic collaborative advisement and remediation strategy for at-risk students; the strategy's goal is to prevent individual course failure and to promote retention. At the time of this study, no evaluation data was demonstrating the efficacy or lack thereof for the Early Alert intervention. Therefore, the purpose of this study was to assess the impact of Early Alert on student end grades in individual courses and to assess the effect of degree of advisor contact accomplished on grades. These measures of intervention are pursued as precursors toward ultimate student graduation and NCLEX success.

To examine the effect of Early Alert system on student outcome, this study asked the following research questions (RQ) for students enrolled in the ADN program from 2015 through 2017 who were identified as at-risk and referred to the Early Alert system:

RQ1) What was the frequency of passing for students within the Early Alert system?

RQ2) How did the academic advisor contact and completion of the Early Alert system correlate with student pass rate?

Resulting Sample Population Accessed

Archival records were retrieved for all students who were entered into the college database as Early Alert referrals from summer 2015 to fall 2017. The total sample size for this time frame was 568 Associate Degree Nursing program students. This sample included 530 students from the RN program and 38 students from the Licensed

Vocational Nursing-Registered Nursing (LVN-RN) transition program (Table 4).

The data retrieved included the reason for the Early Alert referral. Referral reasons had been logged in Early Alert as academic, attendance, or personal issues. The majority of the students were referred for academic reasons. There were 16 students who were referred for attendance issues alone. There were no students who were referred for personal reasons alone. Three students were listed as having both attendance and academic issues, eight students as having both academic and personal issues, and four students were indicated as referred for all three reasons: attendance, academic, and personal issues.

Table 4

Descriptive Statistics for Nursing Students Referred to Early Alert System 2015-201

Program:	Frequency	Percent
RN	530	93.31
LVN-RN transition	38	6.69
Referral reason:	Frequency	Percent
Academic	537	94.54
Attendance	16	2.82
Personal	0	0.00
Academic and Attendance:	3	0.53
Academic and Personal	8	1.41
Academic, Attendance, and Personal	4	0.70
Cumulative GPA:	Mean ± SD	Median
	3.27 ± 0.29	3.29
Difference in scholastic hours attempted vs. completed:		
	Mean ± SD	Median
	9.97 ± 13.99	6.00

Results for Research Question 1 (RQ1): What was the Frequency of Passing for Students within the Early Alert System?

The data retrieved included the end-of-course grade for each student in the referring course. Grades recorded were letter grades A, B, C, D, F, W (withdraw), and I (incomplete). In the nursing program, a grade of C or above (A, B, and C) is passing, and allows the student to progress to the next coursework in the program. Any other grade is considered an attempt and not passing, and the student is prohibited from progressing to the next level.

Of the 568 nursing students who were referred to the Early Alert system between summer 2015 and fall 2017, there were 442 students who passed, with a grade of A, B, or C, the course for which they were referred as at-risk. There were 126 students who did not pass the course and received either a D, F, W, or I. In total, approximately 78% (77.9%) of the students passed and 22% (22.2%) failed the course. Among students who passed, five received a grade of A, 222 received a grade of B, and 251 received a grade of C. Of the students who failed, 98 received a grade of D, 13 received a grade of F, and 15 withdrew from the course, therefore being ineligible to progress to the next level. A frequencies table of end-of-course grade outcomes for students referred to Early Alert 2015-2017 (Table 5).

Table 5

End Course Grades for EA Students

End grade	Frequency	Percent	Cumulative Percent
A	5	.9	.9
B	222	39.1	40.0
C	213	37.5	77.5
D	95	16.7	94.2
F	7	1.2	95.4
W or INC	26	4.6	100.0
Total	568	100.0	

These overall end grade results were also analyzed by the referring course. Multiple publications had identified specific course passing grades as predictors of NCLEX success (e.g., Kaddoura, Flint, Van Dyke, Yang, & Chiang, 2017; Sears, Othman, & Mahoney, 2015; Trofino, 2013). Therefore, passing grades were analyzed per course for which the student was referred to Early Alert. These data are shown in Table 6. Some course outcomes had very small sample sizes of one or two students referred; courses with sample sizes over 30 which had the top five lowest pass rates were:

1) Common Concepts of Adult Health (54.55% passing)

2) Pharmacology (66.67% passing)

3) Care of the Childbearing Family (68% passing)

4) Foundations for Nursing Practice (69.49% passing)

5) Care of Children and Families (70.1% passing)

Table 6

Early Alert Student Pass Rate by Course

Course		Frequency (n=568)	Percent	Pass	Fail	Pass Rate
1160	Clinical-Registered Nursing	2	0.35	1	1	50.00
1201	Pharmacology	39	6.87	26	13	66.67
1215	Health Assessment	1	0.18	1	0	100.00
1247	Concepts of Clinical Decision-Making	48	8.45	48	0	100.00
1251	Care of the Childbearing Family	100	17.61	68	32	68.00
1327	Transition from Vocational Nursing to Professional Nursing	10	1.76	7	3	70.00
1341	Common Concepts of Adult Health	44	7.75	24	20	54.55
1343	Complex Concepts of Adult Health	60	10.56	59	1	98.33
1412	Nursing Care of the Childbearing and Childrearing Family	86	15.14	74	12	86.05
1413	Foundations for Nursing Practice	59	10.39	41	18	69.49
1460	Nursing Care of the Childbearing and Childrearing Family-Clinical	1	0.18	1	0	100.00
2121	Management of Client Care	11	1.94	11	0	100.00
2130	Professional Nursing Review and Licensure Preparation (Capstone)	8	1.41	5	3	62.50
2160	Clinical-Registered Nursing	1	0.18	1	0	100.00
2201	Care of Children and Families	57	10.04	40	17	70.18
2213	Mental Health Nursing	21	3.70	15	6	71.43
2221	Professional Nursing: Leadership and Management	18	3.17	16	2	88.89
2360	Clinical-Registered Nursing-Adult 1	2	0.35	2	0	100.00

Data regarding the pass rate of students referred to the Early System were also analyzed with respect to the term or semester. Figure 3 reports this data, and Table 7 includes the numerical data for Figure 3. Student grade outcomes per term were calculated as follows: Pass rate= (A+B+C)*100/(total). The small sample size of summer terms, in contrast to much larger populations in fall and spring terms, made these data challenging to compare; however, results showed that the pass rate had an overall negative trend, or decrease with increasing time, over the terms from summer 2015 to fall 2017. Since the ADN program's pass rate had fallen below the required 80%, the nursing program had fewer student admissions during the latter years studied while the mandatory TBON self-study process was being conducted within the ADN program. The fewer number of students within the program during the years the Early Alert system data was studied reflects the decreasing number of students referred for the remediation process during the latter 2016 and 2017 years.

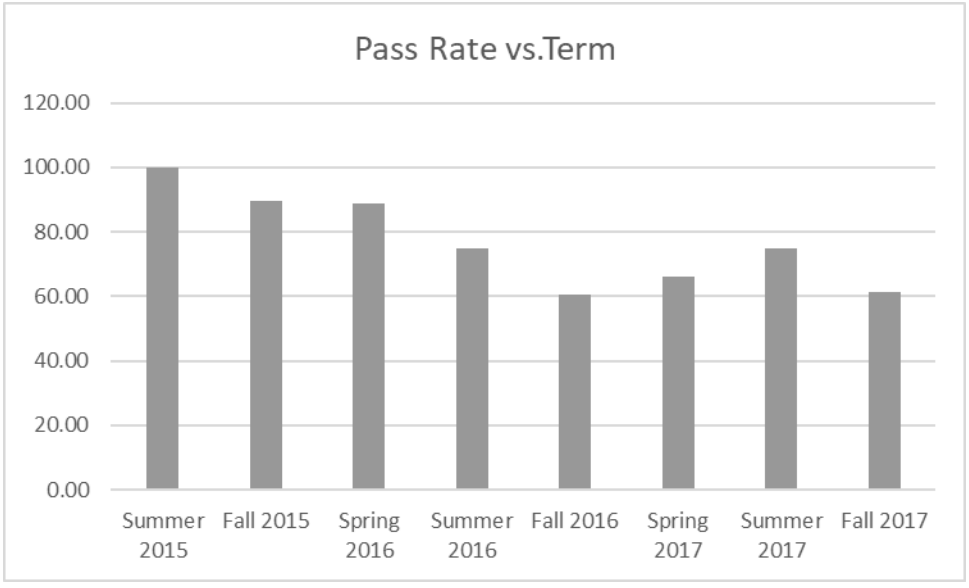

Figure 3. EA system student pass rate per term/semester.

Table 7

EA System Student Pass Rate Outcomes per Term/Semester

Term	A	B	C	D	F	W or INC	Total	Pass Rate
summer 2015	0	4	2	0	0	0	6	100.00
fall 2015	0	62	57	12	0	2	133	89.47
spring 2016	4	82	49	14	0	3	152	88.82
summer 2016	0	16	14	9	1	0	40	75.00
fall 2016	0	27	34	27	5	8	101	60.40
spring 2017	1	11	23	17	0	1	53	66.04
summer 2017	0	8	4	2	0	2	16	75.00
fall 2017	0	11	30	15	1	10	67	61.19

Because one key endpoint of the ADN program is for the coursework to culminate in professional licensure via NCLEX-RN®, these grade outcomes were further considered in comparison to NCLEX-RN® scores. Figure 4 shows the trend in NCLEX scores for the community college studied and presents those data within the context of Texas State and National pass rates. The numerical values from Figure 4 is presented in Table 8. These data show that concurrent with the negative trend in the Early Alert system passing of nursing curriculum, the NCLEX-RN® pass rate of the program studied was increasing. Due to the ADN program's pass rate falling below 80% and during the TBON mandatory self-study process, the program's student admission rates decreased compared to previous years. The contrasting trend in NCLEX-RN® outcome, and the individual passing grade of at-risk students is discussed further in Chapter 5.

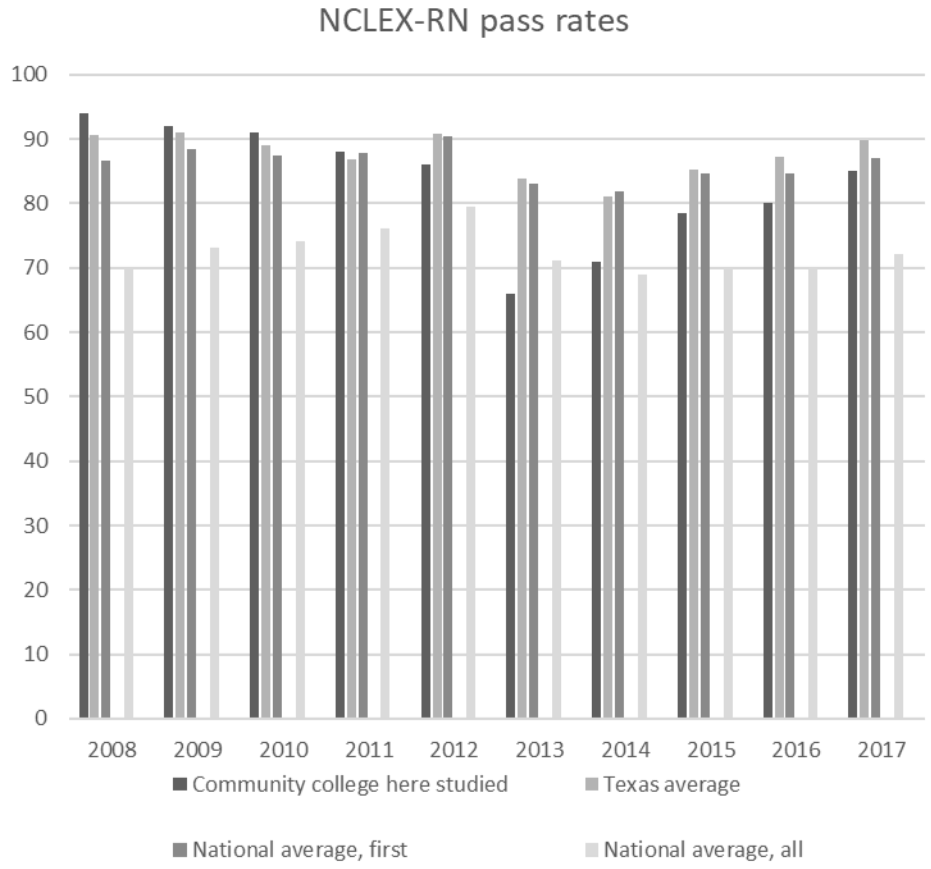

Figure 4. NCLEX-RN® pass rates for the community college studied.

Table 8

NCLEX-RN® Pass Rate Data for Graph in Figure 4

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Community college here studied	94	92	91	88	86	66.05	70.86	78.43	80	84.95
Texas average	90.52	91.08	89.07	86.89	90.8	83.93	81.02	85.22	87.14	89.77
National average, first-time testers	86.7	88.42	87.41	87.89	90.34	83.04	81.78	84.53	84.57	87.11
National average, all testers	69.9	73.18	74.18	76.04	79.51	71.12	68.95	69.87	70.18	72.11

Results for Research Question 2 (RQ2): How did the Academic Advisor Contact and Completion of the Early Alert Process Correlate with Student Pass Rate?

The combined dataset for all three years, 2015, 2016, and 2017, was used to investigate the correlation between the completion in academic advisor contact through the Early Alert system with end grade achieved. The independent variable was academic advisor contact and completion of the Early Alert (EA) process; the dependent variable was student pass rate or end grade. The grade outcomes by EA status were as follows:

Undocumented status. There were 140 students who did not have any entry or documentation of completion status. There was an Early Alert system identification of this student, but no record of whether the student was contacted, EA initiated, or EA completion was recorded for these students. The number of students passing the course from the undocumented EA status was 126 (90%). The number of students not passing or completing the course was 14 (10%). The breakdown by letter grade is visible in Tables 6 and 7.

Unable after three attempts. There were 100 students with EA status "Unable after 3 attempts." For this group, there is an indication that the advisor made contact, but the students did not respond after three attempts after the Early Alert system contact was initiated for these students. The number of students passing the course from the "Unable after 3 attempts" EA status was74 (74%). The number of students not passing or completing the course was 14 (14%).

First attempt/initiated. There were 11 students with EA status "First attempt/initiated." For this group, there was an indication that the advisor made contact and the student responded to the initial contact but did not complete the entire Early Alert

system process. The number of students passing the course from the "First attempt/initiated" EA status was eight (73%). The number of students not passing or completing the course was three (27%).

Made contact - completed. There were 317 students with EA status "Made contact- completed." For this group, there is an indication that the advisor made contact and the student followed through with the entire Early Alert system and completed the EA process. The number of students passing the course from the "Made contact-complete" EA status was 232 (73%). The number of students not passing or completing the course was 85 (27%).

Overall, of the 568 nursing students, the dataset indicated there were 317 students (56%) who were in the 'Made Contact – Completed' category. There were a total of 251 students (44%) who did not complete the Early Alert process. Of the 251 students who did not complete the Early Alert remediation process, 100 students were indicated as 'Unable to contact after three attempts'. Eleven were noted as having 'First attempt/initiated' contact; this means an advisor was able to contact the student, but there was no further response from the student; 140 showed no documentation or no entry of the contact status during the semester, which indicates that an advisor was unable to contact the student or that documentation was not completed. The findings of the academic advisor contact (EA status) and grade outcome are presented in Tables 7 and 8.

Table 9

Frequencies of EA Contact Completion Status vs. End Grade

EA status	Frequency	A	B	C	D	F	W or INC	Passing (A,B,C)	Failing (D, F, W, INC)
Unable after 3 attempts	100	2	42	30	21	1	4	74	26
First attempt/initiated	11	0	4	4	2	0	1	8	3
Undocumented	140	0	67	59	12	0	2	126	14
Not completed, all	251	2	113	93	35	1	7	208	43
Contact completed	317	3	109	120	60	6	19	232	85
Total	568	5	222	213	95	7	26	440	128

Table 10

Early Alert (EA) Contact Completion Status vs. End Grade by Percentage

EA status	A	B	C	D	F	W or INC	Passing (A,B,C)	Failing (D, F, W, INC)
Unable after 3 attempts	2.00	42.00	30.00	21.00	1.00	4.00	74.00	26.00
First attempt/initiated	0.00	36.36	36.36	18.18	0.00	9.09	72.73	27.27
Undocumented	0.00	47.86	42.14	8.57	0.00	1.43	90.00	10.00
Not completed, all	0.80	45.02	37.05	13.94	0.40	2.79	82.87	17.13
Contact completed	0.95	34.38	37.85	18.93	1.89	5.99	73.19	17.13
Percent of total subjects	0.88	39.08	37.50	16.73	1.23	4.58	77.46	22.54

The 140 students who had no data entered for the independent variable of EA

status were removed from the combined data set for further Spearman Rho analysis of the possible correlation between advisor contact and end grade. The sample size (n) for students with data entry in the EA status column was 428 nursing students analyzed for RQ2; these data are summarized by frequency in Table 9, and by percent in Table 10. To analyze the correlation of the EA status as ranked categories and end grade, the Spearman's rho or rank-order correlation coefficient was used. The independent variable was the EA status, indicating whether the student completed or not completed the Early Alert system process for the referral of at-risk in the specific course. The dependent variable was student's grade indicating pass or fail at course end. A passing grade is a grade of C or above, including A, B, or C. A failing grade is D or below, including D, F, W, or I. Using the sample size n= 428, the Spearman's correlation coefficient is - .008. This value was not statistically significant for correlation (p = .863). Therefore the Spearman Rho test indicated there was no correlation between degree of advisor contact and student end grade (Table 11).

Table 11

Spearman Rho Correlation Data for Grades vs. EA Status

		EA Status	Pass or Fail
EA Status	Correlation Coefficient	1.000	-.008
	Sig. (2-tailed)	.	.863
	N	428	428
Pass or Fail	Correlation Coefficient	-.008	1.000
	Sig. (2-tailed)	.863	.
	N	428	428

While Spearman Rho results indicated no correlation between EA status and pass

rate or end of course grade, additional analysis was conducted to examine EA status effect on grade in the context of other independent, predictor (regressor) variables which might simultaneously contribute to a model of how student end grade varies in response to EA academic advisor contact. The R Project software was used to upload data from the 568 students referred to the EA system. Regression analysis was conducted using end grade as a leveled response variable (A = 6, B = 5, C = 4, D = 3, F = 2). For this analysis, students marked as withdrawn or incomplete were removed from the data since that was not part of an ordinal grade sequence. Student cumulative GPA entered in the EA system was first used as a continuous independent regressor variable. EA status was evaluated as a categorical variable labeled as a factor in R. Regression analysis of the end of the course grade in response to cumulative GPA showed strong correlation (Table 12). A strong correlation was interpreted as an adjusted R-squared of 0.9656, and a p-value on the coefficient for regressor GPA of 2e-16, much smaller than 0.01, indicating rejection of the null hypothesis that cumulative GPA did not correlate with end course grade.

The above model of grade in response to cumulative GPA was next expanded to include EA status as a second predictor. EA status was analyzed as a leveled variable: “3” represented contact completed, “2” represented contact documented at least once as contact initiated, and “1” represented no contact, for a decreasing value system of degree of advisor contact. Students with undocumented EA status were removed as non-ordinal in a leveled system for degree of contact completed.

Table 12

Regression of End Grade in Response to Cumulative GPA Alone, or GPA + Ranked EA Status

Model 1: End grade in response to cum. GPA only (n=404)

Regressor:

	Coefficient	Std. Error	t value	Pr(>|t|)
Cum. GPA	1.27244	0.01194	106.5	<2e-16 ***

Residual standard error: 0.7879, df= 403

Multiple R-squared: 0.9657

Adjusted R-squared: 0.9656

F-statistic: 1.135e+04, df=403, p-value: < 2.2e-16

Model 2: End grade in response to cum. GPA + ranked EA status (n=404)

Regressors:

	Coefficient	Std. Error	t value	Pr(>|t|)
Cum. GPA	1.29850	0.03627	35.800	<2e-16 ***
EA status	-0.03429	0.04507	-0.761	0.447

Residual standard error: 0.7883, df= 402

Multiple R-squared: 0.9658

Adjusted R-squared: 0.9656

F-statistic: 5668, df= 402, p-value: < 2.2e-16

Note: Signif. codes: 0 '***' 0.001 '**' 0.01 '*'

Use of EA status as a regressor showed no model improvement in the adjusted R-squared, indicating this variable did not contribute to a model for end of course grade. Grade in response to EA status showed no correlation; the null hypothesis that EA status as a regressor would have a coefficient of zero could not be rejected. The conclusion of no correlation was based on high p-values on EA status regressor coefficients (much

greater than 0.01 at 0.621), as shown in Table 12. These data confirmed the message found by Spearman rank-sum analysis that EA status in the form of advisor contact did not impact end course grade.

Academic Advisor Interviews to Better Understand EA Status Data

The observation that 140 students referred to Early Alert had no documented advisor contact, nor record of non-contact, suggested a critical gap in the Early Alert system and ability to further track data. Therefore, to supplement the quantitative data obtained, qualitative input was sought via interview of academic advisors who worked with the Early Alert system at the health science college of the community college studied. To better understand both the outcomes and the reasoning for why these outcomes existed, advisors who worked with the Early Alert system were recruited and interviewed on their overall experience with the Early Alert system as advisors at the health sciences community college. Academic advisors who responded to the recruitment email and consented were interviewed. The interviews were conducted in April 2019 time frame. There were four academic advisors who volunteered for the interview for this study. To main confidentiality, the academic advisors are referred to as Advisors A, B, C, and D in providing their individual responses to the interview questions.

The questions used for the semi-structured interviews were:

1) What has been your experience with Early Alert system as an advisor at the college?
2) What is the process for data entry with the Early Alert system in your experience?
3) What is the process for contacting students as part of the Early Alert system?
4) What challenges have you faced with the Early Alert system process?
5) What are your recommendations to improve the Early Alert system based on your

experience with the system?

The results or data summary for each of the interview questions are as follows:

1) What has been your Experience with the Early Alert System as an Advisor at the College?

The literature review indicated that the quality in the advisor-student relationship serves to increase the student's involvement and persistence in college and to prepare the student for future decision-making situations (Burton & Wellington, 1998; Tinto, 1993; Frost, 1991; & O'Banion, 1972). The academic advisors interviewed considered their experience with Early Alert system to be overall a good experience, along with some challenges, as stated by advisor A, "There are good parts and challenging parts, the system is a good tool to see where students are academically and assess areas of struggle, but can be an intrusive process."

Advisor D felt the EA system to be a "good retention tool that bridges the gap between students, faculty, and student services to help to retain students and get them the resources they need. Although time-consuming, it is beneficial for the students" Advisor C viewed the EA system as a "preventative maintenance system to find students at-risk early, and work individually with them to identify specific risk and find solutions."

Academic advisor B further explained that the academic advisors met with students who primarily had been identified with "academic related concerns, like failing a major exam, quiz, or assignment, or excessive course absences. While students who had personal concerns, such as financial hardship or anxiety that affected their performance in the course were assisted by a college counselors." Even though a few considered the EA system to be "time-consuming," overall the academic advisors stated that in their

experience the EA was “beneficial for the students”.

2) What is the Process for Data Entry with Early Alert System in your Experience?

The academic advisor's description of the overall process for data entry was similar in response. Advisor B, for example, felt that “since the EA system was revamped approximately in 2015 (as indicated in chapter 3 under ‘Initial implementation of the Early Alert system’), the system was more effective to use.” The process identified by the advisors include:

(a) Faculty members identify and input at-risk student in the EA system online/electronically.

(b) Advisors receive notification and initiate contact with students, usually within 48 hours of the initial EA system entry.

(c) Advisors initiate contact with students using the student’s college email address. Some also call the students based on the contact numbers provided within the student file.

(d) When the student responds via email or phone call, an appointment is set up and advisors identify, assist with specific student needs, and input documentation of the visit/appointment with the student.

(e) If the advisor does not receive a response from the student, a second contact is made, usually within 48 hours of the initial contact. The advisors attempt up to three times to reach the student, with the third contact made after 48 hours of the 2nd attempt. If the student does not respond after the third attempt, then the student file is closed and the EA status indicated as “*Unable after three attempts*” in the Early Alert system. EA system “reports are collected and

assessed weekly by student services advisors and dean."

3) What is the Process for Contacting Students as Part of the Early Alert System?

The process for contacting students are related to the data entry process for the Early Alert system. When a faculty member initiates the EA system, the student and academic advisor receive the notification. According to academic advisor B, the student "receives notification of the EA via their college email." When an academic advisor receives the EA notification, the advisor will contact the student primarily via the college student email, and within 48 hours of receiving the Early Alert. All of the advisors included that "if there is no response from the student within 48 hours, another email or other form of contact is used, like a phone call, to reach the student."

When a student responds, an appointment is scheduled to meet with the student. The needs of the student are assessed, and resources are provided based on the individual need of the student. Advisors stated that overall nursing students are aware of the Early Alert system process, since it is indicated as mandatory and explained in the course, yet students are sometimes hesitant to share issues since students are concerned if "confidentiality will be maintained," "how much will get back to the faculty," and/or if their issue(s) will "affect their standing in the program." Also indicated is that some students go through the EA process and will meet with advisors "just because it is mandatory" and "students really do not put forth much effort to rectify the issues." Many times students have "already met with the faculty member and the course/content specific needs are already addressed so there is not much needed in terms of resources from the advisor."

When a student does not respond, the advisor will re-contact the student "usually

within 48 hours of the initial contact." If no response after three attempts, then an EA status of "Unable after three attempts" is coded. If the student responds but fails to meet with the advisor and complete the EA process, then "First Attempt/Initiated" is coded in the EA system. The goal with the EA system is to "close out the process within a week of the EA" so that students are contacted and issues addressed in a "timely manner." Advisors stated that this is "sometimes difficult with other department responsibilities." Once the EA status is input or coded, the faculty member who initiated the Early Alert system also "receives the communication on the EA status for the specific student."

4) What Challenges have you Faced with the Early Alert System Process?

Academic advisors indicated various challenges faced with the Early Alert process. One of the major challenges indicated in completing the EA system process promptly when there are other department responsibilities. For the specific time frame, the academic advisor interview was conducted for this study (April 2019), many of the advisors were "reviewing admission applications and meeting with students on the admission process for various health science program," including the nursing program where there is usually "200-250 applications to be processed." Even though the criteria for the EA process is to contact the students within 48 hours of the EA system initiation, meet with and close the file within a week of the EA initiation, many times the process is delayed since advisors have various other job responsibilities in their role as advisors. The advisors felt that there was more emphasis on the EA documentation process, more about numbers, than actually meeting student needs. Administration receives all of the EA reports which includes advisor response or EA status with each at-risk student referred, and the pressure is high to complete the EA process on a weekly basis.

Another major challenge was getting students to respond to the Early Alert once the student was emailed or contacted about the EA process by the advisor. Advisors' impressions on why students did not respond varied. Majority of the reason that nursing students are referred is due to exam failure, and according to advisor B "many times the students have already met with the faculty member and feel they don't need to meet with an advisor." The fact that the student met with the faculty member is not indicated in the EA process or input. Advisor D felt "some students are not engaged in their learning or do not feel they need any help," so advisors felt the challenge of keeping students engaged and taking responsibility for their learning. Also indicated was there might be "multiple Early Alert system initiated" on the same student, since students are taking several classes during the semester, and students fail to follow through on each of the EA initiated.

A specific challenge related to the overall EA system, according to advisor A, was "closing the loop with the EA process with better documentation/communication between faculty and advisor of addressing the student needs." Advisors felt there needs to be an improved "automated system" to capture the data from all the members involved in the advisement of the student. Having "clear communication from the faculty will help to better serve the student needs and can better address the Early Alert initiated on the student." Although it is indicated the "reason" for the EA, such as exam/assignment failure, absence, personal issues, however specific needs or concerns that the faculty may have faced with the student in the course are not indicated with the EA initiation. Advisors felt that a more "collaborative communication process between individual faculty, advisor, and students" would help to meet individual student needs and for the

EA process to work better. It was also indicated that in the communication process and documentation there needs to be "better guidelines and policy on what specifically can be documented while maintaining student confidentiality."

5) What are your Recommendations to Improve the Early Alert System based on your Experience with the System?

Many of the recommendations to improve the Early Alert system was based on the challenges the advisors faced with the EA process, as indicated above. Some of the recommendations the academic advisors stated on EA process improvements included: (1) improved communication process between faculty and advisor to better meet individual at-risk student needs and "close the loop;" (2) specific guidelines and policies on what can be documented while maintaining student confidentiality; (3) more emphasis on quality than quantity on EA system completion, in other words "more involvement with student needs and less on documentation;" improved communication to students about the EA system and processes so students are aware of the resources, therefore less of a "punitive process." One of the advisors stated addressing the EA process as an "academic check-in" to assess student needs rather than a negative process that the student has to complete when not doing well in a course. Another advisor recommended including information about the Early Alert system in the orientation process for the program so that students are aware of the advisors, resources, and steps early in their academic process and, therefore, improve "student engagement." Advisors agreed that the emphasis of the Early Alert system should be more as a "routine process in academics."

Themes That Emerged From the Academic Advisor Interviews

Based on the interview responses of the four academic advisors who work with the Early Alert system and the at-risk students who are referred, there were several themes that emerged. There was an overall similarity in many of the responses to each of the questions asked in the semi-structured interview. These themes could be used to help guide the recommendations for improvement of the Early Alert system processes. The main themes that emerged were:

Theme 1: Early alert system is a mixed-bag –good and bad

Theme 2: Advisors believe the process works

Theme 3: Communication through the process could be improved

Theme 4: Timeliness suffers as a result of other "departmental responsibilities"

Theme 5: Closing the loop – students should be more involved or engaged in the process

Theme 6: Integrative advising should be a collaborative and meaningful effort

The recommendations by the academic advisors align with O'Banion's model of integrative advising (1972), where the emphasis is more on an integrative advising with a collaborative effort on improving student success and an interactive partnership aimed at enhancing the student's self-awareness and fulfillment. These recommendations also align with Tinto's theory of student retention (1993), when the remediation approach is based on a dynamic, respectful student relationship, the success and retention of the student are more likely to happen. A summary of the EA process discussed, challenges mentioned, and recommendations made in the interviews is shown in Figure 5.

Conclusion of Findings

The research analyzes and findings of this study were based on a quantitative and qualitative research design. The Early Alert system archival datasets were evaluated and academic advisor interview responses were analyzed to answer the research questions for this study. For research question 1 (RQ1), the combined dataset for Early Alert system for the years 2015 to 2017 (n=568) indicated that the pass rate was 78% of the at-risk students referred for the EA system.

Since the literature review indicated a correlation between specific nursing courses and NCLEX-RN success, nursing courses for which the students were referred were analyzed. The courses with sample size greater than 30 with the top five lowest pass rates were: Common Concepts of Adult Health (54.55% passing), Pharmacology (66.67% passing), Care of the Childbearing Family (68% passing), Foundations for Nursing Practice (69.49% passing), and Care of Children and Families (70.1% passing).

The pass rate was also analyzed per term or semester, which indicated an overall downward trend in pass rate with progressing semesters. The primary reason for this downward trend in pass rate could be that there were fewer students admitted into the ADN program due to the low NCLEX scores in the previous years. Also, a more stringent admission and remediation criteria were instituted overall in the nursing program due to the drop in NCLEX-RN pass rates in the previous years. The NCLEX-RN scores did show an overall improvement in the correlating years of the Early Alert system study.

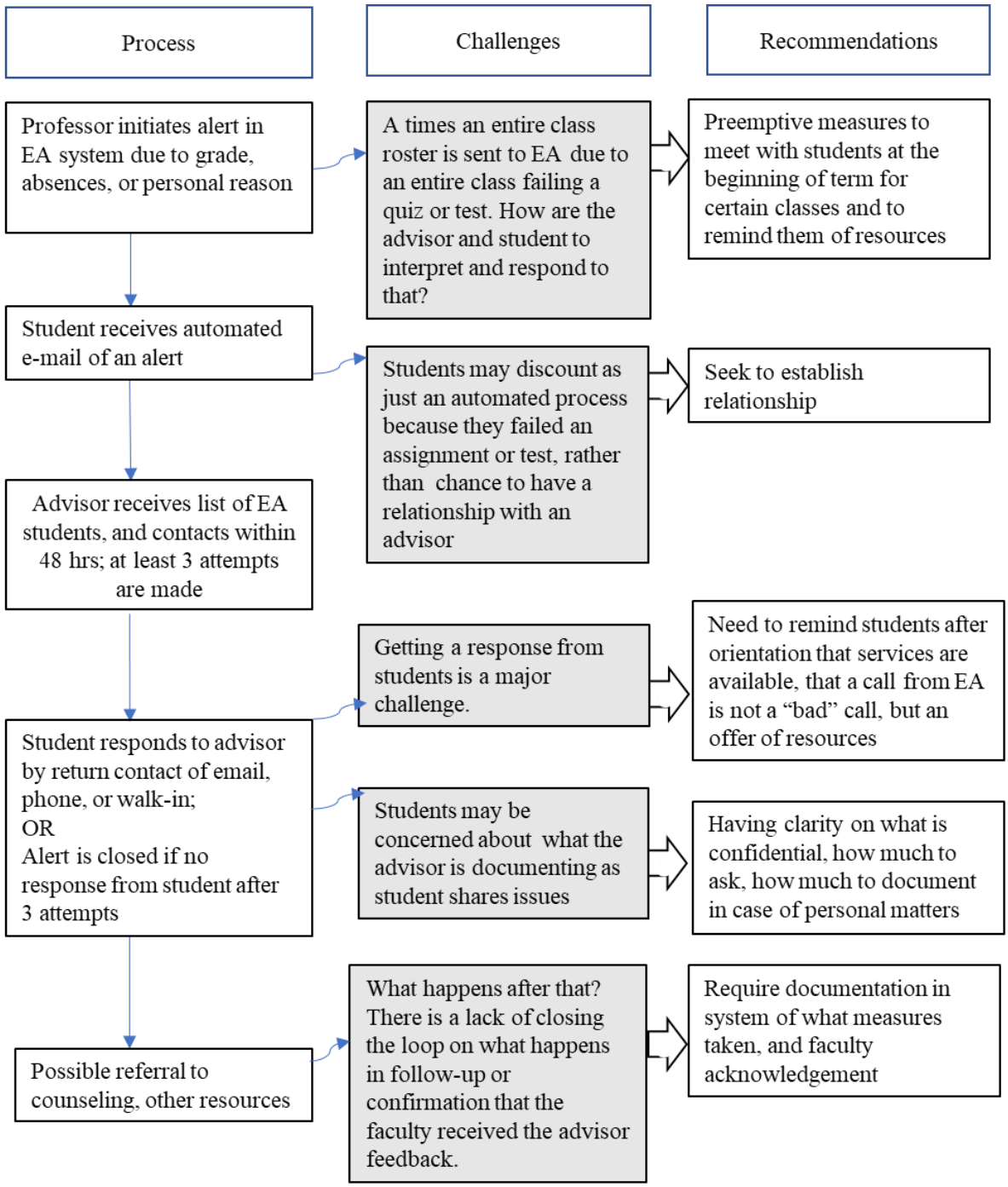

Figure 5. Early Alert sequence of steps, challenges, and recommendations communicated in interviews.

For research question 2 (RQ2), there was no correlation between academic advisor contact and completion of EA status with the student pass rate (r_s= -.008, p= .863). While the results suggest that the majority of the students referred to the EA

system did pass, the EA system dataset was limited because of the inconsistency of data entry about advisor contact frequency. No information existed about the nature of the advisory and faculty contact.

Interviews with advisors helped to explain some of the findings in this study, especially with RQ2. Interview responses indicated that overall the EA system helped to identify at-risk student early enough to address academic and personal issues. Challenges included contacting students promptly with other department responsibilities, getting students to respond to advisor contacts, and closing the loop with improved documentation and communication between faculty and advisor related to student needs and remediation. The recommendations for improvement based on the advisor's experience with the EA system included: better-automated processes within the EA system to increase communication between faculty and advisors to improve meeting student needs and to close the loop on related to documentation and communication, student awareness of the Early Alert system process and available resources early in the academic process therefore less of a punitive process, and improved guidelines/policies to better guide documentation process to maintain student confidentiality.

Chapter V

Discussion/Results

The Associate Degree Nursing (ADN) program at a large community college was mandated and has instituted, along with other academic and workforce programs, the use of the Early Alert system for identifying and remediating at-risk nursing students. There are very strict criteria within the nursing program, including achieving a pass rate of 75% or higher in individual courses, to progress to the next level of the program. These strict criteria were instituted to improve NCLEX-RN® pass rates at 80% or higher, which is the criteria for a nursing program's success and continuation. Therefore, a very dynamic remediation process was needed to assist students who may be at-risk for attrition in the ADN program, as identified by the Texas Board of Nursing self-study report.

This research study endeavored to examine the effect of a specific strategy of remediation, the Early Alert system, as a nursing student success initiative within the Associate Degree Nursing (ADN) program at a large community college in Southeast Texas. Early Alert system is an academic collaborative advisement and remediation strategy for at-risk students aiming to prevent individual course failure. Therefore, the goal of this study was to assess the benefit, if any, that the Early Alert system provided to student outcomes and pass rates in individual courses as the initial steps toward graduation and NCLEX-RN® success.

Since the implementation of the Early Alert system as a remediation tool in the ADN program, there were no study conducted or data available on the results of the Early Alert system in the nursing program or with at-risk nursing students. There were some review and revision of the Early Alert system at this college in 2015/2016, with some

preliminary overall data gathered for the college, but no specific data gathered related to the nursing program. This study was undertaken for the very specific purpose of understanding the effects of the Early Alert system within the nursing program at this large community college.

This study investigated two research questions related to the effects of the Early Alert system on student course grades and retention. The research questions were:
1) What was the frequency of passing for students within the Early Alert system?
2) How did the academic advisor contact and completion of the Early Alert system correlate with student pass rate?

Interviews were conducted with academic advisors who work with the Early Alert system at the health sciences college on their value of the program, the nature of its implementation, and suggestions for improvement.

Research Question 1: What was the Frequency of Passing of Students within the Early Alert System?

Results . The dataset was combined using SPSS statistics for all the nursing students for each semester studies, from summer 2015 to fall 2017. There was a total of 568 nursing students once the datasets were compiled. A descriptive statistics of the frequencies with the mean, median, and standard deviation were analyzed from this combined dataset using SPSS (see Table 4).

Also a frequencies table was analyzed using SPSS (see Table 4). Of the 568 nursing students who were referred to the Early Alert system between summer 2015 and fall 2017, there were 442 students who passed, with a grade of A, B, or C, the course they were referred for as at-risk. There were 126 students who did not pass the course and

received either a D, F, W, or I. Of the total, approximately 78% (77.9%) of the students passed and 22% (22.2%) failed the course. Of the students who passed, 5 received a grade of A, 222 received a grade of B, and 251 received a grade of C. Of the students who failed, 98 received a grade of D, 13 received a grade of F, and 15 withdrew from the course, and therefore was not able to progress to the next level.

The analysis of frequencies of pass rate indicates there is a high pass rate (78%) for students who are referred to the Early Alert system, as opposed to students who did not pass (22%), with n = 568 ADN/nursing students. The analysis of frequencies of student passing vs. non-passing grades for the Early Alert System participants in year 2015, 2016, and 2017 does not indicate specific reason for the high pass rate, but does indicate that overall students do well, with a 78% pass rate, for students referred to the Early Alert system as a remediation process.

As indicated with the remediation process and advisement literature review findings, students may become more aware and involved in their education when identified and referred for remediation. For example, the study conducted by Pargett (2011), showed there was a relationship between academic one-on-one faculty advising and student development, student satisfaction with college, and positive development as a student. Pascarella and Terenzini (1980) found that as student interactions with faculty member increased, so did student retention. Overall, in studies conducted reviewing the effects of having a one-on-one faculty advisor, a positive effect on student development was found. The referral to the Early Alert system and contact from the advisor and/or faculty may provide students with one-on-one interaction and awareness of their academic status. Therefore students overall are more involved in their academic progress.

Comparing literature review for nursing courses for RQ1. Along with analyzing the pass rate for students within the EA system, this study evaluated the specific nursing courses the students were referred for within the nursing program. The literature review indicated that many authors have reported the correlation between students' course and NCLEX-RN® passing (e.g., Kaddoura, Flint, Van Dyke, Yang, & Chiang, 2017; Sears, Othman, & Mahoney, 2015; Trofino, 2013). These studies provided strong evidence of the importance of individual course passing grades in programs. The findings make student outcomes in individual courses an important remediation target for ADN programs as part of efforts to improve NCLEX-RN® outcomes. The primary and specific nursing courses found in this study with sample size greater than 30 with the top five lowest pass rates were: Common Concepts of Adult Health (54.55% passing), Pharmacology (66.67% passing), Care of the Childbearing Family (68% passing), Foundations for Nursing Practice (69.49% passing), and Care of Children and Families (70.1% passing). Courses such as Common Concepts of Adult Health or Medical-Surgical nursing courses, Pharmacology, and the grades in such nursing courses and GPA were specifically noted in literature review as having a positive correlation or strong predictor with NCLEX-RN® pass rate (Seary, Othman, & Mahoney, 2015; Trofino, 2013; Kaddoura, Flint, Van Dyke, Yang, & Chiang, 2017; Whitehead, 2016).

Comparing background findings of EA system for RQ1 . First, how does the preliminary findings of 2016 at the community college review of the EA system (Table 2) compare with the results in this study for RQ1? Of the 5214 students referred to the Early Alert system in the spring 2016 semester college-wide, students who received a grade of C or above were 38%, grade of D or below were 30%, grade of I (Incomplete) 7%, and grade of W (withdrew) 25%. In this study, of the sample size of 568 nursing students between the years of 2015 and 2017, 78% of the nursing students received a grade of C or higher and 22% of the students did not pass. Although a smaller sample size and a more focused health science program cohort, overall the results of this study showed higher pass rates. The admission and progression criteria are more stringent overall in the nursing and health sciences programs and many have built in mandatory remediation criteria, including the Early Alert system, which may explain why the pass rates are higher overall with the nursing students analyzed in this study.

Next, the reasons that the students were referred for the Early Alert system in the preliminary data collected by the college and this study were compared. Again, for the 5214 students referred to the Early Alert system in the 2016 college review, 58% were for academic reason, 40% were for attendance problem, and 2% were for personal issues. In the EA system study with the nursing students found the reasons for alert were: 94.54% academic, 2.82% attendance, 0% for personal, 0.53% for both academic and attendance, 1.41% for academic and personal, and 0.70% for academic, attendance, and personal reasons (Table 4). Since pass rate and progression are vital in the nursing courses, the emphasis on academic vigor may explain why a larger number of nursing students are referred for academic reasons for the Early Alert and remediation process. The nursing

course criteria for passing is grade of C or higher (75% or higher) in each course, therefore students who are scoring less than 75% on exams or assignments are considered at-risk and are referred to the Early Alert system for remediation.

Finally, as indicated in the background information above, the Early Alert system is a mandatory process in the ADN program at this large community college. In all the courses, the syllabus clearly indicates and includes the Early Alert system as a mandatory remediation process for students who may be identified as at-risk for any reason in a specific nursing course. Students are made aware of the process of the Early Alert system during the course orientation and faculty members refer students who are at-risk as the course progress in the semester.

Research Question 2: How did Academic Advisor Contact and Completion of the Early Alert Process Correlate with Student Pass Rate?

Results . The Early Alert dataset was combined for all three years, 2015, 2016, and 2017, and was used to analyze the correlation between advisor contact and completion of the Early Alert system for students referred to the Early Alert system between summer 2015 and fall 2017 and the grades. Also, academic advisor interviews were conducted to understand better the Early Alert system experience and processes with the EA dataset received. For RQ2, the independent variable was contact with advisor and completion of the Early Alert system; the dependent variable was student pass rate.

The study analyzed the grade for students who showed as ‘Made contact-Completed’ and ‘Unable after 3 Attempts’ in the Early Alert system for remediation in the EA status in the dataset. Using the combined datasets from each of the semesters, the

students who had no data entry for the independent variable EA status, which indicates some sort of contact or completion status of the Early Alert system, were removed from the combined data and analysis. Therefore, data analysis was completed on only the students with data entry in the EA status. The sample size (n) for students with data entry in the EA status. The sample size (n) for students with data entry in the EA status column was 428 nursing students, therefore the sample size for RQ2 is 428 nursing students.

Table 11

Spearman Rho Correlation Data for Grades vs. EA Status

		EA Status	Pass or Fail
EA Status	Correlation Coefficient	1.000	-.008
	Sig. (2-tailed)	.	.863
	N	428	428
Pass or Fail	Correlation Coefficient	-.008	1.000
	Sig. (2-tailed)	.863	.
	N	428	428

A Spearman rank-order correlation statistical analysis was conducted to determine the relationship between advisor contact and completion of the Early Alert system, as indicated in the EA status of the dataset, and student grade outcome or pass rate, as indicated by the Grade in the dataset. With the sample size at 428, the Spearman's correlation coefficient was - .008, and this is not statistically significant (p = .863). The Spearman rank-order correlation shows there is no correlation between advisor contact and completion and student pass rates (as seen in Table 11). The dataset included students who completed the Early Alert system remediation process, as indicated in the EA status as 'Made contact- Completed' and students who did not complete the Early

Alert system, as indicated by 'Unable after 3 Attempts'. Whether students completed the Early Alert system remediation process or not, as indicated in the EA status of the dataset, had no significant impact on pass status for the course the student was referred for in the semester. There was a high number of students who passed whether the students completed the Early Alert system or not (data results included in Table 9).

Table 9

Frequencies of EA Contact Completion Status Vs. End Grade.

EA status	Frequency	A	B	C	D	F	W or INC	Passing (A,B,C)	Failing (D, F, W, INC)
Unable after 3 attempts	100	2	42	30	21	1	4	74	26
First attempt/initiated	11	0	4	4	2	0	1	8	3
Undocumented	140	0	67	59	12	0	2	126	14
Not completed, all	**251**	**2**	**113**	**93**	**35**	**1**	**7**	**208**	**43**
Contact completed	**317**	**3**	**109**	**120**	**60**	**6**	**19**	**232**	**85**
Total	568	5	222	213	95	7	26	440	128

Since there are several variables that can affect this result, one of the main indication is that there is no feedback included on the Early Alert system dataset from the faculty members who referred the student. As part of the collaborative remediation process, nursing faculty members generally meet with nursing students for content-specific remediation and conduct the indicated department remediation policy and Early Alert system processes. Yet faculty members do not make any documentation further in the EA system about meeting with students or the specifics of the remediation. Therefore, there was no indication or documentation within the Early Alert system from faculty members of the remediation provided or the specifics of the remediation provided for each student. Also, there was no documentation in the EA dataset received from the

community college on the specifics of the advisement provided by the academic advisors when they met and completed the EA system processes with students. There is significant faculty remediation with students taking place within the department for each of the courses yet this data is not captured on the EA system dataset. Advisors are meeting with students, as indicated under the EA status of the EA system dataset, but the specifics of the remediation or advisement process is not indicated.

Academic advisor interview findings for RQ2. In order to understand better the analyzes findings for RQ2, academic advisor interviews were added to this research study, therefore including both a quantitative and qualitative perspective or triangulation as described by Patton (1999). Of the four health sciences college academic advisors, from the community college studied, who volunteered for the advisor interview, the same five questions were asked of each advisor and the responses were analyzed. The interview questions for the semi-structured interview were: 1) What has been your experience with the Early Alert system as an advisor at the college? 2) What is the process for data entry with the Early Alert system in your experience? 3) What is the process for contacting students as part of the Early Alert system? 4) What challenges have you faced with the Early Alert system process? 5) What are your recommendations to improve the Early Alert system based on your experience with the system?

The response for each question is summarized in chapter 4 of this study. The academic advisors felt that overall the Early Alert system process worked well in identifying at-risk students early so that necessary resources can be provided early to students for their success in the individual courses. The academic advisors were able to describe the EA system processes and stated that the EA system input has improved

overall since the 2015-2016 college review and training of the Early Alert system college-wide. Since the college-wide 2016 EA system college review and training, there was improved overall documentation of the EA status on the datasets. There were 140 students who did not have any entry or documentation of completion status. There was an Early Alert system identification of this student, but no record of whether the student was contacted, EA initiated, or EA completion was recorded for these students. The undocumented status were found to be before the spring 2016 review and training conducted on the EA system. After spring 2016, there is EA status documentation for each student within the Early Alert system datasets.

It was found that several themes emerged from the interviews and helped to understand better the Early Alert system dataset and processes from the academic advisor viewpoint. The main themes include:

Theme 1: Early alert system is a mixed-bag –good and bad

Theme 2: Advisors believe the process works

Theme 3: Communication through the process could be improved

Theme 4: Timeliness suffers as a result of other "departmental responsibilities"

Theme 5: Closing the loop – students should be more involved or engaged in the process

Theme 6: Integrative advising should be a collaborative and meaningful effort

The challenges identified included contacting students in a timely manner with other job responsibilities and department duties, getting students to respond to the advisor contact for the EA system, and closing the loop with improved documentation and communication between faculty, advisor, and students. The EA system findings indicated

the pass rate at 78% (n= 568) for students within the EA system even though many did not meet with the advisor (44%). The remediation process includes the nursing faculty members, but there was no documentation related to remediation provided by faculty members for the nursing students in the EA system. These same stated challenges and findings help better explain the Early Alert system finding for research question 2, where no correlation was found between academic advisor contact and completion and student pass rate.

Comparing literature review for nursing courses for RQ2. In relation to research question 2, and as indicated in chapter 4 for the academic advisor question 1 response, literature review indicates that the quality in the advisor-student relationship serves to increase the student's involvement and persistence in college and to prepare the student for future decision-making situations (Burton & Wellington, 1998; Tinto, 1993; Frost, 1991; & O'Banion, 1972). The Early Alert system as a remediation tool for this community college is identifying the at-risk students early.

Even though there was no correlation found between academic advisor contact and completion and student pass rate, the EA remediation process may likely be initiating student engagement and "involvement" in their college experience and individual course work. The academic advisors interviewed considered their experience with Early Alert system to be a "good experience overall" in identifying early the at-risk students and providing an opportunity for the students to receive assistance and resources early to help with the academic process.

Comparing background findings of EA system for RQ2. How does the overall findings from the analyses of the EA datasets compare with the preliminary review conducted in 2016 by the community college. In the 2016 EA system college-wide review, the EA status were as follows (n=5214): Completed were 42%, Not completed 45%, Unable to contact 13% (Table 2). So overall, 42% complete the EA system process and 58% did not complete the EA system process. The EA system findings for this study for nursing students for the years 2015 to 2017, were as follows (n=428): Made contact-Completed 56% and Not completed 44% (Table 2). Since remediation is a mandatory process in the nursing program when students are identified in the Early Alert system, or at-risk, this may explain the larger percentage of students completing the EA process in comparison to the college-wide results. Also with one-on-one faculty remediation that is again mandatory within the program, the students maybe more involved and engaged in their learning. Again, there is no documentation from faculty members of the required remediation captured in the EA system datasets.

Limitations of the Study

The limitations of this study are as follows. First, this study uses archival data. Although the researcher did not introduce any changes in participant behavior, the researcher also did not have any control over the dataset. For research question 1, a retrospective, descriptive and correlational study using quantitative analysis of archival data on the Early Alert system interactions logged for the academic years 2015, 2016, and 2017 were used. Archival records were received for all at-risk students from the health sciences campus of this large Community College who were entered into the college database as Early Alert system participants. Since the data used for this study is archival,

this alone is a limitation since there is no control element in the study.

Second, there was missing data entry in the EA system dataset. For research question two, limitation included that there was incomplete data entry in the archival dataset received. The dataset received were used to analyze the research questions imposed for this study. The dataset was incomplete in the entry for the EA status- there were 140 of the students out of 568 where no data was entered in the EA status regarding contact, attempt, or completion of the Early Alert system. These 140 students could not, therefore, be included in the sample for research question 2 for analyzing the effect of advisor contact and completion of Early Alert.

The academic advisor interviews helped to understand better the processes of the EA system data entry. The interview responses captured the overall experiences of the advisors with the EA system, data entry processes, steps for contacting students for the EA system, challenges with the EA system, and recommendations for improvement with the EA system. The interview recruitment was with the health sciences college where the nursing student studied meet with advisors. There was four advisors who were interviewed using a semi-structured interview process.

Implications

The recommendations for future study include interviewing more academic advisors from various colleges and programs within the community college to get a boarder perspective of the remediation process and aspects for improvement. The recommendations for the Early Alert system process based on this study findings included:

1) Have faculty members input data into the system of the remediation completion

to capture the remediation process that is implemented for each student. Also, have faculty members include the type of remediation provided, or documentation of the specific details of the remediation. This data will help with remediation reporting for the department and help to better follow student pass rates. This data entry will help to better explain the pass rates found in the EA system datasets overall.

2) Have academic advisors, along with completing the EA status, include the specifics of the advisor meeting, resources provided, and specifics of the remediation process completed with the student. This data again will help to better understand the EA system datasets for each semester. The need for more and better documentation was also iterated by the academic advisors in the interview response for recommendation to improve the EA system.

Table 13

Study Findings and Implications

Findings	**Implications**
EA system does not predict student success	Student grades should not be the only outcome of an EA system. The system is designed to increase engagement, inclusion, and coaching in an integrative way to improve student outcomes in the long-run.
Advisors believe the process works	
Data entry for the system was inconsistent	Guidelines, policies and procedures like those begun in 2015-2016 should encourage consistent and quality use of an EA system
Communication through the process could be improved	Receiving regular and consistent feedback from faculty members, advisors, and students during the EA process would reduce workload and enhance a more meaningful student to administrator/faculty experience
Timeliness suffers as a result of other “department responsibilities”	

Closing the loop – students should be more in involved or engaged in the process	To close the loop with the Early Alert system process, there has to be the entry of a collaborative approach in the Early Alert system data base
Integrative advising should be a collaborative and meaningful effort	

As noted in the findings for each research question, the following are primary implications indicated from this study for the Early Alert system. To close the loop with the Early Alert system process, there has to be the entry of a collaborative approach in the Early Alert system data base. The Early Alert system is a collaborative approach to remediation, but the data base does not capture the process in its entirety. There are students who may be following up with the nursing faculty member since it is mandatory in the ADN program, but the dataset does not capture the closing of the loop of the Early Alert system process. The study findings and implications are included in Table 13.

Therefore the implications for future study include receiving input from faculty members and students on the overall EA system experience. As indicated by the advisors, a challenge includes getting students to respond to advisor contacts, therefore meeting with students and gathering data on their experiences with the EA system can help to better serve the students. Another significant challenge indicated by advisor response was closing the loop with improved documentation and communication between faculty and advisors related to student needs and remediation. The EA system is a collaborative remediation process and there are collaborative remediation provided for the students, yet the EA system does not capture the entire processes and skews analyzes findings.

From the study findings, the Early Alert system works to identify at-risk nursing

students early in the semester and program, but there lacks sufficient documentation within the system to identify the high student pass rates when students are identified within the EA system. Modification within the system to include accurate documentation of the remediation provided by all members involved in the process, while maintaining student support and confidentiality, will greatly assist with the accurate implementation of the Early Alert system as a nursing student success initiative.

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Appendix A

IRB Approvals

UNIVERSITY of HOUSTON

DIVISION OF RESEARCH
Institutional Review Boards

APPROVAL OF SUBMISSION

March 20, 2019

Sofia John

sajohn3@uh.edu

Dear Sofia John:

On March 20, 2019, the IRB reviewed the following submission:

Type of Review:	Modification
Title of Study:	Evaluation of the Early Alert System as a Nursing Student Success Initiative
Investigator:	Sofia John
IRB ID:	MOD00001823
Funding/ Proposed Funding:	Name: Unfunded
Award ID:	None
Award Title:	
IND, IDE, or HDE:	None
Documents Reviewed:	• IRBHCC2019SofiaJohn.pdf, Category: Additional IRB approval letters; • InterviewRecruitmentInitialEmailtoAdvisors.pdf, Category: Recruitment Materials; • HRP-503 Protocol - Sofia John, Category: IRB Protocol; • InterviewQuestionsforThesisUHSofiaJohn2019.pdf, Category: Recruitment Materials; • InterviewConsentFormThesisUHSofiaJohn.pdf, Category: Recruitment Materials;
Review Category:	Exempt
Committee Name:	Not Applicable
IRB Coordinator:	Sandra Arntz

The IRB approved the following revision on March 20, 2019; the approval end date for the research study remains September 27, 2023.

Summary of approved modification(s):

My initial study was on archival data only for the Early Alert system data sets. The modification to this study is to include interviews of Houston Community College Advisors who work with students who have been referred to the Early Alert system and identified as at-risk. The modification includes addition of qualitative analysis from the interviews to better answer the research questions. HCC IRB approval has been received to conduct the advisor interviews. Once UH IRB approval is received, I will contact the current academic advisors in HCC individually via email to request their participation in an interview. The total possible participants is 3-5 advisors. If they agree, I will contact them individually via email or phone with more information about the study and to set up a time for an interview to take place at HCC. At the interview, I will give them a consent form, explain the procedure, and review their rights. If they agree to participate in an interview and sign the consent, I will give them a copy for their records and proceed with the interview. If participants agree, I will record the interview. If they agree to the interview but not to be recorded, then I will take notes during the interview. Documents for consent form, interview questions, and initial contact information has been included. I anticipate that the interview would last between 15 and 20 minutes.The participants can refuse any time before or during the interview process.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.

If your study meets the NIH or FDA definitions of clinical trial, or may be published in an ICMJE journal, registration at ClinicalTrials.gov is required. See the UH ClinicalTrials.gov webpage for guidance and instructions.

Sincerely,

Research Integrity and Oversight (RIO) Office
University of Houston, Division of Research
713 743 9204
cphs@central.uh.edu
http://www.uh.edu/research/compliance/irb-cphs/

UNIVERSITY of HOUSTON

DIVISION OF RESEARCH
Institutional Review Boards

APPROVAL OF SUBMISSION

September 28, 2018

Sofia John

sajohn3@uh.edu

Dear Sofia John:

On September 28, 2018, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	Evaluation of the Early Alert System as a Nursing Student Success Initiative
Investigator:	Sofia John
IRB ID:	STUDY00000877
Funding/ Proposed Funding:	Name: Unfunded
Award ID:	
Award Title:	
IND, IDE, or HDE:	None
Documents Reviewed:	• Nursing Program Study Approval Letter, Category: Letters of Cooperation / Permission; • Sofia John, Category: IRB Protocol;
Review Category:	Exempt
Committee Name:	Not Applicable
IRB Coordinator:	Sandra Arntz

The IRB approved the study from September 28, 2018 to September 27, 2023, inclusive.

To ensure continuous approval for studies with a review category of "Committee Review" in the above table, you must submit a continuing review with required explanations by the deadline for the August 2023 meeting. These deadlines may be found on the compliance website (http://www.uh.edu/research/compliance/). You can submit a continuing review by navigating to the active study and clicking "Create Modification/CR."

For expedited and exempt studies, a continuing review should be submitted no later than 30 days prior to study closure.

If continuing review approval is not granted on or before September 27, 2023, approval of this study expires and all research (including but not limited to recruitment, consent, study procedures, and analysis of identifiable data) must stop. If the study expires and you believe the welfare of the subjects to be at risk if research procedures are discontinued, please contact the IRB office immediately.

Unless a waiver has been granted by the IRB, use the stamped consent form approved by the IRB to document consent. The approved version may be downloaded from the documents tab.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.

If your study meets the NIH or FDA definitions of clinical trial, or may be published in an ICMJE journal, registration at ClinicalTrials.gov is required. See the UH ClinicalTrials.gov webpage for guidance and instructions.

Sincerely,

Research Integrity and Oversight (RIO) Office
University of Houston, Division of Research
713 743 9204
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http://www.uh.edu/research/compliance/irb-cphs/