PBHL 6980: CSU MPH Capstone Project
Colorado School of Public Health

Project Proposal Summary

Name: Neil Yetz

Semester and Year of Capstone Course: Spring 2017

MPH Concentration (or dual degree program): Epidemiology

Title of Project: The development of social ties in an after-school program: What types of relationships are associated with the best outcomes?

Project Preceptor (*include prefix, ex. Dr., Mr., Mrs., Miss, etc.*)**:** Dr. Kimberly Henry

Preceptor Organization: Colorado State University

Preceptor Address: 220 Behavioral Sciences Building Fort Collins, CO 80523-1876

Preceptor Telephone: (970) 491-5109 **Preceptor Email:** kim.henry@colostate.edu

Name and Affiliation of Academic Advisor: Dr. Tracy Nelson

Will your capstone project be with the same organization as your practicum? ☐ **Yes** X **No**

If yes please include the learning plan for the practicum with this proposal.

Human Subjects

Date completed Human Subjects training (required whether or not you are doing a research project for your capstone): August 11th, 2015

IRB APPROVAL STATUS: IRB is required of all students unless your project is not considered research (see below).

If you are uncertain about the need for IRB approval, please review the information on the website below:*

https://vprnet.research.colostate.edu/RICRO/irb/does-my-research-need-to-be-reviewed/

X **My project has been approved by the IRB** (includes exempt, expedited and full-board studies)

☐**My project does not need IRB approval** (e.g., quality assurance, quality improvement, program evaluations, operational activity such as customer service initiatives, disease outbreak investigations, development of organization policies/procedures)

*If you are still uncertain about IRB approval, after reviewing the website, please contact your capstone faculty advisor if you have questions regarding the status of your project.

Problem to be studied/project topic: (Include purpose, questions, aims, and hypotheses as relevant)

Group based mentoring interventions for at-risk adolescents have been shown to serve as an effective and efficient method with positive benefits for young people's mental and physical health. These types of group programs have the added benefit of serving more individuals and saving costs in comparison to one on one programs (Dubois et al, 2011). Campus Connections (CC) is a campus-based mentoring program at Colorado State University (CSU) dedicated to supporting at-risk adolescents in Larimer County. Young people who need an additional supportive adult in their life are referred to the program and matched with a CSU undergraduate student who has been carefully trained to be a mentor. Over the course of 12 weeks, the mentor and mentee participate in Campus Connections one day a week along with 28-32 other mentor-mentee pairs. The program has evidence of positive outcomes for at-risk youth in many facets such as problem behavior, marijuana use, and alcohol use (Weiler et al, 2015). One of the hallmarks of mentoring programs in general, and the CC program in particular, is the opportunity for mentees to develop meaningful relationships with other people in the program. Students are encouraged to form relationships with other mentees, mentors, and program staff. Furthermore, along with the dyadic pairs that mentors and youth are put in, mentees participate in social activities that allow them to interact with all program participants and staff. Positive relationships are often cited as protective factors for youth in general (Kawachi & Berkman, 2001), and may be particularly important for at-risk adolescents. Moreover, the development of positive relationships is proposed to be one of the key mediators that explain why the CC program leads to better outcomes for participants. Careful assessment of characteristics of the social bonds that an adolescent develops during CC is essential to understanding the extent to which this important mediational hypothesis is valid.

In order to comprehensively study the development of social bonds over the course of Campus Connections, social networks are assessed every 3 weeks. Each participant indicates how connected they are to all other participants (mentors and mentees) using a sociometric survey. This data can be used to map the evolution of the social network, and based on these mapped networks, network statistics for each mentee can be calculated that capture the overall degree to which they are embedded in the social network, including the number of outgoing ties (mentee is bonded to others) and incoming (others are bonded to mentee). These scores can be parsed apart to represent ties with other mentees and mentors. In this way, these scores capture a great deal of information about the nature and strength of social bonds formed during the program. Most importantly, these scores can then be used to determine the extent to which the development of social bonds are related to improved outcomes for adolescents – including decreases in depression and substance use, and increases in self-efficacy and positive affect from pre to post intervention. The purpose of this capstone project is to determine if the development of social bonds with an adolescent's own mentor, with other mentors, and with other mentees is associated with improved program outcomes for participants.

Therefore, based upon the collected data and the project at hand, this Capstone project has the following research question and hypotheses:

Research Question

Do program participants who develop more robust (in terms of number and strength) social bonds with their mentor, with other mentors, and with other mentees demonstrate better improvements in program outcomes from pre to post intervention (including depression, substance use, and increase in self-efficacy)?

Hypotheses

a. *Greater social ties will be associated with better post-intervention outcomes, controlling for pre-intervention measures of these outcomes.*
b. *Mentee's that report greater social ties and with their paired mentor than other alters (other mentors, mentees & staff) during the program time period will be associated with better post-intervention outcomes.*

References:

Dubois, D.L., Portillo, N., Rhodes, J.E., Naida, S., & Valentine, J.C. (2011). How effective are mentoring programs for youth? A systematic assessment of the evidence. *Psychological Sciences in the Public Interest* 12(2), 57-91. DOI: 10.1177/1529100611414806.

Kawachi, I. & Berkman, L.F. J (2001) *Urban Health* 78: 458. DOI:10.1093/jurban/78.3.458

Lunkenheimer, E.S., Olson, S.L., Hollenstein, T., Sameroff, A.J. & Winter, C. (2011) Dyadic flexibility and positive affect in parent-child coregulation and the development of child behavior problems. *Development and Psychopathology* 23, 577-591. DOI:10.1017/S095457941100006X.

Weiler, L.M. Haddock, S.A. Zimmerman, T.S. Henry, K.L. Krafchick, J.L. & Youngblade L.M. (2015) Time-limited, structured youth mentoring and adolescent problem behaviors. *Applied developmental Science*, 19:4, 196-205, DOI: 10.1080/10888691.2015.1014484

Methods: (Describe in detail what you are doing and how you are going to do it). As relevant, describe the project/study methodology, population, data source/survey to be used, study design, statistical analyses, grant writing, policy development, resource evaluation, etc.)

Campus Connections is a twelve-week structured youth mentoring program in which Colorado State University (CSU) students are paired with adolescents from Larimer County. The adolescents are referred to CC from a variety of settings, including school, youth service agencies, and the District Attorney's Office. All of them have been identified as young people who could benefit from having an additional caring and supportive adult in their lives. CSU students apply to be mentors, and selected students are carefully trained as part of a service-learning course. Mentors and mentees meet once a week for 4 hour sessions in which they eat dinner, discuss current issues in the youth's life, receive homework help, and participate in fun activities. Each night consists of approximately 30 dyadic pairs. Throughout the night, the mentor-mentee pair spends some time in dyadic activities, and some time interacting with other mentor-mentee pairs. Therefore, there is an opportunity for mentees to develop a relationship with their mentor, other mentors, and other mentees.

The CC program is currently funded by the William T. Grant Foundation. This funding provides support to conduct a rigorous evaluation of the effectiveness of the intervention on youth outcomes. As the development of relationships is a central component of the program, the relationships that develop between mentees, mentors, and other staff is carefully measured five times over the course of the 12 week intervention using typical methods for assessing social network ties. The development of these ties (in terms of the existence of a relationship, and the strength of the relationship) can be readily captured using social network analysis. This type of analysis allows for the construction of measures that comprehensively capture the manner in which each mentee is connected to their own mentor,

other mentors and staff, and other mentees. Both outgoing ties (i.e., the mentee indicates that they have a close relationship with others) and incoming ties (i.e., others indicate that they have a close relationship with the mentee) are captured in this way. This rich information about each mentee's ties to others in the network can be used to predict the extent to which the mentee improved on key program outcomes (for example, depression, anxiety, social skills, etc.).

Within the scope of this research project, there are several measures to capture participating youth's outcomes. For example, Depression was measured at intake and week eleven of the program using the CESD-R 10 (Haroz, Ybarra, & Eaton). Other measures that are of interest include the *Meaning in life Questionnaire* (Steger et al., 2006) and the *Anger Disorders Scale* (Deffenbacher, 2003). Lastly, the *Development Assets Profile* (DAP) consist of eight subscales (*Support, Empowerment, Boundaries and Expectations, Constructive Use of Time, Commitment to Learning, Positive Values, Social Competence,* and *Positive Identity*) and is measured at intake of the program and program end. The social network is measured at weeks 1, 3, 6, 9, and 11 of the program. Several demographic variables are measured and will be considered as control variables in the proposed analysis: mentee gender, race/ethnicity, age, family risk score at the start of the study, and socio-economic status.

The data has all been collected over the past 1.5 years Using Qualtrics Online survey program (Qualtrics, Provo, UT). Mentees, parents, mentors, and program staff were all invited to participate in surveys containing various measures relevant to program outcomes. Mentees, mentors and program staff also completedthe social network portion of the survey.

Organization and management of the data will be done using SAS 9.4 and R packages STATNet and iGraph. To test the hypotheses, the outcome variables of interest will be regressed on the social network measures, the pre-intervention scores of the outcomes of interest, and the set of relevant control variables.

References:

Deffenbacher, J. L. (2003). *Anger disorders*. In E. F. Coccaro (Ed.), Aggression psychiatric assessment and treatment (pp. 89-111). New York: Marcel Dekker.

Elliot D,S., Huizinga, D., Ageton, S.S. (1985). Explaining Delinquency and Drug Use. Sage, Beverly Hills.

Haroz, E. E., Ybarra, M. L., & Eaton, W. W. (2014). Psychometric evaluation of a self-report scale to measure adolescent depression: The CESDR-10 in two representative adolescent samples in the United States. *Journal of Affective Disorders*, 158, 154-160.

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53, 80-93.

In 5 sentences, describe the Public Health Impact of your project. (Use 5 sentences, no more, no less.)

This project serves as an evaluation of an established mentorship program for at-risk youth. Understanding associations that lead to improved outcomes in a social program help serve to enhance the program structure overall. Furthermore, the eventual goal is to disseminate the information and knowledge gained from this research project in order to contribute the overall body of scientific knowledge. The eventual contribution to the established literature will help to create public health impacts like creating more beneficial programs to support at-risk youth; eventually leading to improved communities with gained advantages to reduce disparities in the long run. Lastly, the Campus Connections program supports the Fort Collins community and simply evaluating to improve this established program directly contributes to the Public Health impacts of Fort Collins.

Anticipated product: (What will be the deliverable(s) resulting from this project? For example, report to an agency, tested intervention materials for dissemination, grant proposal, statistical/epidemiologic summary to inform practice or policy, etc.)

___X___ **The deliverable product in the end serves as a statistical summary and report to the Campus Connections program as well as a paper that will be submitted to a journal for publication.**

Please select the choice that best describes your project:

_____ The primary focus of my project will be creating or delivering a program that has direct benefit to the public/community.

_____The primary focus of my project will be conducting research, evaluation, or surveillance that will immediately translate to direct benefit to the public/community.

_____The primary focus of my project will be conducting research, evaluation, or surveillance that will eventually translate to direct benefit to the community/community.

___X__The primary focus of my project will be conducting research, evaluation, or surveillance that will contribute to the body of scientific knowledge.

Timeline: (What are the important steps for successful completion of your project and when will you complete each of them? Note – a timeline is a detailed listing of each step of your project. For example, when will you prepare your study materials, obtain your data, begin and complete your data analyses, begin and complete your Capstone paper, begin and complete your Capstone ppt presentation, etc). Include steps you have already completed. ***Timelines can be bullet-pointed.***

- **January 17th- February 17th**
  - **Literature review**
  - **Learn R social network program**
  - **Begin writing paper introduction**
  - **Compile and organize data**
  - **Double check data**
- **February 17th – March 17th**
  - **Begin manipulating data for social network analysis**
  - **Begin writing methods and results sections**
  - **Collaborate with capstone preceptor**
  - **Assess limitations, errors, & biases**
- **March 17th – April 19th**
  - **Analyze and record result**
  - **Make interpretations**
  - **Begin final stages**
  - **Create poster**
  - **Prepare presentation**
  - **Finish paper results and discussion**
  - **Collaborate with program and capstone preceptor**
- **April 19th – April 28th**
  - **Finalize presentation**
  - **Prepare speech for presentation**
  - **Mock presentations**
  - **Question preparation**
  - **Present findings and poster**

Potential problems/limitations: (What potential problems do you anticipate and how will you address them and/or what are your study limitations and how do you expect them to affect the outcome of your study?)

Limitations of this project include understanding how mentee personality may play a role with the connections formed within the CC program. Although mentor personality was assessed, youth never partook in a personality test. Youth personality scales, especially scores of extraversion, may play a role in the observed benefits within the program. Furthermore, youth dropout throughout the program has the potential to lead to bias. Of course, all bias will be accounted for and mentioned in the limitations in order to appropriately understand the program outcomes.

Competencies brought to the project: (What do you bring to this project, skills gained from the MPH courses you have taken, previous experience, etc?) List 5 key competencies providing the coded number for each competency along with the competency from the MPH Competency list. Include at least one competency specific to your MPH concentration.

1.) **CR-EPID 4** - Apply basic terminology and definitions of epidemiology.
2.) **CN-EPID 7** - Use computer software for data entry, database management, and summarizing, analyzing and displaying data.
3.) **CN-EPID 9** - Interpret statistical results in order to make appropriate inferences.
4.) **CR-CC 5** - Identify, retrieve, appraise, and apply scientific evidence relevant in the practice of public health.
5.) **CN-CBHS 7** - Use clear, concise, and compelling oral, written, and visual methods for communicating program descriptions and study findings.

Competencies to be gained through the project: (What specific competencies will you be increasing/gaining through this project)? List 5 key competencies providing the coded number for each competency along with the competency from the MPH Competency list. Include at least one competency specific to your MPH concentration.

1.) **CN-EPID 2** - Select and apply appropriate quantitative and qualitative measurement and analysis methods to support research and evaluations in the core areas of public health research and practice, including: epidemiology, environmental and occupational health, community and behavioral health, and public health systems management, policy and outcomes research.
2.) **CR-EPID 3** - Describe a public health problem in terms of magnitude, person, time and place
3.) **CR-CC 9** - Discuss sentinel events in the history and development of the public health profession and their relevance for practice in the field.
4.) **CN-BIOS 1** -Select and apply appropriate biostatistical methods to support research and evaluation in the core areas of public health research and practice, including: epidemiology, environmental and occupational health, community and behavioral health, and public health systems management, policy and outcomes research.
5.) **CR-BIOS 9** - Describe and interpret statistical analyses commonly done in public health studies in language and terms appropriate for both public health professionals and educated lay audiences.

Responsibilities of Capstone Preceptor

The goal of the capstone project for the MPH student is to connect all aspects of the curriculum, including: seminars, lectures, course work, independent studies, projects and direct experiences to establish an understanding, appreciation and working knowledge of public health practice, and specifically, how their specific concentration enhances public health practice opportunities in Colorado, the nation and the world.

The capstone project should contribute to the needs of an organization (please refer to the guiding/core values on the first page).

The primary responsibilities of a host site and preceptor are to:

- Work with students to develop a realistic graduate level project within the capstone time commitment and student schedule
- Be available to meet with student, provide supervision, and feedback
- Provide resources for students to complete project (i.e. office space, computer, access to data)
- Provide written feedback for the student and the school by completing a final evaluation form

Preceptor Benefits

The capstone experience adds great value to the student's development and having a student professional also provides benefits to the host organization.

- Students complete or conduct projects the organization will hopefully be able to utilize
- Students provide an inquisitive approach and may provide creative ideas and solutions
- Students build professional capacity and gain new skills
- Organizations and preceptors have an impact on the field of public health by participating in the education of future professionals

Signature of Preceptor

By signing here, I commit to providing guidance and mentorship to this student for the completion of the project.

Name (printed) Kimberly Henry

Signature _____ **Date** 1-27-17

Signature of Capstone Faculty Advisor

By signing here, I attest that I have read the proposal and judge that:

1) The project meets the expectations of the student's MPH concentration.

2) The student has the necessary skills to complete the project, or has a plan in place to gain the necessary skills.

3) The student has access to the necessary mentorship for this project, related to subject area and methods/skills required.

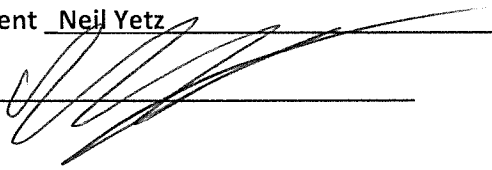
4) The timeline presented is reasonable for the student to successfully complete the project during the upcoming semester.

Name (printed) _____

Signature _____ **Date** _____

Printed Name of Student Neil Yetz

Signature of Student _____



*****AFTER BOTH SIGNATURES ARE AQUIRED,
SAVE AND SUBMIT THIS DOCUMENT AS:*****

Last Name_First Name_CapstoneProposal (e.g., Smith_Joe_CapstoneProposal)
Do *not* save document as a PDF/image file.

Do not complete past this line

Registration Permission Number: _____(available from Academic Support Coordinator)