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Challenges Radiography Students Face in a Small Midwest Technical College

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1. Introduction

Working as a Radiography instructor, the author and researcher of this study noticed that students face challenges while they are in the Radiography program in a small mid-west college (to be called Midwest College throughout this paper), which can affect their ability to successfully complete the program.   By identifying these challenges the researcher hopes to gain a better understanding of the obstacles to student success and develop a list of recommendations for the department and college to address these challenges.

Purpose

As an educator in Radiography knowing the challenges students face may help the college and the Radiography program-make changes to policies to better serve the students. This study sought responses from all students enrolled in the program, in the past two years, regarding challenges they have faced in completing the program. Commonalities in the responses, may provide insight into how the college and the program can-address those challenges.

Retention is a big concern in post-secondary education. Retention rates can affect funding, budgets and overall attitudes of the faculty and administration at a college. As a small college in the mid-west retention rates are continually observed and tracked by faculty, administration**,** and the Joint Review Committee on Radiologic Education (JRCERT). The college and Radiography program has done well in keeping above the benchmarks set for retention rates, but it is unknown if anyone in the Radiography Program has specifically asked the students what challenges they face. By discovering the challenges students face the college and Radiography program can work together to address them and in turn may be able to increase retention rates.

Research Question

In order to better serve students, the researcher would like to find out; what are the challenges students face in the completion of the Radiography Program at a small technical college in the Midwest which contributed to difficulties in completing the two year program?

Connection to Leadership

If the challenges student's face aren't heard, being able to intervene and offer guidance to the students becomes a challenge. By going directly to the source (the students), in the form of a survey, the goal is to look for commonalities the students face as challenges.   Knowing the challenges students faced while they were pursuing their degree will allow program faculty, as leaders, to address those challenges and better serve the students. Even if there are not immediate resources available to students it may increase awareness of the faculty and staff at the technical college and help them target guidance and services, and change program policies and procedures to better serve the students. Furthermore, this increased knowledge and changes will help future students in the Radiography program which may in turn increase retention rates and result in a larger number of students graduating.

 If there are factors the college and faculty can address and change it will allow for a better experience for students. When faculty have an increased awareness of challenges students face it helps them grow as faculty which contributes to the overall performance of the program. Additionally this information may also help the faculty in Radiography to provide insights to other staff and programs at the college to help meet the needs of their students.

Methodology

This research project included two surveys: the first survey was of the faculty and staff who work with the students and the second survey was of students in the Radiography program.

To remove bias the researcher may have had about what challenges students face within the Radiography program the decision was made to start with surveying colleagues on what they saw as challenges students within the program face. The survey consisted of three open ended questions which asked colleagues to identify challenges they felt students faced at three different stages in their schooling; 1. Before being accepted into the Radiography program. 2. While in the program. And 3. While preparing for the registry exam.

After surveying faculty and staff at Midwest College, the same survey was given to the students who started the Radiography program at Midwest College in 2015 and 2016. The survey for the students contained the same three questions. Once developed, the survey was emailed to each student currently enrolled in the program and due to graduate in 2017 and 2018. There was also an attempt to contact students who started with each cohort and for whatever reason did not complete the program. These three groups of students combined created a sample of approximately thirty students if all students agree to participate.

Once the surveys were collected the qualitative data was coded to look for common challenges the students encountered.

Limitations/Delimitations

One of the biggest concerns the researcher had was students will feel vulnerable about answering the survey questions candidly because of the fear their responses may affect their relationship with the instructors in the program while they finish their education. The researcher addressed the issue of a student feeling unable to candidly answer the questions by offering a declaration to the students which states their participation is voluntary and all information will be kept confidential and will only be used for the purpose of this research project. They were also

reassured there was no possible way to track the information back to the individual regarding their survey responses.

Another limitation to this research is the small number of faculty, staff and students completing the survey. This is due to the small size of Midwest College and could not avoided. However, the benefit of this limitation is it gives a true understanding of the challenges students experience in a small Radiography program and college.

Due to the different demographics of various Radiography programs, the students of the one school was surveyed because their financial, academic, and institutional challenges may be completely different than challenges students face at a different school.

Resources available are also specific to each college and may contribute to challenges students face. Therefore, generalization of the study contents should be considered cautiously.

Vocabulary

Retention: retention is defined as the percent of students who start the program on the first day of the fall semester and complete the program after completing five consecutive semesters.

Radiography Student: Radiography student is defined as a student who has been accepted into the program.

Former Radiography Student: former radiography student is defined as a student who started the program and did not complete with their initial cohort.

Radiography graduate: radiography graduate is defined as a student who successfully completed all academic and clinical requirements of the program.

2. Literature Review

Introduction to the Literature Review

This literature review was performed using several databases regarding challenges to student completion of Radiography and other allied health professions as well as general health educational programs. First, this review will look at previous studies of student challenges prior to coming into a program with the primary focus on grade point average, prerequisite courses and previous patient care experience. Second, this review will look at challenges students faced while in an actual health related educational program. The specific challenges were grouped under five themes; financial, personal, academic, relationships with classmates and instructors and clinical in nature. Lastly, the researcher looked at challenges students faced while preparing to complete radiography programs with the primary emphasis being placed on preparing for the registry exam.

Challenges prior to coming into the program

Entrance Requirements.

Each radiography program has its own admission practices. Some programs use a wait list and accept students as they move up on the list based on availability. Other programs use entrance requirements. The entrance requirements to the radiography program used by Midwest College are, overall GPA and grades in specific prerequisite courses. In addition students who apply to the program are required to have a minimum of 40 hours of prior patient care experience.

GPA.

When students apply to a radiography program the goal of the program is to retain and graduate the student. Ingrassia, states, "Students must be chosen for their academic ability" (Ingrassia, 2016, p. 502). She describes two factors which should be taken into consideration:

cognitive and non-cognitive.   Cognitive factors which should be considered are selective GPA and overall GPA (Ingrassia, 2016)**.**   In an article Myke Kudlas states, "Using past performance to predict future success is the basis of any competitive admissions process, but a competitive process is not always the best indicator of retention" (Kudlas, 2006, p. 162).   However, in the study he conducted of 327 programs in Radiography, it showed the programs who used a competitive process, such as GPA, had higher retention rates (Kudlas, 2006)**.** To further reinforce the benefit of considering GPA as an admission requirement, Sharon Burns conducted a study of the effects of GPA and progression in a Registered Nurse Anesthetists program which revealed that as student**'**s entrance GPA increased so did their GPA while in the program (Burns, 2011)**.**

Pre-Requisite courses.

Selective GPA is defined as grades received in particular courses (Ingrassia, 2016)**.** In the literature review conducted by Ingrassia, she describes, selective GPA as grades in particular math and science courses, which are considered in the admission criteria for radiography programs. However, she also goes on to explain math and science courses may not be the only ones evaluated when looking at a selective GPA. (Ingrassia, 2016) In a nurse anesthetist program, Burns conducted a study on the effects of GPA in prior science courses and found evaluating prior GPAs in science courses at the time of admission contributed to student's success (Burns, 2011)**.**

Patient Care Experience.

Ingrassia lists prior health care work experience as one of the non-cognitive factors which can predict clinical success in a radiography program (Ingrassia, 2016)**.** This finding is confirmed by Kudlas as "Existing skills" which may also be a factor which can aide in retention

of radiography students (Kudlas, 2006, p. 162). On the contrary, in a study of the progression of

nurse anesthetist students, Burns found prior experience of students in a critical care nursing

program did not contribute to the student's success while in the program (Burns, 2011).

Challenges while in the program

       Financial challenges.

       Having enough money to pay for college and the necessities of living while in college

can be a hardship for many students while completing a radiography program. There are several

ways a student can address those challenges which will be explored in this section.

       In addition to tuition AB Tech Community college website states, "There are other costs

in addition to tuition and fees such as textbooks, clinical uniforms, transportation, and other

supply costs" (AB Tech Community College, n.d., p. 3). In the article, *Funding Your*

Educational Dream: There's more than One Way to Scan a Cat opportunities for obtaining

additional funds are explored (Anderson, 2008). One resource available to students is

scholarships through the ASRT Education and Research Foundation. The mission of the ASRT

Foundation is, "to support and empower medical imaging and radiation therapy professionals

and students as they pursue opportunities to enhance the quality and safety of patient care"

(American Society of Radiologic Technologists Foundation, n.d.). By performing a quick search

of the website at www.asrt.org/what-we-do/scholarships the researcher found there were more

than 60 scholarships available in 2016/2017. In 2016 the ASRT Foundation awarded more than

$235, 000 in scholarships (Schwager, 2016). To be eligible for the scholarships a student does

need to be an ASRT member which is offered at a student rate of $35 dollars for a one year

membership (American Society of Radiologic Technologists, 2016). By accessing this website

students can find a complete list of scholarships available to them.

Another resource available to students are college scholarship websites. Googling "radiologic scholarships" returned 7,799 results. It may be time consuming to review all the scholarships listed but well worth a student's time if they need funding.

Another way for students to fund their college is by checking with their employer. Kristina Anderson states, "Some employers work in partnership with local technical schools and educational institutions to cover tuition and books" (Anderson, 2008, p. 8).

Personal.

In a study conducted by Myke Kudlas in 2006 out of 1,252 who did not completed the radiography program 397 or 31.7% responded with "personal reasons" being the contributing factor. Although the specifics of what was considered "personal reasons" was not mentioned (Kudlas, 2006). When it comes to family, according to AB Tech Community College, "The significant others in your life must understand and accept the extent of your involvement in studies and class and clinical attendance" (AB Tech Community College, n.d., para. 2).

Academic challenges.

In a study conducted by Myke Kudlas in 2006 out of 1,252 who did not completed the radiography program 494 or 39.5% listed "Academic Problems" as a reason for not completing the program (Kudlas, 2006). Radiography programs can be very strenuous academically. Students find themselves learning different material than they have ever been introduced to in the past. AB Tech Community College states, "The volume of information that must be learned and retained is considerable" (AB Tech Community College, n.d., para. 4). Ellen Lipman states, "One might feel a learning gap is a negative thing. In reality it is an opportunity for future growth" (Lipman, 2009, p. 14). She goes on to say, "If there's a gap between your current performance level and where you want to be, you can begin by to identify opportunities to close the gap" (Lipman, 2009, p. 14). This is the same for student learning. Students who take the

time to assess themselves and look at where they are lacking in their learning need to reach out and ask for help in that area or focus on strengthening the area of concern.

Coursework.

AB Tech Community College describes being in a Radiography program as a full-time commitment. "Working too many hours and excessive outside commitments take their toll quickly on radiography students" (ABTech Community College, n.d., para. 1)**.** Due to how strenuous the workload is "students may go through a phase of burnout during a course" (Sedden & Clark, 2016, p. 609).

Finding a balance between class time, work**,** and family can be another contributing factor to challenges for Radiography students. Since 2009, Radiography programs have been increasingly adding hybrid courses which incorporate both classroom and online learning environments (Kowalczyk, 2014)**.** With the number of students who are balancing work and family online classes enable students to obtain a high quality education without being on campus (Britt, 2006)**.** One advantage of online learning includes, being able to access coursework from any location at any time (Britt, 2006)**.** Another advantage is the learner has the ability to review the material over and over again since instructor's lectures are loaded online (Singh & Pan, 2004)**.**

However, online education may not work in Radiography. In a study about the perceived barriers to on-line education by Radiologic Science educators Kowalczyk states, "the use of online education is not prevalent in radiologic science education but online course activity has increased substantially" (Kowalczyk, 2014, p. 490)**.** She goes on to state, "Because of the need for clinical application of course content inherent to radiologic science education, fully online education programs are not feasible" (Kowalczyk, 2014, p. 490)**.** "For example, in a

Radiography program's positioning course, students are introduced to positioning and anatomy via lecture and then they apply what they learned in the laboratory setting" (Sedden & Clark, 2016, p. 610). In addition students who learn by touching and visualizing may struggle in an online learning environment (Britt, 2006). "Student sharing of ideas is in part missing from the online community" (Britt, 2006, p. 185).

Study time.

Motivation can be a factor which helps or hinders a student's ability to be successful academically. Because many students who currently fall into the millennial generation, view education as an asset which can be bought they may lack motivation in their learning (Sedden & Clark, 2016). On the website for AB Tech Community College it states, "If you meet the prerequisites for admission to the program, there is no academic reason you should not succeed. The determining factors in your success will be your commitment to studying and practicing, initiative, motivation, and management of your time and personal matters" (AB Tech Community College, n.d., para. 4).

Classmates.

In the study conducted by Myke Kudlas (2006), where he looked at admission criteria in relation to retention, he found a correlation between retention when students felt connected to an institution socially. Furthermore, in a study done of students in a nursing program social interaction with peers helped with overall satisfaction with the program (Liegler, 1997).

Relationships with instructors.

Relationships with instructors can contribute to a radiography student's success or failure during their time as a student. In a study done of students in a nursing program satisfaction with faculty was the largest contributor to a student's overall satisfaction in the program (Liegler,

1997). Nancy Hawking states, "Academic success and student retention depend on instructor-student interaction (Hawking, 2005, p. 235).

In the article Staying Ahead of the Curve, Cristina Olds states, "It is imperative that educators stay current with the latest technological advances in industry" (Olds, 2016, p. 25). Radiography is full of technology and the technology changes at a rapid pace. In order for teachers to make sure their students are current in these technologies they need to remain current in the technologies themselves. One of the ways teachers can stay current in technologies is by completing their continuing education requirements. One Program Director, Daniel DeMaio M.Ed., RT(R)(CT), incorporates published articles into his assignments in the hope it will encourage students to be lifelong learners (Olds, 2016). Another Program Director, Kelli Haynes, M.S.R.S., RT(R), uses conferences to remain abreast in current technology (Olds, 2016). In addition instructors need to be able to "encourage and motivate students throughout their courses" (Sedden & Clark, 2016, p. 610).

Relationships with instructors isn't only important in the classroom it is also important in the clinical environment as well. Sedden and Clark state, "Clinical instructors who were enthusiastic, encouraging, knowledgeable, and who could foster a positive atmosphere improved the learning experience and motivation level of students" (Sedden & Clark, 2016, p. 611).

Clinical Challenges.

According to AB Tech Community College, "Clinical education is the most important component of learning medical radiography" (AB Tech Community College, n.d., para. 7). In a study conducted by Myke Kudlas in 2006 out of 1,252 who did not completed the radiography program 50 or 4 % listed "problems in clinical" as the reason for not completing the program (Kudlas, 2006).

Relationships with the technologists who are mentoring a student can affect a student's learning. I have found there are three concerns often raised regarding mentoring radiology students during their clinical. First the expectations of students, by practicing technologists, can be too high. Second, technologists may dwell on how students perform exams and not on the fact there is more than one way of doing things, or they will take over to correct simple mistakes with the student instead of teaching them the right way, which will in turn hold the student back in their development. Third, there are the technologists who do not like working with students and either ignore them or make their learning experience less than desirable.

Mentoring technologists can make the mistake of having expectations of students which are too high. This will lead to frustration on the mentor's part and can also result in frustration on the student's part. Amber Shuck, M.B.A. RT(R) states, "Before passing judgement on a student, review the course objectives on the current clinical syllabus, and review the end of the semester course evaluation forms to see what is required" (Shuck, 2015, p. 15). In doing this the technologist will gain a better understanding of the development stage in the students education process. This will help the technologist focus on the expectations of the students as required by their educating institution.

Amber Shuck, M.B.A., RT (R) states "As professionals, we must acknowledge there is more than one way of obtaining a quality medical image" (Shuck, 2015, p. 15). Technologists who are mentoring students during clinical need to keep in mind it is okay to let students use their own techniques in obtaining an image if the outcome will be the same.

Some common mistakes students make while in clinical are; not aligning the tube with the image receptor, not centering over the body part correctly, not communicating with the patient what is needed of them when positioning, forgetting to set the technique before asking the

patient to hold their breath, not putting markers in the field of view, not collimating correctly, and not raising the table to a working height (Shuck, 2015). Amber Shuck states, "Behavior mistakes, should be addressed. Failure to do so can stall a radiologic technology career" (Shuck, 2015, p. 15). It is easier at times to take over instead of taking the time to address the previous mentioned mistakes. In doing so the student does not learn what is expected of them.

Professionally, radiologist have an obligation to be proper mentors to radiology students. According to the ASRT (American Society of Radiologic Technologist) tenth statement in their code of ethics, "The radiologic technologist continually strives to improve knowledge and skills by participating in continuing education and professional activities, sharing knowledge with colleagues and investigating new aspects of professional practice" ("Code of Ethics," 2003, para. 10). Keeping this part of the code of ethics in mind reminds technologists it is their professional duty to help educate students.

In addition to the code of ethics the ASRT Practice Standards, which was developed to serve as a guide to ensure appropriate practices, states directly in the Section titled Radiographer Scope of Practice, "Educating and monitoring students and other health care providers" ("The Practice Standards," 2015, p. R5) as one of the expected duties of a radiographer.

Challenges faced while preparing for completing the program

Preparing for the registry exam.

While students are finishing up their education in Radiography they start thinking about a very important next step; taking the National Registry exam. When preparing for the registry exam the best advice comes from Codi Francis, "The more time you spend studying and reviewing, the easier it will be to remember all the things you've learned" (Francis, 2015/2016,

p. 18). This is something students need to do from the beginning of the program and not as last minute preparation for the registry exam.

"The transition from student to radiologic technologist can be complicated and requires planning and patience" states Codie Francis (Francis, 2015/2016, p. 18). One of the best ways to plan for this transition is to treat every day during the two years of education as an interview. Especially when students are in a clinical setting, they need to put their best foot forward, because they may be interviewing in the future with the technologists they are learning from.

Conclusion to the Literature Review

From the research conducted it was apparent there wasn't a great deal of information directly related to challenges students faced before, during**,** and while preparing to complete a radiography program. Although there was research found from several other health related fields.

This research project will help to serve as a starting point for additional radiography programs which wish to be more informed about challenges their students face in their particular demographics.

3. Methodology

Research Design

This project is a cross-sectional action research project. A cross-sectional study takes place at one point in time and looks at a small section of information (Trochim & Donnelly, 2008) and an action research project examines the current practices along with possible ways to improve them (Thomas, 2013). Action research is commonly used by instructors with the end result contributing to improvement in their teaching practices. In his book *How to Do Your Research Project* (Thomas, 2013) listed four basic core ideas for action research; "1. The research is done by a practitioner on their own behalf. 2. It is about developing their practices. 3. It requires a commitment to reflection and change. 4. It involves constant planning, reflection and re-planning" (Thomas, 2013, p. 148). This type of research will help the Radiography program at Midwest College to improve their current practices to enhance the outcomes of their students/graduates. "Action research seeks to contribute directly to the flourishing of individuals and their communities" (Brittanica Academic, 2012).

Data Collection Instrument

Two surveys were used to answer the research question. The first asked colleagues to identify issues they believed negatively impacted the success and retention of students at this college. The second survey asked the students the exact same questions. This data was used to look for commonalities and evaluate whether the colleagues and students shared differences in their responses.

Faculty/Staff survey.

A one page questionnaire with a cover letter (See Appendix A) explaining the project was sent via email to eight colleagues within the college who are directly involved with Radiography

students. The colleagues were asked to fill out the questionnaire (see Appendix B) and return it directly to the researcher within one week. This was seen as a collegial activity and anonymity was not expected. Coworkers were asked a single question with three parts: What are some of the challenges students faced in relationship to the radiography program; 1) before being accepted into the Radiography program? 2) While in the program? 3) While preparing for the registry exam? Colleagues were also asked to include any additional thoughts or comments about student challenges which came to mind while answering the questions.

Student survey.

Once the faculty survey was complete the researcher spoke to students in class about the research project and explained they would be receiving a survey via email. The same questions which were asked of the colleagues were asked of the students (see Appendix D). The survey was sent to the students via email with a cover letter explaining the research project (see Appendix C).

Sample

Faculty/Staff survey.

The colleagues involved in this survey were eight individuals who work with radiography students at the college. One of the colleagues surveyed was a current instructor in the radiography program. Another was recently retired from the program. Six colleagues who were involved in recruiting, counseling and advising radiography students were also surveyed.

Student survey.

Two student cohorts were surveyed, including students scheduled to graduate in May 2017 and May 2018. In addition, an attempt was made to reach students who started the

program and were no longer current students regardless of the reason. The total number of students the survey was sent to was twenty four.

Protocol

Faculty/Staff survey.

Eight colleagues, which included two faculty who teach or have taught in the program and six staff from student services who counsel and recruit radiography students, were contacted via email. Due to this being a collegiate activity approval through the WSU IRB was not sought. Colleagues were provided an explanation of the study in the body of the email. Attached to the email was the survey with the three questions and instructions to print the survey and return it to the researcher once it was completed. They were given a timeline of one week.

Student survey.

The assembled questions for the student survey and protocol were presented to the Institutional Review Board of Winona State University for approval. This study qualified for exemption from a full review by the Human Subjects Review Committee. Once approval was obtained, the researcher spoke to the students about the research project in class and explained the project prior to sending out the survey via email. In the email, she provided a letter (see Appendix C) which explained what the data was being collected for, reinforced the data would be used for research purposes only and responses would be anonymous.

The student survey was attached to the email and students were asked to fill out the survey and bring it to class to put in an envelope provided by the researcher. Students were given a timeline of two weeks to complete the survey. The researcher sent a reminder email to the students after one week and a final reminder two days before closing the survey. If students

had not participated in the survey two days after the third email was sent the data was accepted

as ready to evaluate.

4. Analysis and discussion

Faculty/Staff survey

Out of the eight surveys sent to faculty and staff five were returned completed (faculty *n=2*, staff *n=3*). Faculty and staff surveys were collected and reviewed using the constant comparative method. Responses were analyzed several times for similarities in responses. Challenges identified in the faculty/staff responses were used to create three separate charts, one for each question asked, in descending order. Only descriptive data was reported, not reliability and validity.

Faculty/Staff Survey Results

In regards to the question asking faculty/staff to identify challenges student faced prior to being accepted into the program (*Table 1*), the one response which each person (*n=5*) indicated was a challenge for students was in relationship to the application process. The next two most popular responses (*n=2*) were financial challenges and not being academically prepared. Responses which only appeared one time on the faculty and staff survey were; ability to think critically, turning application in on time, mental health, incorrect career decision, doing it for their spouse/parents, lack of knowledge about time commitment and unclear about distance to clinical sites.

Table 1

Challenges before being accepted to the Program

Responses	Number of Responses
Questions about the application process, i.e. admission criteria, checklist, selection process, how competitive.	5
Financial	2
Not academically prepared.	2
Ability to think critically.	1
Turning application in on time.	1

Mental Health	1
Incorrect Career decision	1
Doing it for their spouse/parents	1
Lack of knowledge about time commitment	1
Unclear about distance to clinical sites	1

Note. Faculty/Staff responses to challenges students faced prior to entering the program in descending order.

In response to the challenges faculty/staff saw students faced while in the program (*Table 2*), poor study skills, lack of focus and self-motivation was the challenge which appeared the most (*n=4*). Students not being academically prepared (*n=2*) and finding housing while at clinical (*n=2*) was mentioned the second most in their responses. Some additional challenges which were mentioned by faculty and staff, but only appeared once on the surveys were: mental health, poor clinical mentors, not getting enough competencies during clinical to be successful due to insecurities, financial challenges, not being able to think critically and struggles juggling work, school, family/significant other and fun/recreation.

Table 2

Challenges while in the Program

Responses	Number of Responses
Poor Study Skills/Lack of focus and self-motivation	4
Not academically prepared	2
Housing for Clinical	2
Mental Health	1
Poor clinical Mentors	1
Not getting enough comps during Clinical due to insecurities	1
Financial challenges	1
Lack the Ability to Think Critically	1
Struggle with Juggling work, school, family/significant others and fun/recreation	1

Note. Faculty/Staff responses to challenges students faced while in the program in descending order.

For the faculty/staff survey in response to the challenges students faced while preparing for the registry exam (*Table 3*), the majority (*n*=3) responded they were not aware of any. This most likely is due to the majority of colleagues who responded to the survey do not work with the students the entire time they are in the program. Not making time to study or review on a regular basis (*n*=2) and lack of self-motivation/effort (*n*=2) was the second largest response from faculty and staff. Lack of mastery of the material appeared once from faculty/staff in regards to this question. However lack of mastering the material could be directly related to not making time to study or review on a regular basis.

Table 3

Challenges while Preparing for the Registry Exam

Responses	Number of Responses
Not aware of any	3
Not Making time to study or review on a regular basis	2
Lack of self-motivation/ effort	2
Lack of Mastery of the Material	1

Note. Faculty/Staff responses to challenges students faced while preparing for the registry exam in descending order.

One person responded "well defined career choice is critical to success" as an additional thought or comments about student challenges which came to mind while answering the questions.

Similar challenges colleagues identified at different stages throughout the program were; financial, not academically prepared, ability to think critically, mental health, and lack of motivation/effort.

Student survey.

Out of the twenty four surveys sent to students eighteen were returned completed. The number of first year students, second year or former students was not tracked. Student surveys were collected and reviewed using the constant comparative method. Responses were analyzed several times for similarities in responses. Challenges identified in the student's responses were used to create three separate charts, one for each question asked, in descending order. Only descriptive data was reported, not reliability and validity.

Student Survey Results

In regards to the question asking students to identify challenges they faced prior to being accepted into the program (*Table 4*), the most common response (*n=6*) was the pre requisite requirements which were needed to apply to the program. The next two most popular responses (*n=4*) were in regards to students being unsure of their major or career path and the fear of not being accepted into the program. The third most common response (*n=2*) related to the application process. Responses which appeared one time on the student survey were; financial, death in the family, fear of doing something I had never done before, gaining support from family and friends, transferring from out of state, and giving up full time job and starting over.

Table 4

Challenges before entering the Program

Responses	Number of Responses
Pre requisites (patient care hours, physiology, college algebra (on-line), passing pre requisite classes, meeting requirements (CPR), CNA course)	6
Not sure of major/career path.	4
What if I don't get accepted?	4
Application process	2
Financial	1
Death in the family	1
Fear of doing something I had never done before.	1

Gaining support from family and friends	1
Transferring from out of state, time change to talk to someone	1
Giving up full time job and starting over	1

Note. Student responses to challenges students faced prior to entering the program in descending order.

In response to the challenges students faced while in the program (*Table 5*), study habits (*n*=12) appeared the most. Balancing school, clinical, family, friends, work, rest and commuting (*n*=6) and the distance to clinical sites (*n*=6) was mentioned the second most in their responses. Thirdly, (*n*=4) students responded the first semester was the toughest. The fourth most common responses from students was both housing during clinical (*n*=2) and on-line learning (*n*=2). Some additional challenges which were mentioned by students, but only appeared once on the surveys were: being exposed to sick people, clinical staff not wanting to work with students, drama within the cohort, financial, material not interesting, passing Anatomy and Physiology, turmoil in clinical departments, social aspects of college and worrying about passing.

Table 5

Challenges While in the Program

Responses	Number of Responses
Study Habits	12
Balancing school, clinical, family, friends, work, rest and commuting	6
Distance to clinical	6
First semester was toughest.	4
Housing during clinical	2
On-line learning	2
Being exposed to sick people	1
Clinical staff not wanting to work with students	1
Drama within the cohort	1
Financial	1
Material not interesting	1
Passing Anatomy and Physiology	1
Turmoil in clinical departments	1

Social Aspects of college	1
Worrying about passing	1

Note. Student responses to challenges they faced while in the program in descending order.

For the student survey in response to the challenges they faced while preparing for the

registry exam (*Table 6*), the majority (*n*=5) responded knowing what to study. The amount of

information (*n*=4) was the second largest response. The third most common challenges students

identified was studying current information while reviewing for the registry exam and applying

for jobs (*n*=3).   Fear of failure (*n*=2) was the fourth most common challenge identified by

students. Some additional challenges which were mentioned by students, but only appeared once

on the surveys were: balancing studying, work, family and friends, hard to stay focused, moving,

on-line review/testing and using critical thinking skills.

Table 6

Challenges while preparing for the Registry

Responses	Number of Responses
Knowing what to study	5
Amount of information	4
Studying current information while reviewing for registry and applying for jobs.	3
Fear of failure	2
Balancing studying, work, family and friends.	1
Hard to stay focused.	1
Moving	1
On-line review/testing.	1

Note. Student responses to challenges they faced while preparing for the registry exam in descending order.

Several students added additional comments or thoughts after answering the first three

questions (*Table* 7). There were two comments which appear the most in this section, those

comments were, didn't care for independent or small group work (*n*=2) and with effort every

student can succeed (*n*=2). Some additional comments students made were; cheaper when

compared to other schools, distance to clinical, enjoyed didactic/clinical mix, enjoyed hands on

learning, felt behind when other students found jobs before graduation, figuring out what I was

doing, program was harder than I expected and very happy with program.

Table 7

Additional Comments (Students)

Responses	Number of Responses
Didn't care for independent or small group work.	2
With effort every student can succeed.	2
Cheaper when compared to other schools	1
Distance to clinical	1
Enjoyed didactic/clinical mix.	1
Enjoyed Hands on learning.	1
Felt behind when other students found jobs before graduation.	1
Figuring out what I was doing.	1
Program was harder than I expected.	1
Very happy with program.	1

Note. Student's additional thoughts or comments about challenges that came to mind while answering the questions.

Similar challenges students identified at different stages throughout the program were;

financial, distance to clinical, balancing school, clinical, family, friends, work, rest and

commuting, and on-line learning.

Comparative Analysis

The data collected from the faculty and staff survey was then compared with the data

from the student survey in order to determine if there were significant differences between the

two. This was done to determine whether faculty and staff had a clear understanding of the

challenges students face at the three different levels in the program.

Similarities between the faculty/staff survey and student's survey which appeared in respect to challenges faced prior to starting the program (*Table* 8) were in regards to the application, financial and major/career path.

Table 8

Challenges Prior to coming into the Program

Faculty/Staff	Number of Responses	Students	Number of Responses
Application	5	Application	2
Financial	2	Financial	1
Incorrect Career Decision	1	Not sure of major/career path	4

Note. Similar responses from Faculty/Staff and students.

Similarities between the faculty/staff survey and student's survey which appeared in respect to challenges faced while in the program (*Table* 9) were in regards to study skills, housing for clinical and clinical mentors.

Table 9

Challenges while in the program

Faculty/Staff	Number of Responses	Students	Number of Responses
Poor study skills	4	Study habits	12
Housing for Clinical	2	Housing for clinical	2
Poor clinical mentors	1	Clinical staff not wanting to work with students	1
Financial	1	Financial	1
Juggling work, school, family/significant others and fun/recreation.	1	Balancing school, clinical, family, friends, work, rest and commuting.	6

Note. Similarities in responses from faculty/staff and students.

The only similarities between the faculty/staff survey and student's survey which appeared in respect to challenges faced while preparing for the registry exam was lack of self-motivation/effort.

Table 10

Challenges while preparing for the registry

Faculty/Staff	Number of Responses	Students	Number of Responses
Lack of self-motivation/effort	2	Hard to stay focused.	1

Note. Similarities in faculty/staff and student responses.

Differences between the faculty/staff survey and student's survey which appeared in respect to challenges faced prior to starting the program (*Table 11*) were in regards to students not being academically prepared, ability to think critically, turning in the application on time, mental health, doing it for their spouse or parents, prerequisite requirements, the fear of not being accepted, a death in the family, the fear of doing something new, transferring from out of state and giving up a full time job and starting over. Overall there were seven different response for both faculty and staff and students.

Table 11

Challenges prior to entering the program

Faculty/Staff	Number of Responses	Students	Number of Responses
Not academically Prepared	2	Prerequisites	6
Ability to think Critically	1	What if I don't get accepted?	4
Tuning in application on time	1	Death in the family	1

Mental Health	1	Fear of doing something I haven't done before	1
Doing it for spouse/parents	1	Gaining support from family/friends.	1
Lack of knowledge about time commitment.	1	Transferring from out of state.	1
Unclear about distance to clinical sites	1	Giving up a full time job and starting over.	1

Note. Differences between faculty/staff and student responses.

Differences between the faculty/staff survey and student's survey which appeared in respect to challenges faced while in the program (*Table 12*) were in regards to students not being academically prepared, mental health, students not getting enough comps during clinical due to insecurities, students lack of ability to think critically, the distance to clinical sites, the first semester was the toughest, on-line learning, being exposed to sick people, drama within the cohort, material not interesting, passing anatomy and physiology, turmoil within clinical departments, the social aspects of college and worrying about passing. Overall there were four different response for faculty and staff and ten different responses for students.

Table 12

Challenges while in the program

Faculty/Staff	Number of Responses	Students	Number of Responses
Not academically prepared.	2	Distance to clinical	6
Mental Health	1	First semester was the toughest	4
Not getting enough comps during clinical due to insecurities	1	On-line learning	2
Lack of ability to think clearly	1	Being exposed to sick people	1
		Drama within the cohort	1

Material not interesting	1
Passing Anatomy and Physiology	1
Turmoil within clinical departments	1
Social aspects of college	1
Worrying about passing	1

Note. Differences in faculty/staff and student responses.

Differences between the faculty/staff survey and student's survey which appeared in

respect to challenges faced while preparing for the registry exam (*Table 13*) were in regards to

students not making time to study/review, lack of mastery of the material, knowing what to

study, the amount of information, studying current information while reviewing for the registry

and applying for jobs, the fear of failure, balancing studying, work, family and friends, moving,

on-line review/testing and using critical thinking skills. Overall there were three different

response for faculty and staff and eight different responses for students. In addition three of the

faculty or staff were not even aware of challenges students face while preparing for the registry

exam.

Table 13

Challenges while preparing for the registry

Faculty/Staff	Number of Responses	Students	Number of Responses
Not aware of any	3	Knowing what to study	5
Not making time to study/review	2	Amount of information	4
Lack of Mastery of the material.	1	Studying current information while reviewing for the registry and applying for jobs.	3
		Fear of failure	2

		Balancing studying, work, family and friends.	1
		moving	1
		On-line review/testing	1
		Using critical thinking skills	1

Note. Differences between faculty/staff and student responses.

Discussion

Overall, the faculty/staff and students did not demonstrate consistency or cohesiveness in their understanding of challenges students face at the three different stages of the Radiography program. This demonstrates there is a strong need to communicate the actual challenges students face at different stages of the program in order to better serve the students at Midwest College.

Colleagues and students both mentioned comments in relationship to studying as a challenge while in the program and while preparing for the registry exam. This leads the researcher to believe there is a need for intervention when it comes to students study skills. One idea to address the comments about studying would be to form a study group for students immediately following lecture. This will allow students to share notes and clarify information with each other. Perhaps if this type of activity is assigned studying will become less taxing for the students.

Some challenges which were brought forward in the student survey are things which cannot be addressed, such as, the distance to clinical sites, however this is an area the program can work to communicate to the students prior to coming into the program. Perhaps if students had a better understanding of the distance to clinical sites they would be able to make an informed decision if this is the best program for them.

Despite the researcher's best attempt to remain unbiased, the researcher's interpretation of the responses from faculty, staff and students while doing the comparative analysis of the

surveys is subjective. If the same data were to be interpreted by another researcher it could have

a slightly different outcome.

5. Conclusion

Educational Implications

From the pedagogic perspective, it is imperative faculty have a good understanding of the challenges the students they serve are facing. This understanding allows them to adapt their teaching methods and communication to remove student challenges. Students have various needs and it is imperative to meet those needs.

The results of this research is of great value to the instructors in the radiography program and the staff from student services who counsel and recruit Radiography students by providing a snapshot of opportunities /challenges that may affect students in the program moving forward. Using this data will broaden our understanding of actual challenges from the student's prospective and contribute to a quality educational experience for students.

Leadership Implications

By identifying the actual challenges students face the researcher has gained a better understanding of the obstacles to student success. It also allows the program to identify challenges and possible solutions. The leadership implications of this study are it will contribute to the common good of Midwest College and the Radiography program, start communication, provide data to initiate change, and contribute to the overall systems thinking of the college.

Knowing the challenges students face removes barriers to faculty and staff being able to intervene and enables them to offer guidance to the students. This will help to contribute to the overall experience of the students within the radiography program. Furthermore, the data could be used to explore if students in other programs at Midwest College experience some of the same challenges.

This study addressed whether the challenges faculty and staff felt students faced while in the program were similar to the challenges students expressed. It is clear from the results of comparing faculty and staff responses from student responses, the faculty and staff are limited in their understanding of the actual challenges students face. This indicates a need for communication to faculty and staff regarding the challenges the students identified.

Armed with the data from this survey, the next step will be to develop a list of informational documents to educate faculty within the Radiography department and college. This communication will increase awareness of the actual challenges students face. When faculty have an increased cognizance of challenges students face it will help them grow as faculty and may also assist the faculty to support other staff at the college to enhance meeting the needs of their students.

Equipped with a better understanding to the challenges students face, changes to current practices and policies whenever possible can be initiated. Working together, faculty and staff, can develop a plan to better serve students and possibly minimize their challenges whenever possible. As a result, any changes to the program and policies will help to foster and strengthen student experiences. Changes, in turn, will enhance student overall satisfaction while in the Radiography program at Midwest College and will contribute to their success and possibly increase retention rates. Students are one of the biggest assets at any college and we need to protect the relationships with students and ease challenges they face whenever possible.

In addition, this knowledge gives the data needed to analyze the current policies and practices within the program which could be redesigned to better meet the needs of the students. Along with the list of challenges communicated to faculty and the college will accompany suggested recommendations to address these challenges. This list can be used to trigger

additional recommendations and start a change process which in turn will contribute to student's satisfaction and retention.

If the program and college, as a system, were to work together to remove some of these challenges, it is possible students will be more successful and the retention rates could increase**.** This will allow for a better overall experience for students. Even if there are not immediate resources available to students this increased awareness of the faculty and staff and the college will help to target guidance and services, and to better serve the students.

Recommendations for Future Research

In regards to this study, it would have been beneficial to include whether the students were in their first year of study or second to explore when intervention would be most beneficial. Additionally, a similar study which contacted students who were interested in the program and did not get accepted would contribute to more thorough understanding of the challenges students face prior to coming into the Radiography program.   Another area which would have been beneficial is to include the student demographic specific to age to explore challenges in relationship to this demographic.

Some additional research items are discussed below. First, could the challenges students face in the Radiography program be similar to challenges in other programs at Midwest College? A future study across programs at the same college would be helpful in answering this question. Second, comparing challenges at different colleges in regards to geographic location, resources available and the demographics which constitute the cohorts would contribute to a better understanding if demographics contribute to student challenges. Finally, if changes are made to program policies and practices further research

would be beneficial to demonstrate if the changes resulted in removing some of the challenges students mentioned in this study.

Conclusion

Even though the data was collected from students of one school it may be useful for other Radiography programs. Due to the demographics and geographic location of the college if another Radiography program were to desire to explore challenges their students face at the same stages within the program they could use this information as a starting point to explore the challenges students face in other Radiography programs. This study was specific to one school in the Midwest and results could be used as a comparison for future studies. Further research may also lead to increase student satisfaction and retention in additional programs throughout colleges.

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Appendix A

Cover Letter for Colleagues

Valarie Bere RT (R) (CT) (M)
Minnesota State College Southeast Technical
1250 Homer Road
Winona, MN
March 31, 2017

Dear:

As you know, I am currently working on completing my graduate degree from Winona State University. For my capstone project I have chosen to research challenges student's face while attending Minnesota State College Southeast in the Radiography program

In order to explore more in depth the challenges students face while completing the program I am asking for you to help start the research by answering a short survey. Your participation is voluntary and all responses will remain anonymous in the final capstone project.

Please take the time to print the attached survey and return it to me at your earliest convenience.

Thank you in advance for taking part in the survey and your support in this endeavor

Sincerely,

Valarie Bere RT(R) (CT) (M)
Radiography Program Director/Faculty

Appendix B

Questionnaire for Colleagues

1. What are some of the challenges you have noticed students face:

   A. Before being accepted into the Radiography program?

   B. While in the program?

   C. While preparing for the registry exam?

   D. Please include any additional thoughts or comments about student challenges that have come to mind while answering these questions.

Thank you for your participation

Appendix C

Cover Statement for Students

Valarie Bere RT (R) (CT) (M)
Minnesota State College Southeast Technical
1250 Homer Road
Winona, MN
April 30, 2017

Dear Students:

As you know, I am currently working on completing my graduate degree from Winona State University. For my capstone project I have chosen to research challenges student's face while attending Minnesota State College Southeast in the Radiography program

In order to explore more in depth the challenges students face while completing the program I am asking for your help by answering a short survey. Your participation is voluntary and all responses are anonymous and cannot be traced back to you.

Please take the time to complete the survey. Once complete print it and bring to class to place in the envelope I will provide.

Thank you in advance for taking part in the survey and your support in this endeavor

Sincerely,

Valarie Bere RT(R) (CT) (M)
Radiography Program Director/Faculty

Appendix D

Questionnaire for Students

What are some of the challenges you faced in relationship to the radiography program:

1. Before being accepted into the Radiography program?

2. While in the program?

3. While preparing for the registry exam?

4. Please include any additional thoughts or comments about student challenges that have come to mind while answering these questions.

Thank you for your participation