

UNIVERSITÉ DE SHERBROOKE

Prévoir la Réussite des Étudiants en Techniques d'inhalothérapie et d'anesthésie

Predicting Student Success in a Respiratory & Anesthesia Technology Program

par

Patricia Low McClurg

Essai présenté à la Faculté d'éducation

En vue de l'obtention du grade de

Maître en éducation (M.Éd.)

Maîtrise en enseignement au collégial

Mai 2012

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par

Patricia Low-McClurg

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Silke Lach

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SUMMARY

Respiratory therapists must be able to care for their patients safely, efficiently and competently. They manage critically ill patients on life support systems. As a member of the anesthesia team they are responsible for the vulnerable patient undergoing surgery. Within all areas of the hospital they are called upon to make decisions and judgements concerning patient treatment. The environment that is found in the modern clinical setting is often stressful and demanding. The respiratory and anesthesia technology program has the responsibility of preparing competent practitioners who graduate not only with a broad knowledge base but with the affective competencies that are required to meet these challenges.

Faculty and clinical instructors in the program of Respiratory and Anesthesia Technology have been troubled by rising attrition rates and weak performance of students. It is apparent that this is not a problem unique to Vanier College.

The rationale for this study was multi-fold; to establish a definition of student success, to determine whether pre-admission academic abilities can predict success in the program and whether scores on a professional behavioural aptitudes tool can predict success in the clinical year of the program. Predictors were sought that could be used either in the pre-program admission policies or during the course of study in order to ensure success throughout the program and beyond.

A qualitative analysis involving clinical instructors and faculty (n=5) was carried out to explore what success signified for a student in the respiratory and anesthesia program. While this process revealed that a student who obtained a grade above 77.5% was considered “successful”, the concept surrounding success was a much more complex issue. Affective as well as cognitive and psychomotor abilities complete the model of the successful student. Appropriate behaviour and certain character traits in a respiratory therapy student are considered to be significant

elements leading to success. Assessment of students in their clinical year of the respiratory & anesthesia technology program currently include little measurement of abilities in the affective domain, and the resulting grade becomes primarily a measure of academic and procedural skills.

A quantitative study of preadmission records and final program grades was obtained from a single cohort of respiratory and anesthesia technology students who began the program in 2005 and graduated in 2008 (n=16). Data was collected and a descriptive analysis (analysis of variance, Pearson correlation) was used to determine the relationship between preadmission grades and success. The lack of association between the high school grades and grades in the program ran contrary to some of the findings in the literature and it can be cautiously inferred that preadmission grades do not predict success in the program.

To ascertain the predictive significance of evaluating professional behavioural skills and success in clinical internship, a behaviour assessment tool was used by clinical instructors and faculty to score each student during a rotation in their third year of the program which was clinical internship. The results of this analysis showed that a moderately strong association could be made between a high score on the behavior assessment tool and final clinical grades. Therefore this tool may be effective in predicting success in the clinical year of the program.

Refining the admissions process to meet the challenge and responsibility of turning out graduates who are capable of meeting the needs of the profession is difficult but essential. The capacity to predict which students possess the affective competencies necessary to cope and succeed in their clinical year is conceivably more important than their academic abilities.

Although these preliminary findings contribute, to some degree, to the literature that exists concerning methods of predicting success in a respiratory and

anesthesia technology program, much data is still unknown. Further quantitative and qualitative research is required using a broader population base to substantiate the findings of this small study.

RÉSUMÉ

Les inhalothérapeutes doivent être capables de prodiguer des soins à leurs patients d'une manière sécuritaire, efficace et compétente. Ils/elles peuvent être appelé(e)s à gérer les soins aux personnes gravement malades branchées à un respirateur artificiel. En tant que membres de l'équipe d'anesthésie, ils/elles sont responsables des patients qui subissent une chirurgie. Ils/elles sont sollicité(e)s par tous les secteurs de l'hôpital pour décider ou juger des traitements à apporter aux malades. L'environnement dans lequel ils/elles travaillent est souvent stressant et exigeant. Le programme de Techniques d'inhalothérapie et d'anesthésie vise à former des inhalothérapeutes compétent(e)s qui possèdent non seulement les connaissances propres à la discipline mais également les aptitudes affectives nécessaires pour faire face à ces défis.

Les enseignant(e)s et instructeur(e)s cliniques en Techniques d'inhalothérapie et d'anesthésie sont préoccupé(e)s par le taux d'abandon croissant et la faible performance des étudiant(e)s dans le programme. Il semble que ce problème ne soit pas unique au Collège Vanier.

Le but de cette recherche est multiple : définir ce qu'est «réussir» pour les étudiant(e)s de ce programme; déterminer si les aptitudes scolaires acquises avant l'admission au programme peuvent aider à prévoir le succès des étudiant(e)s dans le programme; et si les résultats obtenus à un test mesurant les aptitudes comportementales professionnelles permettent de prévoir le succès des étudiant(e)s dans le stage clinique du programme. On a essayé d'identifier des facteurs qui pourraient être utilisés dans les politiques d'admission au programme ou celles régissant le cheminement dans le programme qui permettraient d'assurer le succès au cours du programme et par la suite.

Une analyse qualitative a été conduite auprès des instructeur(e)s cliniques et des enseignant(e)s (n=5) afin d'étudier la notion de « réussite » des étudiant(e)s dans le programme. Bien qu'un(e) étudiant(e) ayant obtenu une note supérieure à 77.5% soit considéré(e) comme ayant « réussi », la notion de « réussite » est beaucoup plus complexe. Des aptitudes affectives, autant que cognitives et psychomotrices complètent le modèle d'un(e) étudiant(e) ayant réussi. Un comportement approprié et certains traits de caractère sont considérés comme des facteurs importants pour la réussite d'un(e) étudiant(e) en techniques d'inhalothérapie et d'anesthésie. L'évaluation qui se fait actuellement des étudiant(e)s dans le stage clinique du programme ne porte que peu sur les aptitudes affectives, et le résultat obtenu témoigne essentiellement des aptitudes scolaires et procédurales.

Une analyse quantitative des dossiers des étudiant(e)s avant leur admission au programme et leurs notes finales a été conduite auprès d'une cohorte d'étudiant(e)s ayant commencé le programme en 2005 et gradué en 2008 (n=16). Des données ont été recueillies et une analyse descriptive (analyse de la variance, corrélation de Pearson) ont été faites afin de déterminer l'existence d'un lien entre les notes obtenues au secondaire et celles obtenues dans le programme. L'absence de corrélation entre les deux catégories de notes va à l'encontre de certaines recherches publiées et on peut déduire avec réserve que les notes obtenues avant l'admission au programme ne permettent pas de prévoir la réussite dans le programme.

Afin de vérifier la portée de l'évaluation du comportement professionnel et de la réussite en milieu clinique quant à la prévision de réussite dans le programme, une méthode d'évaluation du comportement a été appliquée par les instructeurs(e) cliniques et les enseignant(e)s pour évaluer chaque étudiant(e) au cours d'une rotation dans leur troisième année de stage clinique. Les résultats de cette analyse ont démontré qu'une corrélation moyennement forte pouvait être faite entre une bonne note à l'évaluation comportementale et les notes finales du stage clinique.

Perfectionner le processus d'admission au programme afin d'assumer la responsabilité de former des diplômé(e)s capables de répondre aux besoins de la profession est difficile mais essentiel. Avoir les moyens de prévoir quels/quelles étudiant(e)s ont les compétences affectives nécessaires pour faire face à la réussite de leur année de stage clinique est peut être plus important que d'avoir les aptitudes scolaires.

Bien que ces observations préliminaires contribuent, à un certain degré, à la littérature existante sur les méthodes de prévoir la réussite dans le programme d'inhalothérapie et d'anesthésie, plusieurs données restent inconnues. Une recherche quantitative et qualitative plus élaborée, conduite sur un échantillon plus large de la population, est nécessaire afin de corroborer les résultats de cette étude limitée.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACLS	Advanced Cardiac Life Support
CEGEP	College D'Enseignement general et professionnel or College of General and Professional Education
CGPA	College Grades Points Average
GPA	Grades Points Average
MUHC	McGill University Health Center
MELS	Minister of Education Sports and Leisure
RT	Respiratory Therapist

DEDICATION

I would like to dedicate this research project to my family: my husband David, my children Kate, Vincent, Tim, Genny and Laura. You encouraged me for many years to complete this degree and have always been my biggest fans and supporters in these endeavours.

I also dedicate this study to my granddaughters Leah and Alexia to demonstrate to them that persistence and hard work are required in order to achieve a goal, but that is what makes the accomplishment all the more sweeter.

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I would like to thank Louis Belle-Isle for encouraging me to begin this journey five years ago. He encouraged me to take on the 'hat' of an educator in addition to my respiratory therapist's 'hat' and for that I will be forever grateful.

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INTRODUCTION

In an ideal world, students embarking in a career orientated program of study enter the program and successfully go through it to graduation within the requisite number of years. At graduation they are fully prepared and ready to join the work force. Unfortunately in the real world, this scenario is becoming more and more difficult to realize.

Health care professionals in the modern clinical setting find themselves in an environment where they must not only be able to provide safe, efficient and competent care but must be able to do it within an environment that can be very challenging. As such it is incumbent upon the health care educational program to prepare competent practioners who possess a broad base of knowledge as well as the affective and psychomotor skills needed to meet these challenges upon graduation.

Respiratory therapists are an integral and established part of a multidisciplinary health care team. They have the responsibility to evaluate, treat, and care for patients with breathing or other cardiopulmonary disorders. Practicing under the direction of a physician, respiratory therapists assume primary responsibility for many of the respiratory care therapeutic treatments and diagnostic procedures. In addition, respiratory therapist's provide complex therapy requiring considerable independent judgment, such as caring for patients on life support in intensive-care units. As part of the respiratory therapists job description they evaluate and treat all types of patients, ranging from premature infants whose lungs are not fully developed to elderly people whose lungs are diseased. They may as well be working as anesthesiology assistants in operating rooms or in a pulmonary function lab conducting breathing function testing.

Rising attrition rates and weak performance of students in respiratory therapy programs across the United States and Canada have been documented and the Respiratory & Anesthesia Technology program at Vanier College has not been immune to this trend. Several studies that have been published on this topic report on the reasons for this phenomenon but few propose any solutions.

High standards of pedagogy and achievement in an educational program are of course required to graduate competent individuals, but the characteristics and abilities of the students entering these programs must also be considered if high calibre graduates are to be produced. Respiratory Therapy educational programs need to arrive at a comprehensive method of selecting the best candidates and apply retention strategies that will see them through to program completion and entrance into the workforce (Wittnebel, 2009).

Choosing candidates who have the aptitudes and abilities to succeed has proven difficult. There is much discussion in the literature concerning an individuals' pre program academic skills and their ability to successfully graduate from a health care program of study. There is however very little information concerning the behavioural or affective abilities of a those same individuals upon entering a program of study and how this impacts on success in a program.

Success is an elusive concept, one that is not well defined in the literature. This study's aim in part, was to seek and define the concept of success for a student in a Respiratory Therapy program. In addition this study set about to examine the relationship between preadmission academic abilities, professional behavioural skills and overall success in the Respiratory and Anesthesia Technology program.

Most academic institutions base their admission criteria on a ranking of academic averages of the applicants. One of the working questions for this project

was to determine whether in fact this is true; whether academic preadmission standings do predict success in a respiratory therapy program. The other question concerns student behavioural or affective aptitudes and how they may influence success when transitioning from the classroom environment to a clinical learning site. It was hypothesized that a low score on a behavioural skills assessment would result in low final grades in the clinical rotations. A relationship was sought between non academic character traits and success in the clinical environment.

A focus group (n=5) consisting of both clinical instructors and faculty members was used to arrive at a definition of success for a respiratory therapy student. In addition, the focus group was used to delve into the complexities of a successful respiratory therapist. A numerical value that equalled success for the respiratory therapy student was ultimately established.

Quantitative research methods were used to determine if a relationship existed, and to what degree, between preadmission grades (high school), clinical grades, grades at the end of 4 semesters and grades at the end of 6 semesters (final grades) of the program for a cohort of students (n=16). Data was collected and a correlational analysis was used to determine this relationship. A behavioural assessment tool was utilized by clinical instructors who scored the students based on various behavioural traits as evaluated during clinical rotations in the students' third year of study. A relationship was again sought between behavioural characteristics and final clinical grades using a correlational analysis.

The lack of association between students' high school grades and the grades achieved in the program ran contrary to what was found in a large body of the literature; strong pre admission grades do not necessarily predict success in the program. Further study is required to confirm these findings.

The behavioural skills tool and the relationship to clinical grades proved the hypothesis that a poor score on the tool resulted in poor clinical grades. Thus, this may be a useful instrument to use in the future in order to predict success in a clinical year.

From the focus group, a numerical value for success at the end of two years of study (75%) and during the clinical internship year (80%) was established. The character traits that make a good respiratory therapist were developed and these attributes (compared to a grade) were emphasized in the discussion. This led towards the viewpoint that appropriate behaviour and attitude character traits in a respiratory therapy student may be a major component leading to success.

CHAPTER ONE

STATEMENT OF THE PROBLEM

During the past number of years the faculty of the Respiratory & Anesthesia Technology program as well as its clinical affiliates (the students' future employers) have been concerned about the unsatisfactory quality of the students in the program and ultimately graduating from it.

The impetus for this research study was to discover whether a predictor of success could be established that would allow for a better selection of candidates and ultimately a higher success rate in the program. It also sought to find a predictor of success that could be used to remediate and retain students in their clinical third year of the program. Ultimately the goal of being able to forecast success in the program is the ability to matriculate a higher calibre of graduate into the workplace.

In order to investigate predictors of success pertaining to admission policies, a relationship between success in the program and pre-admission academic grades was analyzed. The relationship between academic grades from one semester to another was also studied. A correlation between success in the clinical year and the score on a professional behaviour assessment tool was explored to establish whether affective abilities could be used as a predictor of success in the third clinical year.

A successful student has traditionally been regarded as an individual who could progress through the requisite six semesters of the program in three years while maintaining a high academic average. This customary view of success was challenged and explored in depth in order to better inform the investigation.

CHAPTER TWO

LITERATURE REVIEW

1. INTRODUCTION

The literature review serves to elucidate the research questions of predicting success in a respiratory and anesthesia technology program. In reviewing the literature, it was noted that limited research exists specifically about the selection criteria for respiratory therapy programs; however a vast amount has been written about other allied health professional programs, including nursing. This literature review covers the following issues:

1. An overview of the inherent complexity of health care professions (including respiratory therapy) as they exist today;
2. The expectation from the employers in these fields for individuals who must be capable of functioning at a high level in a demanding profession;
3. The phenomena and reasons for rising attrition rates and poor performance in health care professional programs;
4. The issues surrounding admission criteria, student performance and predicting success in the program;
5. The importance of attitudinal affective abilities and professional socialization.

The first two years of the program are comprised of, primarily, preparatory academic studies at the College interspersed by some limited clinical contact. In the 5th and 6th semester the students are interned in area hospitals rotating through the various specialties four days per week for the two semesters. Upon entry into the

clinical environment, the students are expected to possess a large body of knowledge and be able to perform competently and safely in critical care areas such as the operating room, the emergency room, and the intensive care unit.

2. CHARACTER TRAITS AND ATTITUDES REQUIRED FOR THE PROFESSION

Throughout the program students are in the position of transitioning from apprentices to individuals capable of carrying out the responsibilities that are placed on respiratory therapists. It is understood that respiratory therapists today must have excellent comprehension and familiarity of their patient's illness or disorder and must be self directed and ready to apply a vast body of knowledge in a dynamic manner (Griffiths & Ursik, 2004). They must be capable of applying scientific knowledge, technical expertise and theory to practical clinical problems. They are required to exercise clinical judgment (Mishoe, 2003) throughout their daily activities. Problem-solving, critical thinking and decision making skills have been identified as fundamental characteristics of an individual in a health related field such as respiratory therapy. (Mishoe, 2003). The critical thinking skills and problem solving skills needed by a respiratory therapist may be defined as the ability to prioritize, anticipate, troubleshoot, communicate, negotiate, make decisions, and reflect on experiences. (Mishoe, 2003).

Problem solving models that arose from the 1970's and early 1980's were used to explain problem solving processes (Newell & Simon, 1972). These models taught problem solving as a free thinking skill that is not integrated with other curriculum or the work environment. Current problem solving models from research conducted in the past two decades has led to the knowledge that problem solving is a more complex operation. It involves not only a set of cognitive components but behavioral and attitudinal inferences must take place as well. It can be defined (Mayer, 1983) as a multiple step process where the problem solver must find

relationships between past experiences and the problem at hand and then act upon this to create a solution. Jonassen and Tessmer (1996) proposed the theory that motivation and other attitudinal aspects such as effort, confidence, anxiety, persistence and knowledge about self also have an important impact on problem solving. They theorized that an individual must want to solve the problem and believe that they can, in order to do so. The implication that there is a relationship between problem solving skills and behavioral characteristics may link to the research question posed in this study concerning behavioral characteristics and success in the program.

Respiratory therapists of today are expected to perform techniques and operate medical devices that were not even available 20 years ago. They must be able to evaluate and treat patients with increasingly complex cardiopulmonary disorders. Glen (1999) as cited in Neumann & Forsyth (2008, P.249) state that health care professionals are expected to make value-laden decisions. The expectation of respiratory therapists in the workforce means that employers are seeking better prepared graduates (McNeill & Brockmeier, 2005) to cope with the tremendous change that has occurred in the health care system (McLoda, 2003). As demonstrated by the McGill University Health Center employee reference form (Appendix A) employers are in search of individuals who possess particular behavioural characteristics and attitudes such as critical thinking skills, ability to use good judgement and the ability to work cooperatively, among other attributes. The employer seeks to discover whether the individual applying for the position will indeed be able to function within the complex medical system. This highlights the importance of personal characteristics and attitudes in a professional field such as respiratory and anesthesia technology. In summary, the expectations that are being placed on the educational system, the student and graduate are tremendous.

3. THE PROBLEM OF ATTRITION

Andrews (2008) states that “Attrition, or its inverse, retention in allied healthcare programs, is and forever will be a concern among program and school officials along with the stakeholders in the program’s host community (p. 48)”.

Rising attrition rates is an observable fact in post secondary education throughout North America. Attrition can be defined in pedagogic terms as the loss of subjects during the course of study. One could extend this definition to include not only those students who leave a program of study, but also those who do not follow their original cohort from the beginning to the end of the program of study. Researchers from Statistics Canada (2010) showed that while about 50% of all students failed to finish their initial programs of study within five years, only about 10 to 15 percent can be considered true dropouts. In the Respiratory & Anesthesia Technology program at Vanier College this would include students who fail and must wait until the course is offered again the following year. In the Quebec Cégep system, the average time of completion of a three year career program is now 3.9 years and for the years 2008-2009, only 32.5 % of students enrolled in a technical and career program complete it within the 3 year time frame. (Gouvernement du Québec, 2011).

Institutions of higher education examine attrition rates as well as retention rates very closely. Colleges and universities today are held to a higher degree of accountability. Indeed the level of attrition and retention becomes a measure for the effectiveness of a given program (Wittnebel 2009).

Following the nation wide trends, attrition rates at the Cégep level in both Pre University and Career and Technical programs are rising as well. Table 1 portrays the attrition rate of students in the Careers and Technical Programs at Vanier College from 2000-2002 and table 2 portrays the attrition rates in the same faculty at Vanier College and from 2006-2008.

Table 1
Cégep Vanier College Attrition Rates in Career and Technical Programs: 2000-2002

	1 st yr	2 nd yr	Attrition 1 st - 2 nd	3 rd yr	Attrition 2 nd to 3 rd	Attrition for three years
Entering Cohort 2000	758 Students 2000	511 Student 2001	32.4%	515* Students 2003	0	32.1%
Entering Cohort 2001	814 Students 2001	512 Students 2002	37.2%	538* Students 2003	0	34%
Entering Cohort 2002	820 Students 2002	566 Students 2003	31%	532 Students 2004	6%	35.2%

Gouvernement du Québec, (2005). *Observations et prévisions des effectifs étudiants au collégial*. Ministère de l'Éducation, du Loisir et du Sport. Retrieved on October 23, 2011 from http://www.meq.gouv.qc.ca/stat/Sipeec/Etabl_nom.htm

*Net gain from 2nd to 3rd yr may be explained by students “out of phase” and catching up to the next cohort

Table 2
Cégep Vanier College Attrition Rates in Career and Technical Programs:
A 2006-2008

	1 st yr	2 nd yr	Attrition: 1 st - 2 nd	3 rd yr	Attrition: 2 nd to 3 rd	Attrition for three years
Entering Cohort 2006	635 Students 2006	431 Students 2007	32.2%	389 Students 2008	9.8%	38.8%
Entering Cohort 2007	673 Students 2007	477 Students 2008	29.2%	379 Students 2009	20.6%	43.7%
Entering Cohort 2008	704 Students 2008	489 Students 2009	30.6%	411 Students 2010	16%	41.7%

Gouvernement du Québec, (2011). *Observations et prévisions de l'effectif étudiant au college*. Ministère de l'Éducation, du Loisir et du Sport. Retrieved on October 23, 2011 from http://www.mels.gouv.qc.ca/sections/previsionsCollegial/pdf/Prev_C_Cegep.pdf

These statistics indicate that attrition rates in Career & Technical programs at Vanier College are significant and rising. Remarkable as well is the rate of failure in year 2 to year 3 that rises significantly in the cohorts 2006-2008 compared with 2000-

2002. A certain attrition rate is expected in the first year of a program. Students may come into the program and realize that it may not be what they had thought it would be and decide to leave. Failure from second to third year may indicate that more students are experiencing difficulty progressing through the program. As previously mentioned poor performance in the Respiratory & Anesthesia Technology program at Vanier College has been expressed by all stakeholders (educators and future employers) in the program. Overall attrition rates (Table 3) are comparable to the total rates of career and technical programs at Vanier College. Statistics also include attrition rates from the third year of the program to graduation. This substantiates that more students are experiencing difficulty in their clinical year.

Table 3
Attrition rates in the Respiratory & Anesthesia Technology program
for cohorts beginning in 2005, 2006 and 2007

	1 st yr	2 nd yr	Attrition: 1 st - 2nd	3 rd yr	Attrition: 2 nd to 3rd	Graduation	Attrition: 3 rd yr to graduation	Total Attrition to graduation
Cohort 2007	37 Students 2007	30 Students 2008	19 %	23 Students 2009	23.4%	20 Students	13.1%	46%
Cohort 2008	42 Students 2008	30 Students 2009	28.6 %	28 Students 2010	7%	23 Students	18 %	45.3%
Cohort 2009	40 Students 2009	33 Students 2010	30 %	30	9%			
Cohort 2010	38 Students 2010	28 Students 2011	26%					

Vanier College. (2010). *Respiratory & Anesthesia Technology Program: Annual Report 2010-2011*. Montreal: McClurg, P.

As stated, the phenomenon of poorly prepared graduates as well as the occurrence of rising attrition rates in respiratory therapy schools has been observed over numerous years (Arnson, 1998). A great deal of research has been conducted regarding possible explanations as to why so many students fail in their program of study (Wittnebel, 2009). Very little research has been conducted based specifically on the Canadian schools of respiratory therapy but it would seem that reasons for

attrition in these programs will be similar in the two countries. The rationale for the phenomenon may be multifactorial and identifying risk factors in students is key to keeping the program attrition rate low and retention high. (Andrews 2008).

As evidenced by the previously mentioned statistics, the attrition rate and the failure of students to progress through the Respiratory & Anesthesia Technology program at Vanier College in the requisite number of years has been increasing. Concerted efforts on the part of the college as well as the department have been applied in order to change this state of affairs. Student success continues to be a priority at Vanier College (Vanier College, 2011).

Despite many student success initiatives, there is a sustained perception among the faculty and clinical associates in the Respiratory & Anesthesia program that the level of academic excellence that the program once enjoyed is in fact gone. More students are just not 'catching on' as quickly as they once were, are taking longer than three years to complete the six semesters of the program because of course failure, and are performing poorly in clinical internship.

A number of theories on attrition and retention are found in the literature. Tinto's (1975) classic work as cited by Cabrera (1992, p.142) hypothesized that persistence in school is a function of the match between an individual's motivation and academic ability and the institution's academic and social characteristics. Bean (1985) advanced an alternative model to explain college persistence. His student attrition model suggests that behavioral intentions (to stay or leave a program) are shaped by, among other factors, an institution's quality, courses and friends that are made. Bean's theory suggests that non-intellectual factors play a major role in persistence in a program.

Noel's work (1985) concerning attrition as cited in Andrews (2008, p. 50) defined seven themes concerning persistence in a program of study: academic boredom, academic uncertainty, transition and adjustment problems, limited and/or

unrealistic expectations of the college, academic under-preparedness, incompatibility, and irrelevancy. Academic under-preparedness was found to be the primary reason for attrition in an allied health program (Andrews 2008). This occurred when students were not able to fulfill the academic demands of the program either because they never learned information from their prerequisite courses or the student was simply unprepared for the academic rigors of a program.

Further it was noted that under-preparedness may be difficult to assess based on grades transcripts as there may be an inherent unreliability of grades due to the variability of institutional grading policies from which the applicants come (Andrews 2008). This point relates to the question of this paper as to whether or not preadmission grades can actually predict success in the program.

4. THE EFFECT OF CURRICULUM

As previously stated, much study has been carried out regarding possible reasons for the high attrition rates seen in many allied health care programs (Wittnebel, 2009). Unpreparedness for the program (Andrews, 2008) has been cited as one of the major reasons for failure. The complexity of the program itself will also have a major impact on the failure rates.

The discipline of respiratory therapy has evolved tremendously since its inception over fifty years ago. The scope of practice has broadened and medical technology has advanced until the profession is almost unrecognizable compared to what it originally was. Medical knowledge on the whole is immense and is in a constant state of expansion. Educators are persistently challenged to expand their curriculum in order to prepare students for these new responsibilities. As expounded upon by Andrews (2008) poor student performance may be explained in part by the vastness of the program curriculum. The curriculum in the Respiratory and Anesthesia Technology program at Vanier College is already stretched too thin to teach all the necessary competencies that students need in order to challenge their

clinical internship year and to enter the workforce. The requisite knowledge, the new skills attainment, and professional attributes required simply cannot be taught in an already crowded 3-year curriculum. This problem has not gone unnoticed by the professional order of respiratory therapists in Quebec (OPIQ) nor by the government of Quebec. In 2010, a province wide market analysis of the profession was undertaken by the Quebec Ministry of Education, Sports & Leisure (MELS) and it demonstrated clearly that the curriculum needs to be increased and that the hours of instruction should be expanded in order to conform to the growing knowledge and skills requirement of respiratory therapists (Government of Quebec, 2011).

The consequence of such a demanding curriculum (and potentially an even more demanding one in the future) certainly will impact student success. Students who have average or low academic abilities or who do not have the time to devote to study because of job or home responsibilities find it difficult to successfully complete the program or at least to do it in the requisite number of years. Students may have a limited or unrealistic expectation of the demands of a respiratory therapy program and may not be aware of the sacrifice that must be made in personal time in order to succeed. Indeed these factors combined may be among the largest contributors to attrition in the profession (Andrew 2008).

5. THE EFFECT OF FAILURE

5.1 The Human Aspect of Failure

The academic difficulty that more students are experiencing certainly has an impact on the educational resources and the efficiency of the program. Increased time spent with a struggling student often means less time spent with another. The pace of the class slows considerably. Course content may not be completed by the end of the semester.

The human part of this scenario must also be taken into consideration. A failed attempt or non persistence in a program of study has costs both to the individual and to the society (Rye 2005).

5.2 Implications for the Patient

An additional concern in any allied health professional program is that of patient safety in the clinical environment. It is the responsibility of the educational program to ensure that the students rotating in the clinical sites do not jeopardize patient safety. In recent years, several students have had to be withdrawn from their clinical rotation because they had been judged to pose a significant safety risk to patients.

5.3 Ineffectiveness in the Workforce

In order to obtain a diploma in Respiratory & Anesthesia Technology and subsequently be eligible for applying for licensing by the Quebec Order of Respiratory Therapist (OPIQ) a student must be successful in the comprehensive exit exam from the program. More students are experiencing difficulty with this exam. Despite having successfully completed six semesters of the program many students are finding it difficult to pass this exit exam. This may be the result of the issues that were previously discussed such as unpreparedness as well as the heavy course load in the program.

As well, some individuals, despite graduating from the program, do so without developing the competencies necessary to perform proficiently once they get into the workforce. The argument from employers is that a greater proportion of graduates are weak in their knowledge base as well as in their procedural skills. This of course has great ramifications for the profession in general.

6. WHAT IS SUCCESS?

Evidence of academic success in an allied health program has been described as either overall final GPA in the program (Platt, Turocy, & McGlumphy, 2001) or achievement on licensing exams (Sayles, Shelton, & Powell, 2003) or certification exams. Other evidence of success as described by Jewell (2003) is whether or not the student had to be placed on academic probation during their course of study. Gardenhire, & Restrepo (2003) suggested that success is pronounced when a student actually completes the program of study.

6.1 Predicting Success based on Academic Grades

The ability to reliably predict success in a program of study is desirable but difficult to accomplish. Many educators over the years have, with varying degrees of success, attempted to predict successful completion of programs (LeGrande, 1999).

Salvatori (2001) writes in her meta analysis concerning the reliability and validity of admission tools used to select students for health care professions, that “it is incumbent upon the admissions committee to select candidates from the total applicant pool who are most likely to succeed not only as students in the program but also as clinicians in the future” (p 159). This appears to be a difficult process indeed. Nayer (1992) suggests that the purpose of admission procedures is to select students who will do well in the educational program and go into their professional careers possessing the traits of character and ethical values desired of a professional.

From its inception in 1972 through 2008, pre admission grades, prerequisite course requirements and an interview process to establish language skills have been the criteria used to ensure that the best candidates are chosen and accepted into the Respiratory & Anesthesia program at Vanier College. It is possible that there was little communication between those who were responsible for recruiting and admitting students and those who are responsible for educating them. With this in

mind, and in consideration of the quality of students, a revamped and more comprehensive interview process for the Respiratory & Anesthesia Technology program was established in 2009 in the expectation that better candidates could be selected from the candidate pool. This change in admission procedure however, does not necessarily fit within the Cégep philosophy of providing post secondary education for primarily high school students based on academic scores. As Salvatori (2001) concludes in her review paper, “there is a need for an admissions process that provides a thorough, fair, reliable, valid and cost-effective assessment of applicants” and that “it remains an elusive goal” (p.171). It is a challenge for respiratory therapy programs to admit students with the best chance of successfully completing program requirements and going on to become competent respiratory therapists (Wittenbel 2009).

An examination of the literature suggests that it is dominated by the notion that pre-admission GPA (Grades Point Average) is the best predictor of academic performance in health related fields (Salvatori 2001). Platt et al., (2001), looked at High School Grades Point Average (HSGPA) and scholastic aptitude tests (SAT) (both mathematical and verbal scores) in terms of their predictability of success in a program. They found that while these criteria were important considerations to use for admission into an allied health program, they displayed great variance in terms of their ability to predict ultimate success in the program. In their paper, Platt et al, (2001) suggest other factors such as student portfolios and individual interviews be used as part of the admission policy. Jewell (2003) investigated the predictability of success using standardized preadmission tests that evaluate the individual’s ability in math, reading, comprehension and social skills. Once again a positive correlation was found on success on these tests and academic success in the program. Sayles et al., (2003) looked at the correlation between scores on a commercial preadmission nursing test and success on a RN licensing exam. A positive relationship between these scores was found. Gardenhire et al., (2003) evaluated another preadmission examination HOBET (Health Occupations Basic Entrance Test) that tests reading,

comprehension and math skills and they found that a high score on the math portion of the HOBET could predict academic success. Masini, Byington, Samples & Keene (2007) from their study of Respiratory Therapy students found that students with higher GPAs were more likely to pass written National Board for Respiratory Care (NBRC) examinations. They found that this was consistent with the findings of other studies. These results agree with the conclusions of Salvatori (2001) in her review paper of the health professional literature pertaining to the reliability and validity of cognitive preadmission criteria and student academic success. Wittenbel (2009) however argues that discrepancies have been identified in the overall GPA as measure of success in a program. He suggests that questions have arisen regarding its validity and usefulness. Differences in grading standards are evident at the faculty, departmental, and institutional levels and these differences contribute to measurement error, diminishing the GPA's reliability. If high school grades are used as part of an admissions policy to the program at Vanier College, it is comparing students who attended, for example private high schools, versus public high schools versus secondary education outside the country. All of these institutions may produce students who cannot be compared in terms of GPA.

6.2 Predicting Success based on Clinical Performance

From the literature it would seem that pre-admission GPA is the best predictor of academic performance in health related fields (Salvatori 2001) but that the relationship between preadmission grades and clinical performance is much less obvious. Platt, Turocy, & McGlumphy (2001) suggest that although academic scores may predict future performance they should not be the sole criteria for admission into a health professional program. Salvatori noted in her meta - analysis (2001) review paper of the health professional literature that there had been little research conducted into the predictability of preadmission grades and a student's clinical success.

From the experience of the faculty and clinical instructors associated with the Vanier College program it has not always been possible to predict the ability and success of a student in their clinical year based on their academic performance in their second year. Academic abilities do not necessarily translate into good clinical knowledge and skills in third year.

6.3 Professional Behaviours –Professional Socialization

Students must not only be able to perform to the accepted standard in terms of academic knowledge and skills but they must also exhibit those professional behaviours that will allow them to successfully integrate into the medical system. A process of professional socialization must take place. (Koenig, Johnson, Morano, Ducette, 2003). Student failure in the clinical component of the program may indeed have its roots, not in academic or skill attainment but in failure to socialize within the medical environment, specifically in terms of interpersonal communication, initiative, organization and clinical reasoning. Theoretical work on professional socialization in health professions began in the 1960's. Glenn (1980) as cited in Koenig, Johnson, Morano, Ducette, (2003, p.78) states that in the early part of a career, attitudes, values and beliefs are formed and these serve to create the commitment to work and the formation of favorable attitudes and behaviors within the profession. Bruhn (1987) discusses the need for health professional educational programs to provide students with the basic skills for professional socialization; critical thinking, communication skills, personal management skills, writing skills, interpersonal skills and team leadership skills. Van Valkenburg and Holden (2004) as cited in Neumann and Forsyth (2008 pg 248) maintain that values and ultimately behaviors in health care are often “caught, not taught” (p. 248). Learning in the affective domain they state, is a long-term process ongoing process.

Success in the clinical third year of the Respiratory & Anesthesia Technology program may be attributed to the difficulty that students are experiencing in

transitioning from the classroom to the clinical environment. As well the educational resources allocated to clinical teaching may be implicated. These resources have declined compared to what they were previously. The student is no longer apprenticed full time by a faculty member – in fact he/she will spend considerable time with staff respiratory therapists who may not have the knowledge or experience to aid a student who is facing the difficult shift from class to clinic. Appropriate feedback may not be given. Feedback and evaluation during this formative internship year is important for students so that they can be made aware of their own professional development (Koenig et al. (2003).

Koenig et al., (2003) suggest that professional behaviours may be viewed as a barometer of the student's ability to function in the clinical area. At the present time the third year clinical evaluation (Appendix B) includes some professional behaviour skills; however the weighting of these skills is minimal when compared with the academic and skills assessment. In addition, because the evaluation form is designed to assess procedural competencies there is very little implication for failure of the rotation based on the behaviour domain. Identifying those students who are lacking in some of the professional behaviour skills may help in implementing remediation and ultimate success in the program.

Salvatori (2001), at the time of her review, stated that further research was needed to find more reliable and valid ways of assessing the non-cognitive characteristics of applicants and measuring outcomes related to their ultimate success. "There is a need for a valid, reliable assessment of professional behaviours that contribute to clinical competence" (Koenig et al., 2003 p. 86). The relationship between affective competencies and student success was considered by Koenig et al., (2003) who created and validated an instrument to assess professional behaviour for occupational therapy students. It examined elements such as student initiative, time management skills, ability to self direct learning, interpersonal skills and organizational skills. They suggested that this instrument could be used to identify

students who would be at risk of failing the clinical component of their program. It would also allow the faculty to provide remediation for these students.

CHAPTER THREE

METHODOLOGY

The focus of the study was to examine predictors of success in the Respiratory & Anesthesia Technology Program at Vanier College by following a single cohort of students (n=16) who enrolled in the program for their first year in 2005. In order to address the research questions, measurements of data as well as a greater understanding of the issue of student success needed to be gathered.

The literature review demonstrated that while student success in allied health care programs as well as nursing programs has been studied using quantitative research methods, this methodology may in fact be insufficient in order to fully understand the complex nature of success. Both qualitative and quantitative research methods were therefore employed in this study to answer the research questions, as each approach provided distinctive kinds of evidence.

This chapter details the methodology, the participants, the procedures and instruments used as well as the ethical considerations of the research.

1. RESEARCH DESIGN: QUESTION ONE

Research Question 1 - “Can pre-admission academic abilities predict overall student success in the Respiratory & Anesthesia Technology Program at Vanier College?”

Qualitative research methods helped to define success and quantitative research methods were used to determine what relationship, if any, existed between preadmission abilities and student success.

1.1 Question 1/Part 1: Definition of Success

There is an inherent difficulty in trying to define the concept of success in an academic program. The word and its implications conjure up different meanings for different people. The context with which success is defined also contributes to the many interpretations. Webster's definition of success is a favourable or desired outcome. For some it may simply mean attaining a minimal standard. For example the administration of an educational institution will presume student success if the student has passed a course by obtaining a grade that is greater than 59%. Students, as well, often consider themselves successful if they attain 60% in a course.

Teachers and professionals in a complex program such as respiratory & anesthesia technology will view success differently. Indeed, is a student with a 60% average assigned to an intensive care unit really ready to apply his or her knowledge and skills to a critically ill patient? For a student to be considered successful in a respiratory and anesthesia technology program they would have to possess superior academic and procedural abilities' much greater than 60%. They also have to demonstrate the behavioural characteristics which will allow him/her to be successful in clinical internship and beyond in the demanding profession. The affective skills, however, are difficult to measure and even more difficult to describe accurately. Unavoidably, within the Quebec Cégep system, a numerical value must be assigned and reaching or exceeding this value may then be a definition of success; at least on the student's transcript.

To obtain a richer and more pertinent definition of success, a phenomenological approach was undertaken in order to gain an insight into what success means in such a program. A focus group method was chosen that would allow the participants the opportunity to contribute their perceptions and offer the researcher an insight into the question of student success.

A small focus group (n=5) consisting of program faculty and clinical instructors was assembled. The aim of the focus group was to explore the concept of

success from the position of, not only the student, but the working respiratory therapist as well. Ultimately the notion of a grade average that represented student success was introduced and a consensus for a grade that these members felt represented overall student success was obtained.

The overall structure and question routes used for the focus group (Appendix C, D & E) followed the method outlined by Krueger (2000) who suggested a particular sequencing of questions. The questions were verified for clarity and organization by a colleague who did not participate in the focus group.

The inquiry began with an introductory question concerning what participants felt made a good respiratory therapist. This served as an opening and a means to get the participants to begin to converse with each other in a comfortable way. It enabled them to begin the process of envisioning the attributes needed to be a successful respiratory therapist. Following this, a series of questions were designed to bridge the direction of the questioning towards the focus of the discussion: successful students. The final questions served to obtain suggestions or opinions about the topic.

A list of individuals was generated as possible members of the focus group. The list was further refined to include 5 respiratory therapists. The final choice was based on the individuals' shared background as respiratory therapists as well as their relationship with students – either having been one recently or being involved with them in the capacity of a teacher or hospital manager. The hospital manager in addition was able to provide an insight into the type of individual that she hired to work as respiratory therapists in her institution. Other considerations for choosing the particular focus group were to obtain some diversity pertaining to the participants' age, number of years of practice, number of years of teaching experience, college where they obtained their respiratory therapy education and the areas where each of them worked (Table 4). All were females; the dominant sex in the profession. The

profession of respiratory therapy in Montreal is a small one – especially in the McGill health care system. Therefore, many of the participants knew each other.

Table 4
Focus Group Participants

Participant Pseudonyms are assigned here	Age	Years of practice	Education	Area of practice	Relationship with each other	Involvement with students
#1 Theresa	22	2	Dec Vanier College	Neonatal and Pediatric Respiratory Care	Classmate of #2 and former student of #5	None
#2 Maggie	25	2	University Degree + DEC Vanier College	Neonatal & Adult Respiratory Care	Classmate of #1 and former student of #5	None
#3 Jane	43	20	Dec Vanier College	Adult Respiratory Care	No relationship	Works as manager in a major hospital and is involved with students but not at the bedside
#4 Lucinda	47	25	DEC Rosemont College	Adult respiratory care and asthma educator	No relationship	Has students in clinical
#5 France	46	31	DEC Rosemont College	Faculty teaching institution	#1 & #2 former students	Teacher for 28 years

The focus group took place over two hours on June 17, 2008 in one of the laboratories in the Respiratory & Anesthesia Technology department at Vanier College. The moderator was the researcher and acted to facilitate group interaction and clarify points when needed. Seating for the participants and the moderator was arranged around a square table. It was a warm night but the temperature was pleasant in the room. Two tape recorders were positioned on the table. A colleague served as an observer and note taker and immediately after the session the moderator and the

observer conducted a debriefing session of the events. The participants were informed that the session would be tape recorded and that notes would be taken as well.

Introductions were made of all the participants. The session began with an explanation of the purpose of the study followed by a short introduction to qualitative research and the aim of a focus group. The consent form for participation in the project was explained and then signed by the participants (Appendix F). A statement of confidentiality was also signed by the participants (Appendix G)

The discussion throughout the session was lively and animated. Participants seemed to enjoy the dialogue. As an overview of the session, all participants appeared passionate about the profession and enthusiastically participated. The focus group formally ended at 5:30 pm after which the participants enjoyed a light meal and a glass of wine.

1.1.2 Data Collection

A thematic context analysis was conducted with the data obtained during the focus group session. The audio taped sessions were transcribed (Appendix H) and examined line by line in a “cross sectional code and retrieve” manner (Spencer 2003) to obtain the raw data for analysis. The concepts were then grouped into significant statements and were analysed. Duplicate statements were eliminated. The significant statements emerged into several themes. Notes that were taken during the focus group by the moderator and the observer were also used along with the transcripts in order to confirm happenings that may not have been captured on tape. The following represents the outcome of the coding of the material.

To begin the discussion, the participants were asked what they felt represented the attributes or qualities of a successful working respiratory therapist possesses.

Several important concepts emerged, centered on knowledge base, interpersonal skills and behavioural attributes of a successful respiratory therapist.

Pertaining to knowledge and skills:

- Possesses a good knowledge base;
- Had some post secondary education particularly in science previous to entering the program of respiratory & anesthesia technology;
- Possesses strong technical ability;
- Able to integrate knowledge with applicable skills
- Goes beyond initial formation and continues to learn; lifelong learner;
- Able to apply critical thinking skills;
- Able to be creative – take risks – goes beyond the established protocol - able to use all resources available to advantage the patient;
- Are clinicians rather than technicians (a clinician is expected to be an expert in respiratory care, to contribute to the discussion within the multidisciplinary team concerning the goals and direction of therapy for the patient. A technician is an individual who has a superficial knowledge base, is able to carry out procedural tasks but who does not partake in patient management.)

Pertaining to interpersonal skills:

- Acknowledges that the patient is the priority;
- Possesses an altruistic approach to patient care;
- Takes care of patients not just tasks - implicated in the total patient care;
- Develops a relationship with patient and care givers;
- Able to work within a team structure.

Pertaining to behavioural competencies:

- Is self motivated and takes initiative;
- Possesses leadership skills;

- Strives to always do the best that they can;
- Promotes professionalism;
- Demonstrates good teaching and mentoring skills;
- Is confident and assertive in giving their opinions concerning patient care but not overly so.

The discussion then focused on the characteristics that would favor success of an individual entering the program:

- Must want to be in the program - possesses a passion for it;
- Possesses a good knowledge of the profession and the program;
- Determined to succeed;
- Able to accept criticism in order to improve;
- Possesses analytical abilities;
- Is compassionate;
- Possesses good interpersonal skills;
- Possesses good study habits.

A discussion concerning how a grade may not designate success:

- There is a distinction between being book smart and skills smart;
- Good grades may not necessarily mean that the student is successful;
- Memorization may produce good marks in the short run but does not lead to a good understanding of the material which is necessary to develop critical thinking skills.

The participants were asked to come up with a grade that they felt represented student success in the first two years of the program and in their clinical year (5th – 6th semesters). This proved problematic for all of them. They found it difficult to assign a grade. They felt to a large extent that grades alone did not adequately describe a successful student.

Persistence by the moderator resulted in obtaining an average grade that represented a consensus of the participants. An average grade of greater than 75% was felt to mean that a student was successful in the first two years of the program. The grade that the participants felt represented success in the clinical year was an academic average greater than 80%. The discrepancy between the grades for different program years was, it was felt, due to the difficulty in second year with complex topics being taught out of context. The majority of the participants felt that by their third year the students should have been able to forge links between the concepts and the practical reality. Therefore there was an expectation of higher grades in the clinical internship year.

1.2 Question 1/Part 2: Determining a relationship between pre admission GPA and success

1.2.1 Population Sample

In an attempt to ascertain whether a relationship exists between success in the program and pre admission GPA, correlational research methods were used. The target population sample for this part of the study consisted of a single cohort of students who were enrolled in the program in September 2005 (N = 37), began their clinical internship in September 2007 and graduated (N = 16) in May 2008.

The original cohort of students who entered the respiratory & anesthesia technology program in the fall of 2005 consisted of 37 students. By the 5th semester, this cohort was reduced to 16 students and these students became the participants for this project. The attrition rate in this particular cohort was high (57%) and while many of the students stayed in the program and ultimately finished it in subsequent years, it was decided to focus on an original cohort of students who would have gone through similar experiences throughout the program. Following one cohort through to

graduation was a manageable feat while acknowledging that applying the methods to several cohorts may have yielded a more significant response.

The ages of these students upon entering the program ranged from 16 to 39 years with the mean age being just over 22 years. Table 5 contains demographic information such as age, sex as well as type of post secondary education if any. The demographics for this particular cohort were similar to the previous years in the program. Traditionally there has always been a mix of ages and educational experiences among the students. The cohorts have always been dominated by females.

Table 5
Demographics for cohort

Student	Age upon commencement of the program	Post secondary education before entering program
#1	21	1 semester Cégep
#2	23	Cégep DEC
#3	17	None
#4	25	University 1 year
#5	18	1 semester Cégep
#6	16	None
#7	18	2 semesters Cégep
#8	33	University degree
#9	18	4 semesters Cégep
#10	16	None
#11	18	4 semesters Cégep
#12	19	2 semesters Cégep
#13	27	University degree
#14	39	University Medical degree
#15	24	University 1 year
#16	18	2 semesters Cégep

The cohort of students was met in the winter semester of 2007 and the research project was explained to them. The consent form (Appendix I) was signed by the students when the project began in September 2007.

The process and procedure for doing this aspect of the project was drawn loosely from the following studies: Platt, Turocy, & McGlumphy (2001), Sayles, Shelton & Powell (2003) and Jewell (2003).

1.2.2 Data Collection

To answer the research question pertaining to the relationship between preadmission grades and student success in the program, grades from the cohort were collected from preadmission records and individual student progression charts (Table 6). Preadmission grades (hsmarks) and grades obtained at the culmination of 6 semesters of study (sem1-6) were analyzed using descriptive statistics (analysis of variance, Pearson correlation) to determine whether a relationship existed between preadmission GPA (hsmarks) and final grades (sem1-6). Results from this analysis can be found in Appendix K and will be discussed in subsequent chapters.

Table 6
Descriptive grades for High school and Final CGPA

	N	Minimum	Maximum	Mean	Std. Deviation
Final program grades sem1-6	16	67.15	87.30	77.4281	5.51216
Preadmission Grades HSMARK	16	71.90	96.92	82.0438	6.32900

Only high school grades (hsmarks) were used as the baseline preadmission grade in order to make a more equitable comparison between students GPA. It is recognized that there is an inherent discrepancy between high school marks as the schools from which the students graduated are obviously different. This inherent discrepancy would be much greater if immediate preadmission grades were used

which could include high school, Cégep or university marks depending on the individual. All grades collected from student transcripts were reported here using the discipline courses only and did not include general education courses. The grades on the discipline courses represented the student's ability in respiratory therapy & anesthesia technology which was the focus of this study.

In order to further inform the inquiry concerning success, grades from the cohort were collected from various points throughout the program as well. This was done in order to ascertain student's progress throughout the six semesters (Table 7). The point in the program that grades were collected followed a particular line of thinking. As stated elsewhere, the first four semesters of the program are almost exclusively carried out at the college and are primarily didactic in nature. Average grades at the culmination of four semesters (sem1-4) of study gave an indication of the academic abilities of the student following the predominantly didactic portion of the program. Average grades at the end of the 5/6th semester (sem5-6) represented the student's ability in their clinical year. These grades were reflective not only of the grades for each rotation (four) but also of a theory course that is given in the 6th semester. Descriptive statistics (analysis of variance, Pearson correlation) of this data was used to determine the relationship between these grades at different points in the semester.

Not included in table 7 is the grade awarded in the adult respiratory care rotation (CLINMARK). It was used to determine correlation with a behavioral score. This aspect of the study as well as the correlational statistics can be seen in Appendix J and will be discussed in the subsequent chapters

Table 7
Descriptive - All grades

	N	Minimum	Maximum	Mean	Std. Deviation
End of 4 semesters sem1-4	16	65.30	90.00	78.4206	7.13571
Final Program Grades sem1-6	16	67.15	87.30	77.4281	5.51216
Third year of program sem5-6	16	68.20	84.60	76.3806	4.76710
HSMARK	16	71.90	96.92	82.0438	6.32900
Valid N (listwise)	16				

2. RESEARCH DESIGN: QUESTION TWO

“Can student success in the clinical internship phase of the Respiratory & Anesthesia Technology Program at Vanier College be predicted based on a professional behaviour assessment tool?”

Three separate research techniques were used to address the second research question. Qualitative research helped to define success in the clinical phase of the program as well as to enlighten the researcher on the character traits that make a good respiratory therapist. The second method involved clinical instructors rating of student’s professional behaviour via a behavioural assessment tool. This was performed on the original cohort of students as they faced the challenges of their clinical year. The last method involved a statistical analysis of the relationship between clinical grades and scores on the behavioural assessment tool.

2.1 Question 2/Part 1: A Definition of clinical success and desired character traits

The focus group was asked to reflect on the character traits that would help make a successful student. The method used was described for research question one and the questions that were directed to the group specifically for ascertaining what

success means for a student in their clinical year can be found in Appendix D. The questions used to explore the concepts of professional behaviour and attitudes are found in Appendix F. Ways in which the success rate of the students could be improved was also discussed.

2.1.1 Data Collection

As described for question one, the data collected during the focus group was followed up by thematic context analysis of the material. The audio taped sessions were transcribed, examined and coded. As per question one, the notes that were taken during the focus group by the moderator and the observer were also used along with the transcripts in order to confirm events that may not have been captured on tape.

The question posed to the focus group participants concerned the character traits or abilities they thought a student must possess in order to be successful in the clinical internship portion of the program:

- focused, self directed and motivated;
- demonstrates a high level of interest, asks questions;
- willing to learn - to research what they do not know;
- receptive to constructive criticism;
- capable of improving;
- able to multi task;
- organized with good time management skills;
- good communication skills – no language barrier;
- possesses altruistic character traits – cares about people.

From the viewpoint of the instructor; what he/she expects from the student in clinical internship:

- The student is ready for clinical internship with a good base of knowledge and skills;
- He/she must possess the ability to integrate what was learned in theory with what they are seeing in clinical internship;
- The student possesses a sense of values identical to a working therapist and is professional;
- That for some respiratory therapists it was difficult not to expect from a student, the same knowledge and skills that would be expected of a therapist working in the field with many years experience;
- The student must make an effort and be motivated to progressively improve;
- The student must be fairly autonomous in the tasks;
- The student must be able to take criticism well and learn from mistakes;
- He/she must observe and learn from all opportunities and experiences;
- He/she must be respectful and honest;
- The student must be able to maintain and practice patient confidentiality;
- He/she must be able to communicate clearly.

Reasons for failure in clinical internship:

- Poor teaching;
- Poor or slow socialization into the clinical environment;
- The student not being able to make the connection between theory and practice;
- The enormous time constraints on curriculum in the first two years of the program prevent students from being adequately prepared for clinical internship.

What changes to the program could help improve student success:

- Do many mock sessions; simulation labs;
- Spend more time devoted to lab sessions;
- Reinforce critical thinking;
- Focus on making students lifelong learners;
- Teach basic sciences before entering the program.

2.2 Question 2/Part 2: The behaviour assessment tool

2.2.1 Data Collection

Beginning in September 2007, clinical instructors/faculty responsible for the adult respiratory care rotations were asked to participate in the study by evaluating their students using the behavioural assessment tool through the academic year September 2007 to May 2008. The nature of the project was again explained to the clinical instructor participants and a consent form was signed (Appendix F). The instructors were asked to evaluate students using a professional behavioural assessment tool that was developed by Koenig, Johnson, Morano & Ducette (2003). A description of this instrument follows.

2.2.2 Data Collection Instrument

The professional behaviour assessment instrument was created by Koenig, Johnson, Morano & Ducette (2003) and was validated in an occupational therapy program. The motivation for developing this tool was to ascertain whether it could be used to assess the professional behaviours that contribute to clinical success, not only among occupational therapy students but among students in any allied health care program. A principle component factor analysis and item analysis was conducted. Internal consistency reliability and intra rater reliability was assessed. Koenig, Johnson, Morano & Ducette (2003) described 'operationalizing the construct of professional behaviour' by first collecting an item pool from 75 'experts'(p. 87)

.These experts were asked to identify and indicate behaviours that they believed were indicative of, or showed lack of professional behaviour. They were asked to identify 10 specific behaviours that they believed contributed to successful clinical performance. From this, a 10 item instrument was developed and reviewed by a panel of experts (5) to establish content validity and clarity. Each item had a 5 point response scale. A follow up focus group of experts again reviewed the revised instrument for content validity, relevancy, completeness and clarity and expanded it to 12 items. It is adapted here to 11 items. The definition of the items follows in Table 8.

Table 8
Definition of Professional Behavioural Items

1. Time Management	Ability to be prompt and to complete assignments on time
2. Organization	Ability to set priorities, be dependable, be organized, and follow through with responsibilities
3. Engagement in the clinical experience	Apparent level of interest, level of active participation, personal investment in clients and treatment outcomes
4. Self directed learning	Ability to take responsibility for own learning, demonstration of motivation
5. Reasoning & Problem Solving	Ability to use self-reflection, willingness to ask questions: ability to analyze, synthesize and interpret information: demonstration of understanding of the therapy process
6. Initiative	Ability to demonstrate initiative, ability to seek and acquire information from a variety of sources
7. Observational skills	Ability to observe behaviours for relevant information and to verbalize perceptions and observations
8. Participation in the supervisory process	Ability to give, receive and respond to feedback; seek guidance when necessary; follow proper channels
9. Written Communication	Use of correct grammar and spelling, legibility, documentation skills; appropriately apply professional terminology (eg acronyms, abbreviations)
10. Verbal communication and interpersonal skills	Ability to interact appropriately with individuals (ie eye contact, empathy, limit setting, respectfulness, use of authority), degree/quality of verbal interactions, use of body language and non verbal communication
11. Professional and personal boundaries	Ability to recognize and handle personal and professional obligations; handle responsibilities; work with others cooperatively, considerately and effectively; responsiveness to social cues; ability to respect confidentiality

Koenig, K., Johnson, C., Morano, C. K., Ducette, J. P.(2003). Development and validation of a professional behaviour assessment. *Journal of Allied Health*, 32, 86-91

This instrument (using a Likert scale) where 1 is minimal and 5 is a maximal score on an item, was then administered to 317 OT students. Inter-rater reliability was established using 37 subjects where these clinicians were asked to complete a second evaluation on the same students 2-3 weeks after the original one.

The authors (Koenig, Johnson, Morano, Ducette, 2003) stated that this evaluation is a psychometrically strong instrument that can discriminate among students as they develop professionally. They state that it could be used to identify students who may need intervention.

The assessment tool (appendix K) as well as the definition of the items (Table 8) was presented to faculty, clinical instructors and clinical site managers either by letter of instruction or information session. To partially validate the tool, one faculty member used the instrument to assess a student who was doing summer clinical internship before the cohort of students began their clinical year in early September. Feedback from the faculty member for this preliminary assessment of the tool indicated that it was clear and easy to use. No modifications to the tool were deemed necessary.

The assessments for the rest of the participant students began early in the fall semester of 2007. Careful instructions were given to the clinical instructors responsible for the adult respiratory care rotations (5th and 6th semester) for the academic year 2007-2008. Documents given to the instructors included duplicates of the assessment tool as well as the definition of the items. Each student was assessed early in their adult respiratory care rotation (approximately week two). A follow up round of assessments for each student was conducted again at the end of the student's tenth week in the rotation to compare their progress through the rotation. These students were given a score of between 1 and 5 for the different items. 1 indicated that the student met the professional behaviour skill minimally and 5 meant the student met it maximally. A total best score for all 11 items (scored at 5) was valued

as 55. Individual student scores were tabulated on a total of 55 then converted to a percentage (Table 9)

Table 9
Behavioral Assessment Scores

Student	Beh1%	Beh2%	Improvement
#1	20	60	40%
#2	45	74	29%
#3	51	65	16%
#4	67	75	8%
#5	47	65	18%
#6	69	76	7%
#7	69	82	13%
#8	47	56	9%
#9	74	76	2%
#10	62	72	10%
#11	63	71	7%
#12	40	69	29%
#13	56	87	31%
#14	61	76	15%
#15	76	90	14%
#16	49	74	25%

2.3 Question 2/ Part 3: Determining a relationship between clinical grades and the score on the behavioural assessment tool

2.3.1 Data Collection

Scores from the behavioural assessment tool were collected as well as the final grade for the adult respiratory care rotation in which the behavioural assessment was scored. A descriptive analysis using SPSS was applied to the ordinal data (Likert scale for assessment) which was then compared to the clinical grade for each student. Correlational statistics were used to determine a relationship between a students score on the behavioural assessment and clinical grades. These are seen in Appendix L. The findings will be discussed in subsequent chapters.

3. ETHICAL CONSIDERATIONS

A preliminary presentation of this research project was made in April 2007 to the intended cohort of students. Informed consent was obtained from students in order to gain access to their preadmission grades from their Vanier College transcripts and other program courses. In addition, permission was secured for using their overall program CGPA, clinical grades and behavioural assessment scores for the purpose of the study. Students were made aware that their names would be kept confidential and that participating in this study would have no consequence on their academic standing. If they chose not to participate, or remove themselves from the study at any time they were free to do so and again this would have no impact on their academic standing.

Faculty were informed about the project at several department meetings that occurred in the winter semester of 2007. The project was presented as well on June 4th, 2007 at the Program Liaison Committee where a wider group of individuals, hospital managers, clinical instructors as well as faculty were present. Informed consent was required from all faculty and clinical instructors who participated in the focus groups and who conducted the behavioural tool assessment. The procedure for acquiring consent for all participants followed those outlined by the Vanier College Research Ethics Review Committee. All parties involved in the study were informed that they would be privy to the outcomes of the study once it was completed.

A proposal for the research project was submitted to the Vanier College Research Ethics Review Committee and research certification was granted on August 27, 2007.

CHAPTER FOUR

PRESENTATION OF FINDINGS

1. QUALITATIVE RESEARCH FINDINGS

The qualitative data served to provide insight into the research questions as well as to expand views on the topic. Principal themes and associated concepts emerged concerning student success. In the analysis, the meanings formed from the significant statements were integrated into the concept of student success in a respiratory and anesthesia technology program. The basic question being posed concerned the definition of success for a respiratory and anesthesia student. Was success denoted by a number that was obtained through evaluation methods that tested academic and procedural abilities? The understanding of what success signified to the participants was further pursued and was woven in to how success could be represented by a grade, ways to predict success, what success meant at the end of four semesters and what success meant in the clinical internship year of the program. Uncovered from the data were expectations that respiratory therapists had of students in clinical internship as well as what changes in the program could be made to promote successful students. The raw data that was gathered served to illuminate a larger picture surrounding student success.

From rereading the original transcript (Appendix H) it became apparent that for some issues there was little consensus among the focus group participants. This may have been due to the diversity of the group members. The newly graduated members (Theresa and Maggie - Refer to Table 4) did not distinguish between the role of a working respiratory therapist and the role of a student likely because their

perception of themselves was not that far from a student and they were still in the process of learning. There was, for some participants, a blurring of the position of a student versus that of a working respiratory therapist. Maggie made this statement, “That is hard to do because they come in as a student and you are looking at them and you are afraid to do stuff because they know you are watching them.” From this statement Maggie may have been referring to herself as being afraid in her clinical internship because people were watching. The distinction between a student and a working respiratory therapist appeared to be easier for the senior members of the focus group (Jane, Lucinda and France) who had many years of experience in the work place. As well the point of view of someone (France), who has been teaching students at the college level, in the students early formative years, was very different from those teaching students in the clinical environment.

There was some initial difficulty in arriving at a definition of a good respiratory therapist. “My God – that’s a big one”. Many characteristics and abilities were described (presentation of findings pg 44) in terms of knowledge and skills proficiency, interpersonal skills as well as the behavioural competencies required to be designated as a good therapist.

It became very clear by the majority of participants, that success in the program is not well represented by a numerical value. Success for this group of respiratory therapists signifies an individual who is accomplished and who is effective in their job. Indeed, the discussion focused to a large degree on the behavioral competencies required both as a student and as a therapist. Behavioral competencies appeared to garner a higher importance than procedural or academic competencies and this may be explained by the changing role of the respiratory therapist as described by Jane. “You need to be strong technically, um, and the contact with the family is also very important which we were technically orientated I think at one point in time early in our field um but now it is much more...we’re more

therapists orientated so that means there is more communication and connection with the family so there is more of a social aspect.”

Prevalent in the discussion and universally voiced by all was the guiding principle that respiratory therapists must consider the patient above all else. This was a theme that wove its way throughout the discussion. Maggie stated “So you have to make sure that your patient is... the person that you are thinking of the most. You are not thinking of yourself, you are not thinking of whoever it is, you are thinking of your patient that is there”. All were in agreement that a student must have a sense of altruism if they are to be successful. As France noted, “And I think a lot of students they need to also understand the reason that they are going into health care is to help. You have to have a bit of that compassion....cause sometimes we don’t see that. It is scary when you don’t see that as a student...to have compassion.”

The role of a respiratory therapist has changed over the years. Up until the early 1980’s a respiratory therapist was an individual who manipulated equipment but had little impact on decision making. Today a respiratory therapist must be capable of applying scientific knowledge, technical expertise and theory to arrive at a solution to practical clinical problems (Mishoe, 2003). They must be prepared to function autonomously and must be capable of good judgement. The notion that the respiratory therapist must be a clinician and not a technician in order to be successful was articulated by all the participants. It was expected that students would take on the characteristics as outlined in the presentation of findings (pg 51) so that they may themselves become ‘clinicians’. Students are expected to not only possess the skills and knowledge when they enter their third clinical year but they must be ready with professional behaviours already in place. (Koenig, Johnson, Morano, Ducette, 2003). France summed this up with the following statement. “I don’t expect them to work like me – that wouldn’t be fair but I expect them to behave like me – behavioural wise....to be professional....to show a sense of motivation – these are important things.”

While the participants acknowledged the necessity of possessing character traits such as interpersonal communication, initiative, organization and clinical reasoning some believed that it takes a significant period of time to attain these attributes. Socialization into the clinical environment is not immediately attained as Maggie's statement reveals. "Yes you have to be a clinician and assertive but they won't all listen to you as far as you can go." On the other hand there was an expectation from some senior members of the group that the student has to assimilate quickly in the clinical environment in order to achieve success. Jane acknowledges that there is a period of adjustment and that evaluation for students at different times of their rotation should be taken into account. "First rotation I don't expect the student to get an 80. At least in the high 60's. But at the end of the rotation in the ICU – 80. Yeah they should be pretty strong". It should be noted as well that although the participants did not like to assign a numerical value to success, a senior therapist used grades as an indication of success in this instance.

From France's statement "...and perhaps what one needs in respiratory is to be organized because, like you mention, it is a difficult program, you have to time manage. You got to organize, you have to get good organizational skills" it is apparent that other non academic or procedural skills were considered essential elements in order to be successful in the program

Arising from the importance of behavioural competencies, academic grades alone may not reflect a student's true ability. Nor may they be predictive of how a student could perform in clinical rotations as evidenced by France's statement. "That is the problem in the Cégep system – it is all about the quantitative value – we have got to put a number but the number does not tell the entire story". Not only do grades not reflect the reality of a student's performance, they are often not predictive of how they may perform from fourth semester into the fifth semester. Jane states "Rarely do you see someone in the 60's do well in clinical but I think that someone in the

average range or obviously higher - some people who are really high – someone in the 90's students in class sometimes they are very weak clinically”.

Theresa reflected on the fact that students themselves may feel that their grades do not reflect their true abilities. “I do think there is a lot of students who, let's say they are not book smart – they do average on tests – but the second that they get into stage (clinical internship) they really they are able to showcase how good they are, because they are actually applying the skills...” From another new graduate, Maggie stated “.....I mean it is hard with numbers – when you are in school it is one thing with numbers but the problem is that there are other things going on. Not everyone has the ideal time – crazy workload – crazy whatever - even though you should be paying attention and putting it in there, but it is hard with numbers.”

Assigning a grade that exemplifies success proved difficult. France offered her thoughts from an educator's point of view. “I would say anyone who is above average because grades depend on so many things but if for example the class average is 65 and you have someone with 75 ...that is good – 10% above average.” All of the participants accepted that the program is difficult and that there would be a lower expectation from a student at the end of second year (75%) compared with the grade a student achieves in third year (80%). Lucinda pointed out that it is the lack of connection between theory and practice that adds to the complexity of the program, particularly in the first two years. “Also, because I find there is a lot of knowledge to know and there is a lot of material and sometimes they don't make the connections. They know it in theory but when they actually see the patients now they understand it better – if they would have made this connection before they would have had a higher grade.”

The discussion of how the program is taught at the college level opened up a division among the participants. Pedagogy was viewed very differently from the point of view of an educator compared to that of a clinician. Participants from each side of

the argument felt that this was an important area of concern and very implicated for student success. Jane offered her philosophy of teaching. “It is not in the classroom anymore. It is CD. CD’s and videos are also a good source of learning they can take it and read it. The exams for ACLS are actually ... they expect everyone to read it before and the simulation center is just to go over what you read. It is not teaching. It is applying what you have already learned.” France, had a strong opinion “yeah sure videos, websites, animation a lot of supporting material helps but to say that the student has to learn it on their own and come...personally I have tried it and it just doesn’t work.” Other clinicians echoed the need for fostering the student’s ability to work and viewed it as a means to become successful in the program. “You have to teach them to be autonomous too. It comes into to play in *stage* too. You don’t know something then you have to go look it up. You have to also be able to do stuff on their own.” Once again the educator did not agree. “Learning on their own doesn’t work”. The difference of opinion concerning pedagogy likely stems from the fact that only the educator had any significant classroom experience. The other clinician’s connections with students were either as being recent students or as a teacher in the clinical environment.

France expressed her frustration with aspects of teaching students in the formative two years of the program. She is being asked to produce students that are expected at a certain level of academic and attitudinal competence as they enter clinical internship. She felt that this was a daunting, if not impossible task. “It is not ideal. It is not how I view education and I see this exhaustion year and year and it sucks my own energy. There are a lot of factors that are actually restricting us from producing some very successful students. You have to put some of the onus on the students absolutely but also on what we have to teach here in a very very short time period.”

As evidenced by the rising attrition rates in the program (Table 2 - Attrition rates through the Respiratory & Anesthesia Technology program beginning in 2005,

2006 and 2007) students are not performing well. The reasoning for this is multifaceted. As mentioned by Andrews (2008) poor performance may be explained in part by the complexity of the curriculum. From the educator's point of view, France stated "You have to know where you are going and you have to know what you are going to be covering. And sometime you ran out of time because you have a lot of time constraints." Students may be totally unprepared for the program and have unrealistic expectations of its demands (Andrews 2008). Theresa, from the perspective of a new graduate stated that she didn't think that the course of study would be so difficult. "...walk in and go wow, I didn't think it was as hard as it was. So you have to be able to study and you have to be able to focus".

2. QUANTITATIVE RESEARCH FINDINGS

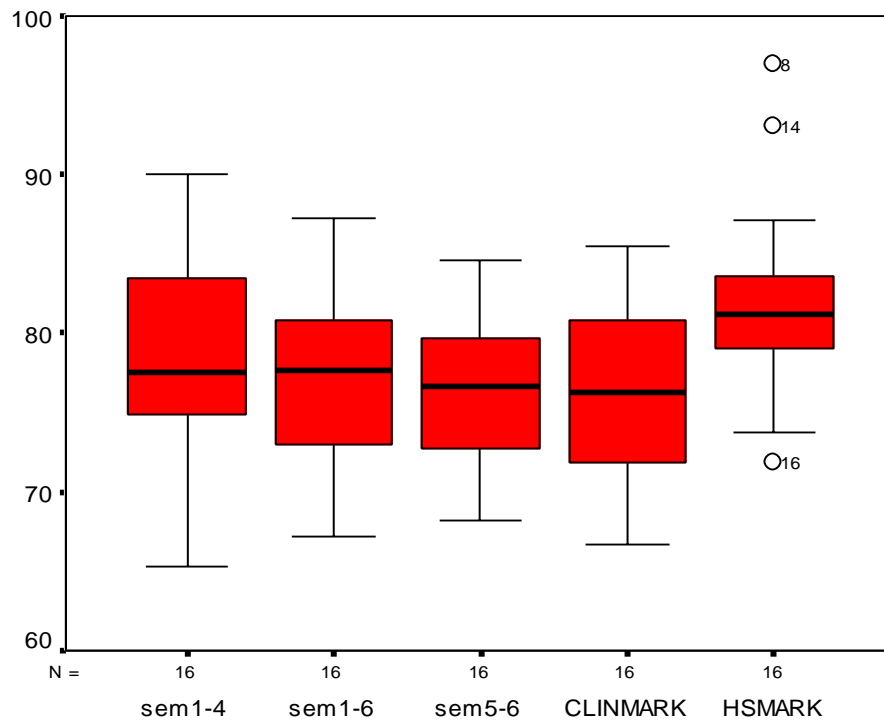
2.1 Data Analysis for Grades

A correlation analysis (details in Appendix K) showed that there was a very strong association-correlation coefficient (Pearson $r = .959^{**}$) between completion of four semesters in the program (sem1-4) and final grades in the program (1-6 sem). Likewise a very strong correlation was found between final grades in the program (sem 1-6) and the final grades in the 5/6th semester of the program (sem5-6) (Pearson $r = .904^{**}$). A very strong association was seen between grades in the final year of the program (sem5-6) and the clinical grades (clinmks) (Pearson $r = .990^{**}$). Finally a very strong association was seen between final grades in the program (1-6 sem) and the clinical grades (clinmks) (Pearson $r = .871^{**}$). Somewhat less but still a moderately strong association- correlation coefficient was shown between the end of four semesters (sem1-4) and the final grades in 5/6th semester (Pearson $r = .749^{**}$) and between the end of four semesters (sem1-4) and clinical grades (clinmks) (Pearson $r = .701^{**}$). The final grades in the program (sem1-6) and high school grades showed no correlation at all.

As can be seen from the box plots, (Figure 1) the distribution of grades at the end of various semesters in the program are quite similar. Semester 1-4 (Sem1-4) is slightly more spread out but the averages (medians) are comparable. The high school grade distribution is not so similar and it does not fall into the same pattern as the other grades in the program. The scores are higher and less spread out than the other scores likely due to three outliers within the cohort (8,14,16).

Figure 1

Box plots Comparing High school and Program grades



2.2 Data Analysis for Behavioral Assessment Scores

Correlation-association coefficients (Pearson r) for both sets of behavior assessments in relation to the clinical grade were examined (Appendix L). Both show moderately strong associations. The relationship of the first assessment (beh1) and clinical grade shows a Pearson $r = 0.624$ and the associations between the second

assessment (beh 2) with the clinical grade is Pearson $r = 0.620$. Both are significant at a $p < 0.05$. A strong correlation can be found between behavior 1 (beh1) and behavior 2 (beh2) (Pearson $r = 0.688$). Student 8, 14 & 16 were considered as outliers in HSMARK (high school marks)

CHAPTER FIVE

DISCUSSION

In this study two research questions were posed.

1. “Can pre - admission academic abilities predict overall student success in the Respiratory & Anesthesia Technology Program at Vanier College?”
2. Can student success in the clinical internship phase of the Respiratory & Anesthesia Technology Program at Vanier College be predicted based on a professional behaviour assessment tool?”

1. Qualitative Research

Findings in the phenomenological portion of this paper have added to the information that exists on success in a respiratory therapy program. The focus group provided the vehicle for a purposeful discussion on the phenomenon of student success and it was probably the first time in the program’s history that such a wide ranging debate was held. The focus group method was an appropriate forum in which to capture definitions and concepts of success not only from the teacher’s perspective but from the position of employed respiratory therapists. It provided the means to collect opinions from respiratory therapists in the field, newly graduated and experienced, as well as from those teaching at the college level. It called upon the participants to reflect on their own development as therapists as well as to delve into what it means to be accomplished professionally. The discussion that took place brought to light the expectations of clinicians and teachers for students; many of these were similar. There was a general agreement among the participants concerning the aptitudes and characteristics that help to form a successful student or that are required to be a good clinician. The discussion also unearthed some of the disconnect that

exists between the college and clinicians in terms of how to produce a successful student. Differences of opinion mainly concerning pedagogy accounted for this. Clinicians for the most part, are unaware of the enormous size of the curriculum. With little classroom experience they may as well be unaware of the difficulties that come with instructing large classes of students who likely have no medical background. In this instance all concepts must be taught from the beginning. The student who arrives in clinical internship comes with knowledge and abilities but is there to further their understanding and improve on their capabilities. In essence, building on previous knowledge may be easier than forming new knowledge as is the case for the didactic teacher.

Most enlightening was the way in which the direction of the discussion moved towards affective competencies or abilities that a student/respiratory therapist must possess in order to be successful. Behavioural competencies or skills such as being focused, self directed, organized, having an altruistic nature, among others, were considered to be more important than academic or procedural skills. The question then arises as to how professional socialization or appropriate behavioural competencies can be taught or whether these are inherent in the character of the individual who is accepted into the program.

Obtaining a grade that the focus group felt represented success was problematic and the participants felt that grades did not reveal the overall competence of a student. Nonetheless, after some probing by the researcher, a grade representing success after the first two years of the program (75%) and a grade that represented success in the third clinical year (80%) was obtained. Taking an average from these two grades, a student obtaining a final grade of >77.5% for three years of study would be considered, by this group, as successful. This research uncovered the importance of affective abilities and that a grade based predominantly on knowledge and skills does not adequately define success for a respiratory therapy student.

2. Quantitative Research

To answer research question 1, there appeared to be a lack of association between high school grades and grades acquired in the program. From this, one may postulate that preadmission grades cannot be used as predictors of success in a respiratory and anesthesia technology program. This finding ran contrary to the majority of the literature that was reviewed. Further study using a larger sample population would be needed to substantiate these results as the sample size used in this study may have influenced these findings.

Another reason for the lack of correlation between high school grades and success in the program may be related to the demographics of the students in the cohort. As stated previously the students post secondary education ranged from none before admission into the program to a medical degree. Academic abilities and years of educational experience were not equal for this cohort. Although this is not unusual for this program it may have been a cause of the lack of association between high school marks and grades in the program. Further study would be warranted to look at the relationship between post secondary education and success in the program.

In order to further inform the inquiry concerning success, grades from the cohort were collected from various points throughout the program as well. In order to ascertain how students progressed through the six grades from different semesters were analyzed and compared. From the box plot (Figure 1 pg 67), it was revealed that high school grades did not fall into the same pattern as the other grades. This may be explained, in part, by the fact that there were outliers in the cohort for high school grades.

Correlational results (appendix K) demonstrated that students who were doing well at the end of the didactic portion of the program (end of semester 4) were

successful in the overall end of program grades. As well, final program grades and grades obtained in the student's clinical final year of the program correlated well. In addition, students who performed well in their 5th and 6th semester did well on their clinical grade. A weaker correlation (although still moderately strong) was shown for the grades achieved at the end of 4 semesters of the program and semester 5/6 grades. Slightly weaker still was the correlation between grades at the end of 4 semesters and clinical grades (Table 10).

Table 10
Correlation of grades in various semesters

Strong correlation of grades in 5 th -6 th semesters (5-6sem) → to final grades (1-6 sem)
Strong correlation of grades in 5 th -6 th semesters (5-6sem) → to clinical grade (clinmark)
Strong correlation of grades in 4 semesters (1-4sem) → to final grades (1-6 sem)
Moderate Correlation of grades in 4 semesters (1-4sem) → to final grades (1-6 sem)
Weaker correlation of grades in 4 semesters (1-4sem) → to Clinical grades (clinmarks)

This finding may add to the understanding that academic strength may not predict clinical strength. This is an issue that has been discussed at length within the department meetings. It also strengthens the notion that affective abilities may play a much greater role once a student reaches his/her clinical internship rotations. Although they are not measured to any great extent, the influence that affective skills has on the students' overall performance cannot be ignored.

The second research question concerned the behavioral assessment score and success in the clinical semesters in the program. Students, who scored well on the behavioral assessment in fact, did well in their clinical internship as reflected by their clinical grades. Can the assumption be made that students who perform well in clinical internship (as evidenced by a successful grade) possess the affective capabilities required in the clinical environment? Scores on the behavioral assessment tool may in fact, serve as a predictor of success in the clinical internship phase of the

program and would be particularly useful if it could be used prior to clinical internship or at the beginning of it. Another aspect of this scoring can be seen as the progression of scores from week one to week ten (Table 9 pg 58). All students demonstrated improvement in their scoring. It would appear that all students benefited from a period of adjustment in the environment. Further study to look at the degree of improvement in the behavior assessment score, from the beginning of the academic year until the end of it, would be needed to demonstrate the progressive nature of professional socialization.

CHAPTER SIX

CONCLUSION & LIMITATIONS

1. CONCLUSION

Student achievement in the form of successful program completion is essential for the needs of the student, the program, patient populations and the healthcare workforce. The impetus for doing this study was based on the conviction from both faculty and hospital affiliates that students in the Respiratory & Anesthesia technology program at Vanier College are not performing to the high standards that they once did. Student success and the way to improve on it has been at the heart of faculty and clinical discussions for a number of years.

Ensuring that an individual has the capabilities to successfully complete the program in the requisite three years is a difficult process. This study sought to examine the possibility of establishing predictors that could be used, either in the pre program admission policies or during the course of study in order to ensure success through the program and beyond. The purpose of this study was multi-fold; to establish a definition of success, to determine whether a relationship existed between preadmission academic abilities and success and whether a relationship existed between professional behavioural aptitudes and success in the clinical year of the program.

The quest to establish a definition of success for a student in the Respiratory & Anesthesia Technology program led to some interesting revelations. From the focus group dialogue, it was clear that the concept of success did not simply imply

achieving greater than a specific grade. Even though a grade is the established measure of success in most educational institutions, this study shows that the notion of success is much more complex than the student achieving a grade greater than certain value. A student may garner very high marks but may not be effective in carrying out their tasks, in their personal work ethics and in their interpersonal relationships. A student needs to be competent not only in the cognitive and psychomotor but in the affective domains as well. This ultimately becomes the definition of success, however a measurement of all of its components is difficult to obtain.

To answer the first research question pertaining to preadmission academic scores and their relationship to success in the program, various research methods were used. Student success in the program was assigned a numerical value of greater than 77.5% by qualitative methods. As mentioned, the participants of the focus group did not feel that a numerical value adequately represented this question of success. Indeed the aspect of professionalism and attitude on the part of the student had much greater implications for success than a grade which is based on cognitive and procedural abilities. However, as grades are the only outcome measure available in the current educational system, only half of the cohorts could be considered successful (Table 11) as defined by the grade that the focus group assigned to success.

Table 11
Success as implicated by an assigned grade

Student	High School Grades	Final Grades in the Program
#1	73.7	71.7
#2*	79.3	81.85*
#3	77	67.15
#4*	83.28	87.3*
#5	80	70.8
#6	82.71	77
#7*	82.71	80.55*
#8*	96.92	80*
#9	87.1	73.9
#10	80.3	76.47
#11*	82.4	78.4*
#12	83.9	74.45
#13*	78.8	80.9*
#14*	93.1	80.8*
#15*	80.3	85.48*
#16	71.9	72.1

* Denotes those students whose final marks would be considered successful

A lack of correlation between preadmission high school grades and final grades was recognized using statistical analysis. While this ran contrary to the majority of findings in the literature one may be tempted to deduce that academic abilities may not predict success. While sample size, pre-program academic experiences and demographics may be used to explain this aberrant statistical finding, the qualitative research unearthed the possibility that non academic factors such affective abilities may have a tremendous impact on student success throughout the program, particularly in the clinical year.

The research related specifically to the second research question sought to understand how behavioural aptitudes influenced a student's performance in the clinical environment. These findings may serve to give weight to the lack of correlation between academic grades in high school grades and final grades in the program. To ascertain success, there are more than cognitive or psychomotor skills to be measured. The behaviour assessment tool, as previously explained, scored the

students based on their affective abilities. Simply speaking - students who scored well on the behavioral assessment in fact did well as reflected by their clinical grades. One may extrapolate from that that students who could assimilate and socialize within the clinical milieu were ultimately able to perform well. Professional socialization of the student in the program and specifically within their clinical internship year may have a much greater influence on success than has been previously considered. Little research on this topic, particularly in the field of respiratory therapy education has been carried out and further study on this topic is warranted.

The impact of behavioral or affective abilities on success not only for a student in the program but for employed respiratory therapists in the field was the primary discovery of this study. Improving a student's chance of success in the program may be related not only to academic and procedural abilities but also to affective abilities. It is recognized that teaching learners in the affective domain is more complex than teaching cognitive (facts, concepts and principles) or psychomotor skills (Neumann & Forsyth 2008). Further study is required to ascertain if behavioural competencies, that appear to be an absolute necessity for the profession, can in fact be taught within the context of a respiratory therapy program.

Completing the research, albeit on a small scale emphasized the necessity of selecting the candidate who is most likely to succeed in a difficult program such as respiratory & anesthesia technology and go on to become a competent practitioner. The need to screen for the affective abilities of the potential student appears to have a greater impact than first suspected although this may be difficult to implement to a great extent within the constraints of the Quebec Cégep system philosophy and the Vanier College admission policies.

The behaviour assessment tool may prove useful as a means of identifying those students who may be at risk of failing in their clinical internship due to their

insufficient affective competencies. Remediation, in part, may increase a student's awareness of their strengths and weaknesses and may allow them to implement strategies to address these areas.

Two issues may arise from this. Is it possible to ensure that a candidate enters the program with these skills in place and if so, will this become a good predictor of success? Is it possible to establish and teach appropriate attitudes and values during the course of the program of study?

Although these preliminary findings contribute to some degree to the existing literature concerning methods of predicting success in a respiratory and anesthesia technology program, much data is still unknown. Further quantitative research using a broader population base could substantiate the findings of this small study.

2. LIMITATIONS

It is recognized there are limitations to this study due to the small sample size and the selection of a single cohort of students. Pre admission academic experience and the demographics that made up this particular cohort may have influenced the outcome of the quantitative data.

Data obtained from the focus group is limited because of its single occurrence. Multiple focus groups may have yielded a greater data base. Formulating a consensus in the focus group concerning a numerical value representing success may have been somewhat artificially contrived through the persistence of the researcher.

The behavioral assessment tool had its limitations as well. The number of students in the cohort that were of a non- traditional age may have skewed the results as these students may simply be more mature and have more life experience than

their younger counterparts. Student evaluation using the behaviour assessment tool was carried out during the students adult respiratory care rotation. Due to the clinical schedule some students would have had the opportunity of being exposed to the clinical environment, previous to the rotation in which they were scored. As well the environment itself was not the same for each student. Some were evaluated in a chronic care hospital where the working environment would be very different from that of an acute care hospital. As well, the scoring was carried out by different individuals who did bring in an element of variability.

3. RECOMMENDATIONS

Recommendations following this study for the Respiratory & Anesthesia Technology program would be as follows:

- Investigate the means by which admission procedures would include the provision for ranking affective domain skills as well as cognitive abilities;
- Expand the current admission interview process to more fully address the candidates character traits such as empathy, logic and analytical skills perhaps via case study type scenarios
- Within the admission process, investigate extracurricular activities such as volunteer work;
- Research methods of teaching affective skills early in the didactic portion of the program (first year) to prepare students for the clinical internship year;
- Provide more clinical exposure in first year
- Revise the clinical evaluation format so that more weight would be placed on behavioral competencies;
- Employ a means of sensitizing the student to and attaining professional socialization within the clinical milieu
- Apply the behavioral assessment tool early in all clinical rotations;

- Give feedback concerning affective competencies early in the rotation so that remediation can take place;
- Collaboratively (clinical personnel and college instructors) come up with teaching strategies that will foster the behavioral and attitudinal characteristics needed within the clinical environment.
- Through the program committee, investigate the possibility of integrating the concept of affective competencies into general education courses.

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APPENDIX A

MUHC EMPLOYEE REFERENCE



Centre universitaire de santé McGill
McGill University Health Centre

AUTORISATION DU CANDIDAT/ APPLICANT'S AUTHORIZATION									
J'autorise le Centre universitaire de santé McGill à communiquer avec mes employeurs/professeurs précédents pour obtenir des renseignements quant à la qualité de ma prestation au travail ou en tant qu'étudiant(e). <i>I authorize the McGill University Health Centre to consult my former employers/teachers to obtain information regarding the quality of my performance at work or at school.</i>									
NOM DU DEMANDEUR / REQUESTED BY <i>(Lettres moulées/ Block letters)</i>									
TITRE D'EMPLOI OCCUPÉ OU DOMAINE ACADÉMIQUE DE L'ÉTUDIANT/ <i>JOB TITLE OR FIELD OF ACADEMIC STUDIES</i>			TITRE D'EMPLOI VISÉ AU CUSM / <i>JOB TITLE APPLIED FOR AT MUHC</i>						
SIGNATURE			DATE						
ÉCHELLE D'ÉVALUATION/EVALUATION SCALE									
1	Ne répond pas aux exigences/ En dessous de la moyenne <i>Does not meet requirements/Below average</i>			3	Au delà des exigences/Au-dessus de la moyenne <i>Exceeds expectations/Above average</i>				
2	Répond aux exigences/ Dans la moyenne <i>Meets requirements/Average</i>			4	Remarquable/Exceptionnel <i>Outstanding/Exceptional</i>				
Critère d'évaluation/Evaluation Criteria				1	2	3	4	Remarques/Comments	
Qualité du travail / <i>Quality of work</i>									
Quantité de travail / <i>Quantity of work</i>									
Sens des responsabilités / <i>Sense of responsibility</i>									
Jugement / <i>Judgment or critical thinking</i>									
Intérêt et motivation / <i>Interest and motivation</i>									
Relations interpersonnelles / <i>Interpersonal skills</i>									
Relations avec la clientèle / <i>Client focused</i>									
Travail d'équipe / <i>Teamwork</i>									
Ouverture face à la critique / <i>Receptive to feedback</i>									
Assiduité / <i>Work attendance</i>									
Coopération et flexibilité / <i>Collaboration & flexibility</i>									
Ponctualité / <i>Punctuality</i>									
Raison du départ / <i>Reasons for leaving :</i>									
Réembaucheriez-vous cette personne / <i>Would you rehire?</i>				Oui / Yes		Non / No			

APPENDIX B

THIRD YEAR CLINICAL ASSESSMENT FORM 2009-2010

Elements of the course competency	0	2.5	3.0	3.5	4
1. Adapt to professional life. - Adhere to procedural, ethical and legal guidelines. - Function effectively. - Communicate effectively - Establish a professional relationship with client-patients and members of the health care team.					
2. Apply health and safety procedures. - Apply infection control precautions and procedures per the Centre for Disease Control and Prevention (CDC). - Apply safety procedures in client-patient movement, ambulation and transport.					
3. Conduct pre and post treatment/technique activities. - Ascertain feasibility of order. - Participate in developing the respiratory care plan. - Prepare equipment and accessories. - Prepare client-patient. - Monitor client-patient and equipment function. - Conclude procedure.					
4. Administer medical gases - Provide oxygen therapy from cylinders and/or wall outlets. - Provide Heliox therapy.					
5. Provide humidity and aerosol therapy - Administer aerosol or humidity therapy as prescribed. - Provide treatment via SVN, MDI or DPI.					
6. Perform airway management - Apply airway management techniques. - Perform intubation/extubation (insertion/decannulation) procedures. - Maintain endotracheal/tracheostomy tubes. - Wean from artificial airway. - Perform airway suction therapy. - Collect sputum sample for culture and sensitivity.					
7. Perform non-invasive monitoring - Perform oxygen monitoring with pulse oximeter. - Perform capnography. - Monitor EKG tracings.					
8. Institute ventilatory support - Determine the clinical indications for mechanical ventilatory support. - Link therapeutic intervention to a physical disorder.					

Elements of the course competency	0	2.5	3.0	3.5	4
9. Maintain adequate level of ventilatory support - Assess immediate client-patient response to ventilatory support. - Assess client-patient respiratory function during mechanical ventilation. - Alter parameters in response to aberrant physiological reactions. - Minimize the harmful effects of mechanical ventilation. - Assume technical assistance during bronchoscopy. - Provide non-invasive positive airway pressure (NIPPV) therapy.					
10. Discontinue client-patient from ventilatory support - Apply means of discontinuation from mechanical ventilatory support.					
Total (80% of final mark) (20% written exam)					

Performance Levels

- 4 Performs exceptionally with acceptable speed and adaptability
- 3.5 Performed satisfactorily without assistance
- 3 Able to perform with minimal assistance
- 2.5 Able to perform with frequent assistance
- 0 unable to perform satisfactorily

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APPENDIX C

FOCUS GROUP QUESTIONS TO ASCERTAIN THE DEFINITION OF SUCCESS IN A RESPIRATORY THERAPY STUDENT

Question #1	What makes a 'good' respiratory therapist?
Question #2	How would you define student 'success' in the RT program?
Question #3	Thinking in terms of a grade ... what overall average would you consider represents a <i>successful</i> student at the end of 2 nd year?
Question #4	Considering an individual who is beginning in the program.... what factors/characteristics will likely improve the student's chances of success?

APPENDIX D

**FOCUS GROUP QUESTIONS TO DEFINE SUCCESS IN THE CLINICAL
3RD YEAR OF THE PROGRAM**

Question #5	In terms of a grade ...what overall average would you consider represents a successful student during their clinical rotations – 5 th and 6 th semester?
Question #6	What are your personal expectations of a student during their clinical internship?

APPENDIX E

**FOCUS GROUP QUESTIONS TO DETERMINE AFFECTIVE
COMPETENCIES THAT WOULD IMPACT SUCCESS IN THE CLINICAL
3RD YEAR OF THE PROGRAM**

Question #7	What behaviors/characteristics (besides grades) would you use to describe a successful RT student in their clinical internship?
Question #8	What are some behaviors that you would consider unprofessional in an RT student?
Question #9	In terms of changes to the academic curriculum or structure of the program, do you have any suggestions as to how student success can be improved?

APPENDIX F

CONSENT FORM FOR PARTICIPANTS (faculty/clinical instructors):

Project Title:

Predicting Student Success in the Respiratory + Anesthesia Program

A. PURPOSE and BENEFITS

The purpose of this study is to collect data to investigate the possibility of a relationship existing between academic preadmission criteria, professional behaviour skills and success in the Respiratory & Anesthesia program.

The results of this study will identify important predictive criteria for success in the program.

B. PROCEDURE

Information sessions will be carried out with all involved persons: Faculty of the Respiratory & Anesthesia program at Vanier College in St. Laurent, Quebec, clinical instructors and respiratory therapists of the affiliated clinical sites.

Procedures

All aspects of this study will comply with the Vanier College Ethics Committee

All information will remain CONFIDENTIAL.

The total results of the study may be presented and/or published and will be made available to the Vanier community. However, your individual responses will not be identified.

C. CONDITIONS OF PARTICIPATION

You can choose to discontinue participating in the study at any time without negative consequences

D. CONSENT TO PARTICIPATE IN SURVEY

I agree to take part in this Vanier College research project. I understand that agreeing to take part means that I am willing to:

- Be interviewed by the interviewer
- Participate in a focus group
- Allow the focus group to be videotaped/audiotaped
- Participate in assessing students using the *Behavioural Assessment Tool*

Name _____

Date _____

APPENDIX G
STATEMENT OF CONFIDENTIALITY

This form is intended to further ensure confidentiality of data obtained during the course of the study "*Predicting Student Success in the Respiratory & Anesthesia Program*". All parties involved in this research, including all focus group members, will be asked to read the following statement and sign their names indicating that they agree to comply.

I hereby affirm that I will not communicate or in any manner disclose publicly information discussed during the course of this focus group interview. I agree not to talk about material relating to this study or interview with anyone outside of my fellow focus group members and the researcher.

Name: _____

Signature _____

Name: _____

Signature _____

Name: _____

Signature _____

Name: _____

Signature _____

Name: _____

Signature _____

Date: June 17, 2008

Researcher's Signature _____

APPENDIX H

FOCUS GROUP TRANSCRIPT

Question #1*Some laughing*

Moderator: Think of people who are good RT's. What are some characteristics? What makes a good RT?

France: My God – that's a big one. Essentially it is someone who can integrate knowledge and skills. Optimally that's ideal candidate. It's not just skills or knowledge but someone who can integrate knowledge into their practice and become a good clinician. I really key in on the word clinician because a clinician is someone who participates in taking care of a patient not just doing tasks. And I see a lot of RT's doing tasks, I don't always see them getting involved. And to me that is not a good RT. It is someone who is taking risks and trying to use their knowledge which we have a vast body of knowledge and trying to use it to the patients advantage.

Moderator: Just so I am catching it [on the recorder]

Theresa: I agree with France I think it is someone who has to be knowledgeable in terms of from an education but from other resources as well. Like there is a lot of students at least in my graduating class that came from other backgrounds and they were able to integrate what they learned ... we had a student that was a veterinarian, computer science to a background in a bachelor science and what not. Umm ..that why I think a good RT is someone especially in our field because we have a lot of students coming in during our stages ummm taking the time to actually teach them what is going on. Not this is our protocol and this is how we have to do it. Taking the time to explain, you know, you have to acknowledge the patients. In my case you have to acknowledge the parents because the patients might be too young, the pediatric age and telling them, you know, there is more than just a patient. There is someone you can actually get to know. We have a better way of applying the skills that you have. You are able to form a umm therapist – patient relationship.

Maggie: I agree somewhat but you also have to be able to account for the new knowledge that is coming out, you can't just stay with what you had in school and everything else. There is a lot of different stuff that you deal with. There is a lot of different scenarios that come up and you have to be able to deal with that and you have to be able to integrate what you have ... with whatever is going on around you. Yes you have to be a clinician and assertive but they won't all listen to you as far as you can go. Like there is always limits within your bounds. And also you have to also realize that you are not a doctor. You are an RT. You are, you have a certain field and its great to do whatever you have to do but also have to realize that its not justyou do your job and you make sure that patient is taken care of and there is a patient at the end of what you are doing. So you have to make sure that your patient is... that the person that you are thinking of the most. You are not thinking of yourself, you are not thinking of whoever it is you are thinking of your patient that is there. So you are part of ... you know and make sure of...you do the best you can.

Moderator: So I am hearing umm a lot of character traits that you are coming up with. One was life long learning umm one certainly was that you know that and yours saying to that the relationship that you have.....you have a patient at the end

Maggie: (13:27)Well you can't forget that you have a patient...You can't just go in and look at numbers and copy your chart. You can't just do that. There is someone at the end of that who looking at you ...haha .. "Hello who are you?" So...anyway....

Jane: (13:40). Yeah I agree with what everybody said. I think France is right. You need to be strong technically um and the contact with the family is also very important which we were technically orientated I think at one point in time early in our field um but now it is much more... we're more therapists orientated so that means there is more communication and connection with the family so there is more of a social aspect. I think what makes a good RT is a person who really cares and your priority is your patient. Task orientated people tend not to be so connected with the family or the patient. Ummm and motivation...self motivation I think is very important. The continuing education is self motivation so I think those are the main thing.

Moderator: You are all coming out with great things that is for sure.

Lucinda: (14:39). What I would like to add is yes to make a good therapist because like as you grow in seniority you have tendency to lay back and to be comfortable in your little corner and yes you have to keep up your skills, you have to have other interests in order to keep your professional interest and

you have to go and get new knowledge, keep up your skills and. But also I find a good therapist would be just to add little touch would be also to umm not to be individual. We work with other professionals, we have to ..to ah work as a team and working as a team that is how we are going to come up with a solution because at the end we are working for the patient and it is not "I'm an RT and I'm a physiotherapist and I'm a dietician and I am a nurse". So we have to work all together and I find that, um, and we have to go like a sometimes a little beyond uh of what we've been taught and in order to go to the goal which is like to save the patient and to have the well being of the patient.

Moderator: These are all excellent, excellent points and if you had and we could conjure up a person, student entering the program would embody a lot of those things that you have mentioned. How perfect would that be?

Continues from 16:41

Question #2

Maggie: (16:55) That is hard to do because they come in as a student and you are looking at them and you are afraid to do stuff because they know you are watching them.

Moderator: So right away that may be a definition that you are ... I still have seen students that have not performed that way.

Maggie: Yeah

Moderator: that are willing...

Maggie: Yeah

Moderator: So...maybe that is your definition of a student that is not terribly successful that doesn't just want to go out and "I'm going to try this, I have learned this...with your help I'm going to do it." Is that fair to...?

Maggie: (17:28) Yeah to some extent...There has to be some motivation there because if they are not motivated to come in there and do stuff then what is your point of being here. But a lot of it too is that you have to find your way in there. Like you have to figure out what works for you and implement it in there. But ahh they have to show they have to be at least motivated ...show a bit of that.

Dialogue about order of speakers (17:51)

Lucinda: (17: 54) I find that a lot of the students like if they are not afraid especially when they just graduate there is a lot of things that they might not know so if in their rotation when they are on third year they might have not seen, I don't know like a VD/VT or a tube resistance or whatever or a jet ventilator that they are not afraid of saying that "I don't know this, I am going to look for the information and not to like to say anything not just to do anything but to look for the information because it is not everybody that ...not everybody that knows the information, knows the answer but if you go look for it that means that you are ahh... a good therapist because you implicate yourself into it.

Jane: (18:45) When you ask aboutwhen you are talking about.... when you finish second year what makes a good student....?

Moderator: Well I just meant probably more when you see them for your experience when you see them. Could be in second year that is your exposure to students. France is going to have a different perspective because of course because she is here at the college; well of course she is in clinical too. From your perspective you are seeing I don't know first years ever you know make any impression at all, likely not, they come in a gang. But second year and third year you may say "ooh that is a good student...I like the look of that!!" Why would you, what would prompt you to say that? And has it ever happened? I don't know.

Jane: (19:24) The ones that stand out or the ones that ask ...ahh....like any student that asks a lot of questions. Yeah they also want to do the extra leg work to look up something or ahh or make that effort. I think that is what everybody is saying....yeah just make that effort to show that they are interested.

Moderator: we are all running along basically the same [] basically that motivation, interest ect

Theresa: [19:53] I was also going to say to be a multi tasker cause basically in this program it..it is not easy. Like coming off of like three years especially if you are fresh out of high school. I saw a lot of students in our class that were like....I was like wow, I don't think I could have done what they are doing. They are doing like big course loads and they are able to multi task somehow they are doing part time schooling as well. Another thing that I think makes a good student would be someone who is very passionate about their field in a sense that, like everyone else said they are willing to do their research and find out and not just say that this is how things are done but are curious and want to know why and how things work. When they take that to another level it makes them a lot more knowledgeable in that sense and..something else.....uhh

France: [20:37] Other than what you have said which were all very good comments I would add something: a good student is someone who is capable of improving. If you are able to improve on your weaknesses but for that you have to be receptive to suggestions. When there is a barrier between the educator and the student then the message doesn't go through. But essentially every student could potentially make it if they have the will. So we are going back to motivation. I would add self direction which you have mentioned. You know you don't have to be told. You should take the initiative to read or whatever, study. And perhaps one that needs in respiratory is is to be organized because like you mention it is a difficult program you have to time manage, you got to organize, you have to get good organizational skills and one last thing perhaps would be communication. Because we have seen students with communication barrier and it is really difficult to educate them to the level that we expect them to function. Right? The caring and all that requires you talking. You know opening up to doctors and nurses and staff require that you are able to, you know, understand and be understood because that is two part of communication. That is about it.

Moderator [21:57] Very good. Boy are we going to come up with a prototype super student.... (few comments). You know something and it is striking me that this type of discussion, in all the years that I have been here, has never happened before. We haven't sat down and said, you know "what are we looking for". From the aspect of you out in the field, from you from a manager, from you in a different end of it in asthma education and so on. What are we looking for? What do we want? We all know what we want but we have never said what we want. If nothing else comes out of here then I think that that is a very useful exercise that we are doing.....

Question #3

Moderator [~1:05] *Questions about the above.* Let's say we have a whole new batch coming in. In fact they came in last week on the 9th (June) for a little introduction I think twenty of them came or twenty two came. They are all sitting here at the desks. If you were to pick out you know what characteristics of those twenty two how many are going to successfully get through the program. What do they need to actually get through the program successfully? Some of the things we have already talked about. Somebody sitting fresh in that chair at the first day of class first semester what are there chances of getting through. What do they need to have to get through that program?

Maggie[1:49] You are coming in. You want to be able to want to be here. You have to implement yourself in there. You can't just say ok I'm here to try it out. If it doesn't work, it doesn't work. No you got to put yourself in there and yes ok it is not always the greatest...there is stuff that happens during the whole year but you take from that and you learn. You take the criticism you take whatever and you work from that. But I mean it is ahh, you can't just be there and sit, you have to get involved.

Moderator [2:14] Is there anyway that they could find out...this is day one walking right into the door. Is there any way that they could implicate themselves or have more knowledge of the program or is there any way that they.... How would you suggest ... You have a friend that wants to come into this program

Maggie[2:34] You could actually call the hospital and actually go and follow somebody or visit. Cause I mean it is one thing to sit through the classes and everything it is not the same thing when you see it up close.

Moderator [2:45] If that wouldn't be possible and as time goes on it ... it is getting more and more difficult to send people off the street and into the hospital. It is hard to do. Is there another way that

you could think of getting them to understand what the profession is about? Because that is what I am hearing ... Is that what I am hearing that you really have to understand why they are here?

Maggie [3:03] It is not that they come in they have to actually know.

Lucinda – They should research – go to the OPIQ site and see what is a respiratory therapist – what is the task that a respiratory therapist must do. What is this respiratory therapist going to be involved with because sometimes you have a certain image of the profession but I have seen once you get to third year a lot of third year drop out because that is not what they expected. Even though they come in second year which I didn't have at my time. I was just parachuted to third year and that was it. Half of the class dropped out in the third year because they didn't expect that. So I find yes if the visits are not available then to go on to web sites and to ask people who are in the profession or maybe to have people who are in the profession to come and give a talk to the class. Ok this is what I do.

Moderator – *Retort* – in first year I do have professionals come into the program to talk to the students but by then it is almost too late – they are already here.

Lucinda – they should do that in high school when they choose their programs

Maggie – there is no education in high school about what a respiratory therapist is. You're a who???

Theresa – [4:30] my brother just graduated from high school and he's met doctors, physio therapists he even asked me how come there is no respiratory therapists and I said I am not quite sure but if we could publicize it a bit more that would help. I know that Vanier has its open house and a lot of people come in and ask a lot of questions they are able to showcase the ventilators and be able to do some talking about it because people want to know what it is. It was also mentioned to be able to talk to someone in the field and be referenced to someone else. There are so many fields that you could go in from anesthesia to neonatal to geriatrics. It is a lot of things. So if you are able to speak to someone about it.

Moderator – Interesting ... a mentoring type of system could be done anonymously through a website or something like that.

Is there any other characteristics of those people that are coming in (besides being very knowledgeable about what the profession is) that might actually help them make it. Is there any thing else that might actually help them make it?

Theresa [6:06] – ... someone who has determination because this program is difficult. You can go through one test and just be completely ... walk in and go “wow, I didn't think it was as hard as it was” so you have to be able to study and you have to be able to focus. I think another thing is criticism in a sense because a lot of the labs – you can walk in you can study as much as you want and then all of a sudden just completely blank out. Also support from teachers is a help too because yes they give the criticism but in a sense at least from what I sensed from teachers here like you guys, you have been able to put in a positive word that you want to continue to learn. It helps too.

Jane [6:46] – I jotted down almost the same things. When you come in to know what is expecting a little bit before. I think sometimes it is difficult to get like mentoring and coming to the hospitals. We have had that in the past and you could have hundreds of people coming in. Volunteering in the hospital or in any environment where you think you want to work I think helps. Even if you don't know what the profession does at least you know also that you have to work weekends, nights. Yeah it is not Monday to Friday. It is just knowing the environment.

Moderator – very knowledgeable about where you are going to work

Jane [7:32] – Yeah. Kind of have an idea where you are going. What it is. And also, I am not sure if this makes a difference also but the knowledge base of a person. How analytical are they. I think it is a very science based program so I think that you have to have some sort of that type of analytical skill and that is kind of important in understanding our technical things – our ventilators – the blood gases – things like this.

Moderator [8:06] There is certainly (again I shouldn't be adding this) in some of the research that I have done, you can go ... there are exams for admission into these types of programs. They are general but they are looking for problem solving skills, critical thinking skills, all that kind of jazz. So you are able to take those people with that type of ability if you think that is an ability that is required in this program.

France [8:36] – I think that people have said it all. Focus – you have to be focused I think that a passion a spark. You overcome a lot of difficulties if you have a passion for something. And I think a

lot of students they need to also understand the reason that they are going into health care is to help. You have to have a bit of that compassion. Cause sometimes we don't see that. It is scary when you don't see that as a student. To have compassion.

Moderator – this is a tall order – analytical, compassion, focus, interest

France – you can't only be analytical – you have to have the emotions and the ability to relate. This is what we have seen people that are extremely smart but human being wise?? It is not any better. Their caring capacity is questionable.

Question #4

Moderator: I am going to ask you to tell me a grade...numbers. Because we deal with numbers and because 60 is the pass and nobody gives 100%. If you give me a range that would be fine about what a successful student after 4 semesters. So we are taking an average – between 60 and 65. If that is success in your mind that is fine. Or someone might say between 90-95. I am looking for numbers and they certainly don't have to obviously be the same number. So after the end of second year this person comes out and on the average is between here and here...what would you say is a successful student. If they have accomplished well what their objectives of their courses were.

France [3-2:11] I would say anyone who is above average because grades depend on so many things but if for example the class average is 65 and you have a someone with 75 ...that is good – 10% above average. If you have a teacher who is easy to mark and the average is 80 then what is 81 or 78 in comparison. But if you exclude that it is really difficult. I would like to see 80 – I think that it is great. Again I have seen students that do well in the 70's because they have really improved from the beginning to the end. They are on a path you know they keep going. Wow that is difficult. We have long debates about that one.

Theresa [3-3:11] I think that when you said numbers 80 and above kind of popped in my head. I think that 75 and above is still good especially if it is based on class average cause if you are above that makes a difference because it is quite exceptional. I do think there is a lot of students who, lets say they are not book smart – they do average on tests – but the second that they get into stage they really they are able to showcase how good they are because they are actually applying the skills, they are actually with the patients and it makes a difference. So I would have to go with I guess 80 and above.

Maggie[3-3:51] I would think that 75 and above just because I mean it is hard with numbers – when you are in school it is one thing with numbers but the problem is that there are other things going on. Not everyone has the ideal time – crazy workload – crazy whatever - even though you should be paying attention and putting it in there but it is hard with numbers. It is not an easy question.

Moderator [3-4-22] It is not an easy question. We are a competency based program do you think the number – you know they passed at 60 – they passed – but you know that it isn't a successful student ... are they competent at 60. You are all basically saying that no that 75 – 80 is your range that says that...

Maggie– well you need room for improvement – one bad mark....

Jane – I would say 70 and above. Maybe 75. Anything in the 60 range and generally you are in trouble they tend to be poor in clinical - in class. Rarely do you see someone in the 60's do well clinical but I think that someone in the average range or obviously higher - some people who are really high – someone in the 90's students in class sometimes they are very weak clinically. They are very task orientated so I would go for the mid range – 70 – 75.

Lucinda [3-5:37] – same thing the first thing that popped into my head was between 70-80%. Also because I find there is a lot of knowledge to know and there is a lot of material and sometimes they don't make the connections. Uh they when they see it live oh that pulmonary edema – that is what it looks like. They know it in theory but when they actually see the patients now they understand it better – if they would have made this connection before they would have had a higher grade. So because it is mainly theory, I would say 70 – 80 and definitely a student in the 60 I would be afraid.

France – also what you have to be careful with numbers is memory skills. You have some with very good memory skills and the week later there is nothing. That is the problem in the cegep system – it is all about the quantitative value – we have got to put a number but the number does not tell the entire

story. I am sure we have seen the story that the 90's do not do well and then the 60 student does better than expected and that is great.

Question #5

Moderator: Now the next question – you can imagine is – we talked about success after 4 semesters we are now going to look at a clinical mark. We are almost talking about apples and oranges here – one is a really didactic setting – exams and so on and the other one now is ... and I don't know how reflective our marks are of a student's ability – it depends on the evaluator and so on. Lots of things. What number would you give to a successful student in their clinical year?

Maggie[3-7:38] Another tough one!!

Lucinda: I have had a student in the clinical year and if it were their last rotation in respiratory in the ICU well I need to have confidence in this student and to be able to let him/her to treat my mother. It is a tough one because the student needs to perform then and he needs the knowledge. If I can see that the student has the determination and knows what to do and does a round and goes through all the steps and makes sure that the patient is fine then I would have confidence in that student. In third year I would be more exigent

Moderator – you are looking at 80 and above??

Lucinda – yeah – 80 and above.

Jane – Yeah. First rotation I don't expect the student to get an 80. At least in the high 60's. But at the end of the rotation in the ICU – 80. Yeah they should be pretty strong.

Maggie– It is hard because numbers are numbers. You get into the situation yourself.

Moderator – Basically it means 80 you are able to do most of the tasks alone...

France – I found that a good student clinically a one with an 80 average.

Theresa– I would have to agree

Question #6

France: I will be very honest – I think that we all expect them to be the way we are – our sense of values. This is just the way we are. It is how you compare. But the reality is – I expect a lot from the students because I expect a lot from myself. I am not lazy. Read, be on time, go home and look up things – all the things that we talked about. I expect. It makes me frustrated when you see a student who won't make effort, who is nonchalant.

Maggie: But you have lots of experience.....

France: No that is not it at all. I don't expect them to work like me – that wouldn't be fair but I expect them to behave like me – behavioural wise. To be professional. To show a sense of motivation – these are important things. The rest you can build on. And even if they do not have all the knowledge if they are willing to work on it that's fine. No you can not expect them to be a proficient as you are cause after x years of experience. At least if they are willing to try and they are honest.

Theresa: [3-11:24] I think I would start a stage at least the beginning of the third year – there should be in terms of theory they should be the knowledge base there. There should be a progression improvement in terms of by the end of the third year. They should be able to do everything up to par with not necessarily a number, let's say 80%. But I think they should have a very good base in terms of what they doing in terms of theory knowledge and skills. Reviewing would help. I think the professionalism should be there too because the way you are basically a walking CV when you go into stage. I found that when I was a student they are watching even if they are down the hallway. How you are portraying yourself as a student is how you will be in the workforce. You should have some form of professionalism – that you are on time. You should not walk in completely lost. Not the first days of course – you are still learning the protocols learning how things work in the hospital. But by the end of your rotation at that center you should be able to pretty much run things on your own and have your clinical instructor just sit back and just watch you. You should be very autonomous by then.

Maggie– she stole all the comments from me!

Lucinda [3-13:13] – another thing I would like to add is that students should be able to take the opportunity of the third year of putting together theory and now have a chance of putting practice. And now my instructor – no matter who that may be – that could be an RT or the proper Vanier instructor – they are there to teach me and I am there to go and get all the information I could get from this person. And not have a little fence – I don't have anything to learn. They should grab on like a sponge.

Maggie– not just that but you should be able to take criticism as well. A lot of students don't want....

France – and you can't grow....

Maggie– and you can't learn from your mistakes. You need to be able to do that.

Lucinda – they are there to tell you where you are at and where you could improve. That person has more experience than you even if it is someone who just graduated a year ago. They still have one more year of experience than you and you should be there and grab all of their experience that they have. Sure you are going to be getting her habits and his habits and they will be expecting you to do it their way because they think that that is the way that it should be done because it works for them. As a student develop your own way.

Jane: No at least be able to put theory and clinical together. To know what you learn in school and now you have a patient and to be able to put it together. Yeah the sponge thing I like too. Take everything from what this RT is doing and what that RT is doing and decide what works best for you. Criticism – yeah there are certain ways of criticizing but the person should try to absorb it. The only way to learn is to not defend – you can defend to a certain extent but it is actually not worth it to do it. Keep quiet

France: [15:49] If I could just add something. I think that a student who is finding any opportunity to learn. Sometimes they are just picky – the glorified. “Oh I just want to do the intubation – the crash – the trauma. There is something to learn from each patient. Even if you have the same patient for weeks because you are connecting – you are understand the patient more. So if they are willing to understand that – every time they have an experience with a patient it is positive. And then the sponge again – it is learning from every source you can.

Moderator – Those are excellent. I think that the next question you have answered already. The next question is

Question #7

Moderator – I think that you have just done that and very eloquently I might add.

Moderator – we are now looking at the negative side. What characteristic would mark a student as not being suitable for this program?

Maggie– well you can't have somebody who just wants to write numbers. You are doing rounds every 2 hours and you just write down numbers. You know there is so much unexpected going on. You have to take the time to look.

Moderator – so how would we phrase that? Not attentive to the whole patient. You can't look at the whole picture.

Maggie– can't just look at numbers – have to be able to look outside of the box. Can't just say I am going to do – this is the way it is going to go. There are so many other factors that come into play.

Theresa [17:54] – I agree with that. Someone who is not a team member. Going back to the previous questions from before you are an RT but you are a member of a team – there is a doctor, a nurse you have to work with everyone because you are there for the patient. So if you are just very individual and just working your numbers – I am only going to do this. I am only going to help with the intubation I am not going to help the nurse – maybe assisting by holding the hand for the IV or something. If you are not a team member it just doesn't work at all. It doesn't matter where you are. If you are in a code it is not you running it you assisting with it and there is still someone else there. I think another thing an RT needs to do is to be actively involved for example in rounds. Not just sit there – ok I am going to listen. Rather than trying to suggest things such as mode of ventilation – you express more effectiveness. Try to be more out of the box.

Moderator - so characteristics that are unprofessional, unacceptable – can you think of some more specifics?

France – someone who is disrespectful – that to me is unacceptable. Either to other fellow workers or even another student. I have seen that sometimes where one student puts another student down. Or to patients or to their families. Like you mentioned – you are team members. It means you have to respect the nurse even if they don't always agree on the approach. Well they still have to do it respectfully. I found that it takes maturity to understand that. The nineteen year old may not get it. We are in a society where we are individualistic people. And all of a sudden we have to become altruistic and that is something that doesn't flip overnight. And I noticed it takes a while to understand what it takes to be a team. You don't mock others just because they aren't in the same profession. Or other colleagues for what ever reason because they are not like you. So I think that having respect is very important. So disrespectful students to me is very negative.

Maggie[20:32]– yes you also have to remember that yes it is important to with the team like the doctors but you also have your fellow RT's that you work with. To back them up if they are in trouble and you leave them hanging. That is not a nice working relationship either. It is not something that you want to see.

Moderator – and these are things that are not taught. They are expected in a very subtle way. We have such a non homogenous population coming out of this college with different cultures and sense of values. Maybe for the people at this table yeah of course we are going to help them out because for some people it wouldn't cross their minds to do that.

Maggie– it is only common decency.

France – I will give you an example Maggie. Some students will not look at someone in the eye because they found that disrespectful. I had a student who told me that. They said they had to learn to look at me when they spoke to me. So there are little things like that – for some cultures it is difficult for a woman to speak up and be assertive so they have to work at building their capability of being forthcoming – it is not natural. And you can see it in the classroom. You can see how difficult it is for them to speak up. They have to overcome some of these difficulties

Moderator – Maybe it is part of our job here – not our job to be part of their upbringing – but maybe part of our job to try to emphasize some of those ethical, moral values that are valued in this society. It becomes difficult for us.

Lucinda [22:56]– I would add that well every technician should watch their mouth. They should filter what they say and how they say and where they say it. Like if they make a comment on a patient like confidentiality – like in elevators like sometimes I have heard things from a new grad or from a student...ohhhh my ears. They have to watch what they are saying – you may be thinking that what is coming through your mind but you have to watch. Also just to add what Maggiesaid I make a difference between a clinician and a technician. I think that a new grad shouldn't be a technician. It is very easy to follow whatever is written on the prescription sheet but you have to ask is this valid, should I do this, will this put my patient in danger? That is what makes a clinician and a technician. If you just look at numbers, write them instead you ask yourself ok..like is this the right tidal volume that I write. Is it supposed to be it. To question. You should be a technician you have a lot of knowledge – you have a lot of background – you should question yourself. Use it.

Jane [3-24:35]- unacceptable behaviour unprofessional professional I think is someone who is dishonest. It is very dangerous for the patient. You see that right away that the person not being honest. The person will be like this in the future and it is very dangerous. That is one major thing.

France – I am surprised that we didn't talk about communication because it comes out a lot. The hospitals often tell us that the students have to communicate that if a student is not able to communicate – or is not very fluent – or may have a thick accent or maybe better at writing. Is that considered negative. That is so hard to address. Believe me we have tried.

Jane – it is a reality of being multicultural and that is not going to change. As long as the person is understandable and can get the message across.

Moderator – It is amazing how this has changed. Fifteen years ago there wouldn't have been a point.

Jane – you are getting a lot of immigrants coming through. They aren't even first generation anymore.

France – we have them in the classroom. There are resources in the college that the students can make use of like taking a tutor – getting coached but still in the end when they get nervous they fall apart.

Lucinda – I find in our profession it is the main thing. When you are in a code or a stressful situation people around you need to understand what you are saying and you need to understand what they are

saying. There is no such thing as repeating it is like seconds that you have to deal with – you have to process right away. If this patient is coding and the tube is blocked you have to be able to communicate. I find in our profession it is super important communication and people who have language barriers I find I don't know if they should even graduate. In our profession...if you are working in a profession where speed is not a limit then fine you can repeat yourself ten times and the person will get what you are saying but you can do that in our profession because you are dealing with stat things.

Moderator – well if you think of other professions too. In the medical profession there is an awful lot of residents out there who understand hardly any English.

France – Some people only speak French - that is another one.

Moderator – it is being excepted now that there are language barriers and it is excepted because there is no alternative because staff is required. Bottom line and what we can do in our program as best we can and we do put these things into place – tutors this and that. But boy you can't erase someone's thick accent. If someone has been 25 years that isn't here.

France – the students are placed via an English placement test where most of them pass

Question #9

Moderator - For those of you who have come through it or worked from it/in

Maggie– get them in earlier. Do mock sessions. You can do everything you want but until it is faced in front of you.

Moderator – so you are suggesting more clinical exposure

Maggie[30:05]– that or in lab time you really go through mock stuff repetitively – different scenario, different stuff different events – stuff out of the norm.

France – I think what we need and what we are kind of behind in with the rest of Canada is the simulation lab. In order to do that you have to have an ICU setup and an OR

Jane – there are simulation labs at McGill – it is booked for eight months

France – difficult to do with 35 students. It is something that needs investment it is extremely vital if we want to be competitive with other schools. Right now we are losing our competitiveness quite a lot. You can't do miracles with older equipment.

Maggie– even if you pull a stretcher and a ventilator and something is going on like a code. Something basic.

Jane – that is something that we do with the nurses actually we do simulations

Theresa – yeah we do mock codes at the childrens

Jane – everyone gets to do a different role

Moderator – when I do the cardio course I do do mock codes. It is however a time constraint as well

Maggie– even in first year

France – they need to have the knowledge to put it together

Moderator [32:02]– so what you are talking about is simulations, trouble shooting

Jane – you could even do BCLS. BCLS is a good eye opener to airway management. The general population doesn't know it.

Moderator – right now we do not teach it anymore. Right now they have to have it by the third semester. I don't take the time to teach it. They have to be certified to enter my course. Sure BLS and those scenarios that come with that.

Jane – ACLS – it might be too hard for a first year student to learn this. At least by third year ACLS is really good. It is amazing because you learn...everything is put together so you can see lets say a v-fib patient. You have to know what to do. All your medications come into play, you have to know your rhythms and your airway. So you kind of have to do your ABC. ACLS has to has four or five stations and you go through each one. Those are good simulations.. those are real life simulations. V fib – A fib.

Moderator – we do do the ACLS as well but not as a certificate. I don't think that they could even get it before they graduate but it is an interesting idea in that we could even have an instructor to come in.

Maggie– don't you have to have at least 2 years experience

Jane – continued to talk about the current weekend ACLS course and how difficult it is to absorb all the material in such a short time

France [34:53] – It boils down to what we are faced at Vanier – time constraints. If we had more time my God could we do more. Because all of this is time consuming. If you have a two hour lab it flies. And then things need to be organized so that the information must be repeated and consistent between groups. If you improvise and then say oh I had a great idea but you have to remember that you have group 2 and 3 to do. It is quite a structure to teach. You have to know where you are going and you have to know what you are going to be covering. And sometime you ran out of time because you have a lot of time constraints.

Jane – I am not sure but do you have case studies. I think a lot of case studies.

France – in order to do a case you have to build the knowledge. Or else it is very discouraging

Maggie– this is why University is at a different stage. Whereas you are given the material and you follow it on your own. That is what lab time is for. If you have questions that is where it comes out. That is why labs should be a little bit longer.

Theresa – I think also having lab practice time on your own. I don't know how big the classes are now but we use to fight over one ventilator.

More simulations, troubleshooting, BIs, ACLS, France mentioned from a faculty point of view about the time constraints. They can't solve a problem unless they have the knowledge to be able to solve the problem.

France [37:45]– you can't do simulation until you can incorporate. That is my strategy. I give them a lot of information at the beginning and then we practice the stations. You have to start with that. Some of our students come from high school. You can't do like university all the time.

Maggie– you have to teach them to be autonomous too. It comes into to play in stage too. You don't know something then you have to go look it up. You have to also be able to do stuff on their own.

Jane – I think that is a major issue. I find a lot of students are coming out they don't want to do their work. It is not just the time you have here – you have got to do a lot of work outside. A lot of research and a lot of the teaching now even like the new ACLS course – it is not in the classroom anymore. It is CD. CD's and videos are also a good source of learning they can take it and read it. The exams for ACLS are actually ... they expect everyone to read it before and the simulation center is just to go over what you read. It is not teaching. It is applying what you have already learned.

France – I don't think that you could do that though because you are building on professionals who have knowledge. Your learning is actually a review. New material may be some of it ...

Jane – It will help...like videos will help to see a global picture. It is just a reference

France – yeah sure videos, websites, animation a lot of supporting material helps but to say that the student has to learn it on their own and come...personally I have tried it and it just doesn't work.

Maggie– yeah I understand it it is hard that way but the thing is you just have to do it.

Jane – you have got to prioritize – do you want to work – do you want to graduate – do what you have to do

France [40:23] – those who won't do it on their own will be successful and those that do the extra mile will come out successful. I don't believe we are spoon feeding them at all.

Jane – that is not what I am saying at all. A lot of them expect ...Perhaps it is a personality thing

France – Students coming from highschool without any post education that is the model that they work with. They were taught that way so it is so hard you almost want to revamp the whole system. And go into what is critical thinking, how do you make someone a life long learner, how do you achieve competencies not just memorizing. You know what the kids told the teachers – that they memorize – that is their form.

Maggie– that is where university is tougher that way. You can't just memorize. You just can't. You just have to understand. There are too many things

Jane – there are certain things that you end up memorizing. Like in the first year but eventually you have to understand.

General discussion that a background in basic sciences would be beneficial.

France – teaching basic sciences and then go into the technology with some critical thinking that they have applied already. Because it is a post high school program the students that have a science background you can distinguish them in the classroom. Those that are able to form ideas.
Maggie– but you should have a science background

Continuing discussion about students working and taking the program

France – It is not ideal. It is not how I view education and I see this exhaustion year and year and it sucks my own energy. I empathize.
 There are a lot of factors that are actually restricting us from producing some very successful students. You have to put some of the onus on the students absolutely but also on what we have to teach here in a very very short time period.

Moderator [44:40] I think that that is the last question.

Moderator [45:25]Are there any other comments that you would like to make at this time? I have picked your brains until they are empty. Is that it?

Jane – I would like to add one more thing to what makes a good RT. Leadership. I think the person needs to have good leadership skills. It makes you independent. A leader will take the profession to another level which is what we want.

France – you know the little flyer that we distribute to applicants – we should include the qualities that are required and integrate some of your research into that.

Moderator – yeah team player

Jane – well you can't just through it in – you have to know what it means.

France – ideally if you interview every candidate that is how you would know

Moderator – in my course – Introduction to the Profession – this is the type of thing that I go through - what is a profession – what is a professional. Leadership is interesting and there is a three year program and it would be very interesting to have a speaker from that program to come and have a little yak yak on leadership, team building.

France [47:05]– especially in the course that you are teaching Moderator – the intro – and we have had a lot of fights over content – but I found that it is important. Some people may cause these soft skills. But even though it goes beyond this discussion here it is still tied in in that all the descriptions that you have given of - what a good RT is – what a good RT student is – these are all the things that have come up here. It is not that they can suction in 2.5 seconds flat. It was more what are termed as soft skills. I think that it is very very important. I am happy that they came out. I shouldn't even be talking now!!!

Moderator Anyway we are done now – we can go and eat it is all ready – we can sit and chit chat without the tape recorder.

I appreciate your candour – with picking your brains which is sometimes these are questions that would never have crossed your mind. Perhaps it is the way that I am asking them. I just want to say that I very much appreciate that you came to attend and this is what I need. This is the data that I need to answer the questions that my research. I thank you so much. I will let you know when it is published.

APPENDIX I

CONSENT FORM FOR PARTICIPANTS (students)

CONSENT FORM FOR PARTICIPANTS (students) :**Project Title:***Predicting Student Success in the Respiratory + Anesthesia Program***A. PURPOSE and BENEFITS**

The purpose of this study is to collect data to investigate the possibility of a relationship existing between academic preadmission criteria, professional behaviour skills and success in the Respiratory & Anesthesia program.

The results of this study will identify important predictive criteria for success in the program.

B. PROCEDURE

Information sessions will be carried out with all involved persons: third year students of the Respiratory & Anesthesia program at Vanier College in St. Laurent, Quebec,.

Student records such as preadmission grades, demographic information, results of professional behaviour assessment as well as grade average throughout the program including results of the Épreuve Synthèse will be obtained. All aspects of this study will comply with the Vanier College Ethics Committee

All information will remain CONFIDENTIAL.

The total results of the study may be presented and/or published and will be made available to the Vanier community. However, your individual responses will not be identified.

C. CONDITIONS OF PARTICIPATION

1. You can choose to discontinue participating in the study at any time without negative consequences
2. Your participation in this study will have no bearing on your academic standing.

D. CONSENT TO PARTICIPATE IN SURVEY

I agree to take part in this Vanier College research project. I understand that agreeing to take part means that I am willing to:

- Allow the researcher to have access to my academic and admission records
- Be interviewed by the researcher
- Allow the interview to be videotaped/audiotaped
- Be assessed by faculty/hospital clinical instructor for clinical behaviour

Name _____

Date _____

APPENDIX J

CORRELATIONS OF GRADES

		sem1-4	sem1-6	sem5-6	CLINMARK	HSMARK
sem1-4	Pearson Correlation	1	.959	.749	.701	.419
	Sig. (2-tailed)	.	.000	.001	.003	.106
	N	16	16	16	16	16
sem1-6	Pearson Correlation	.959	1	.904	.871	.379
	Sig. (2-tailed)	.000	.	.000	.000	.148
	N	16	16	16	16	16
sem5-6	Pearson Correlation	.749	.904	1	.990	.263
	Sig. (2-tailed)	.001	.000	.	.000	.326
	N	16	16	16	16	16
CLINMARK	Pearson Correlation	.701	.871	.990	1	.219
	Sig. (2-tailed)	.003	.000	.000	.	.415
	N	16	16	16	16	16
HSMARK	Pearson Correlation	.419	.379	.263	.219	1
	Sig. (2-tailed)	.106	.148	.326	.415	.
	N	16	16	16	16	16

APPENDIX K

PROFESSIONAL BEHAVIOUR TOOL

Please indicate to what degree the student meets the following professional behavioural skills. A rating of **1** indicates that he/she meets it **minimally** and a rating of **5** indicates that he/she meets it **maximally**.

Student Name: _____

Week of rotation _____ **Evaluator** _____

<i>Professional Behaviour Skills</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1. Time Management					
2. Organization					
3. Engagement in clinical experience					
4. Self directed learning					
5. Reasoning/ Problem solving					
6. Initiative					
7. Observation Skills					
8. Participation in supervisory process					
9. Written Communication					
10. Verbal communication and interpersonal skills					
11. Professional/ personal boundaries					
Sub total					
Total					

Adapted from: Koenig, Johnson, Morano and Ducette (2003)

APPENDIX L

CORRELATIONS FOR BEHAVIOURAL SCORES

		CLINMARK	BEH1	BEH2
CLINMARK	Pearson Correlation	1	.634**	.620*
	Sig. (2-tailed)	.	.008	.014
	N	16	16	16
BEH1	Pearson Correlation	.634**	1	.688**
	Sig. (2-tailed)	.008	.	.005
	N	16	16	16
BEH2	Pearson Correlation	.620*	.688**	1
	Sig. (2-tailed)	.014	.005	.
	N	16	16	16

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

GLOSSARY

- Allied health care professional –an individual involved with the delivery of health or related services pertaining to the identification, evaluation and prevention of diseases and disorders. This group does not include nurses.
- Clinical Instructor – a faculty member of the Respiratory & Anesthesia technology program or a hospital based respiratory therapist who is charged with the responsibility of teaching students in the clinical setting
- Career & Technical Program – a program of study that leads to employment after successful completion of a three program
- Clinical stage – that portion of the program that is taught in the clinical environment. Unique expression in the province of Quebec for clinical internship.
- Procedural skills – skills pertaining to specific procedures that would be carried out in carrying out the duty of a respiratory therapist
- Professional Behaviour Assessment Tool – an assessment tool that evaluates skills associated with interpersonal communication, initiation, organization, and clinical reasoning that students must master in order to be successful in the clinical environment
- Respiratory & Anesthesia Technology - an allied health specialty employed in the prevention, treatment, management, diagnostic evaluation and care of patients with disease and abnormalities of the cardio-pulmonary system or who are undergoing anesthesia. Also referred to as Respiratory therapy
- Respiratory & Anesthesia Technology Program– a three year career program offered at 8 cegeps in Quebec. May also be referred to as Respiratory Therapy Program, Respiratory Care Program
- Respiratory and Anaesthesia therapists –Professionals who evaluate, treat, and care for patients of all ages who are suffering from breathing disorders or who are undergoing anesthesia. Commonly referred to as Respiratory Therapists

