Spring 5-15-2017

Exploring Respiratory Care Faculty and Students' Perceptions of Effective Clinical Instructor Characteristics

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Submitted in the partial fulfillment of the

requirements for the degree of Doctor of Philosophy in Health

Sciences Seton Hall University

2017

Seton Hall University

School of Health and Medical Sciences

Department of Interprofessional Health Sciences and Health Administration

Approval of Successful Defense

Doctoral Candidate**, Saad Mohammed AlRabeeah**, has successfully defended
and made the required modifications to the text of the doctoral
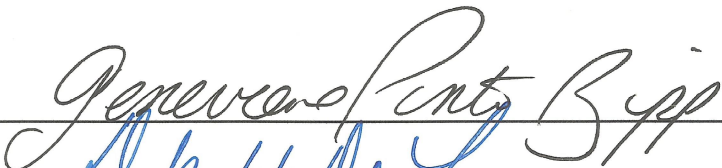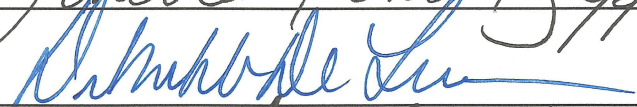dissertation for Ph.D. during the **Spring Semester 2017.**

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ACKNOWLEDGEMENTS

I thank and praise God for everything that happens for me. I praise God for giving me wonderful supportive parents, wife and kids. Thank you Mohammed AlRabeeah (dad) and Sarah AlRabeeah (mom) for all your tremendous support and prayers. Thank you Nassim (wife) for the endless love and support.

I also express my deep thanks to Dr. Genevieve Pinto-Zipp my academics advisor and my dissertation committee chair for all her support, guidance, patience and encouragements.

I also thank Dr. Deborah A. DeLuca my dissertation committee member for her valuable comments and support. I would like also to thank Dr. Fortunato Battaglia my dissertation committee member for his help and feedback.

To my colleagues at Seton Hall University, thank you for your support and valuable feedback. I learned a lot from you all.

DEDICATION

This dissertation is dedicated with gratitude to the educational leaders in the profession of

respiratory care

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ABSTRACT

Background: Clinical instructors play a crucial role in shaping the future of healthcare by training students on site to deliver patient-centered team based care. Respiratory care clinical instructors play an integral part in preparing respiratory care students to be effective practitioners given that almost 50% of the respiratory care curriculum is conducted in the clinical environment under the supervision of clinical instructors. Professional competence, interpersonal relationships, personality characteristics and teaching ability are all qualities that clinical instructors should possess in order to provide students with quality clinical education experiences. The purpose of this mixed method study was to (1) explore and compare respiratory care faculty and students' perceptions of the most important characteristics of an effective clinical instructor, (2) compare respiratory care academic and clinical faculty perceptions of characteristics of an effective clinical instructor, and (3) compare respiratory care students' perceptions of effective clinical instructor characteristics as they progress through the respiratory care program. **Methods:** A letter of solicitation which housed the link to an online questionnaire was sent to all respiratory care program directors in the US via email. Program directors' emails were secured from the Commission on Accreditation for Respiratory Care (CoARC) website which provides an alphabetical listing of all accredited respiratory care education programs. The clinical instructor's effectiveness questionnaire was used to collect the quantitative data. Three open ended

questions were also included to gather qualitative data. Data was secured for both respiratory care faculty and respiratory care students. **Results:** 176 faculty and 122 students completed the questionnaire. Respiratory care faculty scored the highest mean in the professional competency subscale μ= (4.81) and the lowest mean in the interpersonal relationship subscale μ= 4.5, while respiratory care students scored the highest mean in the interpersonal relationship subscale μ= (4.58) and the lowest in the professional competence subscale μ=(4.52). Independent sample t-test revealed non-significant differences between respiratory care academic and clinical faculty. A Mann Whitney *U* test revealed significant differences between respiratory care faculty and students in the professional competence (p=.001) and interpersonal relationship (p= .01) subscales. ANOVA test revealed a significant difference between students as they progress through the program in the interpersonal relationship subscale (p=.02). The qualitative findings of this study showed that respiratory care faculty prioritized evaluation skills and professional competence as the most important characteristics of an effective clinical instructor. However, students prioritized personality characteristics and interpersonal relationship as the most important characteristics of an effective clinical instructor. Training clinical instructors to be familiar with adult learning styles was the emergent theme from faculty responses. Hands-on was the emergent theme from students' responses for positive learning experiences and theory to practice gap was the the emergent theme from students' responses for negative learning experiences. **Conclusion:** Clinical instructors should provide students with a caring learning environment that is based on mutual respect and open to dialogue. Positive interpersonal relationships with students are a crucial factor in determining a clinical instructor's effectiveness. Clinical instructors should attempt to meet the students at their

level of knowledge to reduce students' anxiety and fear of these complex learning

environments. Once a bond is made, the clinical instructors can then move the students

along their journey of knowledge acquisition and application. Training programs that

provide clinical instructors with a strong foundation in mentorship for learning should be

required for all clinical instructors prior to receiving students.

Keywords: Clinical Education, Clinical Instructor, Interpersonal Relationship, Respiratory

Care Education and Respiratory Care Faculty

Chapter I

INTRODUCTION

Clinical education is one of the essential components of any given health care professional program, including nursing, physical therapy and respiratory care to name a few. During clinical education, students are engaged in experiential learning activities under the supervision of a clinical instructor. Health care professional programs such as respiratory care devote almost 50% of the curriculum to clinical education experiences (CEEs) (Commission on Accreditation for Respiratory Care, 2010). Unlike classroom and lab activities, clinical teaching and learning experiences provide students with the opportunity to learn new skills and apply previously acquired knowledge and lab skills to real-life situations, which involve cognitive, affective and psychomotor skills (Spencer, 2003).

As part of the clinical education experience, students engage in both direct clinical practice and what might be considered "clinical teaching sessions". During the clinical teaching sessions students learn directly from and through reflecting upon experiences under the supervision of a clinical instructor. The role of the clinical instructor is to help the student to observe and reflect upon related clinical events and tasks. Clinical instructors should utilize every opportunity to optimize the student's active participation and comprehension of related clinical procedures and services. Students routinely start their clinical rotations eager to apply what they already know and to acquire new knowledge and skills; however, all too often, they are faced with challenges that may negatively affect their learning. It is during both these engaging and challenging clinical experiences that the

clinical instructor plays a major role as the effectiveness of the clinical instructors may alter

the quality of students' CEEs. It has been noted in numerous studies across diverse health

professions that clinical instructors should possess four essential qualities to be effective

instructors who can assist engage students to learn. Professional competence, personality

characteristics, teaching ability and the ability to promote interpersonal relationships are

essential qualities for clinical mentors (see Appendix A for definition of terms) (Hartland &

Londoner, 1997; Johnsen, et al., 2002; Sieh & Bell 1994; Tang, 1993). While, this seems

logical and easy to ensure it is often not the case in the clinical environment.

Clinical environments are very complex, challenging and rapidly changing thus

making the planning for a clinical teaching experience very difficult. Together, the abilities

of the clinical instructors and the resources and expectations of the clinical practice

environment define the quality of CEEs (Recker-Hughes, Wetherbee, Buccieri, Fitzpatrick

Timmerberg, & Stolfi, 2014). While experienced clinical instructors can effectively modify

and adjust the goals of a specific clinical teaching experience to match the demands and

barriers in the clinical setting in order to promote consistent high quality CEEs that is not

always the case with novice clinical instructors (Spencer, 2003). Thus, understanding what

is known about the abilities of clinical instructors and the resources and expectations of the

clinical practice environment that support and hamper quality CEEs is imperative to

ensuring the sustainability of high quality clinical education experiences for health care

professional students, especially respiratory care professionals.

Statement of the problem

Clinical education is conducted in complex and challenging environments. Clinical education is the time when students learn new competencies and apply what they have already learned in the classroom to real life settings under the supervision of a clinical instructor. Clinical instructor's professional competence, personality characteristics, teaching ability and ability to promote interpersonal relationships are essential qualities that play crucial role in student's learning and professional development in complex healthcare environments. Clinical instructor's effectiveness is a significant contributing factor impacting a students' competency development and success (Brown, Williams & Lynch, 2013). Presently, the respiratory care literature has not explored the current status of clinical education extensively. To date there are no published studies that explore and compare faculty and students' perceptions of clinical instructor effective characteristics that can help to develop clinical education.

Significance of the study

Understanding respiratory care faculty and students' perceptions of clinical instructor's effectiveness and clinical learning environments is imperative as RT is a unique profession with specific demands, barriers and needs that might impact this relationship differently. Thus, further addressing this line of inquiry in RT will provide respiratory care educational leaders with valuable information regarding the quality of CEEs. This information will form a ground toward clinical education improvement in respiratory care profession.

Purpose of the Study

Primary purpose of this study was to identify the perceptions of respiratory care faculty and students regarding the characteristics of effective clinical instructors.

Secondary purpose was to determine if a difference in perceptions existed between faculty and students.

Third purpose was to determine if differences in perceptions existed between participants based upon the following demographic variables:

a. Students' level in the respiratory care program

b. Academic faculty vs. clinical faculty

Research Questions and Hypotheses

As measured by the clinical instructor effectiveness questionnaire:

RQ1.

What do respiratory care faculty perceive as the characteristics of effective clinical instructor?

RQ2.

Is there a difference in academic and clinical faculty perceptions of the characteristics of effective clinical instructor?

Ha1.

There will be a sig. difference in academic and clinical faculty perceptions of the characteristics of effective clinical instructor

RQ3.

What do respiratory care students perceive as the characteristics of effective clinical instructor?

RQ4.

Is there a difference in respiratory care students' perceptions of the characteristics of effective clinical instructor as they progress through the program?

Ha2.

There will be a sig. difference in respiratory care students' perceptions of the characteristics of effective clinical instructor as they progress through the program.

RQ5.

Is there a difference between respiratory care faculty and students' perceptions of the characteristics of effective clinical instructors?

Ha3.

There will be a sig. difference in respiratory care faculty and students' perceptions of the characteristics of effective clinical instructor.

Open ended questions

To further understand and describe the quantitative data, three open ended questions were included in the questionnaire. We asked respiratory care faculty about the most important aspects of a training program designed to improve clinical instructors' effectiveness. We also asked students to provide positive and negative learning experiences they have had with their clinical instructors during clinical rotation.

Chapter II

REVIEW OF THE LITERATURE

Characteristics of effective clinical instructor

The current related literature is informative of what constitute to be an effective clinical instructor. Mogan and Knox (1987) conducted a study to identify and compare characteristics of best and worst clinical instructors as perceived by nursing faculty and students. The researchers surveyed nursing faculty and students from seven schools of nursing in the western part of Canada and the United States. Two hundred and one subjects participated in the study, 28 clinical instructors and 173 undergraduate nursing students. The Nursing Clinical Teacher Effectiveness Inventory (NCTEI), which was developed and validated by the authors in 1985, was used to address the research questions. The NCTEI is a seven-point Likert scale that has 48 items describing clinical instructor's characteristics which are further categorized into five subscales: nursing competence, personality traits, interpersonal relationship, teaching ability and evaluation. Participants completed the NCTEI twice, once for the best clinical instructor and once for the worst clinical instructor.

The results showed similar agreement between clinical faculty and students' perceptions of the "best" clinical instructor in the nurse competence and teaching ability subscales. However, less agreement between clinical faculty and students' perceptions were noted in the personality traits, interpersonal relationship, and evaluation subscales. Students' perceptions of the worst clinical instructor's characteristics were lowest rated in the interpersonal relationship and personal traits subscales. Surprisingly, faculty's perceptions

for the worst clinical instructor's characteristics were lowest rated in nursing competence and teaching ability (Mogan, & Knox, 1987). These findings demonstrated potential differences between what clinical instructors and students may value as effective teaching characteristics. Students, who in this scenario were adult learners, had different perceptions of what constituted effective facilitation of their learning. The student perceptions presented in this study add valuable insight as we seek to train future clinical instructors: as this miss match, could in fact create a barrier to effective learning in the clinic if not addressed.

To further understand the faculty and students' perceptions of important characteristics of effective clinical instructors, Sieh and Bell (1994) conducted a study aiming to answer the following questions:

1) What do associate degree nursing students perceive as important characteristics of effective clinical teachers? 2) What does associate degree nursing faculty perceive as important characteristics of effective clinical teachers? 3) Are there differences in what associate degree nursing students and associate degree nursing faculty perceive as important characteristics of effective clinical teachers? 4) Do associate degree nursing students' perceptions become more similar to associate degree nursing faculty's perceptions as the students' level of education increases? (p. 389-390).

The researchers used the Nursing Clinical Teacher Effectiveness Inventory (NCTEI) as the study tool. The tool has 48 items describing effective clinical instructors' characteristics categorized into five subscales: nursing competence, personality, interpersonal relationship, teaching ability and evaluation. A total of 199 students and 22

university faculty members completed the questionnaire (Sieh & Bell 1994). Results showed that students' perceptions of effective clinical instructors were rated highest in evaluation, nursing competence and interpersonal relationship subscales. Faculty perception of effective clinical instructors also rated highest in evaluation, interpersonal relationship and nursing competence. Therefore, no significant differences were found between students' and faculty's perceptions of effective clinical instructors. However, results indicated that as the students progressed through the program, significant differences were noted between students and faculty perceptions in both the teaching ability and nursing competence subscales (Sieh & Bell 1994).

Gignac-Caille and Oermann (2001) surveyed 292 students and 59 faculty members using again the NCTEI tool to identify and determine the differences between student and faculty perceptions of the characteristics of effective clinical instructors in associate degree nursing programs. The results showed that students prioritized the important characteristics of effective clinical instructor qualities (subscales): evaluation/ teaching ability, interpersonal relationship, professional competence, and personality characteristics/traits, respectively. However, faculty prioritized effective clinical instructors' qualities (subscales): interpersonal relationship, teaching/evaluation ability, personality characteristics/traits and professional competence, respectively. A t- test showed a significant difference between students and faculty rating for interpersonal relationship ($t = 2.49$, $p = .014$). The most important item identified by the students was "demonstrate clinical skill and judgment" which is under the professional competence subscale. The most important item identified by faculty is "explain clearly" which is under teaching ability subscale (Gignac-Caille, & Oermann, 2001).

In this study, the results showed that students identified evaluation/teaching abilities as the most important characteristic of effective clinical instructors, while faculty identified the interpersonal relationship with students as the most important characteristic of effective clinical instructors. However, when the researchers used ANOVA to examine the differences based on demographic variable (type of the course enrolled), there were significant differences in the importance of interpersonal relationship and personality traits for students. (Gignac-Caille, & Oermann, 2001).

Tang, Chou & Chiang, 2005 conducted a study to differentiate and identify the students' perceptions of effective and ineffective clinical instructors. The researchers surveyed 235 students from two different nursing schools using a 5-point Likert scale. The researchers aimed to answer the following questions: "1) What are the characteristics of effective and ineffective clinical instructors? 2) What are the differences between effective and ineffective clinical instructors? 3) Do students at different schools have the same opinion about what constitutes effective and ineffective clinical instructors?" (p.188)

Based on their clinical learning experiences, students completed the questionnaire twice: once for the clinical instructor they liked and once for the clinical instructor they disliked. The researchers concluded that an effective clinical instructor should possess qualities from all four categories. They also concluded that the instructor's attitude (interpersonal relationship) toward the students is a crucial factor regarding whether the instructor is effective or ineffective. Students at different schools had the same opinion about what constitutes effective and ineffective clinical instructor. The researchers encouraged health care faculty to understand students' fear and stress, aiming to provide the students with quality CEEs (Tang, et al., 2005).

To further address the landmark research by Katz in (1984) and Hartland and Londoner in (1997) on effective teaching characteristics by nurse anesthesia clinical instructors, Smith, Swaine and Penprase (2011) conducted a descriptive quantitative research aiming to examine:

1) The importance of 24 characteristics (22 effective clinical teaching characteristics identified by Katz, and 2 items added for this study) of student registered nurse anesthetists (SRNAs) and clinical preceptors who are Certified Registered Nurse Anesthetists, and (2) The congruence between the student and preceptor perceptions. (p S62)

The researchers distributed 175 surveys (125 students and 50 clinical instructors) at a large Midwestern teaching hospital. A total of 89 surveys were analyzed using the Friedman test to assess the consistency within each group and Kendall coefficient analysis to determine the congruence of perceived importance of 24 characteristics of effective clinical instructors between the two groups. The results showed a high level of consistency within each group with no significant agreement observed between students and clinical instructors (Smith, et al., 2011).

One of the important findings of this study is the ranking of the item "clinical instructor educational course" which was ranked 13th by the students and 24th by the clinical instructors (least important). The definition of the item "clinical instructors educational course" was included in the survey as described by Elisha (2008). Clinical instructors' educational courses are defined as courses that help clinical instructors learn the principles of adult learning, teaching ability, and positive interpersonal relationships that can assist them in interacting effectively and timely with students. Such findings draw our attention to

the fact that students who are adult learners are conveying a massage in how to meet their learning needs in the clinical setting, in that they prioritize items related to teaching ability, interpersonal relationship, and evaluation. However, clinical instructors prioritize items related to clinical competence, judgment, and personality traits, which indicate that clinical instructors may not see the value of educational courses that help them learn teaching and interpersonal relationship skills (Elisha 2008; Smith, et al., 2011).

In a qualitative study, Sharif and Masoumi (2005) conducted focus group discussions among second, third and fourth year nursing students to analyze the students' views and experiences of their clinical education. A total of 90 students distributed to 9 groups were interviewed (30 from the second year, 30 from the third year, and 30 from the fourth year). Based on the students' feedback four themes emerged, initial clinical anxiety, theory to practice gap, clinical supervision and professional role. The researchers concluded that the role of clinical instructors was more to test classroom knowledge rather than teaching. The students reported a high level of stress and anxiety due to the clinical environment and the supervisory role of the clinical instructors.

Based upon the findings in the nursing literature it is evident that it is important to compare and identify the clinical faculty and students' perceptions of effective characteristics of clinical instructors. However, it is also important to assess the clinical instructors' perceptions of what constitutes an effective clinical educator in relation to actual teaching practices. Johnson, Aasgaard, Wahl and Salminen (2002) conducted a study among Norwegian nurse educators aiming to examine the following questions:

1) What are the most important domains or items in nurse clinical educator

competence based on the opinions of Norwegian nurse educators? 2) What is the

relationship between teachers' opinions of the importance of nurse educator

competence and teaching practice? 3) What is the relationship between

background characteristics, such as age, level of employment, nursing and

teaching experience, and different domains in nurse educator competence? (p.

296)

Eight hundred and twenty nurse educators were invited to participate. Three hundred

and forty-eight participants (response rate of 42%) completed the questionnaire. The

researchers used the Ideal Nursing Teacher Questionnaire developed by Leino-Kilpi,

Salminen, Leinonen, & Hupli, (1994) based on the NCTEI questionnaire that was developed

by Morgan and Knox (1985). The questionnaire contains five subscales: Nursing

competence, Teaching skills, Evaluation skills, Personality factors and relationship with

students. The results showed that the participants rated nursing competence and teaching

skills subscales as most important domains of nurse educator.   Relationship with student

were rated as least important domain of nurse educator. Weak correlations were found

between teachers' opinions of the importance of nurse educator competence and teaching

practice. According to the researchers, these weak correlations are due to missing answers.

The results also showed that when ANCOVA was used to control for the participants age,

educators with more than 10 years' of experience in education rated the relationship with

students as the most important competency for nurse educator (Johnsen, et al., 2002).

While much has been reported in the nursing literature less has been done in other

healthcare professions. Greenfield et al. 2012 conducted a phenomenological study to

explore and describe the role and behaviors of experienced physical therapy clinical instructors as they conducted clinical education. Three educational strategy themes emerged from the clinical instructors' behaviors while transitioning students to clinical practice: incremental experiential learning, reflection in practice, and creating a caring environment with students (Greenfield et al., 2012).

In a study investigating the relationship between clinical instructor performance and health professional students' perceptions of their practice education learning environments Brown et al. (2013), surveyed undergraduate students enrolled in eight health professional bachelor degree courses. Interestingly Respiratory Therapy was not included as one of the eight professions. This may be a result of where RT programs are housed. The researchers aimed to investigate the link between clinical instructor's performance and academic and clinical education environments in health professional courses. Students were asked about their perceptions of their clinical instructor's performance and their perceptions of their clinical education and academic learning environments. The authors concluded that clinical instructor's performance is positively related to students' perceptions of most aspects of their clinical learning environment and some aspects of their academic learning environment. The authors also concluded that clinical instructor's effectiveness is a significant contributing factor toward student competencies development and practitioner success (Brown et al., 2013).

Respiratory care profession

The profession of respiratory care, also known as respiratory therapy, is an allied health occupation responsible for providing care to patients with abnormalities and deficiencies of the cardiopulmonary system. Respiratory therapists (RTs) often provide care to a diverse group of patients ranging from newborn, pediatrics, adults and the elderly. RTs are involved in many specialty areas in the hospital such as Intensive Care units (ICUs), pulmonary function laboratories, sleep labs, emergency rooms and rehabilitations units. Respiratory care education programs devote almost 50% of the curriculum to CEEs (Commission on Accreditation for Respiratory Care, 2010). According to the United States Department of Labor, respiratory care hold approximately 119,300 jobs in 2012, with projected growth of 19% by 2022. (above average) (Bureau of Labor Statistics, 2015).

Recognizing the continued growth of the profession and its importance in todays healthcare system, in early 2007 the American Association for Respiratory Care (AARC) executive office formed a task force to create a vision for the profession of respiratory care in 2015 and beyond. The task force consisted of 15 members with knowledge and experience in the respiratory care profession educational programming, practice characteristics and   health care policy (Kacmarek, Durbin, Barnes, Kageler, Walton, & O'Neil, 2009). One of the main objectives of the established task force was to identify potential new roles and responsibilities for RTs to meet changes in today's healthcare system. Competencies needed by future graduate respiratory therapists were defined during the task forces second conference (Barnes, Gale, Kacmarek, & Kageler, 2010). Competencies were distributed across seven areas: diagnostics, disease management, patient

assessment, leadership, emergency and critical care, therapeutics and application to respiratory care practice (Barnes, et al., 2010).

In 2015, Alasmari and Gardenhire published the first study that explored students' perceptions of most effective clinical teaching behaviors of clinical instructors at an urban university. The study participants were graduate and undereducated respiratory care students from Georgia State University. The authors concluded that undergraduate and graduate students' perceptions demonstrated similarities however, a shift in mean score ranking between first and second year student was significant. The most effective clinical teaching behaviors ranked by graduate and undergraduate students were items in the interpersonal relationship subscale Alasmari & Gardenhire, 2015). This study has limitations in that it is conducted in one institution (convenient sample) and low sample size.

To recognize the importance of clinical education to the future of RT, directors of accredited respiratory care programs were asked to complete a web-based survey to assess the needs for respiratory care clinical instructors' training programs (Rye, & Boone, 2009). The authors asked the following question: 1) Is there a need for a national respiratory care-clinical instructors -training program? If so: 2) What content should be included? 3) What content-delivery methods should be used? 4) What are the barriers to starting a national respiratory care- clinical instructors training program? (p. 869)

The results of this survey showed that the majority of the respondents indicated that they used unpaid clinical preceptors and 32% of the respondents indicated that the preceptors received no training. For the preceptors who received training, the duration of training ranged from 1 hour to 6 weeks. These results showed that almost one third of the

respiratory care clinical instructors did not receive any training and no standardized

preceptor-training program was required. The respondents also indicated that assessment /

evaluation of clinical performance, effective feedback, communication skills, teaching

strategies, preceptor roles and responsibilities are some of the most important needs in

preceptor training programs. In regard to content-delivery methods, the respondents

indicated that workshop, online course, classroom and computer-based training are effective

methods to train future clinical instructors. The participants reported that the top barriers to

preceptor training were lack of time, lack of incentives for preceptors and staffing

limitations at clinical sites that may prevent the clinical instructors' participation (Rye, &

Boone, 2009).   While these findings are informative they are alarming in that so little

training is provided and if it is provided it is inconsistent. Impacting this issue further is the

fact that little is known about clinical educators' interactions with students. Specifically,

there are no published studies exploring respiratory care faculty perceptions of their role in

educating the next generation of RTs. Additionally, the respiratory care literature lacks an

understanding of both faculty and students' perceptions of their clinical education

experiences (CEEs) and the role and effectiveness of the clinical instructors in meeting the

students' educational needs.

     In most reviewed studies, students and faculty perceptions were in agreement about

what constitutes effective clinical instructors; however, disagreements were noted in the

priority of important characteristics of effective clinical instructor. Depending on their

characteristics such as age and level of education, students have different perceptions when

compared to clinical instructors' perceptions. Students prioritize interpersonal relationship

and teaching ability as most important domains of effective clinical instructors while,

clinical instructors prioritize professional competence and teaching ability as most important

domains of effective clinical instructors. Competent practitioners may not be effective

clinical educators therefore, clinical instructors should be carefully selected and trained to

meet the students' needs in such complex learning environment (Smith, et al. 2011).

In summary, the profession of respiratory care is growing fast and graduate

respiratory therapists are required to master advanced psychomotor competencies to provide

patients with safe and high quality patient-centered team based care. While many of the

competencies are addressed during the didactic components of the RT educational programs,

many of these competencies are further developed in clinical internship experiences under

the guidance of clinical instructors. As a result, almost 50% of respiratory care education

occurs in the clinical setting under the supervision of a clinical instructor. Given that

effective CIs and meaningful clinical learning environments support quality CEEs clinical

education programs must continually be assessed and modified as needed to ensure rich

learning environments.

Theoretical framework

Experiential Learning Theory

As we seek to understand the complex learning environment between the clinical

instructor and the student, we look to educational learning theories to provide insight. In

1984, David Kolb developed experiential learning theory (ELT) based on the early work of

Dewey, Lewin and Piaget. Experiential learning is the learning process that occurs through

reflection on an experience(s) "Learning is the process whereby knowledge is created

through the transformation of experience" (Kolb, 1984, p. 38). Kolb argued that the center

of learning is experience and learning occurs through the learner subjective experience(s). ELT works on two levels: four-stage learning cycle which can be called training cycle and four learning styles which offer a way to understand people's different learning styles.

Experiential learning cycle

The experiential learning cycle has four stages of equal importance, in that the learner should execute all four stages in order for effective learning to occur. The first stage in the experiential learning cycle is Concrete Experience (CE) (feeling/doing) which is the stage where the learner has the immediate knowledge, understanding and experience in relation to specific topic or task. In this stage, the learner is usually encountering new experience or reinterpreting existing experience. The CE stage provides the basis for the next stage which is Reflective Observation (RO) (reviewing /reflecting). RO is the second stage in the experiential learning cycle where the learner analyzes the importance of previous understanding and experiences to identify any inconsistencies between experience and understanding. During this stage, the learner is also evaluating new knowledge and linking his/her thoughts to the experience. The third stage is Abstract Conceptualization (AC) (Concluding/Thinking) where the learner relates the experience to a fact, law and/or a theory. In this stage, the learner may modify existing understanding and/or conclude new knowledge and skills. The fourth and final stage of experiential learning cycle is Active Experimentation (AE) (Planning /Redoing) where the student applies what he/she learned. The AE stage helps the learner reapply modified knowledge and test new knowledge, leading him/her back to the first stage, concrete experience. (Kolb, 1984).

Effective learning is seen when the learner progresses through the four stages of the experiential learning cycle. The sequence of the experiential learning cycle assumes that the learner has related knowledge or experience (CE) then reflecting on that experience (RO) aiming to form abstract concepts and conclusions (AC) which lead to application of new or modified knowledge to future situations (AE). However, the experiential learning cycle can be entered at any stage as long as the logical sequence is followed (Kolb, 1984). All stages should be executed to ensure effective learning.

Learning styles

The four stages of experiential learning cycle which is the first level of ELT provides a framework of how effective teaching and learning occurs. The second level of Kolb's ELT discusses four different learning styles which provides a framework of how an individual preferred to learn. Each learning style falls between two stages in the experiential learning cycle. The first learning style is diverging learners who prefer to observe and reflect on experience. These learners are emotional, sensitive, and they tend to use their imagination to generate ideas to solve problems. They prefer to work in groups to share ideas and receive feedback. Kolb's learning style profile associate diverging learners with information gathering, sense-making and relationship skills. In the experiential learning cycle, diverging learners fall between concrete experience (CE) (feeling/doing) and reflective observations (RO) (reviewing/ reflecting) stages. The second learning style is assimilating learners who prefer to organize knowledge in a clear logical format. They watch, think and analyze knowledge seeking logically sound concepts and theories. Kolb's learning style profile associate assimilating learners with quantitative, information gathering and information

analysis skills. Assimilators fall between reflective observations (RO) (reviewing/ reflecting) and abstract conceptualization (AC) (Thinking/concluding) stages.

The third learning style is converging learners who prefer technical tasks and use their knowledge and understandings to find solutions to practical issues. They combine thinking with doing to learn. Kolb's learning style profile associates converging learners with action, goal setting and quantitative skills. Converging learners fall between abstract conceptualization (AC) (Thinking/concluding) and active experimentation (AE) (planning/redoing) of the experiential learning cycle stages. The final and fourth learning style identified by Kolb is accommodating learners who rely on intuition rather than logic and prefer practical activities to learn. They are initiative and prefer to work in teams to achieve goals/objectives. According to Kolb's learning style profile, accommodators are associated with action, initiative and leadership skills. Accommodating learners fall between active experimentation (AE) (planning/redoing) and concrete experience (CE) (feeling/doing) of the experiential learning cycle stages.

The learning styles identified by Kolb may help teachers create learning/teaching activities according to the learner preferred method of learning. These learning styles are only indicators of the dominant learning tendency of an individual and not strict labeling of how an individual learns. Most people are not exclusively one kind of learner (Kolb, 1984).

Experiential learning in clinical education

Understanding learning styles as discussed within the experiential learning cycle provides educators with a holistic framework for approaching teaching and learning during clinical education experiences and rotation. ELT combines how an individual prefers to

learn and how effective learning occurs. Learning style preferences are the combination of two continuums from the experiential learning cycle. The first is the processing continuum which is how a learner approaches a task to grasp experience (watching and doing). The second is the perception continuum which is how a learner transforms experience (feeling and thinking).

The process of experiential learning consists of a four-stage cycle in which learning occurs as the students circle from Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE). The experiential learning cycle provides a framework for clinical teaching which can be entered based on the student learning style. For example, a student with an accommodating learning style should start at active experimentation (AE) stage and then follow the sequence of the experiential learning cycle. Another example is a student with a diverging learning style who may benefit from entering the cycle at reflective observation (RO) stage. To promote an engaging experiential learning environment, clinical instructors should make sure the learner is reflecting upon each stage in the learning cycle. For example, in the Abstract conceptualization stage, clinical instructors should ask students open-ended questions to promote assumptions, reasoning and relationships to prepare him/her for the next stage.

It is estimated that health care professional programs devote almost 50% of the curriculum to clinical education experiences (CEEs). During clinical rotation, students should be provided with the opportunity to learn new skills and apply previously acquired knowledge and lab skills to real-life situations, which involves cognitive, affective and psychomotor skills (Spencer, 2003). One of the main problems that students face in clinical settings is the gap between classroom knowledge and clinical practice (theory-practice gap).

Under the supervision of a clinical instructor, students are actively learning to manage patient's needs, while recognizing that mistakes can happen which may lead to a severe outcome, such as loss of life. Often these situations place, students under tremendous stress which may ultimately jeopardize their learning. Recognizing the stress that may emerge from these situations, Experienced clinical instructors can and should effectively modify and adjust the goals of a specific clinical teaching experiences to meet students' needs and to match the demands and barriers of the clinical setting (Spencer, 2003).

The role of the clinical instructor is to help and guide the students' focus and reflect upon related events and tasks. One should utilize every opportunity to optimize the student's comprehension of related procedures and services. ELT is a holistic framework of the learning process that can be applied not only in the clinical settings but throughout the entire educational experience (Kolb, 2014). Applying ELT in respiratory care clinical education can assist clinical instructors to conduct organized and effective teaching/learning clinical experiences. However, before applying ELT we need to explore and identify the status of respiratory care clinical education in terms of clinical instructors' training to be effective educators, and the perceptions of respiratory care faculty and students of effective CI characteristics.

Chapter III

METHODOLOGY

This study was approved by Seton Hall University Institutional Review Board (IRB) (Appendix B).

Participants

Participation in this study was completely voluntary and anonymous. This study had two participant groups. First group consisted of full time and part time respiratory care faculty of an accredited RC program in the US. The second group consisted of respiratory care students of an accredited RC program in the US enrolled in clinical courses

Procedure

A letter of solicitation which housed the link to the online questionnaire was sent to all RT program directors in the United States of America via email. Program directors' emails were secured from the Commission on Accreditation for Respiratory Care (CoARC) website which provides alphabetical listing (by state) of accredited RC education programs, please see appendix C for the letter of solicitation. The web site of the CoARC showed that there are 436 accredited RC programs in the United States. Email addresses of the directors of clinical education in these schools were also used to recruit participants. Accredited RC Program Directors were asked to participate in the survey and to forward it to their faculty and current students. Recruitment was open for eight weeks. PI sent a reminder email every two weeks. Participants were instructed to complete the questionnaire at their convenient location as long as internet access was available. Participants were reminded in the

questionnaire that by accessing the questionnaire and proceeding past the first page, they gave their consent to participate.

Research Design

This study used a mix method design, exploratory, comparative, cross-sectional using a self-reporting questionnaire. The subjects completed a questionnaire aiming to identify their perceptions about the characteristics of effective clinical instructors. The questionnaire employed a five-points Likert scale 1(strongly disagree) to 5 (strongly agree).

Quantitative Data Analysis

Descriptive statistics was used to report and summarize participants' demographics and responses. Mean scores and frequencies of responses was reported for each behavioral item. Inferential statistics was used to determine differences between variables. Below is a detailed explanation for each research questions/hypotheses

- Descriptive statistics were used to describe respiratory care faculty and students' demographic characteristics. Descriptive statistics were also used to describe participants' rating of clinical instructor effectiveness questionnaire items. Mean, SD maximum and minimum (RQ1 and RQ3) (Portney & Watkins, 2009).

- Inferential statistics: Independent *t*-test was performed to determine if differences in perceptions exist between: Academic faculty and Clinical faculty**. (RQ2),** Faculty and students. (RQ5)

Analysis of Variance (ANOVA) was performed to determine if differences in perceptions exist between: Students based on their progress through the respiratory care program. (RQ4)

Qualitative Data analysis

Participant's responses to each open-ended question were used to confirm the presence of predetermined themes and identify new themes that emerged. The predetermined themes were taken from the literature and were clinical instructor's professional competence, interpersonal relationships, personality characteristics, and teaching ability. Tallied frequency of each theme was recorded and intercoder agreement was performed (Cresswell & Clark, 2011). Peer review was established with > 70% agreement.

Instrumentation, reliability and validity

Upon reviewing the literature, a tool was noted that has been used to assess clinical instructors' effectiveness. Tang (1993) developed the Clinical Instructor Effectiveness Questionnaire (CIEQ) based on 20 important characteristics of effective clinical instructors identified by Brown (1981). Based on review of the literature and interviewing students and faculty, the author increased the items to 57. The author then categorized the questionnaire items by modifying the categories suggested by Zimmerman and Waltman (1986). The categories are professional competence, interpersonal relationships, personality characteristics, and teaching ability. The author then reevaluated the questionnaire based on nursing educators' feedback, which resulted in deleting 7 items.

To test the questionnaire reliability, the author conducted a pilot study with 47 students in one nursing school. Items were consistent and Cronbach's coefficient alpha was Professional competence $\alpha = .67$, Interpersonal relationships $\alpha = .82$, Personality characteristics $\alpha = .86.$, Teaching ability $\alpha = .87$ (Tang, 1993)

Following this pilot study, the author used jury opinion for content validation and known group validity. Seven educators and five students agreed with the questionnaire content. For the known group validity, students completed the questionnaire for effective and ineffective clinical instructors, which showed that 40 of the 50 behavioral items demonstrated significant differences.

Ten items were deleted resulting in 40 items questionnaire, which was piloted again with 87 students in another nursing school and the Cronbach's coefficient alpha for the four domains increased, professional competence (6 items) $\alpha = .74$, interpersonal relationships (9 items) $\alpha = .87$, personality characteristics (10 items) $\alpha = .92$ and Teaching ability (15 items) $\alpha = .92$ (Tang & Su, 1999).

The questionnaire was then used in a study to differentiate and identify the students' perceptions of effective and ineffective clinical instructors (Tang, Chou & Chiang, 2005). Permission was obtained from Dr. Tang to use the questionnaire in our study and to place it on line. (Appendix D)

Similar to nurses, Respiratory Therapists (RTs) function next to the bedside to assess, evaluate, manage and treat patients with cardiopulmonary deficiencies and abnormalities. RTs directly interact with patients in various clinical settings such as intensive care units, outpatient clinics, home health care and rehabilitation centers. Nurses and RTs share similar roles and responsibilities to provide patients with safe high quality care. Nursing and respiratory care students also share similar clinical learning environments;

therefore, we used the nursing clinical instructors' effectiveness measurement instruments to assess respiratory care students' perceptions of the effectiveness of their clinical instructors.

Chapter IV

RESULTS

This study had three main purposes, first, to explore and describe respiratory care faculty and students' perceptions of clinical instructors' effective characteristics. Second, to compare respiratory care faculty and students' perceptions of clinical instructors' effective characteristics. Third, to compare academic faculty and clinical faculty perceptions of clinical instructors' effective characteristics and students' perceptions as they advance in the respiratory care program.

Participants' Demographics

Respiratory Care Faulty

The survey was sent to all respiratory care program directors listed in the CoARC (n=427). A total of 192 respiratory care faculty participated in the study by accessing the survey link, sixteen surveys were excluded due to missing data leaving 176 surveys for analysis. Table 1 indicates the faculty age distribution; more than 50% of the participants were between the age of 45-64 years old. Table 2 and 3 display the faculty's gender and ethnicity. Table 4 and 5 indicate the faculty's years of experience and highest degree earned. Almost 30% of the participants have less than 5 years of experience in the respiratory care education field. 50% of the participants hold a master's degree and only 10% percent hold a doctorate degree. Table 6 indicates the faculty' educational involvements, 52% of the respiratory care faculty are mostly involved in academic education whereas 48% are involved in clinical education.

Table 1

Faculty Age Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	4	2.3	2.3	2.3
	25-34	19	10.8	10.8	13.1
	35-44	40	22.7	22.7	35.8
	45-54	45	25.6	25.6	61.4
	55-64	48	27.3	27.3	88.6
	65-74	19	10.8	10.8	99.4
	75 more	1	.6	.6	100.0
	Total	176	100.0	100.0	

Table 2

Faculty Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	103	58.5	58.5	58.5
	Male	73	41.5	41.5	100.0
	Total	176	100.0	100.0	

Table 3*Faculty Ethnicity*

	Frequency	Percent	Valid Percent	Cumulative Percent
American Indian or Alaskan Native	4	2.3	2.3	4.6
Asian or Pacific Islander	3	1.7	1.7	6.4
Black or African American	8	4.5	4.6	11.0
Hispanic or Latino	3	1.7	1.7	12.7
White / Caucasian	146	83.0	84.4	97.1
Prefer not to answer	5	2.8	2.9	100.0
Total	173	98.3	100.0	
Missing System	3	1.7		
Total	176	100.0		

Table 4

Faculty Years of Experience as Respiratory Care Educators

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5 years	48	27.3	27.3	27.3
	6-10 years	27	15.3	15.3	42.6
	11-15 years	14	8.0	8.0	50.6
	16-20 years	23	13.1	13.1	63.6
	21-25 years	15	8.5	8.5	72.2
	26-30 years	15	8.5	8.5	80.7
	31-35 years	11	6.3	6.3	86.9
	36-40 years	14	8.0	8.0	94.9
	More than 40 years	9	5.1	5.1	100.0
	Total	176	100.0	100.0	

Table 5

Faculty Highest Educational Degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Associate degree	19	10.8	10.8	10.8
	Baccalaureate degree	49	27.8	27.8	38.6
	Masters degree	89	50.6	50.6	89.2
	Ed.D.	5	2.8	2.8	92.0
	Ph.D.	14	8.0	8.0	100.0
	Total	176	100.0	100.0	

Table 6

Faculty Educational Involvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Academic	92	52.3	52.3	52.3
	Clinical	84	47.7	47.7	100.0
	Total	176	100.0	100.0	

We asked the respiratory care faculty if their program is enforcing any type of training courses designed to train clinical instructor prior receiving students, around 67% of the faculty participants stated that there is a training program designed to train clinical instructors prior to receiving students (Table 7).

Table 7

Clinical Instructors Training Program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	118	67.0	67.0	67.0
	No	48	27.3	27.3	94.3
	Uncertain	10	5.7	5.7	100.0
	Total	176	100.0	100.0	

Respiratory care students

A total of 141 students accessed the survey link, only 122 students completed the survey, Table 8 indicates the students' age distribution. Almost 45% of the participants were between the ages of 18-24 years old. Table 9 and 10 indicate the students' gender and ethnicity. Table 11 displays student's type of enrollment, with more than 60% of the participants enrolled in an associate degree program. Not surprising, only two graduate students participated in the study. Table 12 indicates student's level of enrolment in the respiratory care program.

Table 8

Students' Age Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	54	44.3	44.3	44.3
	25-34	41	33.6	33.6	77.9
	35-44	19	15.6	15.6	93.4
	45-54	6	4.9	4.9	98.4
	55-64	2	1.6	1.6	100.0
	Total	122	100.0	100.0	

Table 9

Students' Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	92	75.4	75.4	75.4
	Male	30	24.6	24.6	100.0
	Total	122	100.0	100.0	

Table 10

Students' Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	8	6.6	6.6	6.6
	American Indian or Alaskan Native	1	.8	.8	7.4
	Asian or Pacific Islander	6	4.9	4.9	12.3
	Black or African American	5	4.1	4.1	16.4
	Hispanic or Latino	10	8.2	8.2	24.6
	White / Caucasian	89	73.0	73.0	97.5
	Prefer not to answer	3	2.5	2.5	100.0
	Total	122	100.0	100.0	

Table 11

Students Program Enrolment

	Frequency	Percent	Valid Percent	Cumulative Percent
Associate degree	76	62.3	62.3	63.1
Baccalaureate degree	43	35.2	35.2	98.4
Master's degree	2	1.6	1.6	100.0
Total	122	100.0	100.0	

Table 12

Students' Enrolment Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Year one (Sophomore)	42	34.4	34.4	34.4
	Year two (Junior)	41	33.6	33.6	68.0
	Year three (Senior)	39	32.0	32.0	100.0
	Total	122	100.0	100.0	

Quantitative data analysis

Respiratory Care Faculty

Research question one aimed to explore respiratory care faculty perceptions of effective clinical instructor characteristics. Table 13 displays the descriptive statistics for the faculty responses in all four subscales. Clinical instructor's professional competence subscale had the highest rating µ= (4.81). Clinical instructor's interpersonal relationship with students had the lowest mean, µ= (4.51).

Table 13

Descriptive Statistics for the Analysis of All Subscales of Faculty Group

		Faculty Perceptions Total Mean	Faculty Perceptions Professional Competence	Faculty Perceptions Interpersonal Relationship	Faculty Perceptions Personality Characteristics	Faculty Perceptions Teaching Ability
N	Valid	176	176	176	176	176
	Missing	0	0	0	0	0
Mean		4.6159	4.8182	4.5125	4.5837	4.5491
Std. Error of Mean		.02377	.02146	.02859	.03016	.02959
Std. Deviation		.31529	.28467	.37928	.40006	.39261
Variance		.099	.081	.144	.160	.154
Minimum		3.48	3.67	3.33	3.00	3.07
Maximum		5.00	5.00	5.00	5.00	5.00

In research question two we aimed to compare academic and clinical faculty perceptions of effective clinical instructor characteristics. We hypothesized that there would be a significant difference between academic and clinical faculty perceptions of clinical instructor effective characteristics. Table 14 displays s descriptive statistics for respiratory care academic and clinical faculty responses in all subscales. Respiratory care clinical

faculty had higher means than academic faculty in all subscales. Normality was assumed

because the sample size was higher than 30 in each group. Homogeneity of variance was

met, no significant differences were noted between the two groups (1,174) = 1.049, p =.307

> .05. Table 15 displays a test of homogeneity of variance for respiratory care faculty

(academic and clinical) in all subscales. A t- test was performed to compare the two groups

and no significant differences were found, t (174) = -.848, p = .39 > .05. The results of the t-

test are indicated in table 16.

Table 14

Descriptive Statistics for Academic Faculty Responses in All Subscales

	Faculty role	N	Mean	Std. Deviation	Std. Error Mean
Faculty Perceptions Total Mean	Academic	92	4.5966	.33622	.03505
	Clinical	84	4.6370	.29119	.03177
Faculty Perceptions Professional Competence	Academic	92	4.8007	.30285	.03157
	Clinical	84	4.8373	.26381	.02878
Faculty Perceptions Interpersonal Relationship	Academic	92	4.5071	.39568	.04125
	Clinical	84	4.5185	.36275	.03958
Faculty Perceptions Personality Characteristics	Academic	92	4.5557	.42342	.04414
	Clinical	84	4.6143	.37292	.04069
Faculty Perceptions Teaching. Ability	Academic	92	4.5228	.40636	.04237
	Clinical	84	4.5778	.37731	.04117

Table 15

Test of Homogeneity of Variance for Respiratory Care Faculty

	Levene Statistic	df1	df2	Sig.
Faculty Perceptions Total Mean	1.049	1	174	.307
Faculty Perceptions Professional Competence	1.426	1	174	.234
Faculty Perceptions Interpersonal Relationship	.550	1	174	.459
Faculty Perceptions Personality Characteristics	1.449	1	174	.230
Faculty Perceptions Teaching Ability	.004	1	174	.952

Table 16

Independent Sample t test for Faculty in All Subscales

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	T	Df	Sig. (2-tailed)
Faculty Perceptions Total Mean	Equal variances assumed	1.049	.307	-.848	174	.398
	Equal variances not assumed			-.853	173.530	.395
Faculty Perceptions Professional Competence	Equal variances assumed	1.426	.234	-.851	174	.396
	Equal variances not assumed			-.856	173.627	.393
Faculty Perceptions Interpersonal Relationship	Equal variances assumed	.550	.459	-.199	174	.842
	Equal variances not assumed			-.200	173.996	.842
Faculty. Perceptions Personality Characteristics	Equal variances assumed	1.449	.230	-.970	174	.334
	Equal variances not assumed			-.975	173.782	.331
Faculty Perceptions Teaching. Ability	Equal variances assumed	.004	.952	-.927	174	.355
	Equal variances not assumed			-.930	173.948	.354

Respiratory Care Students

The third research question aimed to explore respiratory care students' perceptions regarding clinical instructor's effective characteristics. Table 17 displays descriptive statistics for the students' responses in all four subscales. Clinical instructor's interpersonal

relationship with students had the highest mean, μ= (4.58). Clinical instructor's personality

characteristics had the lowest mean, μ= (4.53).

Table 17

Descriptive Statistics for Students' Responses in All Subscales

		Students Perception Total Mean	Students Perceptions Professional Competence	Students Perceptions Interpersonal Relationship	Students Perceptions Personality Characteristics	Students Perceptions Teaching Ability
N	Valid	122	122	122	122	122
	Missing	0	0	0	0	0
Mean		4.5328	4.5270	4.5811	4.5320	4.5450
Std. Error of Mean		.03769	.05661	.04127	.04282	.04048
Std. Deviation		.41628	.62525	.45583	.47295	.44716
Variance		.173	.391	.208	.224	.200
Minimum		3.57	1.00	3.56	3.30	3.43
Maximum		5.00	5.00	5.00	5.00	5.00

The fourth research question aimed to compare students' perceptions of effective

clinical instructor's characteristics based upon where the students were   in respiratory care

program. We hypothesized that there would be a significant difference in respiratory care

students' perceptions of clinical instructor effective characteristics as they progress through

the respiratory care programs. Table 18 displays descriptive statistics for students' level of

enrollment in the respiratory care programs. Students were categorized into three group's

sophomores, juniors or seniors based on their response to the demographic questions about

their enrollment level. Sophomore students scored higher means in all four subscales

compared to junior and senior students. Unfortunately, only two graduate students

completed the survey.

Table 18

Descriptive Statistics for Students Based on Level of Enrollment in the Respiratory Care Program

		N	Mean	Std. Deviation	Std. Error
Students Perceptions Total Mean	Year one (Sophomore)	42	<u>4.6588</u>	.39545	.06102
	Year two (Junior)	41	4.4485	.42559	.06647
	Year three (Senior)	39	4.4857	.40607	.06502
	Total	122	4.5328	.41628	.03769
Students Perceptions Professional Competence	Year one (Sophomore)	42	4.6866	.67294	.10384
	Year two (Junior)	41	4.4798	.59886	.09353
	Year three (Senior)	39	4.5301	.59440	.09518
	Total	122	4.5670	.62525	.05661
Students Perceptions Interpersonal Relationship	Year one (Sophomore)	42	4.7359	.41538	.06409
	Year two (Junior)	41	4.4714	.45623	.07125
	Year three (Senior)	39	4.5299	.46283	.07411
	Total	122	4.5811	.45583	.04127
Students Perceptions Personality Characteristics	Year one (Sophomore)	42	4.6429	.47377	.07310
	Year two (Junior)	41	4.4439	.46532	.07267
	Year three (Senior)	39	4.5051	.46845	.07501
	Total	122	4.5320	.47295	.04282
Students Perceptions Teaching Ability	Year one (Sophomore)	42	4.6714	.40169	.06198
	Year two (Junior)	41	4.4995	.44249	.06910
	Year three (Senior)	39	4.4565	.47808	.07655
	Total	122	4.5450	.44716	.04048

Before analyzing the data to identify any differences that may exist between students' groups, statistical assumption tests were performed. Normality was assumed because the sample size was higher than 30. Test of homogeneity of variance was nonsignificant F (2,119) = .107, p =.889 > .05, (Table 19). Thus, assumptions were met and we proceed to analyze the data using parametric test. One way ANOVA between subjects was performed and the results showed significant differences between students' groups, F (2,119) = 3.121, p =.048 < .05. Table 20 displays the ANOVA output.

Table 19

Test of Homogeneity of Variance for Students in All Subscales

	Levene Statistic	df1	df2	Sig.
Students Perceptions Total Mean	.107	2	119	.899
Students Perceptions Professional. Competence	.507	2	119	.604
Students Perceptions Interpersonal. Relationship	1.527	2	119	.221
Students Perceptions Personality Characteristics	.072	2	119	.930
Students Perceptions Teaching Ability	1.352	2	119	.263

Table 20

ANOVA Between Students' Enrolment Level in The Respiratory Care Program

		Sum of Squares	Df	Mean Square	F	Sig.
Students Perceptions Total Mean	Between Groups	1.045	2	.522	3.121	.048
	Within Groups	19.923	119	.167		
	Total	20.968	121			
Students Perceptions Professional Competence	Between Groups	.966	2	.483	1.240	.293
	Within Groups	46.338	119	.389		
	Total	47.304	121			
Students Perceptions Interpersonal Relationship	Between Groups	1.602	2	.801	4.048	.020
	Within Groups	23.540	119	.198		
	Total	25.142	121			
Students Perceptions Personality Characteristics	Between Groups	.863	2	.431	1.959	.146
	Within Groups	26.203	119	.220		
	Total	27.065	121			
Students Perceptions Teaching Ability	Between Groups	1.062	2	.531	2.731	.069
	Within Groups	23.132	119	.194		
	Total	24.194	121			

Post hoc test was performed to further identify which group means was different.

Table 21 displays multiple comparison Bonferroni test, the results indicated that a

significant difference between sophomore and junior students existed in the interpersonal

relationship subscale $F(2, 119) = 3.12$, $p= .023 < .05$. Sophomore students rated clinical

instructor interpersonal relationship subscale higher than junior students $\mu= 4.73$ compared

to $\mu= 4.47$.

Table 21

Bonferroni Post hoc Test, Multiple Comparison Between Groups

Dependent Variable	(I) Your current enrolment level in the respiratory care program is	(J) Your current enrolment level in the respiratory care program is	Mean Difference (I-J)	Std. Error	Sig.
Students Perceptions Total. Mean	Year one (Sophomore)	Year two (Junior)	.21031	.08983	.063
		Year three (Senior)	.17316	.09099	.178
	Year two (Junior)	Year one (Sophomore)	-.21031	.08983	.063
		Year three (Senior)	-.03715	.09152	1.000
	Year three (Senior)	Year one (Sophomore)	-.17316	.09099	.178
		Year two (Junior)	.03715	.09152	1.000
Students Perceptions Professional Competence	Year one (Sophomore)	Year two (Junior)	.20683	.13700	.401
		Year three (Senior)	.15650	.13877	.785
	Year two (Junior)	Year one (Sophomore)	-.20683	.13700	.401
		Year three (Senior)	-.05033	.13958	1.000
	Year three (Senior)	Year one (Sophomore)	-.15650	.13877	.785
		Year two (Junior)	.05033	.13958	1.000
Students Perceptions Interpersonal Relationship	Year one (Sophomore)	Year two (Junior)	.26444*	.09765	*.023
		Year three (Senior)	.20602	.09890	.118
	Year two (Junior)	Year one (Sophomore)	-.26444*	.09765	*.023
		Year three (Senior)	-.05842	.09948	1.000
	Year three (Senior)	Year one (Sophomore)	-.20602	.09890	.118
		Year two (Junior)	.05842	.09948	1.000
Students Perceptions Personality Characteristics	Year one (Sophomore)	Year two (Junior)	.19895	.10302	.168
		Year three (Senior)	.13773	.10435	.568
	Year two (Junior)	Year one (Sophomore)	-.19895	.10302	.168
		Year three (Senior)	-.06123	.10496	1.000
	Year three (Senior)	Year one (Sophomore)	-.13773	.10435	.568
		Year two (Junior)	.06123	.10496	1.000
Students Perceptions Teaching Ability	Year one (Sophomore)	Year two (Junior)	.17188	.09680	.235
		Year three (Senior)	.21495	.09804	.091
	Year two (Junior)	Year one (Sophomore)	-.17188	.09680	.235
		Year three (Senior)	.04306	.09862	1.000
	Year three (Senior)	Year one (Sophomore)	-.21495	.09804	.091
		Year two (Junior)	-.04306	.09862	1.000

*. The mean difference is significant at the 0.05 level.

Respiratory Care Faculty and Students

       The fifth research question aimed to identify if differences exist between respiratory care faculty and students' perceptions of effective clinical instructor's characteristics. We hypothesized that there would be a significant difference between respiratory care faculty and students' perceptions of effective clinical instructor characteristics. Table 22 shows descriptive statistics for respiratory care faculty and students in all four subscales.

Table 22

Descriptive Statistics for Faculty and Students Responses in All Subscales

		N	Mean	Std. D	Std. Error	Mini	Max
Perceptions Total Mean	Faculty	176	4.6159	.31529	.02377	3.48	5.00
	Student	122	4.5328	.41628	.03769	3.57	5.00
	Total	298	4.5819	.36173	.02095	3.48	5.00
Perceptions Professional Competence	Faculty	176	4.8182	.28467	.02146	3.67	5.00
	Student	122	4.5670	.62525	.05661	1.00	5.00
	Total	298	4.7154	.47151	.02731	1.00	5.00
Perceptions Interpersonal Relationship	Faculty	176	4.5125	.37928	.02859	3.33	5.00
	Student	122	4.5811	.45583	.04127	3.56	5.00
	Total	298	4.5406	.41299	.02392	3.33	5.00
Perceptions Personality Characteristics	Faculty	176	4.5837	.40006	.03016	3.00	5.00
	Student	122	4.5320	.47295	.04282	3.30	5.00
	Total	298	4.5625	.43137	.02499	3.00	5.00
Perceptions Teaching Ability	Faculty	176	4.5491	.39261	.02959	3.07	5.00
	Student	122	4.5450	.44716	.04048	3.43	5.00
	Total	298	4.5474	.41508	.02404	3.07	5.00

The nonparametric Mann Whitney *U* test was used to compare the faculty and students' responses because the assumptions were not met (violated). Table 23 displays Mann Whitney *U* output. Significant differences were found between faculty and students' perceptions in professional competence subscale $U= 8459$, $z= -3.38$, $p= .001 < .05$ and interpersonal relationship subscale $U= 8880$, $z= -2.56$, $p=.01 < .05$. For professional competence subscale, faculty mean rating was $\mu= 4.81$ whereas students mean rating was $\mu=$

4.56. For interpersonal relationship subscale, faculty mean rating was μ= 4.51 whereas

students mean rating was μ= 4.58.

Table 23

Independent Sample Mann Whitney U Test

	Percep. Total. Mean	Perceptions Professional Competence	Perceptions Interpersonal. Relation	Perceptions Personality Characteristics	Perceptions Teaching Ability
Mann-Whitney U	10181.500	8459.000	8880.500	10610.000	10138.000
Z	-.758	-3.381	-2.562	-.175	-.821
Asymp. Sig. (2-tailed)	.448	.001	.010	.861	.412

Qualitative data analysis

Respiratory Care Faculty

One open ended-question was asked to the respiratory care faculty. The question aimed to explore respiratory care faculty knowledge of the important aspects that should be included in clinical instructors' training programs prior to receiving students. The responses were used to identify predetermined themes and new themes that emerged. Intercoder agreement was performed via peer review to discuss findings (Cresswell & Clark, 2011) with 70% reviewers' agreement being reached.

Out of the 176 participants, 109 (61%) faculty members responded to the open-ended question. The faculty responses were analyzed based on predetermined themes supported in the literature, professional competence, interpersonal relationship, personality characteristics, teaching ability and evaluation. Faculty responses were focused on training clinical instructors in the evaluation and teaching ability categories. Table 24 provides samples of faculty responses and their frequency of appearance.

Table 24

Samples from Faculty Responses

THEMES	SAMPLE FACULTY RESPONSES	FREQ
A priori theme 1 Professional Competence	**P4**: "The ability to assist clinical instructors to converse as to the theory behind the processes and not be a process oriented instructor. Know the why behind the action" **P28**: "One of the most important aspects would be to ensure they are competent with the clinical procedures they will be teaching and/or supervising **P44**: "Opportunities for instructors to improve their knowledge of new evidence-based practices".	**38**
A priori theme 2 Interpersonal Relationships	**P31**: "making the student feel like they are a part of the team actively promoting the student's participation" **P58: "**How to deal with overconfident, shy, and/or lazy student". **P120**: "Interpersonal and communication skill". **P125: "**how to deal with different personalities how to challenge students how to motivate students".	**28**
A priori theme 3 Personality Characteristics	**P25**: "Patience toward the students". **P48**: "be open and honest with students in a polite and Constructive manner"	**15**
A priori theme 4 Teaching Ability	**P25**: "Teach that not all students learn by the same method and at the same time". **P50**: "How to teach critical thinking i.e. diagnosis techniques". **P104**: "teaching strategies"	**31**
A priori theme 5 Evaluation	**P22**: "A short but effective program to insure interrater reliability". **P23**: "Ability to grade students, equally and fairly according to task" **P39**: "All students are evaluated on an equal basis". **P54**: "Have all instructors evaluate students on the same level. Have good control of inter rater reliability" **P91:** "assessment of student procedures" **P103**: "Include an inter-rater reliability exam of clinical procedures accompanied by a check-off form.	**67**
Emergent theme Learning Style	**P12**: "additional training should include adult learning styles" **P68**: "How to deal with all types of learning styles in students in an effective way". **P96**: "showing different ways people learn" **P98**: "Understanding adult learning styles"	**29**

Respiratory Care Students

Two open ended questions were asked to the respiratory care students. In the first question, we asked the students to describe positive learning experiences that they had had with their clinical instructors during clinical rotations. Out of the 122 participants, 78 (64%) students responded to the open-ended question. The students' responses were analyzed based on predefined categorizes, professional competence, interpersonal relationship, personality characteristics, teaching ability and evaluation. Students' responses for positive learning experience were mostly categorized under interpersonal relationship and teaching ability/learning style categories. Hands-on was a category that emerged from the responses specific to positive learning experiences. Table 25 provides samples from students' responses for positive learning experiences and the response frequency.

Table 25

Samples from Students' Responses for Positive Learning Experiences

THEMES	SAMPLE STUDENTS' RESPONSES	FREQ
A priori theme 1 **Professional Competence**	**P5**: "good knowledge" **P7**: "My clinical instructor is very knowledgeable and knows what he is talking about".	**19**
A priori theme 2 **Interpersonal Relationships**	**P12**: "My preceptor introduced me to all the units in the hospital she treats me as I am one of the hospital team not like a student" **P27**: "Always making sure I understand everything and hospital policy. Does not mind me asking questions". **P41**: "Always encouraging, thoughtful, and make learning fun. Have open door policies and encourage student/professor communication".	**31**
A priori theme 3 **Personality Characteristics**	**P35:** "clinical instructor is very good about not making the student feel bad about mistakes or admonishes them because of mistakes. Is very supportive". **P39:** "watching my preceptor interact with the family with such gentleness and compassion was very inspiring. Even though she had done hundreds in her career, she remembered it was that family's 'first' and acted accordingly". **P69:** My preceptor took her time to explain to me and help me see what was going on with the patient and why due to their disease process. She was extremely patient since I was only in the beginning of my second semester.	**29**
A priori theme 4 **Teaching Ability**	**P14**: "When learning ventilators my preceptor effectively taught me about them on first rounds and on second rounds let me work independently. Afterwards he would then show me any mistakes I made or what I could have done differently in a teaching and understanding manner. I learned a lot from him that way". **P41**: Very helpful and teach us as we are checking off...don't make us feel stupid for tiny mistakes.	**30**
A priori theme 5 **Evaluation**	**P46**: "One who provides feedback instead of just scoring you high- we all have things we could be better wjth". P65: Daily feedback	**21**
Emergent theme **Hands -on**	**P3:** When doing, rounds watching the preceptor do a new form of therapy that we have never practiced before on a patient, and then when the next therapy is due we try it for ourselves **P37: "**Being able to be hands on" **P44**: "Giving me a lot of positive energy and really pushing me to get my hands-on equipment and learning new things about patient care". **P53**: I was able to experience hands on learning experiences while they supervised me and kept me confident in my performance. **P77**: "My preceptor let me extubate a patient on my own with help from her vocally. She did not intrude".	**28**

The second open-ended question asked students to describe negative learning experiences they had had with their clinical instructors during clinical rotations. Out of the 122 participants, 76 (62%) students responded to the open-ended question. The students' responses were analyzed based on predefined categorizes, professional competence, interpersonal relationship, personality characteristics, teaching ability and evaluation. Figure 4 shows frequency of categories for students' responses. Students' responses for negative learning experience were mostly categorized under interpersonal relationship and interpersonal characteristics categories. Table 26 shows samples from students' responses for negative learning experiences and the frequency of categories.

Table 26

Samples from Students' Responses for Negative Learning Experiences

THEMES	SAMPLE STUDENTS' RESPONSES	FREQ
A priori theme 1 **Professional Competence**	**P1**: I've been in a situation where the clinical preceptor is being taught by me instead of her teaching me. That was not a learning experience. **P10**: I saw an RRT do a nif on a ventilated patient without telling the patient or the family what was about to be done. **P60**: "observing low levels of professionalism".	**29**
A priori theme 2 **Interpersonal Relationships**	**P6**: He criticizes students in front of patients, nurses, doctors and other therapists when he could have done it in private. **P21:** "I felt the preceptor threw me under the bus and was not supportive. Also, I was not given constructive criticism". **P23**: "Some instructors can become agitated at our mistakes or our eagerness to learn and that can be discouraging." **P30:** "They have made me feel belittled and made me feel a sense of incompetence**".**	**31**
A priori theme 3 **Personality Characteristics**	**P9**: "Gasping about patients" **P12**: "One of our instructor's regularly scolds students in front of other classmates if they answer a question incorrectly" **P16** "students were scolded for using our cell phones while on break in the break room". **P47**: Attitude in professional setting was inconsiderate of other providers	**30**
A priori theme 4 **Teaching Ability**	**P22**: "Only tell you how to do things and get through the day. My preceptor would rush through the work load to get to her break". **P29**: "Doesn't teach, only gives work, doesn't connect online assignments with lectures in class just instructions on what's due for next week. Unclear at that a lot times". **P74**: My one preceptor continuously rushed me in treating patients and said that I was moving too slow when I was learning how to do ventilator checks.	**27**
A priori theme 5 **Evaluation**	P33: Not being honest on evaluations.	**9**
Emergent theme **Theory – practice gap**	P4: "higher expectations for first time students". P30: "in lecture they blame you from learning what is taught and not making a connection clinically". P52: "If a student did not understand a concept she would state that the student should've learned it in class before they came to clinicals".	**28**

Chapter V

DISCUSSION& CONCLUSION

This study aimed to explore and compare respiratory care faculty and students' perceptions of effective clinical instructor's characteristics. This study also aimed to determine if differences in perceptions existed between academic and clinical faculty and between students as they progress through the respiratory care program.

Quantitative Findings

Respiratory Care Faculty

In this study, when looking at what respiratory care faculty perceived as the characteristics of effective clinical instructors, professional competence subscale had the highest mean however, clinical instructors' interpersonal relations with students had the lowest mean. Respiratory care faculty deemed clinical instructor's professional competence as the most important characteristics of an effective clinical educator. Clearly, professional competence is one of the important qualities that clinical instructors should possess to be effective educators. We would argue that interpersonal relationship with students is also a crucial factor impacting a clinical instructor's effectiveness even though faculty did not perceive this to be true. While the findings of this study are the first in respiratory care literature, similar findings have been noted previously in the nursing literature in which clinical instructor's professional competence was deemed the most important and interpersonal relation was deemed the lowest (Johnson et al. 2002).

Not surprising, regardless if faculty were primarily academic or clinical, professional competence still had the highest mean and relationship with students had the lowest mean. These findings indicate that both academic and clinical faculty may not see the importance

of building and promoting professional relationship with students during clinical education experiences. This observation leaves us with cause for concern as relationship building is key to students learning in such complex rapidly changing environments.

Respiratory Care Students

When looking at what respiratory care students perceived as the characteristics of effective clinical instructor, similar agreement between students were noted in all four subscales. However, clinical instructors' interpersonal relationship with the students had the highest mean and clinical instructors' professional competence had the lowest mean. These findings emphasize student's perceptions of the importance of positive relationship between faculty and students during clinical education which was not held by faculty. (Alasmari & Gardenhire, 2015; Gignac-Caille & Oermann ,2001; Tang, Chou & Chiang 2005).

When looking at the differences in respiratory care students' perceptions of the characteristics of effective clinical instructor as they progress through the program, results showed a significant difference based upon year in the program. Sophomore students displayed a higher mean in the interpersonal relationship subscale when compared to junior and senior students. These findings further support that students perceive clinical instructors should seek to build a relationship with students early in the program as that may help to alleviate negative factors impacting their learning such as fear or anxiety. Similar findings have been noted in the nursing and respiratory care literature (Alasmari & Gardenhire, 2015; Sharif & Masoumi, 2005; Sieh & Bell, 1994).

Comparing Respiratory Care Faculty and Students' Perceptions of Effective Clinical Instructor Characteristics

When comparing respiratory care faculty and students' perceptions of effective clinical instructor characteristics significant differences were found between the two groups in the professional competence and interpersonal relationship subscales. Respiratory care faculty had higher means in the professional competence subscale compared to students. Faculty deemed that clinical educators' professional competence is the most important quality that determines the effectiveness of a clinical instructor. However, clinical instructors' professional competence was rated the lowest by respiratory care students. Survey items like "interested in patient's care" and "has sufficient professional knowledge" were rated the lowest by students compared to faculty. These findings indicate that students are not as concerned about evaluating their clinical instructors' professional abilities (Smith, Swaine & Penprase 2011). One might argue that students believe that clinical instructors possess the professional competence essential to RC but recognize that not every competent RT practitioner is an effective teacher. Students survey statements like "solve problems with students" and "avoids authoritarian and dominating attitudes" were rated the highest by students compared to faculty. These findings clearly show that students are looking for positive relationships with their clinical instructors. Greenfield et al. (2012) concluded that clinical instructors should have open dialogue with their students to create a caring environment where students feel comfortable. His thoughts are further supported by these studies, students' perspectives that clinical instructors' positive interpersonal relationship with students is a crucial factor to quality CEEs.

Qualitative Findings

Respiratory Care Faculty

In order to further understand the quantitative findings of this study, the survey embedded open ended questions offered the author the opportunity to gather faculty and students' qualitative statements and seek themes that could provide further clarity. Respiratory care faculty, when asked to describe the important aspects that should be included in clinical instructors' training programs prior to receiving students, most responses were categorized under evaluation skills and professional competence. Clearly, again respiratory care faculty supported knowledge as of primary importance for clinical instructor specifically in the form of evaluation skills. Assisting clinical instructors in understanding how to conduct summative assessments (grading) and ensure that there is interrater reliability amongst evaluations were determined to be of great importance. Clearly, these findings support that the faculty are most concerned with grading and testing students during clinical education as this demonstrates student's acquisition of knowledge. One might suggest that this focus on evaluation may lead to student's anxiety in the clinical settings. In Sharif & Masoumi, 2005 qualitative study, students reported high level of anxiety during clinical education due to the testing and supervisory role of clinical instructors.

Providing accurate effective summative assessment is important in the clinical environment but, clinical instructors must also recognize that providing students with

formative feedback is as important as it assists students in reflecting upon and improving their abilities. Clinical instructors as part of their role as mentors must provide students with feedback that helps them identify their strengths and weaknesses so that they can develop their cognitive, affective and psychomotor skills appropriately. Clinical education is not designed to test classroom knowledge however, it is the time for students to learn to apply what they know in real word situations with mentorship and refine and enhance their knowledge and skills.

In summary, clinical instructor's personality characteristics and interpersonal relationship with student had the lowest frequency. These findings indicate that respiratory care faculty may not see the importance of clinical instructor's attitudes toward students. In such complex learning environment, personality traits of clinical instructor are a crucial factor that mostly determines whether clinical instructor is effective or not (Alasmari & Gardenhire, 2015).

During clinical rotations, students are under tremendous stress and are often afraid to make mistakes thus, clinical instructors must act as mentors (Moscaritolo, 2009; Oermann & Sperling, 1999),. Interpersonal relationship with students is an essential aspect that must be included in clinical instructors training program prior to receiving students (Alasmari & Gardenhire, 2015 & Gignac-Caille & Oermann ,2001). Positive relationship with student enhances students learning and provides a solid ground for student's transition from classroom to clinic (Tang, Chou & Chiang 2005).

Training clinical instructors to be familiar with different adult learning styles was the emergent theme from the faculty responses. Statements like "additional training should include adult learning styles", and "Understanding adult learning styles" were noted.

Training clinical instructors to teach based on students learning styles (andragogy) may help in creating effective CEEs (Kharb, Samanta, Jindal, & Singh,2013). These findings bring us back to experiential learning theory that works on two levels: four-stage learning cycle which can be called training cycle and four learning styles which offer a way to understand people's different learning styles. Understanding adult learning styles as discussed within the experiential learning cycle can provide respiratory care educators with a holistic framework for approaching teaching and learning during clinical education.

Finally, when asked if their program is enforcing any type of training courses designed to train clinical instructor prior to receiving students almost one third of the faculty stated that there was no training course designed to train clinical instructors prior to receiving students.   Rye & Boone (2009) in their study which assessed the needs for respiratory care clinical instructor training programs concluded similar finding. These findings are alarming and indicate that a training program for clinical instructors is still needed to assist clinical educators in their journey of providing clinical instruction to RT students.

Respiratory Care Students

Respiratory care students were asked two open ended questions, the first question asked students to describe positive learning experiences that they had with their clinical instructor during clinical rotation. Most of the students' responses could be categorized under clinical instructors' personality characteristics and interpersonal relationship. Student's responses for positive learning experience were mostly related to how clinical instructors interacted with them. The lowest frequency for positive learning experiences was categorized under professional competence subscale which was also had the lowest mean in

the quantitative data. This finding support the finding previously noted in the student quantitative data. Overall, what matters to students are how the clinical instructor is dealing, guiding and teaching them during clinical education.

The opportunity for "hands on" learning was the positive learning experience that emerged as a theme from the students' responses. Statements like "Being able to be hands on" and "My preceptor let me extubate a patient on my own with help from her vocally" were noted. Students considered hands on or learning by doing as positive learning experience especially when the clinical instructor was not interrupting or taking over the procedure. Based upon this student feedback, clinical instructors should allow students to practice and learn by active experimentation. Incremental experiential learning is a key factor to students' success in transitioning from student to practitioner (Greenfield et al. 2012; Kolb, 2014).

In the second open ended question, students were asked to describe negative learning experiences they have had with their clinical instructor during clinical rotation. Most of the students' responses for negative learning experience were categorized under interpersonal relationship and personality characteristics. Phrases like "professional attitude" "respect student" and "respect patient" were noted when we categorized the data". Students' responses for negative learning experience were mostly related to clinical instructor personality and interpersonal relationship with them.

Theory – Practice gap was the emergent theme from the students' responses for positive learning experiences during clinical rotation. Students stated that clinical instructors had higher expectations early in the clinical rotation. Students also complained that their clinical instructor often blamed them for not making connections between the classroom and

the clinic. Reflecting upon these student statements, clinical instructors should meet students at their level of application of didactic knowledge and guide them to master required competencies (Greenfield et al., 2012; Sharif & Masoumi,2005).

In summary, the qualitative findings allowed for greater insight and validated the quantitative findings. For students, both qualitative and quantitative data yielded similar findings. In the qualitative findings, Students positive learning experiences is mostly related to the clinical instructor's personality traits and interpersonal relationship. These two-subscales scored the highest mean in the quantitative analysis.

Limitation

As with all research investigations there are always limitations. In this study, the fact that a self-administered questionnaire was used to secure the data left us with no control over how people interpreted the questions. While, the questionnaire has test and retest reliability the questionnaire is positively worded with no reversed items.

The data was also collected at one point of time (cross-sectional study design) and we had no control over potential confounding variables that may have influenced the participants' responses. Other limitation of this study includes that there was limited student and faculty participation.

Future Research Recommendations

As we look to future investigations we suggest that based upon the qualitative findings of this study learning styles of RT clinical faculty and students should be explored to see if they can provide additional direction for training programs for clinical educators.

Additionally, based upon the limited student participation in this study we suggest exploring the perspectives of a larger student sample would be informative.

Conclusion

Clinical instructor plays a major role in shaping and transforming students from novices to experts. Besides being professionally competent, clinical instructors should be able to create a caring learning environment that supports students as they seek to overcome stressors that might arise in the clinical education portion of their curriculum. Clinical instructors must understand their role as mentors and develop a positive interpersonal relationship with students. The clinical instructor's ability to be an effective mentor is a crucial factor that impacts the success of the clinical education experience. Clinical instructors must be prepared to mentor and thus they must have an understanding of adult learning theories and learning styles that foster learning in adults. Training for clinical instructors is not negotiable, it must be provided by academic settings so that CIs can be trained to be true mentors and guide students through complex learning environments.

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APPENDICES

Appendix A
Definition of Terms

Clinical Instructor (CI): A clinical teacher employed and/or designated by the university to teach, supervise and facilitate students learning in the clinical environment.

Effective Clinical Instructor: Behaviors, activities and actions of the clinical instructor that facilitate student learning in the clinical environments.

Professional competence: Knowledge, skills and professional attitudes of the clinical instructor.

Personality traits: Character traits, emotional tendencies and attitudes of an individual.

Interpersonal relationship: Communication and interaction between two or more people.

Teaching ability: The ability to deliver and transfer knowledge and skills to the learner.

Evaluation: The assessment and feedback provided by the Clinical instructor to the students about their performance in the clinical environment.

Appendix B
Seton Hall University Intuitional Review Board Approval Letter

OFFICE OF INSTITUTIONAL
REVIEW BOARD

SETON HALL UNIVERSITY

March 8, 2016

Saad M. AlRabeeah

Dear Mr. AlRabeeah,

The Seton Hall University Institutional Review Board has reviewed the information you have submitted addressing the concerns for your proposal entitled "Exploring Respiratory Care Faculty and Students' Perceptions of Effective Clinical Instructor Characteristics." Your research protocol is hereby accepted as revised and is categorized as exempt.

Please note that, where applicable, subjects must sign and must be given a copy of the Seton Hall University current stamped Letter of Solicitation or Consent Form before the subjects' participation. All data, as well as the investigator's copies of the signed Consent Forms, must be retained by the principal investigator for a period of at least three years following the termination of the project.

Should you wish to make changes to the IRB approved procedures, the following materials must be submitted for IRB review and be approved by the IRB prior to being instituted:

- Description of proposed revisions;
- *If applicable*, any new or revised materials, such as recruitment fliers, letters to subjects, or consent documents; and
- *If applicable*, updated letters of approval from cooperating institutions and IRBs.

At the present time, there is no need for further action on your part with the IRB.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Genevieve Pinto Zipp

Appendix C
Letter of Solicitation and Informed Consent

Letter of solicitation and implied consent

Dear Participant,

I am inviting you to participate in a research project <u>exploring respiratory care faculty</u> and <u>students'</u> perceptions of effective clinical instructor characteristics. I am a full time doctoral student at the Department of Interprofessional Health Sciences and Health Administration, School of Health and Medical Sciences, Seton Hall University. I am conducting this research as partial fulfillment of my PhD degree in Health Sciences.

This study is exploring your perceptions regarding the characteristics of effective clinical instructors. This study will provide respiratory care educational leaders with valuable information to help them develop a clinical instructors' training program to ensure that respiratory care students are receiving consistent high quality clinical education experiences

We are using the clinical instructor effectiveness questionnaire to assist us in identifying your perceptions regarding the characteristics of effective clinical instructor. The questionnaire can be done independently at your leisure but you must have access to internet service. As part of the questionnaire you will be asked to complete several demographic questions. The survey should take you only 15 minutes to complete.

Your participation in this study is completely voluntary and anonymous.

There is a possibility of hacking since this is an online questionnaire

By completing this questionnaire, you are giving your consent to participate in this research study. Your answers are anonymous, and any reports generated will be reported in the aggregate. Your participation is voluntary, and there is no penalty if you do not participate.

All data will be stored on USB memory key and kept in a locked physical location. No data will be available electronically

As principle investigator, I should be contacted for answers to pertinent questions about the research. I may be reached via email saad.alrabeeah@student.shu.edu or via phone 201-736-0248.You can also contact my research advisor Dr. Genevieve P. Zipp via email Genevieve.Zipp@shu.edu or via phone 973-275-2457. Any questions you may have regarding your rights as a research subject may be directed to the IRB Director, Dr. Ruzicka, Office of the IRB, Presidents Hall, 400 South Orange Avenue, South Orange, NJ 07079, Tel: 973-313-6314. Fax: 973-275-2361

Please take the survey:

For respiratory care faculty (instructors and clinical instructors/ preceptors) please follow the below link

https://www.surveymonkey.com/r/RC_Faculty

For respiratory care students enrolled in clinical courses, please follow the below link

https://www.surveymonkey.com/r/RC_Students

Sincerely,

Saad M. AlRabeeah, PhD-C, RRT

PhD Candidate, Department of Interprofessional Health Sciences and Health Administration

School of Health and Medical Sciences

Seton Hall University

Saad.alrabeeah@student.shu.edu

Appendix D
Permission to Use the Questionnaire

Clinical Instructor's Effectiveness Questionnaire_permission confirmation

<fitang@ym.edu.tw>

To:

Saad M AlRabeeah;

Mon 2/1/2016 4:43 AM

Dear Saad AlRabeeah,

Thank you for interested in this article.

You can have the permission to use the questionnaire.

Good Luck!

Fu-In Tang

SM

Saad M AlRabeeah

To:

fitang@ym.edu.tw;

Sun 1/31/2016 12:57 AM

Sent Items

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Dear Dr. Tang,

I hope this email find you in great health and wealth,

I would like to take your permission to use your questionnaire Clinical Instructor Effectiveness Questionnaire and place it online. The questionnaire was published in your research article titled " Students' perception of effective and ineffective clinical instructors"

Thank you so much

Saad AlRabeeah

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