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Evaluating Nursing Education Diversity: A Minority Student Enrollment Dashboard for
Quality Improvement

DNP Project
Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

St. Catherine University
St. Paul, Minnesota

Suzanne Marie Lehman

May 2018

ST. CATHERINE UNIVERSITY
ST. PAUL, MINNESOTA

This is to certify that I have examined this
Doctor of Nursing Practice DNP project
written by

Suzanne Marie Lehman

and have found that it is complete and satisfactory in all respects,
and that any and all revisions required by
the final examining committee have been made.

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June 28, 2018
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DEPARTMENT OF NURSING

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Abstract

Healthcare organizations nationwide have identified a relationship between the absence of minority representation in the healthcare professions, and poor health outcomes for minority patients. The issue of healthcare disparities is complex, but it has become clear that an increase in the number of minority healthcare professionals improves patient access to culturally relevant care which can positively impact outcomes. As the largest segment of the healthcare workforce, nurses have a critical role in shifting the racial demographics in the healthcare workforce. The journey toward increased minority representation in nursing begins with efforts in nursing education to successfully recruit, retain, and graduate minority students. As with other hallmarks of nursing education excellence, program diversity goals should be integrated into the program outcomes and systematically evaluated as part of an annual quality cycle. Qualitative and quantitative data regarding minority student success is an integral part of establishing and evaluating program diversity. Minority student enrollment is one such source of data. Access to enrollment data is necessary to monitor patterns and trends in student numbers in response to strategies related to recruitment, admission, curriculum, pedagogy and other interventions implemented to support the success of minority students. This quality improvement project focused on increasing access to minority student enrollment data through the implementation of an information dashboard. The results of the project demonstrated the implementation of a dashboard increased access to minority student enrollment data and presented the data in a format that was clear and user friendly.

Evaluating Nursing Education Diversity: A Minority Student Enrollment Dashboard for

Quality Improvement

Table of Contents

Abstract.....	4
Introduction	6
Background	6
Needs Assessment.....	8
Purpose.....	9
Theoretical Framework.....	9
Literature Review.....	12
Search Strategy.....	12
Synthesis of literature.....	13
Project Implementation	16
Evaluation.....	21
Discussion.....	22
Recommendations.....	23
Future Implications.....	23
Conclusion.....	24
References.....	25
Appendices.....	29
Appendix A: Literature Search Terms and Results	
Appendix B: Project Outline	
Appendix C: Minority Student Enrollment Dashboard	
Appendix D: Proposed Workflow for Minority Student Enrollment Dashboard	

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Quality Improvement

Introduction

Quality matters is a phrase often used to describe the healthcare communities commitment to excellence, but despite efforts to deliver excellence, racial disparities in healthcare access and quality persist. An integral part of delivering excellence in patient care is the intentional engagement with a process of continuous quality improvement. The nursing profession can play a significant role in eliminating healthcare disparities through participation in quality improvement initiatives that address racial disparities in both nursing education and practice. This paper describes the implementation of a quality improvement project in nursing education designed to increase access to data for the purposes of evaluating program outcomes related to minority student success.

Background

According to recent census data, racial minority groups are the fastest growing segment of the population in Minnesota (United States Census Bureau, 2010), but even as the percentage of minorities increases there continues to be overwhelming data documenting inequity in both healthcare quality and access for minority populations in the state (Minnesota Department of Health, 2014). Minnesota currently ranks in the top quartile for healthcare quality and access nationally and in the bottom quartile for healthcare quality experienced by minority patients as compared to white patients (Agency for Healthcare Research and Quality, 2016). The development of a racially representative healthcare workforce has been identified as an important step toward addressing this complex issue (Agency for Healthcare Research and Quality, 2016; American Association of Colleges of Nursing, 2015; National Advisory Council on Nurse

Education and Practice, 2013; United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, 2015).

As the largest segment of the healthcare workforce, nurses have a tremendous capacity to influence the patient care experience, but the current racial demographics of nursing are far from representing the general population. In Minnesota, minorities account for 19% of the overall population, but only 7.2% of practicing registered nurses (Minnesota Board of Nursing, 2015). The percentage of minority registered nurses in Minnesota is less than half the average found nationally. A nursing workforce that is reflective of the racial and cultural diversity of the community supports culturally responsive care and contributes to improved patient outcomes (Ayoola, 2013).

Nursing education plays an important role in helping the profession address issues of workforce diversity through the increase of minority students admitted and graduated from nursing programs. Minnesota state data indicates the number of minority students enrolled in undergraduate and graduate programs has improved, but nursing education programs still struggle to retain and graduate minority nursing students (Minnesota Board of Nursing, 2015). A failure to graduate diverse cohorts at all program levels has a negative impact on our ability as a profession to expand the number of minority nurses in practice. In order for nursing education programs to collaborate fully with nursing practice, nursing education must make evidence based decisions to successfully support minority students in an academic setting. Data regarding current rates and trends in minority student enrollment are a valuable starting point in the establishment of program goals, program planning, and evaluation (Health Resources and Services Administration, 2011). Data and benchmarking can create a culture of evidence in nursing education that leads to

improvement in practices, processes, and program outcomes (Billings, 2007). This quality improvement project serves as an example for how nursing education programs can utilize information systems to enhance decision making and program outcome evaluation related to nursing education diversity.

Needs Assessment

St. Catherine University has been educating nurses in Minnesota for over 80 years. The St. Catherine University Department of Nursing is comprised of seven nursing programs that provide education to students at the baccalaureate, graduate, and doctoral levels. The department has identified a commitment to social justice and diversity which is articulated in the departmental philosophy and diversity statements. The Department of Nursing is actively engaged in a cycle of quality improvement on both a departmental and program level. Additionally, the department has strived to improve and evaluate program success with serving diverse student populations through integration of diversity goals into the departmental strategic plan. In the most recent strategic plan (2013-2017) student enrollment data was proposed as a metric to be reviewed and analyzed annually for differences in attrition related to race, gender, or ethnicity. The needs assessment revealed the review and analysis of enrollment data by race was not completed due to a lack of access to minority student enrollment data.

Purpose

The purpose of this quality improvement project is to develop an information dashboard that improves nursing program director access to minority student enrollment data. The project PICO questions is, for nursing program directors, does the implementation of an information dashboard improve access to minority student enrollment data? Informatics is defined as the use of data to

support work (Staggers & Thompson, 2002). Culturally responsive curriculum, pedagogy, and student support services should be informed by good informatics. Inconsistencies and gaps in the availability of data can create barriers to evaluating the effectiveness of current program strategies, and create unnecessary challenges around locating student data to support the need for changes and additional resources.

Literature Review

Search Strategy

The literature search was guided by the needs assessment and sought to answer questions posed by the Data Information Knowledge Wisdom (DIKW) theory in relation to the development of an information dashboard to improve access to data for program evaluation. The search was initiated with the identification of key search terms and synonyms related to student enrollment, minority students, program evaluation, dashboard information systems, and usability evaluation (see appendix A). The main search terms were combined and expanded to include the phrases “student attrition in higher education”, “nursing program evaluation”, “organizational performance evaluation”, and the use of benchmarking and dashboards. Articles included in the search were published in the last 10 years, peer reviewed journals, and in searches related to higher education outcome evaluation practices, limited to articles from the United States. In response to limited information available in the nursing literature related to program outcome evaluation and the use of information systems and dashboards, the search was expanded to include literature from education and business databases.

The databases chosen included CINAHL, Academic Search Premier, Business Source Premier, and EBSCO MegaFILE. Initial search strategy included individual concepts in a single database.

The searches yielded from six to over 6,000 articles depending on the combination of terms and databases utilized and progressed to the use of combined terms using ‘and/or’, use of database headings, and advanced search options to increase the yield and relevancy of the articles to the PICO question. Inclusion criteria were identified and applied to the search process. Eighteen articles were selected for review, three articles were eliminated following full review and appraisal because the information they contained was either not relevant or not useful in answering the PICO question.

Synthesis of the Literature

A search of the literature related to nursing program evaluation yielded articles discussing experiences with implementing a systematic plan for program outcomes related to students, the establishment of outcome measures, and a methodology for measuring progress. Despite the limited number of articles addressing nursing program evaluation and the use of information systems, conclusions reported in these articles urge the importance of continued and expanded research into the development of processes and interventions to support systematic evaluation of program outcomes including interventions to support the tracking and measurement of minority student retention (Delen, 2011; Hamner & Bentley, 2003; Sewell, Culpa-Bondal, & Colvin, 2008; Wells, 2003).

. The literature discussed the use of data to create program outcome benchmarks and guide decision making as being essential to program quality improvement (Delen, 2011; Hamner & Bentley, 2003; Sewell et al.; 2008, Papes & Lopez, 2007; Robertson, Canary, Orr, Herberg, & Rutledge, 2010). As with other outcome measures, a dashboard to track minority student retention and graduation outcomes should be developed based on the mission and vision of the institution, program goals, and user preferences (DeBusk, Brown, & Killough, 2003; Donaldson, Brown,

Aydin, Bolton, & Rutledge, 2005; Jeffs, Beswick, Chuun, Lai, Campbell, & Ferris, 2014; Kroch, Vaughn, Koepke, Roman, Foster, Sinha, & Levey, 2006; Yigitbasioglu, & Velcu, 2012).

Furthermore, the definitions for the data elements and the methodology for the calculations should be clearly identified and communicated to all stakeholders (Jeffreys, 2007). Stakeholders should include nursing program administrators, representatives from institutional assessment, and representatives familiar with all source databases from which the data will be extracted.

Additionally, authors report dashboards are adopted to not only present data on key issues, but also serve as both a tool to communicate with organizational stakeholders and to function as a method for increasing general awareness of organization progress related to priorities and outcomes (Kroch et al., 2006, Yigitbasioglu & Velcu, 2012).

The evidence further concluded that use of information dashboards acted as a decision support tool during program planning and opened up additional opportunities for users to track the impact of interventions on outcomes. All the articles emphasized the importance of making sure the dashboard did not include too much information because doing so would undermine the effectiveness of the tool and decrease the usability (DeBusk et al., 2003, Donaldson et al., 2005, Jeffs et al., 2014, Kroch et al., 2006, Yigitbasioglu & Velcu, 2012). The articles also discussed best practices related to the formatting of the dashboard and recommended the dashboard be limited to one screen or paper page with effective use of graphs and visuals to display information, and updated on at least an annual basis (Kroch et al., 2006; Yigitbasioglu & Velcu, 2012).

Differences noted in article findings did not represent conflicts in recommendations, but rather reflected variations in article focus and emphasis. Donaldson et al. (2005) discussed the critical importance of initial and ongoing surveillance of the data included in the dashboard to ensure it is reliable and valid. Jeffs et al. (2014) described strategies to improve user acceptance and

engagement with the dashboard tool including the importance of support from organization leadership and a process to introduce and educate stakeholders regarding its purpose and use.

A search of the literature revealed a gap in the availability of research evidence related to the use of dashboards in education settings. There was no literature found regarding the use of dashboards in nursing education or higher academic settings particularly as a tool for program or quality improvement. The literature available exploring the use of dashboards in nursing program evaluation is limited, but the literature regarding nursing program evaluation universally emphasizes the need for further research regarding best practices for establishing program outcome measures, evaluation processes, and monitoring minority student enrollment and retention in nursing education (Billings, 2007; Papes & Lopez, 2007). A review and synthesis of the evidence further supports the benefit of implementing interventions to organize and improve stakeholder access to data that can be used for program outcome evaluation and decision support. The risks of harm in providing aggregate data in a dashboard lies in the inaccuracies in the data or bias in the way the data is presented, analyzed and interpreted by users. If the data is clear, accurate and presented without bias, it has the potential to add benefit to the departmental quality cycle and improve access to evaluation evidence.

Theoretical Framework

This project is organized around the Data-Information-Knowledge-Wisdom (DIKW) framework and the Model for Improvement (MFI) which incorporates the Plan-Do-Study-Act (PDSA) methodology. The DIKW framework is an informatics theory adopted by the American Nurses Association to guide informatics research (American Nurses Association, 2008). The framework uses the concepts of data, information, knowledge, and wisdom to describe the process by which informatics transforms data into applied wisdom that is relevant to a specific setting

(Topaz, 2013). This four step process begins with identification of the data set and its source followed by organization and presentation the data to reveal patterns and meaningful information. The third and fourth steps of the theory involve the analysis of the information to create a set of knowledge that answers questions like “why” or “how”, and then applying this knowledge to reveal wisdom about a specific situation or setting. This project focuses on the first two steps in the DIKW process (Figure 1.0). The analysis of the information and subsequent transformation of the data into program knowledge and wisdom is beyond the scope of this project. The DIKW theory assumes data can be organized and presented to clarify relationships and patterns in ways that bring to light new meanings and wisdom for improved practice. This assumption suggests that attentiveness to the concepts and steps of the theory at each step will guide transformation of the data into wisdom. This transformative process is facilitated by seeking answers to these questions posed by the theory:

1. What data is needed?
2. How it will be used and formatted?
3. Who will use it?
4. Why will this data be useful in helping address an identified problem?

The development and implementation of this project was guided by these questions as the project unfolded. The questions guided the needs assessment and literature search, helped identify the best source of data and what data to include. As the project progressed the DIKW questions helped to explore the implications of factors involving the end user experience, and the development of an information system. It is hoped that the successful development of the minority student enrollment dashboard will serve as a foundation for the progression of the data toward increased knowledge

and wisdom related to enrollment patterns and trends and what they can reveal about diversity in the nursing department.



Figure 1.0 Data-Information-Knowledge-Wisdom Framework (Topaz, 2013)

The goal of the Model for Improvement framework is to plan, implement, and evaluate quality improvements through the use of successive cycles of small changes using the Plan-Do-Study-Act (PDSA) methodology until the desired outcome is achieved (Institute for Healthcare Improvement, 2018). The framework proposes that each cycle of improvement should be guided by three overarching questions:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What changes can we make that will result in improvement?

Quality improvement interventions implemented using the PDSA rapid cycle change methodology utilize small sample sizes in a specific setting. The MFI framework and PDSA methodology encourages the development of innovative ideas for quality improvement.

Project Implementation

The implementation phase of the project was planned using the information gathered in the needs assessment and literature review and designed utilizing the questions posed in the DIKW theory and the MFI framework. The project implementation plan was designed to answer the Model for Improvement questions using the PDSA rapid cycle methodology (see Appendix B). There were two PDSA cycles conducted during the development and implementation of this project. The initial PDSA cycle of started with a thorough assessment of the ways in which enrollment data are collected, organized and shared between stakeholders in the University, and an examination of variables affecting the development of a draft information dashboard (see Table 1.0).

PDSA Cycle 1	
1. What are we trying to accomplish?	Transformation of minority student enrollment data into a draft information dashboard
2. How will we know that a change is an improvement?	Solicit informal feedback about the draft dashboard from internal stakeholders.
3. What changes can we make that will result in improvement?	Modify format based on comments received

Table 1.0 Model for Improvement PDSA cycle 1

Planning was started with stakeholder interviews to examine those variables including an assessment of:

- Existing workflow, information systems, and stakeholders involved in the collection of student racial demographic data for each nursing program.
- The implications and limitations of Family Educational Rights and Privacy Act (FERPA) in storing student data.

- End user proficiency with informational technology (IT) and access to existing University information systems.
- The impact of financial considerations on the development and implementation of an information dashboard.

The initial draft design of the dashboard was significantly influenced by the information systems in use at the University, the current workflow and data dissemination practices, and user needs. At the conclusion of this assessment and review two determinations were made. First, the most consistent and accurate source of racial demographic data could be retrieved from the Banner Student Information System by the University Office of Institutional Research, Planning, and Accreditation annually in the fall of each academic year. Second, a data table created in Microsoft Excel would be the most appropriate format for the dashboard.

The search to locate the most accurate source of racial demographic data included a review of multiple University and departmental information systems and processes. Sources reviewed included the Banner Student Information System, undergraduate admission processes, the graduate admission process for collecting racial demographic information through the Nursing Centralized Application Service (Nursing CAS), and the Access database utilized by the Department of Nursing and the University undergraduate admission and advising offices to maintain student demographic data. The University Banner Student Information System was determined to be the most complete and accurate source for student self-identified racial demographic data. Although the workflow and systems utilized to gather the data during the admission processes may vary depending on the program, ultimately the Banner system is the final repository for race data. This racial demographic data can then be retrieved along with student enrollment lists for each academic program. It was also determined data from Banner is utilized

by the University for internal reporting activities and data dissemination to external regulatory bodies and stakeholders. In addition to being the most accurate and complete source of nursing student enrollment data, the utilization of data from the Banner Student Information System creates an important opportunity for nursing program administrators to review, validate or dispute the accuracy of the data and to make recommendations to University administrators regarding changes in program coding that may affect the accuracy and scope of the data. The decision to utilize a table in Microsoft Excel for the creation of the draft dashboard was based on an assessment of user needs, user access to on-campus information systems, financial and FERPA considerations, and the analysis of the strengths and limitations of utilizing various information systems. The questions posed in the DIKW theory were embedded in the process and helped define the variables explored and assisted in the development of the draft dashboard. The first draft of the dashboard was implemented in Excel and informally reviewed by one administrative support staff and four members of the nursing department administrative team to gather feedback prior to initiating the second PDSA cycle.

An application was submitted to the St. Catherine University Institutional Review Board (IRB) seeking exemption for the implementation of the second PDSA cycle of the quality improvement project (see Table 2.0 for summary of the second PDSA cycle). An expedited exempt IRB approval was received and a purposive sample of seven nursing program directors at the University was recruited via email to participate in the project. Nursing program directors were selected as project participants because they have a key role in program evaluation and the Department of Nursing quality cycle. They serve as primary participants in the coordination and facilitation of discussions and decisions related to the establishment and measurement of program

outcomes in the quality cycle. Program directors also have an awareness of the systems and processes that impact student enrollment in their respective programs.

Five program directors agreed to participate and informed consent was obtained. Participation in the project included a 30 minute interview, followed by the completion of a 20 minute user education video, review of the dashboard, and an online user feedback survey. The directors represented two pre-licensure baccalaureate programs, an RN-BSN program, a graduate nurse educator program, master's level nurse practitioner program, and a doctorate of nursing practice program. Following completion of the informed consent each participant was asked to schedule a one-to-one interview with the project coordinator. This face-to-face interview was conducted to assess current evidence being utilized by each nursing program director to evaluate the success of minority students. In addition to assessing current practice and challenges related to evaluating program success with minority students, program directors were asked to define enrollment management terms and discuss their understanding of the significance and rationale for utilizing minority student enrollment as a metric for evaluating program outcomes.

PDSA Cycle 2	
4. What are we trying to accomplish?	Introduce updated dashboard
5. How will we know that a change is an improvement?	Participants will complete a dashboard usability survey following an education module and review of the dashboard
6. What changes can we make that will result in improvement?	Dashboard will be modified based on comments received from survey

Table 2.0 Model for Improvement PDSA cycle 2

The audiotaped interviews and interviewer notes were reviewed to identify themes that could be used to assess student enrollment data needs, modify the final dashboard format, and develop a user education module to accompany the minority student enrollment dashboard. Of the five

participants, three identified a need for student enrollment data related to overall student numbers. The remaining two participants stated they currently maintained their own student enrollment numbers without difficulty due to the small enrollment numbers in their respective programs. None of the program directors reported having access to student enrollment data organized by racial demographics. The participants were familiar with the enrollment terms, retention, attrition, completion and graduation. When asked whether they preferred the term attrition or retention, most described ‘retention’ as being more positive. Two participants pointed out that although the term ‘attrition’ was less positive, as a program it was important to focus on attrition as a focal point for evaluating areas of concern related to minority student success. Information regarding participant understanding of enrollment terms was used to guide the development of the dashboard user education module and formulate future recommendations. Additionally, the interviews yielded participant requests for access to additional data including pre-admission GPA, years practicing as an associate degree nurse (for those enrolled in the RN-BSN program), and qualitative data regarding the experience of enrolled minority students.

The data collected in the interviews were used to guide the development of the user education module and the minority student enrollment dashboard (Table 3.0). The second phase of the PDSA cycle included weekly meetings with administrative staff to update the draft dashboard to include feedback from participant interviews and fall 2017 student enrollment data and to add additional organizational and visual features to enhance usability, organization, and clarity of the data based on recommendations in the literature (see Appendix C). Participants received an email link to the online dashboard user education and a copy of the minority student enrollment dashboard to review following completion of the education module. The evaluation of the dashboard was completed via an online anonymous survey sent via email link to each project

participant. The evaluation survey solicited feedback on the usability of the dashboard related to format and function and access to minority student enrollment data (see appendix B).

User Education Module components
1. The source of the enrollment data.
2. The process by which student race demographics are collected at the University.
3. A definition and description of the purpose of a dashboard for communicating data.
4. Limitations of the dashboard as a decision support tool.
5. Best practices for the development and use of a dashboard.
6. The frequency of the dashboard and rationale for the chosen interval
7. The role of the dashboard in the program quality cycle
Minority Student Enrollment Dashboard
1. RN-BSN student enrollment program viewable by hybrid versus fully online
2. Enrollment information will begin with 2016 data. The year all programs were utilizing a cohort model
3. Added links to program enrollment lists in Smartsheet
4. A notes and attachment feature available in Smartsheet view of program enrollment lists. This feature can be used to attach qualitative notes about individual students.

Table 3.0 Modifications made to user education module and dashboard based on participant interview data.

Evaluation

The results of the final survey revealed positive user feedback regarding the usability of the dashboard related to the format and function of the dashboard and access to minority student enrollment data (Figure 1.0). The survey scores were analyzed to determine user experience with the usability of the dashboard and access to data. In all questions related to form, function, and accessibility dashboard users responded positively with “strongly agree” with the exception of the usability of the filter feature in the dashboard that was rated with “agree” by two of the users. The last section of the survey solicited comments regarding the scope and accuracy of the data. One

participant questioned the accuracy of the data and another expressed objections to the use of the word “minority” in the title of the dashboard and the limited options available to students for self-selecting their racial identity. The participant noted that the lack of specificity in the race categories was in itself an injustice that forced student’s to make a race choice that did not accurately reflect their identity. Lastly, one participant commented that the dashboard was a good start and would likely evolve with further use.

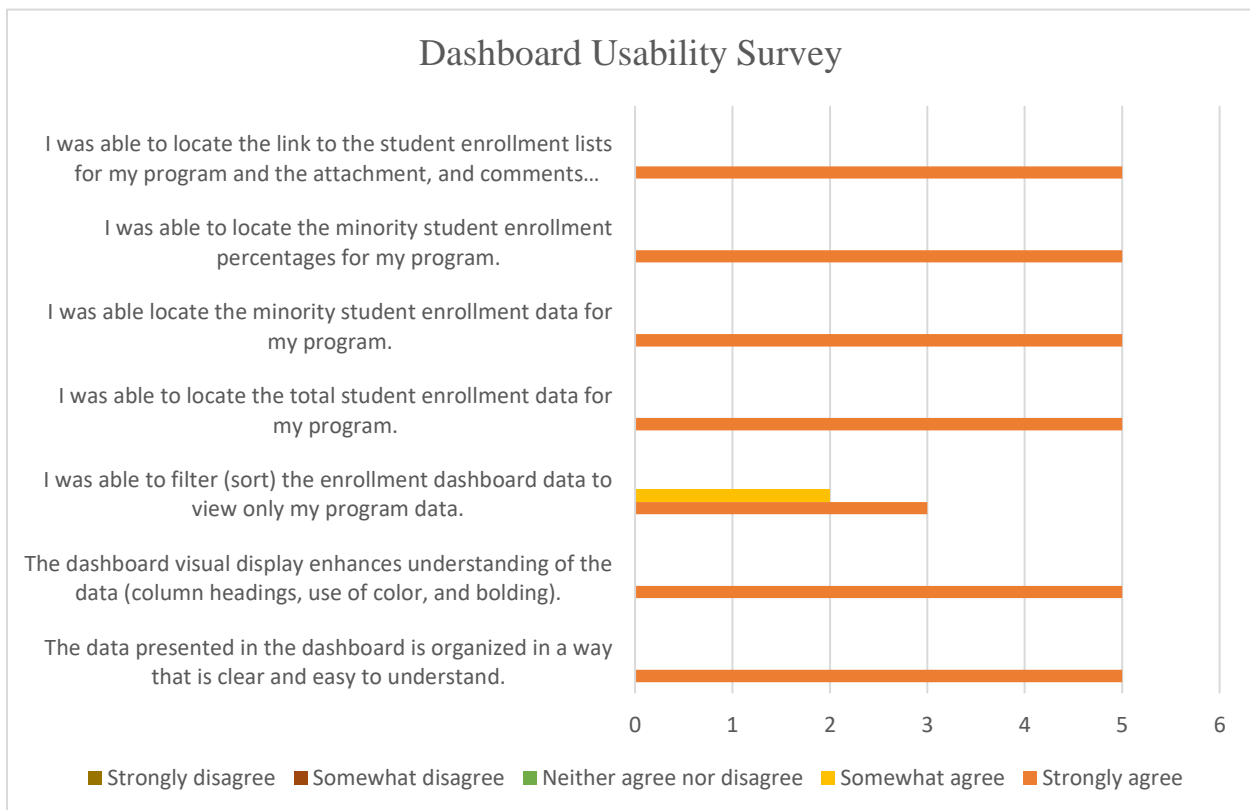


Figure 1.0 Dashboard usability evaluation survey results

Discussion

The final dashboard format successfully integrated institutionally sourced data, organized by program, race, and academic year into a user friendly format. The results of the evaluation survey were positive in response to the dashboard usability and access to minority student enrollment data. The dashboard format and function, and in turn the user experience, is limited by the

technology available at the time of the study implementation. Future exploration of other information systems, may lead to improved options for filtering and user experience.

The development and implementation of an information dashboard to improve access to minority student enrollment data was a complex process that was limited by existing institutional challenges with sharing and disseminating student data. The lack of coordination between the various information systems and stakeholders involved in collecting and managing nursing student demographic data lead to a lack of clarity regarding where or who to turn to for racial demographic data and enrollment numbers. Efforts to navigate the complexity included interviewing multiple internal stakeholders, identifying and learning about University databases, and mapping the workflow for the collection and dissemination of minority student enrollment data within and between the Department of Nursing and the University.

Recommendations

The final version of the minority student enrollment dashboard is a good resource for presenting enrollment data, but there are opportunities to improve the dashboard and its use moving forward. The following improvements are recommended in future PDSA cycles:

- Migrate the existing dashboard format into an information system that will allow enhanced filtering and presentation functions.
- Quality improvement project coordinator will identify and implement a workflow for integration of the dashboard into the annual nursing program quality cycle (see Appendix D).
- Progress through the third and fourth steps of the DIKW framework. This would involve an analysis of the accuracy of the information in the dashboard conducted by nursing program directors and an analysis of the implications of the enrollment information for each nursing program.

Future Implications

The implementation of the minority student enrollment dashboard has the potential to enhance communication with internal and external stakeholders, and promote consistency in the presentation and analysis of minority student enrollment data. The dashboard currently includes two years of enrollment data for each program. The annual addition of data will open up opportunities to monitor patterns and trends in enrollment for the purposes of establishing benchmarks in recruitment, admission, and graduation of minority students and to help facilitate the evaluation of current and future strategies to support minority student success over time.

Conclusion

Program evaluation is essential to ensuring quality in nursing practice and education. The implementation of information dashboards as a strategy to increase access to program evaluation data should be explored further in nursing education settings. This quality improvement project demonstrated an increase in access to student racial demographic data when institutional data was organized and presented in an information dashboard. Additionally, the development and implementation of the dashboard facilitated the identification of the key stakeholders, information systems and processes impacting access to racial demographic data and shed light on best practices for organizing and presenting the data in a user friendly format. Ultimately, it is hoped the implementation of the minority student enrollment dashboard strengthens the data available to evaluate nursing program success with graduating minority students.

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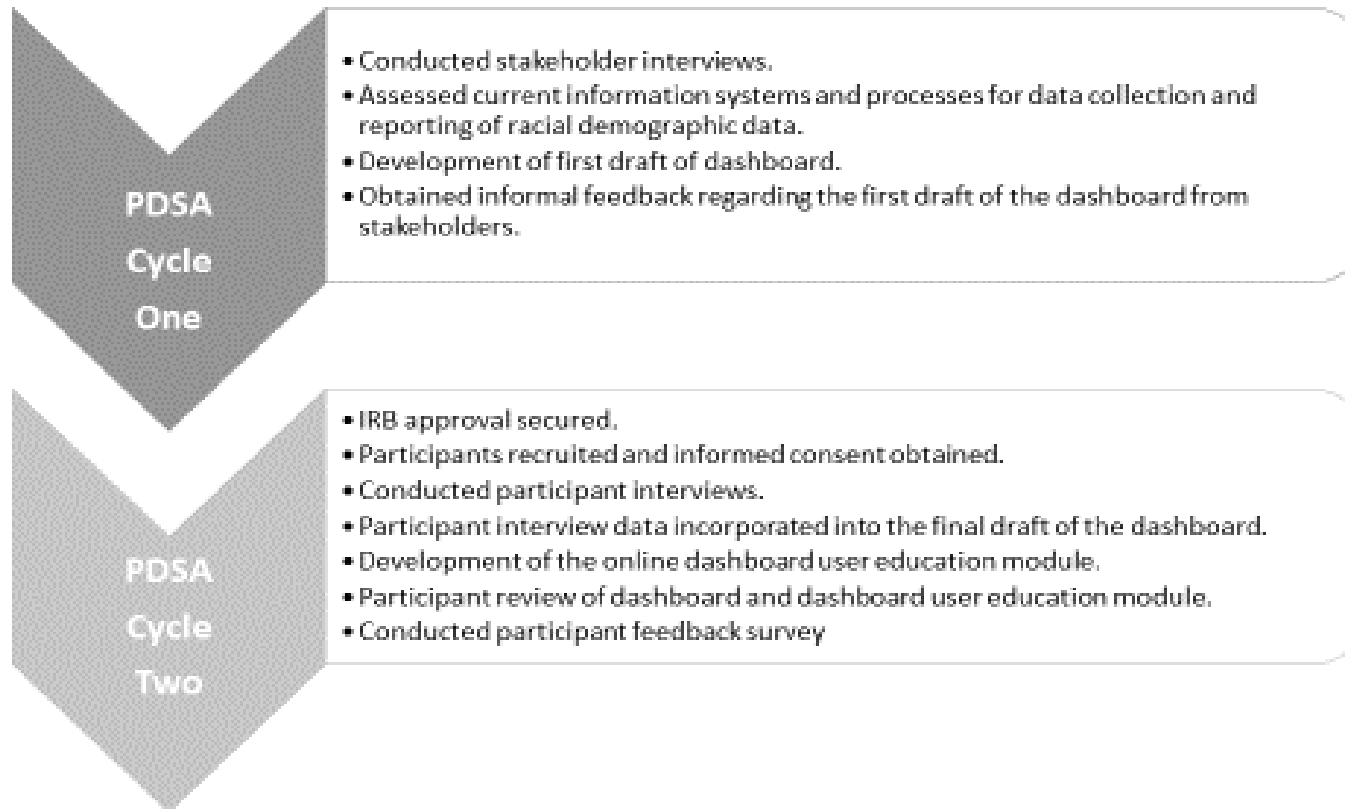
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Appendix A

<p>Main literature search terms:</p> <ul style="list-style-type: none"> • Dashboard • Enrollment data • Minority • Usability evaluation • Program evaluation 	<p>Synonyms used</p> <ul style="list-style-type: none"> • Enrollment data searched by individual components <ul style="list-style-type: none"> ○ Attrition rates ○ Retention rates ○ Completion rates ○ Persistence rates • Minority student <ul style="list-style-type: none"> ○ Multicultural students ○ Diverse students • Program Evaluation <ul style="list-style-type: none"> ○ Nursing program evaluation ○ Nursing education program evaluation ○ Outcome evaluation ○ Student outcome evaluation • Dashboard <ul style="list-style-type: none"> ○ Data system ○ Benchmarks ○ Report card ○ Metrics ○ Outcome indicator • Usability Evaluation <ul style="list-style-type: none"> ○ Usability test ○ User survey
Search results	
<ol style="list-style-type: none"> 1. 2. Minority student enrollment data (4,397)-Too general. Yielded articles on strategies to increase minority student enrollment. 3. Nursing education program evaluation (40)- 6 articles on strategies for nursing program outcome evaluation. Remaining articles focused on specific issues related to assessing student learning outcomes, nursing practice outcomes or evaluation of specific interventions. 4. Nursing education program evaluation and dashboard (21)-Yielded one very relevant article and 20 articles addressing issues related to dashboards implemented to address specific aspects of healthcare practice with a focus on the intervention and the dashboard as an evaluation tool. 5. Nursing education program evaluation and metrics (245)-Same article above and articles related to clinical education and clinical outcome measurement 6. (MH "Education, Health Sciences") OR (MH "Education, Non-Traditional/EV/ST/ED") OR (MH "Educational Measurement/EV/ED/ST") OR (MH "Outcomes of Education/ED/AM/OG") OR (MH "Program Development/EV/ED") OR (MH "Student Retention") OR (MH "Students, Minority") (2,353)-Articles focused on strategies for increasing enrollment of minority students 7. (MH "Students, Nursing") OR (MH "Students, Minority/EV") and attrition rates (57)-Yielded 7 articles relevant to PICO question. 	

Appendix B



Appendix C

Minority Student Enrollment Dashboard														
Department of Nursing														
St. Catherine University Fall 2017														
Program Level	Asi	Nati	Bla	Hispa	Pacifi- Island	2 or Mo-- Race	All Minor	Internati	Whi	Unkno	Grand To	Percent Min	2016 Minorit	Student Report
2D BSN Nursing - CFA				1			1		12	1	14			
BSN Nursing - CFA	1		1				2		6		8			
BS Nursing - CFW	19		14	6	2	2	43		105	4	152		29	Click here to view report
2D RN-BS Deg Completion-HSSDH	4		3			1	8		32	2	42		4	Click here to view report
2D RN-BS Online Deg Comp-HSSH							6			1	1		1	Click here to view report
RN-BS Degree Completion-HSSDH	3		5	5		1	14		64	4	82		19	Click here to view report
RN-BS Online Deg Comp-HSSH							6		5	1	6		6	Click here to view report
MS Nursing-Entry-Level	12	1	6	4			23		54	12	89		20	Click here to view report
MS Nursing-Nurse Educator			1	3			4		20	1	25		4	Click here to view report
MS Nursing-Adult Gerontological	2	4					6		17	4	27		8	Click here to view report
MS Nursing-Pediatric			1	1			2		9		11		3	Click here to view report
DNP: NP Second Cert Post-Master's Adult	4		1	1			6		26	2	34			Click here to view report
DNP: NP Second Cert Post-Master's Ped	1						1		8	1	10			Click here to view report
DNP: MAHS+DNP Dual Degree							6		1	1	2			Click here to view report
DNP: MAOL+DNP Dual Degree							6		1	1	2			Click here to view report
DNP: MBA+DNP Dual Degree				1			1		4		5			Click here to view report
DNP: Post Master's			3			1	4		13		17		4	Click here to view report
Total	46	5	35	22	2	5	115	0	377	35	527	21.8%	98	

Program Level	Asi	Nati	Bla	Hispa	Pacifi- Island	2 or Mo-- Race	All Minor	Internati	Whi	Unkno
2D BSN Nursing - CFA				7.1%			7.1%		85.7%	7.1%
BSN Nursing - CFA	12.5%		12.5%				25.0%		75.0%	
BS Nursing - CFW	12.5%		9.2%	3.9%	1.3%	1.3%	28.0%		69.1%	2.6%
2D RN-BS Deg Completion-HSSDH	9.5%		7.1%				19.0%		76.2%	4.8%
2D RN-BS Online Deg Comp-HSSH							0.0%			100.0%
RN-BS Degree Completion-HSSDH	3.7%		6.1%	6.1%			15.1%		78.0%	4.9%
RN-BS Online Deg Comp-HSSH							0.0%		83.3%	16.7%
MS Nursing-Entry-Level	13.5%	1.1%	6.7%	4.5%			28.8%		60.7%	13.5%
MS Nursing-Nurse Educator			4.0%	12.0%			16.0%		80.0%	4.0%
MS Nursing-Adult Gerontological	7.4%	14.8%					22.2%		63.0%	14.8%
MS Nursing-Pediatric			9.1%	9.1%			18.2%		81.8%	
DNP: MAHS+DNP Dual Degree	11.8%		2.9%	2.9%			17.6%		76.5%	5.9%
DNP: MAOL+DNP Dual Degree	10.0%						10.0%		80.0%	10.0%
DNP: MBA+DNP Dual Degree							0.0%		50.0%	50.0%
DNP: Post Master's							0.0%		50.0%	50.0%
DNP: NP Second Cert Post-Master's Adult				20.0%			20.0%		80.0%	
DNP: NP Second Cert Post-Master's Ped			17.6%			5.9%	23.5%		76.5%	

Appendix D

Proposed Workflow for Minority Student Enrollment Dashboard

