

SoTL Grant Application Form

(2017-2018)

To be considered for funding, your research proposal must align with the following definition of the Scholarship of Teaching and Learning, SoTL, endorsed by the University Faculty Council in January of 2014:

"The rigorous investigation of student learning, with the purpose of developing novel teaching methodologies and practices that can lead to the measurable enhancement of student learning. The results of the investigation are made public through quality scholarly outlets and widely-accepted conferences and general or discipline-specific journals."

Proposals are due to the Office for Teaching, Learning, and Assessment by **Friday, September 15th, 2017** and should be [submitted online](#). Award recipients will be notified by **Friday, October 6th, 2017**. Selected recipients will need to submit a final report for the grant project to TLA by **September 1st, 2018**.

I. Basic Information

Title of Project: **Glycemic Management and Insulin Therapy in Diabetes: *An Evaluation of Student Understanding and Confidence in a Didactic Setting***

Investigator(s) Information

Principal Investigator:

Name: Elizabeth Moxley
 College: Science and Health
 Department: School of Nursing
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Other Investigators (Co-Pi): Larry Maturin

Name	College	Department
Elizabeth Moxley	Science and Health	School of Nursing
Larry Maturin	Science and Health	

For each investigator, please include an abbreviated CV using the SoTL grant CV template.

Will your project involve human subjects? Yes No

If Yes, you must include evidence of IRB approval or exemption, or of having applied for IRB approval or exemption. Please note that before any granted funding can be made available, you will be required to provide evidence of IRB approval or exemption.

Requested Funds

Amount Requested (up to \$2,500): \$2500.00

II. Project Abstract (250 words or less)

Purpose

The purpose of this study was to evaluate the delivery of content in the the Master's Entry to Practice (MENP) Program in the School of Nursing at DePaul University, using a concept-based pedagogical approach. Nursing students need to demonstrate confidence and a thorough understanding of A1C management to include insulin administration prior to entering practice.

Background

Diabetes is a serious health problem involving an $A1C \geq 6.5\%$. Various insulin regimens (onset, peak and duration) are available and may be customized to attain A1C goals. Achieving and maintaining glycemic control as validated by A1C is the sole purpose of any lifestyle modifying or medically recommended intervention.

Hypothesis

To determine if student understanding and confidence when caring for the individual with diabetes improves after a didactic lesson involving diabetes and A1C management, the following study will be performed.

Methods

This proposal involves content analysis from a didactic lesson presented to MENP students using pre- and post- surveys in two courses, NSG 302 and NSG 303. Analysis will measure the importance of glycemic control; confidence in administering insulin; relevance of lesson to nursing practice; and frequency of utilizing this content in nursing practice.

Implications for Nursing Practice

A novel methodology using didactic content for the treatment of individuals with diabetes is used in an MENP curriculum, and compared to Associate and Baccalaurate programs. These findings will provide insight into approaching nursing education, with an emphasis on concepts to deliver content for future nursing care.

III. Project Description (1000 words or less)

Purpose of Project

Describe your research project.

1. Please provide a clear statement of the teaching-learning issue that you want to investigate, and explain briefly why this issue warrants a systematic and rigorous investigation.

Purpose and Teaching/Learning Issue

The purpose of this study was to evaluate the delivery of content in the the Master's Entry to Practice (MENP) Program in the School of Nursing at DePaul University, using a concept-based pedagogical approach. The evaluation of student understanding and perspectives on the importance of nursing care for individuals with diabetes was evaluated and will be analyzed for the ultimate purpose of improving clinical competency. Nursing care for the individual with diabetes is content specific to the courses NSG 302 and NSG 303; involving didactic content and clinical instruction. Caring for individuals with diabetes involves managing glycemic control (A1C) through lifestyle interventions and medication; either insulin or oral anti-hyperglycemic agents. Nursing students need to demonstrate confidence and a thorough understanding of A1C management to include insulin administration prior to entering practice.

2. State, in clear and measurable terms, a *Research Question* to indicate specifically what it is that you want to know as a result of this investigation.

Research Question

Does student understanding and confidence of caring for the individual with diabetes improve after a concept-focused didactic lesson involving content about diabetes and A1C management?

Theoretical Framework

Explain how your proposed research builds on or fits into existing relevant literature. Provide a brief but comprehensive bibliography as an appendix.

Basis Evaluating Student Understanding of Nursing Care for the Individual with Diabetes

Diabetes is a serious metabolic health problem affecting approximately 9.3% of the U.S. population (29.1 million individuals; Centers for Disease Control & Prevention [CDC], 2014).¹ The costs associated with diabetes far outpace other diagnoses; spending on diabetes and management of its sequelae has increased by an estimated \$64.4 billion over the last 18 years (\$57.8 billion–\$70.7 billion).² The prevalence of diabetes is reaching epidemic proportions, with a global prevalence expected to reach 552 million individuals by the year 2030 (International Diabetes Federation, 2015).³ Diabetes primarily exists as either type 1 or type 2, comprising 10% and 90% of the diabetes population, respectively (ADA, 2016).⁴ Diagnosis is based on plasma glucose criteria; a fasting plasma glucose (FPG), 2-h plasma glucose (2-h PG) after a 75-g oral glucose tolerance test (OGTT), or an A1C $\geq 6.5\%$.⁴ The A1C is advantageous because fasting is not required, and it provides insight into long term glycemic control (3 month average). An A1C $\leq 7\%$ is recommended following a diabetes diagnosis to preserve β cell function (except in T1DM) and mitigate microvascular and macrovascular consequences in all forms. A1C goals are individualized with the consideration of: 1) Duration of diabetes, 2) Age/life expectancy, 3) Comorbid conditions, 4) Known cardiovascular disease, 5) Advanced microvascular complications, 6) Hypoglycemic unawareness, 7) Ability to achieve target without hypoglycemic complications.⁵⁻⁶ Exogenous insulin is the primary pharmacologic therapy to aid patients in attaining A1C goals in T1DM, GD, and T2DM with severe insulin deficiency.⁵ Insulin may be used as monotherapy in T1DM, or concurrently with adjunctive oral agents in T2DM. Various insulin regimens (onset, peak and duration) are available and may be customized to attain A1C goals. Achieving and maintaining glycemic control as validated by A1C is the sole purpose of any lifestyle modifying or medically recommended intervention.⁷⁻⁸

Research Methodology

Describe the research design you have chosen to answer your research question, and briefly explain why it is appropriate for this project. Make sure to indicate the kind of data that will be collected, how it will be collected, and how it will be analyzed.

Methodology: Relationship between Research Design and the Research Question

This proposal involves the assessment of content and analysis, from a didactic lesson that was presented to students enrolled in an MENP program. Each student had a Bachelor's Degree upon entry into the MENP Program. The nursing process was integrated into the lesson using the revised Bloom's Taxonomy.⁹ Pre- and post- surveys were administered to 32 MENP students during Summer Quarter in two courses, NSG 302 and NSG 303. The survey measured understanding of nursing care for the individual with diabetes; including confidence with insulin administration, management of A1C, and perception of the relevance of the information to nursing practice.

Survey content included the following:

- How well do you understand the importance of glycemic control?
- How confident are you in your knowledge of insulin therapy?
- How comfortable are you administering insulin?
- Why did you rate your level of confidence as such?
- How relevant to you perceive the lesson content as it relates to nursing practice?
- How frequently will you utilize this content in nursing practice?

Survey answer options were ranked using a 5-point Likert scale, from strong or complete. Student confidence with insulin administration was evaluated from moderate or high confidence. Clinical relevance was measured to determine the frequency in which students believe they will use the information in clinical practice; often or every time they practice.

Statistical Analysis: Statistics using SPSS 24 will be performed to analyze the data. T-tests will be performed, and Desale Habtzghi, PhD, Mathematics, DePaul University will be hired as the consultant.

Implementation and Application of Relevant Literature: *Implications for Nursing Practice*

This proposal identifies an increasingly egregious health issue that implements a novel concept-based methodology to implement didactic content. A thorough understanding of the treatment and care of individuals with diabetes is essential for current nursing practice.¹⁰ Various teaching strategies exist in nursing curricula, however, foundational is the implementation of didactic content into clinical situations to develop the confidence necessary for entry-level practice. Self-confidence is considered essential for autonomous nursing practice and ultimately, patient safety.¹¹ Concept based teaching methodologies have been developed to frame didactic content in a clinical context.¹² Nursing education is unique in that students learn content and skills that enhance clinical judgement.¹³ Furthermore, the pedagogy in the MENP curriculum is unique compared to traditional and more prevalent, Associate and Baccalaureate nursing programs. MENP students receive requisite preparation for entry into practice in a timeframe that is accelerated; a total of eight 10-week quarters. The curriculum is inclusive of pre-licensure course requirements, master’s essentials, a research project and research dissemination. The teaching methodology for the MENP student must be efficient and effective for continuity between didactic content and clinical application, given the condensed timeframe. This is essential to equip the MENP student with clinical judgment. Overall, less content reinforcement exists in the MENP Program compared with the Associate and Baccalaureate curricula that consists of a similar duration, without master’s essentials and the research component. The findings from this study will provide insight into the value of approaching nursing education with an emphasis on concepts for the delivery of content. The outcomes from the student feedback will guide future MENP pedagogy, specifically with respect to nursing care for an individual with diabetes.

DePaul University MENP Program Curriculum:

YEAR 1			
Quarter 1	Quarter 2	Quarter 3	Quarter 4
N322: Basic Pathophysiology & Pharmacology (4)	N301: Art & Science of Nursing I (5)	N302: Art & Science of Nursing II (8)	N303: Art & Science of Nursing III (8)
N332: Health Assessment (4)	N400: Nursing Theories (4)	N481: Biostatistics and Applied Epidemiology (4)	N460: Advanced Health Assessment (4)
N431: Health Promotion for Families and Communities (4)	N422: Applied Pathophysiology (4)	N540: Culture, Ethics, and Policy Analysis (4)	
YEAR 2			
Quarter 5	Quarter 6	Quarter 7	Quarter 8
N307: Art & Science of Nursing IV (6)	N440: Maternal Health Nursing (6)	N442: Community Health Nursing (6)	N426: Pharmacology II (4)

MENP distinctive courses include:

- N422: Applied Physiology
- N481: Biostatistics Applied Epidemiology
- N460: Advanced Health Assessment
- N401: Nursing Research I
- N426: Pharmacology II
- N598: Graduate Research Synthesis

Impact of Project

Assuming successful completion of this project, please describe how the results of the proposed research could help in the development of teaching methodologies or practices aimed at improving student learning in measurable ways.

Discussion and Significance of Proposal

This proposal is unique in that a concept based methodology of didactic instruction in the MENP program will be measured and evaluated according to student perspectives. Didactic content involving the pathogenesis of diabetes and nursing care of individuals with diabetes is essential. Clinical opportunities for students to participate in diabetes nursing care are increasingly limited. Insulin administration and skill development is necessary prior to entering nursing practice, however, students are often limited in their ability to participate in administering medications. This lack of exposure erodes confidence, and increases the need for various approaches to nursing instruction such as simulation and laboratory experiences. An ever-increasing need for the evaluation of the effectiveness of teaching domains, such as concept-based approach to implementing didactic content and in the MENP Program, increased reinforcement of content, especially of a pharmacologic nature. Additional lessons exploring various educational domains focused on diabetes management are currently relevant and worth exploring.

Dissemination of Results

Describe how you plan to share the results of your project, within and/or outside of the DePaul community.

Dissemination of Results to the Community: The proposal clearly identifies the need to understand and implement effective teaching strategies in the MENP curriculum, and is relevant to related curriculums that are increasing today. The investigators plan to disseminate this content to nursing educators to facilitate ideas for lessons and the overall effectiveness of lessons, within DePaul &/or various academic settings. These results will be shared in the form of abstracts, presentations, and as a manuscript.

IV. Project Plan and Timeline

Describe the proposed project plan and timeline. *Please note all 2017-2018 grant funds need to be used by the end of the fiscal year.

Study Timeline

Between October 6, 2017 and September 1, 2018, the following timeline will be used as a guide for data analysis and dissemination of findings.

Study Timeline	2017			2018				
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Start-Up	X							
Statistician Work		X	X					
Analysis			X					
Editor Review				X	X			
Writing: Abstracts and Manuscripts					X	X	X	X
Professional Presentations/Grant Writing						X	X	X

V. Budget

Provide a detailed, itemized budget of how proposed funds will be used. If applicable, provide information about any external funds you have secured for this project and/or matching funds from DePaul University (including in-kind contributions).

Budget

The proposal includes a detailed, itemized budget of how funds will be used, including external funds secured &/or matching funds from DePaul University (including in-kind contributions).

- Materials and supplies. \$250.00
- Stipends for student research assistants. \$250.00
- Editor: \$50.00/hour 10 hours = \$250.00
- Participant incentives limited to 30% of the approved funding.

Statistician \$50.00/hour, 10 hours = \$500.00

Supplies to perform the study	\$250.00
<ul style="list-style-type: none"> • Travel and registration fees; 	
for Dissemination of Results and	\$250.00
	\$250.00/(per investigator)
to promote collaboration on project.	
<ul style="list-style-type: none"> • Publication costs in scholarly outlets; peer-reviewed general or discipline-specific journals. 	
	\$250.00
	<u>\$250.00/(per investigator)</u>
	\$2500.00

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